A

POPULAR GUIDE TO THE TERMS

OF

ART AND SCIENCE.

BY

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EXPLANATORY.

THE object of this little work is to enable a non-professional or non-scientific person readily to accomplish two things,—to find the technical terms used in the arts and sciences by merely knowing the popular words relating thereto, and to translate into popular language technical terms which he may meet with but not understand. For example, by turning to the word “Plants,” he will learn that the name of the science which relates to plants is “Botany,” and he will find brought together all the important terms that express the structure, growth, origin, classification, etc., of plants. So, if one should happen upon the unfamiliar term “Xylography,” and desire to learn its meaning, he has only to consult the index to ascertain the page upon which the definition of the wood-engraver’s art may be found.

In these respects lies its difference from a dictionary, which only undertakes to deal with single and separate terms, alphabetically arranged, and does not exhibit any portion of the terminology of an art or a science collected together, which is attempted here. In this work the veriest novice can find both the terms and the definitions relating to a science, whereas in a dictionary he could find only the definitions of terms already known to him.

The index contains, in strict alphabetical order, the names of the several arts and sciences, and of all the terms connected with them, whether technical or popular, so that the first place to look for anything is in the index.

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ACCOUNTS.

Au'dit.—The settling of accounts by examining documents and hearing parties concerned ; a final account.

Book-keeping.—The art of recording mercantile transactions in a regular and systematic manner.

AIR.

Aerodynam'ics (Gr. *aēr*, air, and *dunamis*, power).—The science which treats of the *motion of the air*, and its mechanical effects when in motion ; also its resistance to bodies moving in it.

Aerog'nosy (Gr. *aēr*, air, and *gnōsis*, knowledge).—The science which treats of the *properties of air*, and the part it performs in the operations of nature.

Aerol'ogy (Gr. *aēr*, air, and *logos*, description).—A description of the air ; that branch of philosophy which treats of the air, its *constituent parts, properties, and phenomena*.

Aerom'eter (Gr. *aēr*, air, and *metron*, measure).—An instrument for ascertaining the density or rarity of air.

Aerom'etry (Gr. *aēr*, air, and *metreo*, I measure).—The art of *measuring the air*, so as to ascertain its pressure or weight, its elasticity, rarefaction, etc.

Aeronaut'ics, Aerosta'tion (Gr. *aēr*, air, and *nautēs*, a sailor).—The doctrine, science, or art of *sailing in the air* by means of a balloon.

Acrostat'ics (Gr. *air*, air, and *statos*, sustaining).—The science which treats of the *equilibrium of elastic fluids*, or of bodies sustained in them.

Astro-Meteorol'ogy (Gr. *astron*, a star, and meteorology).—The art of foretelling the weather from the aspect of the moon and stars.

Atmol'ogy (Gr. *atmos*, vapor, and *logos*, discourse).—That branch of science which treats of the laws and phenomena of *aqueous vapor*.

Barom'eter (Gr. *baros*, weight, and *metron*, measure).—An instrument for measuring the weight or pressure of the atmosphere.

Brontol'ogy (Gr. *bronte*, thunder, and *logos*, discourse).—A discourse or dissertation upon *thunder*, containing an explanation of its causes and phenomena.

Cyanom'eter (Gr. *kuanos*, blue, and *metreo*, I measure).—An instrument to ascertain degrees of blueness, or the azure color of the ocean or sky.

Eudiom'eter (Gr. *eudia*, calm air, and *metron*, measure).—An instrument for ascertaining the purity of the atmosphere, or rather the quantity of oxygen contained in any given bulk of elastic fluid.

Hydrometeorol'ogy (Gr. *hudor*, water, *meteoros*, a meteor, and *logos*, discourse).—That branch of meteorology which relates to water in the atmosphere, as *rain*, *clouds*, etc.

Hyetog'raphy (Gr. *huctos*, rain, and *grapho*, I write).—The science of the geographical distribution of *rain*.

Hygrom'eter, Hy'groscope (Gr. *hugros*, moist, and *metron*, measure).—An instrument for measuring the degree of moisture in the atmosphere.

Hygrom'etry (Gr. *hugros*, moist, and *metron*, measure).—That part of physics which concerns the measurement of the dryness or humidity of the atmosphere.

Manom'eter (Gr. *manos*, rare, and *metron*, measure).—An instrument for measuring the density of the air, or other elastic fluid, or rather its elastic force, to which the density is supposed to be proportional.

Manos'copy (Gr. *manos*, rare, and *skopeo*, I view).—The science of the determination of the density of *vapors and gases*.

Meteorol'ogy (Gr. *meteoros*, a heavenly body, and *logos*, discourse).—The science which treats of the atmosphere and

its phenomena, particularly in its relation to heat and moisture; the science of *meteors*. (For names of *Meteors*, etc., see general heading, **METEORS AND ATMOSPHERIC PHENOMENA**.)

Ombrom'eter (Gr. *ombros*, rain, and *metron*, measure).—An instrument to measure the quantity of rain that falls.

Pneumatics (Gr. *pneumatikos*, belonging to the air).—The science of the motion and pressure of *elastic fluids* in general, but chiefly of air and steam.

Psychrom'eter (Gr. *psuchros*, cool, and *metron*, measure).—An instrument for measuring the tension of the *aqueous vapor* in the atmosphere.

Pyr'oscope (Gr. *pur*, fire, and *skopeo*, I view).—An instrument for measuring the pulsatory motion of the air, or the intensity of heat radiating from a fire.

Udom'eter (Gr. *hudōr*, water, and *metron*, measure).—An instrument for measuring the quantity of water which falls from the atmosphere; a **RAIN-GAUGE**.

ANATOMY.

Anat'omy (Gr. *anatemno*, I cut up).—The art of dissecting animal bodies; the science which treats of the internal structure of the human body.

Ædœal'ogy (Gr. *aidoia*, organs of generation, and *logos*, a discourse).—A treatise on the *organs of generation*.

Ædœat'omy (Gr. *aidoia*, and *tomē*, a cutting).—Dissection of the *parts of generation*.

Æsthesiog'raphy (Gr. *aisthesis*, sensation, perception, and *graphē*, a description).—A description of the *sensorial apparatuses*.

Angiol'ogy (Gr. *aggeion*, a vessel, and *logos*).—A treatise on the *vessels* of the body.

Angiot'omy (Gr. *aggeion*, and *tomē*, a cutting).—Dissection of the *vessels*.

Anthropot'omy (Gr. *anthrōpos*, a man, and *tomē*, a cutting).—Dissection of the *human body*.

Aponeurot'omy (Gr. *aponeurose*, and *tomē*).—Dissection of the *aponeuroses*.

Arteriol'ogy (Gr. *arteria*, an artery, and *logos*, a discourse).—A treatise on the *arteries*.

- Cardiol'ogy** (Gr. *kardia*, the heart, and *logos*).—A treatise on the *heart*.
- Cephalol'ogy** (Gr. *kephale*, the head, and *logos*).—A treatise on the *head*.
- Choledol'ogy** (Gr. *cholē*, bile, and *logos*).—A treatise on the *bile* and biliary organs.
- Chondrol'ogy** (Gr. *chondros*, a cartilage, and *logos*).—A treatise on the *cartilages*.
- Chondrot'omy** (Gr. *chondros*, a cartilage, and *tomē*, a cutting).—Dissection of the *cartilages*.
- Chylog'raphy** (Gr. *chylōs*, chyle, and *graphē*, a description).—A description of the *chyloferous vessels*.
- Dermatol'ogy, or Dermol'ogy** (Gr. *derma*, *dermatos*, the skin, and *logos*).—A treatise on the *skin*.
- Desmol'ogy** (Gr. *desmos*, a ligament, and *logos*, a discourse).—A treatise on the *ligaments*.
- Desmot'omy** (Gr. *desmos*, and *tomē*, a cutting).—Dissection of the *ligaments*.
- Diacrisiog'raphy** (Gr. *diakrīsis*, separation, and *graphē*, a description).—A description of the *organs of secretion*.
- Eccrinol'ogy** (Gr. *ek*, from, *krino*, I separate, and *logos*).—A treatise on the *secretions*.
- Encephalot'omy** (Gr. *enkephalos*, the brain, and *tomē*).—Dissection of the *brain*.
- Enteradenol'ogy** (Gr. *enteron*, intestine, *adēn*, a gland, and *logos*).—A treatise on the *intestinal glands*.
- Enterol'ogy** (Gr. *enteron*, an intestine, and *logos*).—A treatise on the *intestines*.
- Enterot'omy** (Gr. *enteron*, an intestine, and *tomē*, a cutting).—A dissection of the *intestines*.
- Gastrol'ogy** (Gr. *gastēr*, the stomach, and *logos*).—A treatise on the *stomach*.
- Gastrot'omy** (Gr. *gastēr*, the stomach, and *tomē*).—Dissection of the *stomach*.
- Glossol'ogy** (Gr. *glōssa*, a tongue, and *logos*, a discourse).—A treatise on the *tongue*.
- Glossot'omy** (Gr. *glōssa*, and *tomē*).—Dissection of the *tongue*. Amputation of the *tongue*.
- Hepatol'ogy** (Gr. *hēpar*, liver, and *logos*).—A treatise on the *liver*.
- Hepatot'omy** (Gr. *hēpar*, liver, and *tomē*, a cutting).—Dissection of the *liver*.

Histol'ogy (Gr. *histos*, the organic texture, and *logos*).—The study of the *formation and growth of the tissues*. It is prosecuted by aid of the microscope.

Homol'ogy (Gr. *homologia*, agreement).—The doctrine of *similarity of structure*.

Hygrol'ogy (Gr. *hugros*, humid, and *logos*).—A treatise on the *fluids* of the body.

Hymenot'omy (Gr. *hymēn*, a membrane, and *tomē*).—The dissection of the *membranes*.

Hysterol'ogy (Gr. *hystera*, the womb, and *logos*).—A treatise on the sound and the morbid *uterus*.

Hysterot'omy (Gr. *hystera*, the womb, and *tomē*, a cutting).—Dissection of the *uterus*.

Laryngol'ogy (*larynx*, and *logos*).—A treatise on the *larynx*.

Lymphog'raphy (Gr. *lympa*, lymph, and *grapho*, I describe).—A description of the *lymphatic vessels*, their origin and uses.

Lymphot'omy.—Dissection of the *lymphatics*.

Membranol'ogy (*membrane* and *logos*).—A treatise on the *membranes* of the body.

Merol'ogy (Gr. *meros*, a part, and *logos*).—A treatise on the elementary constituents of the *tissues and humors* of the organism.

Myol'ogy (Gr. *muōn*, a muscle, and *logos*).—A treatise on the *muscles*.

Myot'omy (Gr. *muōn*, a muscle, and *tomē*).—Dissection of the *muscles*.

Nephrol'ogy (Gr. *nephros*, a kidney, and *logos*).—A treatise on the *kidneys*.

Nephrot'omy.—Dissection of the *kidney*.

Neurol'ogy (Gr. *neuron*, a nerve, and *logos*).—A description of the *nerves* of animal bodies, or the doctrine of the nerves.

Neurot'omy (Gr. *neuron*, a nerve, and *tomē*).—Dissection of the *nerves*.

Neurypnol'ogy (Gr. *neuron*, a nerve, *hupnos*, sleep, and *logos*).—The philosophy of the *sleep of the nerves*, or animal magnetism, or a treatise on the subject.

Odontol'ogy (Gr. *odous*, *odontos*, a tooth, and *logos*).—A treatise on the teeth.

Ophthalmol'ogy (Gr. *ophthalmos*, the eye, and *logos*).—A treatise on the *eye*.

Ophthalmot'omy (Gr. *ophthalmos*, the eye, and *tomē*, a cutting).—The dissection of the *eye*.

Osteol'ogy (Gr. *osteon*, a bone, and *logos*).—A treatise on the *bones*.

Osteot'omy (Gr. *osteon* and *tomē*).—Dissection of the *bones*.

Otol'ogy (Gr. *ous*, the ear, and *logos*).—A treatise on the *ear*.

Otot'omy (Gr. *ous*, the ear, and *tomē*, a cutting).—Dissection of the *ear*.

Ovol'ogy (*ovum* and Gr. *logos*, a discourse).—A treatise on the *ovum*.

Pharyngol'ogy (*pharynx* and *logos*).—A treatise on the *pharynx*.

Phlebol'ogy (Gr. *phleps*, *phlebos*, a vein, and *logos*).—A treatise on the *veins*.

Pneumol'ogy (Gr. *pneumōn*, the lung, and *logos*).—A treatise on the *lungs*.

Pneumot'omy (Gr. *pneumōn*, the lung, and *tomē*, a cutting).—Dissection of the *lungs*.

Pogonol'ogy (Gr. *pogōn*, a beard, and *logos*).—A treatise on the *beard*.

Sarcol'ogy (Gr. *sarx*, flesh, and *logos*).—A treatise on the soft parts of the body, as the *muscles*, *fat*, *intestines*, *vessels*, etc.

Skeletol'ogy (*skeleton* and *logos*).—A treatise on the *solid parts* of the body.

Sphygmol'ogy (Gr. *sphugmos*, pulse, and *logos*).—The doctrine of the *pulse*.

Splenol'ogy (Gr. *splēn*, the spleen, and *logos*).—A treatise on the *spleen*.

Splenot'omy (Gr. *splēn*, the spleen, and *tomē*, a cutting).—Dissection of the *spleen*.

Synosteol'ogy (Gr. *sūn*, with, *osteon*, a bone, and *logos*).—A treatise on the *joints*.

Synosteot'omy (Gr. *sūn*, with, *osteon*, a bone, and *tomē*, a cutting).—Dissection of the *joints*.

Vivisection (L. *vivus*, alive, and *seco*, I cut).—The dissection of an animal body while alive, for the purpose of making some physiological discovery.

ANIMALS.

Zool'ogy (Gr. *zoon*, an animal, and *logos*, a discourse).—That part of natural history which treats of the structure, hab-

its, classification, and habitation of all animals, from man to the lowest of all the tribes.

Vertebrata.—The first division of the animal kingdom comprises animals in whose structure is a jointed backbone, or vertebral column, and includes the following classes, viz. :

1. **Mam'mals.**—Animals which produce their young alive, and which nourish them afterwards by suckling. (For orders of Mammals, see MAMMALS.)
2. **Birds.**—All the feathered tribe. (For orders of Birds, see BIRDS.)
3. **Batra'chia.**—Animals of the frog tribe.
4. **Rep'tiles.**—Such as the turtle, crocodile, serpent, lizard, etc. (For orders of Reptiles, see REPTILES.)
5. **Fish'es.**—Those adapted to breathe by means of water, so as to be capable of living in that element only. (For orders of Fishes, see FISHES.)

Articulata.—The second division is characterized by a jointed or articulated covering, consisting of a series of annulations or rings corresponding to the internal skeleton of the vertebrated animals, and embraces

1. **In'sects.**—Articulate animals having bodies composed of three distinct parts, the head, thorax, and abdomen; the legs, six in number, with usually two or four wings attached to the thorax; and along the sides of the abdomen minute punctures by means of which the respiration takes place.
2. **Arach'nida.**—Articulate animals with legs, but without wings, including spiders, mites, scorpions, etc.
3. **Crusta'cea.**—Articulate animals adapted to breathe by means of gills, and thus to reside in or near water, instead of inhabiting the air, as crabs, lobsters, shrimps, etc.
4. **Cirrhipe'da.**—The barnacle tribe, or tendril-footed animals.
5. **Myriapo'da.**—Articulate land animals having many legs, as the centipede.
6. **Anneli'da.**—Articulate animals whose bodies possess no jointed members, as the leech, and worm tribe.
7. **Entozo'a.**—Articulate animals inhabiting the bodies of other animals, as the tapeworm.

Mollusca.—The third division includes species whose bodies are soft and inarticulate. Some of them are naked, while others are invested in a shell. With the exception of a single family they have no distinct organ of sense, except

eyes, and these are wanting in some species. It is subdivided into six classes, as follows :

1. **Cephalapo'da**.—The cuttle-fish tribe.
2. **Pterapo'da**.—The tribe characterized by having broad, fleshy, wing-like appendages in front, or organs of motion. They are all oceanic species.
3. **Gasteropo'da**.—A tribe which crawl upon a fleshy disc on the under side of their bodies. Some of them form shells, while others are destitute of them,—as the slug, snail, etc.
4. **Conchifera**.—Acephalous shell-bearing mollusks, as the oyster.
5. **Tunica'ta**.—Acephalous mollusks protected by a leather-like tunic, and without organs of locomotion.
6. **Polyzo'a**.—Compound molluscous animals, the nervous system of which consists of a single ganglion, situated between the mouth and anus. They have a distinct mouth, surrounded by a row of ciliated tentacles, and are commonly hermaphrodite and propagated by buds or ova. In the mature state they are mostly fixed, though some have the power of locomotion.

Radiata.—The fourth division consists of invertebrate animals, chiefly marine, whose bodily organs are arranged in a radiate manner around the digestive cavity, and is subdivided into three classes, viz. :

1. **Echinoder'mata**.—Invertebrate radiated animals having bodies protected by a crustaceous covering, as the star-fish, sea-urchin, etc.
2. **Acale'phæ**.—A class of zoophytes,—sea-nettles, jelly-fish.
3. **Polypif'era**.—Coral-forming animals.

Protozo'a.—A term applied to the lowest forms of animal life,—animals without definite symmetry or plan of growth; animalcules, sponges, etc.

Actinol'ogy (Gr. *aktis*, a ray, and *logos*, a discourse).—The science of *radiated* animals.

Amphib'ia (Gr. *amphi*, both or about, and *bios*, life).—A class of animals so formed as to live on land and for a long time under water.

Amphibiol'ogy (*amphibia* and *logos*).—The history and description of *amphibious* animals.

Cetol'ogy (Gr. *ketos*, a whale, and *logos*, a discourse).—The doctrine or natural history of *cetaceous* animals.

Crustaceol'ogy (*crustacea* and *logos*).—The science which treats of the *crustacea*.

Embryol'ogy (Gr. *embruon*, a foetus, and *logos*, a discourse).—The doctrine of the development of the *fetus of animals*.

Fau'na.—A general term by which the whole of the animals of a country are designated. Air fauna, the birds of a particular country.

Helminthol'ogy (Gr. *helmins*, a worm, and *logos*).—The science or knowledge of *worms*; the description or natural history of worms.

Illaquea'tion.—The art of ensnaring or *entrapping animals*.

Malacol'ogy (Gr. *malukos*, soft, and *logos*, a discourse).—The science which relates to the structure and habits of *mollusks*.

Mammal'ogy, Mastol'ogy, or Mazol'ogy (Lat. *mamma*, Gr. *mastos*, or *mazos*, a breast).—The natural history of animals which suckle their young.

Microl'ogy (Gr. *mikros*, small, and *logos*, a discourse).—The science or doctrine of *microscopic animals and plants*.

Ophiol'ogy (Gr. *ophis*, a serpent, and *logos*, a discourse).—The natural history of *serpents*.

Organol'ogy.—That branch of physiology which treats in particular of the different *organs of animals*, especially of the human species.

Tax'iderm'y (Gr. *taxis*, an arranging, and *derma*, the skin).—The art of *preparing and preserving specimens of animals*.

Zoog'eny (Gr. *zoon*, an animal, and *genesis*, generation).—The doctrine of *animal formation*.

Zoog'raphy.—A description of animals, their forms and habits.

Zoon'omy (Gr. *zoon*, an animal, and *nomos*, law).—The *laws of animal life*, or that science which treats of the phenomena of animal life, their causes, consequences, and relations.

Zoophytol'ogy.—The natural history of *zoophytes*.

Zoot'omy (Gr. *zoon*, an animal, and *temno*, I cut).—The *anatomy of all animals*; the dissection of all animals for the purpose of discovering their structure and the functions of their several parts.

ANTIQUITIES.

Archæol'ogy, Palæol'ogy (Gr. *archaikos* or *palaaios*, ancient, and *logos*, a discourse).—The science of antiquities.

Egyptology.—The science of Egyptian antiquities.

Iconography (Gr. *eikōn*, an image, and *grapho*, I describe).

—A description of ancient works of art, as statuary, paintings, mosaic works, etc.

ARCHITECTURE.

Ar'chitecture (L. *architectura*).—The art of inventing and drawing designs for building, or the science which teaches the method of constructing any edifice for use or ornament.

Ab'acus.—The upper member of a capital of a column, and serving as a crowning both to the capital and to the whole column.

Abut'ment.—The solid part of a pier from which the arch immediately springs. The mass of stone at the end of a timber bridge without arches.

Aisle.—A term applied to the side portions of a church, in distinction from the central portion or nave; a walk or passage in a church.

Ancones'.—The consoles or ornaments on the keystones of arches or sides of doors.

An'nulet, or Cincture.—A small, flat fillet encircling a column, etc.; it is used, several times repeated, under the Doric capital.

Arch.—A mechanical arrangement of blocks of any hard material disposed in the line of some curve, and supporting one another by their mutual pressure.

Arch'itrave.—The lower division of an entablature, or that part which rests immediately on the column.

Arch'ivolt.—The ornamental band of mouldings round the voussoirs, or arch-stones of an arch, which terminates horizontally upon the impost.

Bal'cony.—A projection from the external wall of a house, borne by columns or consoles, and usually placed before windows or openings, and protected on the extremity of the projection by a railing of balusters or ironwork.

Bal'uster.—A small turned column, usually introduced between piers on the upper parts of large buildings, under windows, and on balconies, etc.

Balustrade'.—A series or row of balusters, joined by a rail.

Bar'tizan.—A small overhanging turret, which projects from •

the angles of towers, or from the parapet and other parts of the building.

Base.—The lowest part of a column or pillar.

Bas'ton.—A round moulding in the base of a column.

Bat'ter.—An inclination or sloping backward of the face of a wall.

Bay- or Oriel-Window.—A window placed in the bay or bow of a window.

Bead.—A round moulding commonly made upon the edge of a piece of stuff, in the Corinthian and Roman orders, cut or carved in short embossments, like beads in necklaces.

Beam.—The largest piece of timber in a building, laid across the walls, and serving to support the principal rafters.

Beam'-Filling.—The masonry or brick-work which fills the interstices between joists or beams.

Bed.—The horizontal surface on which the stones or bricks of a wall lie on its courses.

Bel'fry.—The upper part of the steeple of a church, for the reception of the bells.

Bell Roof.—A roof whereof the vertical section, perpendicular to the wall on to its springing line, is a curve of contrary flexure, being concave at the bottom and convex at the top.

Bel'vedere'.—A raised turret or lantern, raised for the enjoyment of a prospect; also a small edifice in gardens, not uncommon in France and Italy.

Beton.—A concretion used in foundations of hydraulic works; concrete.

Bond.—A peculiar mode of disposing bricks in a wall; as, *English bond*, where one course consists of bricks with their ends toward the face of the wall, called *headers*, and the next course of bricks with their lengths parallel to the face of the wall, called *stretchers*; *Flemish bond*, where each course consists of headers and stretchers alternately.

Bon'ing.—The art of judging of, or making, a plain surface or a straight line, as by sighting along two straight edges or poles.

Boss'age.—Rustic work, consisting of stones which advance beyond the level of the building, by reason of indentures or channels left in the joinings.

Boulder Walls.—Walls built of round flints or pebbles laid in strong mortar.

Boxings of a Window.—The cases opposite each other on

the side of a window, into which the shutters are folded or fall back.

Branched'-work.—The carved and sculptured leaves and branches in monuments and friezes.

But'tress.—A projecting support to the exterior of a wall, most commonly applied to churches in the Gothic style, but also to other buildings, and sometimes to mere walls.

Campanile'.—A tower for the reception of bells.

Cancel'li.—Trellis or lattice-work, made of cross-bars of wood or iron. Also the balusters or rails encompassing the bar of a court of justice.

Cap'ital.—The head or uppermost member of any part of a building.

Caryat'ides.—Figures of women dressed in long robes, after the Asiatic manner, serving to support entablatures.

Chan'cel.—That part of a church between the altar, or communion-table, and the balustrade, or railing that encloses it, or that part where the altar is placed.

Chim'ney.—The place in a room where the fire is burnt, and from which the smoke is carried away by means of a conduit, called a flue.

Choir.—The part of a church in which the choristers sing divine service.

Cil'ery.—The drapery or foliage carved on the heads of columns.

Circular Roof.—A roof whose horizontal sections are circular.

Clustered Column.—A column which is composed, or appears to be composed, of several columns collected together.

Coffer.—A sunken panel in the ceiling of a vault or dome, or in the under side of a Corinthian or Composite cornice, ordinarily decorated with a rose, a pomegranate, or other ornament.

Cof'ferwork.—Rubble walls faced with freestone, or formed with cement between two parallel rows of planks placed edge-wise.

Colonnade'.—A series or range of columns placed at regular intervals.

Col'umn.—A long, round body of wood or stone, used to support or adorn a building, composed of a base, a shaft, and a capital.

Commis'sure.—The joint between two stones.

Con'crete.—A mass of stone chippings, pebbles, etc., cemented by mortar, laid at the foundation of walls in spongy soils.

- Coping.**—The highest and covering course of masonry or brickwork in a wall.
- Cor'nice.**—Any moulded projection which crowns or finishes the part to which it is affixed.
- Cor'ridor.**—A gallery or passage-way leading to apartments independent of each other.
- Cous'sinet.**—A stone placed upon the impost of a pier for receiving the first stone of an arch.
- Crock'et.**—An ornament formed in imitation of curved and bent foliage, and placed upon the angles of canopies, spires, and pinnacles.
- Crosette'.**—A term applied to the small, projecting pieces in arch stones, which hang upon the adjacent stones.
- Crown'-Post.**—A post which stands upright in the middle between two principal rafters.
- Crypt.**—The space under a building, or hidden from view; especially a subterranean chapel or oratory.
- Cu'pola.**—A spherical vault on the top of an edifice or structure; a dome.
- Da'is.**—The platform or raised floor at the upper end of a hall.
- Dome.**—The spherical, or otherwise formed, convex roof over a circular or polygonal building.
- Dor'mer.**—A window placed on an inclined plane of the roof of a house, the frame being placed vertically on the rafters.
- Dress'ings.**—Mouldings round doors, windows, and the like.
- Eaves.**—The lowest edges of the inclined sides of a roof which project beyond the face of the walls, so as to throw the water off therefrom, that being their office.
- Ecclesiol'ogy** (Gr. *ekklesia*, an assembly, and *logos*, a discourse).—The science of church building and decoration.
- Engaged Columns.**—Columns sunk partly into the wall to which they are attached, and standing out at least one-half of their thickness.
- Entab'lature.**—That part of the order of a column which is over the capital, including the architrave, frieze, and cornice.
- Fin'ial.**—The top or finishing of a pinnacle or gable; sometimes also the entire pinnacle.
- Flash'ing.**—A term applied to pieces of lead, or other metal, let into the joints of a wall, so as to lap over the gutters and prevent the splashing of rain on the interior works.

- Flue.**—The long open tube of a chimney from the fireplace to the top of the shaft, for voidance of the smoke.
- Flutes or Flutings.**—Upright channels on the shafts of columns, usually ending hemispherically at top and bottom.
- Foot'ings.**—A term applied to the broad foundations of a wall.
- Frieze.**—That part of the entablature of a column which is between the architrave and cornice.
- Front'ispiece.**—The principal face of a building.
- Ga'ble.**—The triangular end of a house or other building from the cornice or eaves to the top.
- Gird'er.**—The principal beam in a floor, for supporting the binding or other joists, whereby the bearing or length is lessened.
- Glyph.**—Any channel or cavity intended as an ornament.
- Grain'ing.**—A kind of painting in imitation of the grain or fibres of wood.
- Hacking.**—The making up of a course of stonework with stones smaller and less regular than the rest.
- Hip-Roof.**—A roof whose ends slant back at the same angle with the adjacent sides.
- Hood-Moulding.**—A projecting moulding, as over the head of an arch.
- Hypotrache'lium.**—The slenderest part of the column; being that immediately below the neck of the capital.
- Interlacing Arches.**—Arches, usually circular, so constructed that their curves intersect or are interlaced.
- Jamb.**—The side-piece or post of a door; or the side-piece of a fireplace.
- Joist.**—A small piece of timber, such as is framed into the girders and summers of a building to support a floor.
- Lacu'nar.**—The ceiling or under surface of any part, especially when it consists of compartments, sunk or hollowed, without spaces or bands between the panels.
- Lancet.**—A high and narrow window pointed like a lancet.
- Lin'tel.**—A piece of timber that lies horizontally over door-posts and window-jambs.
- Lock'rand.**—A course of bond stones, or a bonding course.
- Lu'thern.**—A kind of window over the cornice in the roof of a building to admit light into the upper story.
- Mansard-Roof, Curb-Roof.**—A roof formed of four contiguous planes, externally inclined to each other, the ridge being

in the line of concourse of the two middle planes, and the highest of the three lines of concourse.

Mantel.—A narrow shelf above the fireplace.

Mar'quetry.—Inlaid work, consisting of different pieces of divers-colored woods, of small thickness, glued on to a ground usually of oak or fir, formerly much used in cabinet-work, but now chiefly confined in its use to floors.

Member.—A subordinate part of a building, as a frieze or cornice.

Mould'ings.—Certain projections beyond the bare wall, column, etc., an assemblage of which forms a cornice, or other decoration.

Mul'ion.—The post, or bar, dividing the lights in a window.

Nave.—The middle or body of a church, or place where the people are seated.

New'el.—The upright cylinder or pillar round which, in a winding staircase, the steps turn, and are supported from the bottom to the top.

Or'der.—An assemblage of parts, consisting of a base, shaft, capital, architrave, frieze, and cornice, whose several services, requiring some distinction in strength, have been contrived in five several species: Tuscan, Doric, Ionic, Corinthian, and Composite.

Oriel-Window.—A large bay or recessed window, as in a hall, a chapel, or other apartment. It usually projects outwardly from the face of the wall, with a semi-hexagonal or semi-square plan, and may be of various kinds or sizes. When not on the ground-floor, it is supported by a corbel, or bracket.

Par'geting.—A kind of decorative plaster-work in raised ornamental figures, formerly used for the internal and external decoration of houses.

Party-Wall.—A wall that separates one house from the next.

Pavil'ion.—A kind of building or turret, usually insulated and contained under a single roof, sometimes square and sometimes in the form of a dome. Sometimes a pavilion is a projecting part in the front of a building, and sometimes it flanks a corner.

Ped'estal.—The lowest part of a column or pillar; the part which sustains a column or serves as its foot. It consists of three parts: the base, the die, and the cornice.

Ped'iment.—A kind of low pinnacle, which serves to com-

plete a frontispiece, and which finishes the fronts of buildings, or is placed as an ornament over gates, doors, windows, or niches.

Pent'-Roof.—A roof of any building or shed formed like an inclined plane, the slope being all on one side.

Per'istyle.—A range of columns around a building or square; or a building encompassed by a row of columns on the outside.

Pilas'ter.—A sort of square column, sometimes insulated, but more commonly engaged in a wall, and projecting only a fourth or fifth of its thickness.

Pin'nacle.—A slender turret or part of a building elevated above the main building.

Plate.—A piece of timber lying horizontally on a wall, to receive the ends of girders, rafters, etc.

Plinth.—The square, flat table under the moulding of the base of a column.

Pol'ystyle.—A building surrounded by numerous columns, so that they cannot be readily counted at first view.

Porch.—An exterior appendage to a building, forming a covered approach to one of its principal doorways.

Por'tico, or Piazza.—A covered space enclosed by columns at the entrance of a building.

Pro'style.—A portico in which the columns stand in advance of the building to which they belong.

Pur'lin.—A piece of timber extending from end to end of a building or roof, across and under the principal rafters, to support them in the middle.

Raft'er.—A piece of timber that extends from the plate of a building toward the ridge, and serves to support the covering of the roof.

Rere'dos.—The screen or wall behind an altar in a church; also, the back of a fireplace.

Rood-Tower.—A tower or steeple at the intersection of the nave and transept of a church.

Rose-Window.—A circular window, with compartments of mullions and tracery branching from a centre, sometimes called a Catherine-wheel or marigold-window.

Rotun'da.—A round building; any erection that is round both on the outside and inside.

Rus'tic-Work.—A term used when the stones, etc., in the face of a building or the groins, etc., are hacked or indented, so as to be rough.

Sacel'lum.—An ornamental chapel within a church.

Saddle-Roof.—A roof having two gables.

Sash.—A frame for holding the glass of windows, and so formed as to be raised and lowered by means of pulleys.

Sciag'raphy (Gr. *skia*, a shadow, and *grapho*, I write).—The profile or *vertical section* of a building to exhibit its interior structure.

Shaft.—The body of a column, between the base and the capital.

Sill.—The horizontal piece at the bottom of a framed case, such as that of a door or window.

Skew-Back.—The sloping abutment in brickwork or masonry, for the ends of the arched head of an aperture.

So'cle.—A square member, having a greater breadth than height. It is used to support a column, base, etc., instead of a pedestal, from which it differs by having neither base nor cornice.

Span-Roof.—A roof consisting of two inclined planes, in contradistinction to shed or lean-to roofing.

Stee'ple.—A turret of a church, ending in a point.

Stri'æ.—The fillets which separate the furrows or grooves of fluted columns.

Tam'bour.—The wall of a circular building surrounded with columns.

Tax'is.—That disposition which assigns to every part of a building its just dimensions.

To'rus.—A large moulding used in the bases of columns the profile whereof is semicircular.

Tracery.—That species of pattern-work which is formed or traced in the head of a Gothic window by the mullions being made to diverge into arches, curves, and flowing lines, enriched with foliations.

Tran'som.—A beam across a window, of two lights in height. A lintel over a door.

Trestle-Work.—A viaduct, pier, or scaffold, resting on numerous posts or piles which are usually connected by cross-beams.

Truss.—A framed assemblage of timbers for fastening or binding a beam, or for supporting a roof, etc.

Vault.—An arched ceiling or roof.

Venetian Window.—A window formed with three apertures separated by slender piers from each other, whereof the centre one is much larger than those on the sides.

- Veran'da.**—A light gallery external to a house, supported on pillars, and often enclosed in front with lattice-work.
- Ves'tibule.**—The porch or entrance into a house, or a large open space before the door, but covered.
- Vignette.**—A running ornament, consisting of leaves and tendrils, used in Gothic architecture.
- Volute'.**—A kind of spiral scroll, used in Ionic and Composite capitals, of which it is a principal ornament.
- Wain'scot.**—A wooden lining or boarding of walls made in panels.
- Wheel-Window.**—A circular window with radiating mullions, resembling the disposition of spokes in a wheel.

ART.

- Callotech'nics** (Gr. *kalos*, beautiful, and *technē*, an art).—The ornamental or fine arts.
- Tech'nics.**—The doctrine of arts in general; such branches of learning as respect the arts.
- Technol'ogy** (Gr. *technē*, and *logos*).—The science of the *industrial arts*. In its widest sense it would embrace the whole field of industry, but it is restricted in usage to the more important manufactures (spinning, weaving, metal-lurgy, brewing, etc.).

BEER.

- Brewing.**—The art of making beer, or an alcoholic liquor, from a fermented infusion of some saccharine and amylaceous substance with water.

BELL-RINGING.

- Campanol'ogy** (L. *campana*, a bell, and Gr. *logos*, a discourse).—The art of ringing bells.

BIRDS.

- Ornithol'ogy** (Gr. *ornis*, *ornithos*, a bird, and *logos*, a discourse).—The science of birds, which comprises a knowledge of their form, structure, habits, and uses.
- One of the most recent classifications of birds is as follows:
1. **Rapto'res.**—Birds of prey, as eagles, vultures, and hawks.

2. **Incesso' res.**—Perching birds, as thrushes, nightingales, sparrows, larks, etc.
 3. **Scanso' res.**—Climbers, as parrots and woodpeckers.
 4. **Raso' res.**—Birds destined to obtain their subsistence from the vegetable world, and to pass their time upon the ground, rather than among trees or upon the wing, as pigeons, fowls, pheasants, etc.
 5. **Curso' res.**—Birds whose wings are so little developed that they are unable to fly, as the ostrich, cassowary, emu, etc.
 6. **Grallato' res.**—The stilt-walkers, including cranes, herons, snipes, plovers, etc.
 7. **Natato' res.**—Web-footed birds, such as the swan, duck, petrel, and gull.
- Ornithos' copy** (Gr. *ornis*, a bird, and *skopeo*, to observe).—The art or practice of closely observing birds and their habits.

BOOKS.

- Bibliog'raphy** (Gr. *biblos*, a book, and *grapho*, I write).—The knowledge of books as to their several editions, time of printing, and other information tending to illustrate the history of literature.
- Cunab'ula.**—The extant copies of the first or earliest printed books, or of such as were printed in the fifteenth century.
- Bibliop'egy** (Gr. *biblos*, a book, and *pēgnuo*, to make fast).—The art of *binding books*.
- Book'-binding.**—The art by which printed sheets are folded, gathered, pressed, sewed together, shielded with mill-boards, and covered with leather or cloth.
- Duodec'imo.**—A book in which a sheet is folded six times, so as to have twenty-four pages. Abbreviated to 12mo.
- Fo'lio.**—A book of the largest size, formed by once doubling a sheet of paper.
- Half-binding.**—That style of binding in which only the back and corners are covered with leather, and the sides with paper or cloth.
- Incunab'ula.**—Books printed during the early period of the art, generally confined to those which were printed before the year 1500.
- Octa'vo.**—A book in which a sheet is folded into eight leaves or sixteen pages. Abbreviated to 8vo.

Octodec'imo.—A book in which each sheet is folded into eight leaves. Abbreviated to 18mo.

Quar'to.—A book folded into four leaves or eight pages. Abbreviated to 4to.

Sextodec'imo.—A book composed of sheets folded so as to make sixteen leaves. Abbreviated to 16mo.

Vigesimo-quarto.—A book composed of sheets folded so as to make twenty-four leaves. Abbreviated to 24mo.

BUILDING.

Architecture. See ARCHITECTURE.

Brick'laying.—The art of building with bricks.

Carpentry.—The art of framing or letting into each other an assemblage of pieces of timber, such as those of a roof, floor, centre, etc.

Engineering (Civil).—The art of forming, or the construction of, roads, bridges, railroads; the construction of machinery for all purposes; the formation of canals, aqueducts, harbors, docks; drainage of lands, etc.

Gas'fitting.—The occupation of a gas-fitter.

Gild'ing.—The art or practice of overlaying things with gold-leaf or a thin coating of gold.

Glazing.—The art of setting glass.

Joinery.—The art of framing or joining together wood for the external and internal finishings of houses, such as the linings of walls and rough timbers; the putting together of doors, windows, stairs, and the like.

Masonry.—The art of preparing and combining stones so that they shall tooth, indent, or lie on each other, and become masses of walling and arching for the purposes of building.

Plumb'ing.—The art of casting and working in lead, and using it in building.

Tecton'ics (Gr. *tektonikos*, skilled in building).—The science or art by which implements, vessels, dwellings or other edifices are constructed, both agreeably to the end for which they are designed, and in conformity with sentiments and artistic ideas.

Turnery, or Turning.—The art of fashioning solid bodies into cylindrical or other forms by means of a turning-lathe.

Veneering.—The art of overlaying a coarse or inferior wood with thin leaves of superior wood.

CHEMISTRY.

Chemistry.—The science which investigates the intimate nature of bodies, their composition and properties, together with the changes they undergo.

Acetom'eter.—An apparatus for determining the strength of vinegar and other forms of acetic acids.

Acidom'eter.—A hydrometer for determining the density of acids.

Acidula'tion.—The art or process of acidulating: *preservation of food* by the use of vinegar.

Alcohol'meter (Gr. *alcohol*, and *metron*, measure).—An instrument for ascertaining the quantity of alcohol in wines and other spirituous liquors.

Al'kali.—A term now generally used to designate soda, potash, and ammonia, which are also termed vegetable, mineral, and volatile alkali.

Alkalim'etry (Gr. *alkali*, and *metron*, measure).—The art of ascertaining the strength of the alkalies.

Al'kaloids.—Substances analogous to alkaline bases of vegetable origin, and generally possessed of great medicinal activity, such as aconite, cinchona, etc.

Anal'ysis.—The determination of the parts or elements of compound bodies; decomposition.

Areom'eter (Gr. *araios*, rare, thin, and *metron*, measure).—An instrument for measuring the specific gravity of liquids.

Atom'ic Theory.—The doctrine of *definite proportions* teaches that all chemical combinations take place between the supposed ultimate particles or atoms of bodies, and that these unite, either one atom with one atom, or by sums of atoms which are integral multiples of unity.

Base.—The principal element of a compound, usually electro-positive in quality.

Bi'nary Compound.—A compound of two elements, or of an element and a compound performing the function of an element, or of two compounds performing the function of elements. The binary compounds are as follows:

BRO'MIDE.—Bromine with a metallic or combustible base.

CAR'BIDE, or CAR'BURET.—Carbon with a basifiable or acidifiable substance.

CHLO'RIDE.—Chlorine with another element.

FLU'ORIDE.—Fluorine with a metallic or combustible base.

I'ODIDE.—Iodine with metal or other substance.

OX'IDE.—Oxygen with a base destitute of salifying properties.

PHOS'PHIDE, or PHOS'PHORET.—Phosphorus with a base.

SEL'ENIDE, or SELE'NIURET.—Selenium with some other element.

SUL'PHIDE, or SUL'PHURET.—Sulphur with a base.

Bronz'ing.—The act or art of communicating to articles in metal, wood, ivory, clay, plaster, etc., the appearance of bronze by means of bronze-powders, or by chemical processes.

Calcina'tion.—The operation of expelling from a substance, by heat, some volatile matter with which it is combined, and thus disintegrating it and reducing it to a friable state. Thus, carbonate of lime is reduced to lime by *calcination*, or the expulsion of carbonic acid.

The operation of reducing a metal to an oxide or metallic calx.

Calorim'eter (L. *calor*, heat, Gr. *metron*, measure).—An apparatus for measuring relative quantities of heat, or the specific caloric of bodies; or an instrument for measuring the heat given out by a body in cooling from the quantity of ice it melts.

Calorim'etry (L. *calor*, heat, Gr. *metron*, measure).—The measurement of quantities of heat contained in bodies. It is conducted by different processes, but mostly by that of the melting of ice around the bodies to be tested.

Catal'ysis.—The influence by which certain substances, without undergoing any change themselves, resolve certain other substances into new compounds by mere contact, as the conversion of starch into sugar by sulphuric acid.

Cementa'tion.—A process which consists in surrounding a solid body with the powder of other substances, and heating the whole to redness. Iron is thus converted into steel, glass into porcelain, etc.

Crystalliza'tion.—The process of forming crystals.

Distilla'tion.—*Dry distillation* is the distillation of substances *per se*, or without the addition of water. *Destructive distillation*, the distillation of substances at very high temperatures, so that the ultimate elements are separated or evolved in new combinations.

Distil'ery.—The art of distilling spirits.

Elective Affinity.—A tendency to unite with certain things rather than with others.

El'ements.—The indecomposable constituents of bodies.

The following is a list of the *elements* now known. The most important are distinguished in the table by capitals; while those which at present are of slight importance, on account of their rare occurrence or of our insufficient knowledge of their properties, are printed in italics.

ALUMINIUM,	<i>Indium,</i>	<i>Rubidium,</i>
Antimony,	IODINE,	<i>Ruthenium,</i>
Arsenic,	<i>Iridium,</i>	<i>Selenium,</i>
Barium,	IRON,	SILICON,
Bismuth,	<i>Lanthanum,</i>	SILVER,
BROMINE,	LEAD,	SODIUM,
Cadmium,	<i>Lithium,</i>	Strontium,
<i>Cesium,</i>	Magnesium,	SULPHUR,
CALCIUM,	Manganese,	<i>Tantalum,</i>
CARBON,	MERCURY,	<i>Tellurium,</i>
<i>Cerium,</i>	<i>Molybdenum,</i>	Terbium,
CHLORINE,	Nickel,	<i>Thallium,</i>
Chromium,	<i>Niobium,</i>	<i>Thorium,</i>
Cobalt,	NITROGEN,	TIN,
COPPER,	<i>Osmium,</i>	<i>Titanium,</i>
<i>Didymium,</i>	OXYGEN,	<i>Tungsten,</i>
<i>Erbium,</i>	<i>Palladium,</i>	<i>Uranium,</i>
Fluorine,	PHOSPHORUS,	<i>Vanadium,</i>
Gallium,	Platinum,	<i>Yttrium,</i>
<i>Glucium,</i>	POTASSIUM,	ZINC,
GOLD,	<i>Rhodium,</i>	<i>Zirconium.</i>
HYDROGEN,		

Equiv'alent.—A term expressing the proportional weight or quantity of any substance which is necessary to saturate any other with which it can combine.

Eudiom'eter (Gr. *eudius*, serene, and *metron*, measure).—An instrument for ascertaining the purity of the atmosphere, or rather the quantity of oxygen contained in any given bulk of elastic fluid.

Evaporom'eter.—An instrument for ascertaining the quantity of a fluid evaporated in a given time.

For'mula.—A concise mode of exhibiting by symbols the results of chemical changes.

Gasom'eter.—An instrument for measuring the quantity of gas employed in an experiment.

Gasom'etry.—The science, art, or practice of *measuring gases*. It teaches, also, the nature and properties of these elastic fluids.

Hy'drates.—Compounds containing water as one of their proximate elements, and in definite proportion.

Hydrom'eter (Gr. *hudōr*, water, and *metron*, measure).—An instrument for determining the specific gravity of liquids.

Hydrom'etry (Gr. *hudōr*, water, and *metron*, measure).—The art of determining the specific gravity of liquids.

Incompat'ibles.—Substances which cannot be united in solution without decomposition or chemical change.

Isom'erism.—An identity of elements and of atomic proportions, with a difference in the amount combined in the compound molecule, and of its essential qualities; as in the case of the physically unlike compounds of carbon and hydrogen, consisting one of 1 part each, another of 2 parts each, and a third of 4 parts each.

Met'alepsy (Gr. *metalēpsis*, participation).—Change or variation in a series of compounds under a type, by substitutions of different elements or substances for an equivalent in the type, as when a substance contains hydrogen, and, when subjected to change, takes up an equivalent for each atom of hydrogen it loses; called also *theory of substitutions*.

Met'alloids.—A name sometimes applied to the metallic bases of the alkalies and earths.

Oxida'tion.—The process of converting metals or other substances into oxides, by combining with them a certain portion of oxygen.

Rad'ical.—An element (or molecular group, and thence called *compound radical*), whether insoluble or not, which may be transferred from one combination to another in exchange for one or more atoms of hydrogen or its representatives.

Rectifica'tion.—The process of refining or purifying any substance by repeated distillation, which separates the grosser parts.

Saccharom'eter (L. *saccharum*, sugar, Gr. *metron*, measure).—A hydrometer for determining the density of syrups.

Specific Gravity.—The weight of a body compared with another of the same bulk taken as a standard. Water is the standard for solids and liquids, common air for gases. Thus, the exact weight of a cubic inch of gold, compared with that of a cubic inch of water, is called its *specific gravity*.

Spectrol'ogy.—The science of chemical analysis by means of lines of spectra as modified by the volatilization of different elements.

Stereom'eter (Gr. *stereos*, solid, and *metron*, measure).—An instrument for determining the specific gravity of liquid bodies, porous bodies, and powders, as well as solids.

Stoichiom'etry.—That department of chemistry which considers the *numerical relations of atoms*.

Sublima'tion.—An operation by which solids are changed by heat into vapor, and then condensed into a solid form again.

Sub'salt.—An oxy salt containing a less number of equivalents of the acid than of the base, or in which the latter is a suboxide.

Symbol.—An abbreviation of the name of an elementary body ; thus, ag is written for silver (argentum) ; pb for lead (plumbum).

Syn'thesis.—The uniting of elements into a compound, as of oxygen and hydrogen into water,—the opposite of *analysis*.

Urinom'eter (Gr. *ouron*, urine, and *metron*, measure).—A small hydrometer for taking the specific gravity of urine.

Zymol'ogy (Gr. *zumē*, ferment, and *logos*, discourse).—The doctrine of *fermentation*. A treatise on the fermentation of liquors.

Salts formed by the union of an acid with a base :

Acetic acid.....	Acetate.	Malic acid.....	Malate.
Arsenic acid.....	Arseniate.	Hydrochloric acid..	Muriate.
Arsenious acid.....	Arsenite.	Nitric acid.....	Nitrate.
Benzoic acid.....	Benzoate.	Oxalic acid.....	Oxalate.
Carbonic acid.....	Carbonate.	Phosphoric acid....	Phosphate.
Chloric acid.....	Chlorate.	Selenic acid.....	Seleniate.
Chromic acid.....	Chromate.	Silicic acid.....	Silicate.
Citric acid.....	Citrate.	Succinic acid	Succinate.
Cyanic acid.....	Cyanate.	Sulphuric acid.....	Sulphate.
Formic acid.....	Formate.	Sulphurous acid....	Sulphite.
Fulminic acid.....	Fulminate.	Tannic acid.....	Tannate.
Gallie acid.....	Gallate.	Tartaric acid.....	Tartrate.
Lactic acid.....	Lactate.	Uric acid.....	Urate.

CLASSIFICATION.

Taxon'omy (Gr. *taxis*, an arranging, and *nomos*, law).—That department of Natural History which treats of the laws and principles of classification.

CLIMATE.

Climatol'ogy (Gr. *klima*, a climate, and *logos*, a discourse).
—An investigation of the causes on which the climate of a place depends.

CLOTH.

Weav'ing.—The art of combining threads, yarns, filaments, or strips of different materials, or anything flexible, so as to form cloth or some other kind of textile fabric.

Warp.—The threads which are extended lengthwise in a loom.

Woof.—The threads that cross the warp.

CLOUDS.

Cir'ro-cu'mulus.—A cloud intermediate between the cirrus and cumulus, composed of small, well-defined masses, closely arranged.

Cir'ro-stra'tus.—A cloud intermediate between the cirrus and stratus, consisting of horizontal masses separated into groups, with which the sky is so mottled as to suggest resemblances to the back of the mackerel. The prevalence of this cloud is usually followed by bad weather.

Cirrus.—A cloud consisting of fibres or curling streaks, which diverge in all directions. It occupies the highest region, and is frequently the first cloud which is seen after a continuance of clear weather.

Cu'mulo-stra'tus.—A blending of the cirro-stratus with the cumulus.

Cu'mulus.—A convex aggregate of watery particles, increasing upwards from a horizontal base, and assuming more or less of a conical figure.

Nim'bus.—The cloud into which the others resolve themselves when rain falls.

Strat'us.—A cloud consisting of horizontal layers, and comprehending fogs and mists. It is the lowest of the clouds, its under surface usually resting on the earth or water.

COATS OF ARMS.

Heraldry.—The science of recording genealogies, and blazoning arms or ensigns armorial. It also teaches whatever

relates to the marshalling of cavalcades, processions, and other public ceremonies.

Bla'zonry (Germ. *blasen*, to blow).—The art of describing or explaining coats of arms in proper terms.

Accolé.—Sometimes used to denote two things joined together; at other times, animals with collars or crowns about their necks; and at others, batons or swords placed saltier-wise behind the shield.

Addors'ed.—Back to back.

Affrontée.—Animals facing each other.

Apau'mé.—A hand opened, so that the full palm appears, with the thumb and fingers extended, as may be seen in the arms of a baronet.

Arms of Patronage.—Those arms on the top of which are some marks of subjection and dependence.

Arra'ché.—The representation of a plant torn up by the roots.

Arron'dée.—A cross, consisting of segments of a circle, the whole of the curves being in the same direction, so that its arms are not of different widths at different points.

Aspect'ant.—Borne face to face, or opposite each other, as two beasts or birds.

Atti're.—A term designating the horns of stags and similar animals in blazoning coats of arms.

Bar'ry.—An escutcheon divided bar-wise (that is, across from side to side) into an even number of partitions, consisting of two or more tinctures interchangeably disposed.

Bear'ings.—Coats of arms, or armorial figures.

Bend.—A kind of belt occupying the shield diagonally.

Bend'let.—A little bend that is only half-breadth.

Bezan't.—A circle in gold, representing the gold coin called *bezant*.

Bor'dure.—An edging on the shield, having a width of about one-fifth of the field, serving as a difference in a coat of arms, to distinguish families of the same name, or persons bearing the same coat.

Caboch'ed, or **Cabossé**.—Having the head cut close, so as to have no neck left.

Can'ton.—A small square separated from the rest of the coat.

Chev'ron.—An honorable ordinary, representing two rafters of a house joined together, or meeting at the top.

Chief.—One of the honorable ordinaries which occupies the upper part of the escutcheon,—a third part of the field.

Cleche.—A kind of cross, charged with another cross of the same figure, but of the color of the field.

Coat of Arms.—A device or assemblage of devices supposed to be painted on a shield, which is called the field.

Compart'ments.—Partitions and quarterings of the escutcheon.

Contourné.—An epithet for a beast standing or running with his face to the sinister side.

Counterpas'sant.—Two lions represented as going contrary ways.

Coupé.—The head or any limb of an animal cut off smooth from the trunk.

Cou'rant.—An epithet for any beast represented in a running attitude.

Cres'cent.—An honorable ordinary often used as a mark of distinction for the second sons of families, or those descended from them. When the horns are turned toward the chief or upper part of the shield, it is called *crescent*; when to the right, *increscent*; and when to the left, *decrecent*.

Crest.—The plume of feathers, or other object, on the top of the ancient helmet.

Dancette'.—The outline of any bordure or ordinary, very largely indented.

Degra'ded.—An epithet in blazoning for a cross that has steps at each end.

Dem'y.—Any charge that is borne half: as, a demy-lion, or half-lion.

Descent'.—A term to express coming down: as, "a lion in descent," *i.e.*, a lion with his heels upwards, as though in the act of leaping down from an eminence.

Dex'ter.—The right, or on the right hand or side.

Dismem'bered.—An epithet for birds that have neither feet nor legs; also for lions and other animals whose members are separated.

Display'ed.—An eagle, or any other bird, when it is erect, with its wings expanded or spread out.

Dragonnée.—The term for a lion or other beast whose upper half resembles a lion, etc., but the lower the hinder parts of a dragon.

Dor'mant.—In a sleeping posture.

Empale'ment.—A conjunction of coats of arms palewise.

Enclavé.—Something let into another, especially when the piece so let in is square.

Enfiled'.—The head of a man, beast, or any other charge, placed on the blade of a sword.

Ente.—An epithet signifying grafted; engrafted.

Environ'né.—Surrounded with other things: thus, a lion is said to be environné with so many bezants.

Erad'icated.—An epithet for a tree or plant torn up by the roots.

Erased'.—An epithet for the head or limb of any creature violently torn from the body, so as to give it a jagged appearance.

Erect'.—An epithet for anything upright, or perpendicularly elevated: as, wings *erect*, etc.

Escroll'.—One of the exterior ornaments of the escutcheon, representing a slip of parchment or paper, on which the motto is generally put.

Escutch'eon.—The shield on which a coat of arms is represented.

Es'sorant.—A term for a bird standing on the ground with its wings expanded, as if it had been wet and was drying itself.

Fesse.—One of the nine honorable ordinaries, consisting of a line or belt drawn directly across the shield, from side to side, and containing the third part of it.

Field.—The tincture, or combination of tinctures, which forms the ground of the escutcheon.

Fil'let.—A kind of narrow bordure, which runs quite round, near the edge.

Flo'tant.—Flying or streaming in the air, as a banner.

Fretted.—Interlaced one with another; said of charges and ordinaries.

Gard'ant.—Having the face turned toward the spectator, as it were in a posture of defence.

Gorg'ed.—Bearing a crown, coronet, or the like, about the neck.

Impale'ment.—The division of a shield palewise.

In'censed.—An epithet for panthers when represented with fire issuing from their mouths and ears.

Inescutch'eon.—A small escutcheon borne within the shield.

In'grailed.—An epithet for anything represented with the edges ragged or notched semicircularly, as if broken by something having fallen upon it, the points being turned outward to the field.

Is'suant.—An epithet for a lion or other beast coming out of the bottom line of any chief or fesse.

- Jess'ed.**—An epithet for a hawk or falcon having the jesses or straps of leather which were used for tying the bells on its legs.
- Lan'gued.**—An epithet for the tongue of an animal, when represented of a different tincture from the body.
- Li'oncel.**—A small lion.
- Lodged.**—A term for a buck, hart, etc., when lying on the ground.
- Mailed.**—Speckled, as the feathers of hawks, partridges, etc.
- Mant'ling.**—That appearance of flourishing, or drapery, which is represented about a coat of arms.
- Mar'shalling.**—The arranging of several coats of arms belonging to distinct families in one escutcheon or shield, together with their ornaments.
- Mart'lets.**—Little birds, like swallows, but with short tufts of feathers instead of legs. It is the difference or distinction of a fourth son.
- Mot'to.**—A word or short sentence put to an emblem or device, or to a coat of arms in a scroll at the bottom of the escutcheon.
- Mound.**—A ball or globe with a cross upon it, such as monarchs are usually represented as holding in the left hand.
- Mul'let.**—A figure in shape like the rowel of a spur, used as the filial distinction of the third son.
- Nai'ant.**—An epithet for fish that are borne across the escutcheon as if swimming.
- Nais'sant.**—A term applied to any animal issuing out of the midst of some ordinary, and showing only its head, shoulders, fore feet, and legs, with the tip of its tail.
- Nom'bril.**—The centre of an escutcheon.
- Onglée.**—An appellation given to the talons or claws of beasts or birds, when borne of a different tincture from that of the body of the animal.
- Or'dinary.**—A portion of the escutcheon, included between straight or other lines.
- Pale.**—One of the greater ordinaries, being a broad perpendicular stripe in an escutcheon.
- Palissé.**—A bearing like a range of palisades before a fortification, represented on a fesse, rising up a considerable height, and pointed at the top, with the field appearing between them.
- Pal'let.**—The diminutive of a pale, being one-half of its breadth.

- Pa'ly.**—The shield when it is divided into four or more equal parts by perpendicular lines from top to bottom.
- Par'ty.**—The division of a field by a line running in the direction of an ordinary.
- Pas'sant.**—Said of a lion or other animal in a shield, appearing to walk leisurely. When walking with his head affronté, or looking full-faced, it is termed *passant gardant*.
- Patée** or **Pattée.**—A cross having the arms small in the centre and widening toward their extremities, which are broad.
- Pen'non.**—A small pointed flag, borne in former times by a gentleman.
- Phe'on.**—The barbed head of a dart, arrow, or other weapon.
- Posé.**—A lion, horse, or other beast, standing still, with all his four feet on the ground.
- Quar'tering.**—Partitions of the escutcheon according to the number of coats that are borne in it.
- Quatre-foil.**—A four-leaved plant.
- Ragu'led** or **Rag'ged.**—An epithet for any bearing that is ragged or uneven, like the trunk or limb of a tree lopped of its branches, so that only the stumps are seen.
- Ram'pant.**—An epithet for a lion, or other beast, when it stands on its hinder legs and rears up its fore feet in the posture of climbing, showing only its profile.
- Ram'pant Gar'dant.**—An animal standing on its hinder legs, looking full-faced.
- Ram'pant Regar'dant.**—An animal standing on its hinder legs, looking behind.
- Rayonnant'.**—An epithet for any ordinary that darts forth rays like the sun when it shines.
- Regar'dant.**—An animal with the face turned toward the back in an attitude of vigilance.
- Renverse'.**—Set with the head downwards, or contrary to the natural posture.
- Rousant.**—Rising; applied to a bird in the attitude of rising.
- Sa'lient.**—An epithet applied to a beast represented in a leaping posture, with his right foot in the dexter point, and his hinder left foot in the sinister base of the escutcheon, by which it is distinguished from *rampant*. (*Counter-salient* is when two beasts on the same escutcheon are salient, the one leaping one way, and the other in an opposite direction, so that their bodies cross.)
- Salt'ier.**—One of the eight greater ordinaries; a *St. Andrew's*

Cross. Charges such as swords, batons, etc., placed in the direction of saltier, are said to be borne *saltier-wise*.

Séjant.—Sitting; applied to a lion or other beast.

Semé.—A term used to indicate a field or charge powdered or strewn over with figures, such as stars, crosses, etc.

Sin'ister.—The left side of the escutcheon.

Support'ers.—Figures placed by the side of the shield and appearing to support it. Thus, the lion and the unicorn are the supporters of the British sovereign's arms.

Tierce.—An epithet for the field when it is divided into three parts.

Vair.—One of the furs employed in blazoning, supposed to represent the skin of a small squirrel.

Vergette'.—A pallet or small pale; hence, a shield divided by such pallets.

Vo'lant.—Flying, or having the wings spread.

COINS.

Numismat'ics (Gr. *nomisma*, a coin).—The science of *medals* and coins.

Coining, or Coinage.—The art of making stamped metallic money.

Contornia'ti.—A species of medals or medallions of bronze having a curved furrow (*contorno*) on each side, and supposed to have been struck in the days of Constantine and his successors.

Coun'termark.—A stamp frequently seen on ancient coins, often obliterating a large part of the impression.

Exergue'.—The small space around, and without, the work or figures of a medal, for an inscription, etc.

Med'alurgy (*medal*, and Gr. *ergon*, work).—The art of making and striking *medals* and other coins.

Mill'ing.—The process of stamping coin on the edge.

Numismatog'raphy (Gr. *nomisma*, a coin, and *grapho*, I write).—The science which treats of *coins and medals in their relation to history*.

Ob'verse.—The side of a coin which contains the principal symbol.

Planch'et.—A disk of metal ready to be stamped as a coin.

Reverse'.—The side of a coin opposite to that on which the head or principal figure is impressed.

Shroff'age.—The examination of coins, and separation of the good from the debased.

To'ken.—A piece of metal intended for currency, and issued by a private party, usually bearing the name of the party by whom issued, and redeemable by the issuer in lawful money.

COLORS.

Chromatol'ogy (Gr. *chroma*, color).—A treatise on colors.

Enam'elling.—The art of applying vitrifiable colors to metal, pottery, or glass.

COMMERCE.

Cam'bistry (Gr. *cambio*, exchange).—The science of commercial exchanges, weights, measures, etc.

Accept'ance.—The act by which a person on whom a bill of exchange is drawn undertakes to pay it at maturity.

Accommodation Bill.—A bill of exchange accepted without value, for the purpose of raising money thereon by discount.

Active Commerce.—The commerce in which a nation carries its own productions and foreign commodities in its own ships, or which is prosecuted by its own citizens.

Ad Valo'rem.—Stamp duties the amount of which is regulated *according to the value* of the property, etc.

A'gio.—The difference in value between metallic and paper money, or between one sort of metallic money and another.

Annu'ity.—A periodical payment of money for a lengthened period

Balance of Trade.—The difference between the value of the commercial exports and imports of any country.

Bal'last.—Any heavy material placed in a ship's hold with the object of sinking her deeper in the water, and of thereby rendering her capable of carrying sail without danger of being overset.

Bill of Adventure.—A writing signed by a merchant, to testify that the goods shipped on board a certain vessel belong to another person, he himself being answerable only for the produce.

- Bill of Entry.**—A written account of goods entered at the custom-house, whether imported or intended for exportation.
- Bill of Exchange.**—A written order for payment of money by one person (called the drawer) upon another (termed the drawee). When the drawee has undertaken to pay the bill, which he does by writing his name across it, he is termed the acceptor.
- Bill of Lading.**—A memorandum or receipt signed by the master of a ship, acknowledging the shipment of goods, which are usually made deliverable to the consignee or his order.
- Bonded Goods.**—Goods for the duties on which bonds are given at the custom-house.
- Bot'tomry.**—The borrowing of money by the master on the bottom or hull of a ship; to be paid with interest, if the ship return in safety, but otherwise to be lost or forfeited.
- Bro'kerage.**—The fee, reward, or commission given or charged for transacting business as a broker.
- Bull'ion.**—Gold and silver, coined or uncoined, but considered simply as material according to weight.
- Carrying Trade.**—That of transporting commodities from one country to another by water.
- Catallac'tics.**—The science of exchanges.
- Chamber of Commerce.**—A board to protect the interests of commerce, chosen from among the merchants and traders of a city.
- Change.**—A place where merchants and others meet to transact business.
- Clear'ance.**—A certificate that a ship or vessel has been *cleared* at the custom-house.
- Clearing.**—A method adopted by banks and bankers for making exchanges and settling balances.
- Clough, or Cloff.**—An allowance of two pounds in every hundredweight, after tare and tret have been deducted, for the turn of the scale, that the commodity may hold out in retailing.
- Coast'ing Trade.**—The trade which is carried on between the different ports of the same country, or under the same jurisdiction, as distinguished from foreign trade.
- Collateral Security.**—Security for the performance of covenants or the payment of money, given in addition to the principal security.

Consignment of Goods.—The delivering or making them over to another: thus, goods are said to be consigned to a factor when they are sent to him for sale, etc. He who consigns the goods is called the *consigner*, and the person to whom they are sent is called the *consignee*.

Con'trabad.—Contraband goods are such as are prohibited to be imported or exported, either by the laws of a particular kingdom or state, or by the law of nations, or by special treaties.

Corpora'tion.—A body politic or corporate, authorized by law to act as a single person, and endowed by law with the capacity of perpetual succession.

Cus'toms.—Duties levied on commodities exported and imported.

Demur'rage.—An allowance made to the master or owners of a ship by the freighter for detaining her in port longer than the period agreed upon for her sailing.

Dis'count.—An allowance made on a bill or any other debt not yet become due, in consideration of immediate payment; or any deduction from the customary price of an article. To discount a bill of exchange, signifies to pay it before it is due, deducting a certain part of the sum for the accommodation.

Div'idend.—The share of the interest or profit of stock in trade or other employment, which belongs to each proprietor according to his proportion of the stock or capital.

Draft.—An order by which one person draws on another for a certain sum of money; a check; a bill of exchange.

Embar'go.—A prohibition issued by the authorities of a country to prevent merchant vessels leaving their ports. It is generally imposed in time of war, or during fear of invasion; and in such cases the ships under embargo are used in armaments, expeditions, etc.

Empo'rium.—A common resort of merchants for trade, particularly a city or town of extensive commerce, or in which the commerce of an extensive country centres, or to which sellers and buyers resort from different countries.

Exchange'.—The form of exchanging one debt or credit for another; or the receiving or paying of money in one place for an equal sum in another by order, draft, or bill of exchange.

Excise'.—An inland duty, paid in some instances upon the commodity consumed, or on the retail which is the last stage

before consumption, but paid in others at the manufactories.

Flot'sam.—Goods lost by shipwreck and floating on the sea.

Free Port.—A port where ships of all nations may load and unload free of duty, provided the goods are not carried into the adjoining country. Also, a port where goods of all kinds are received from ships of all nations at equal rates of duty.

Freight.—That with which anything is fraught or laden for transportation.

Imports and Exports.—The various commodities brought into this country from abroad; and those home manufactures and products which, through our commercial relations, we sell or barter and send to other countries.

Im'post.—A tax, tribute, or duty; often a duty or tax laid by government on goods imported into a country.

In'voice.—A written account of the particulars of merchandise shipped or sent to a purchaser, consigner, etc., with the value or prices and charges annexed.

Jet'sam.—Goods which are cast into the sea and there sink and remain under water.

Joint-Stock Company.—A species of partnership, consisting generally of a large number of members, having a capital divided or agreed to be divided into shares transferable without the consent of all the copartners.

Letter of Credit.—A letter authorizing credit to a certain amount of money to be given to the bearer.

Mar'gin.—The difference between the price of purchase and sale of an article, which leaves room for profit.

Marine Law, or Maritime Law.—A branch of the commercial law relating to the affairs of the sea, such as seamen, ships, shipping, navigation, and the like.

Mer'chandise.—The objects of commerce; whatever is usually bought or sold in trade, or market, or by merchants.

Metrol'ogy (Gr. *metron*, a measure, and *logos*, a discourse).—The science of weights and measures.

Passive Commerce.—The commerce in which the productions of one country are transported by the people of another country.

Policy.—The writing or instrument in which a contract of insurance is embodied.

Prat'ique.—A license or permission to hold intercourse and to

trade with the inhabitants of a place after having performed quarantine, or upon a certificate that the ship did not come from an infected place.

Price-current.—A statement or list, published statedly or occasionally, of the prevailing prices of merchandise, stocks, specie, bills of exchange, rate of exchange, etc.

Pri'mage.—A certain allowance paid by the shipper or consignee of goods to the mariners and master of a vessel for loading the same.

Prom'issory Note.—A written promise by which one person engages or promises to pay a certain sum of money to another.

Pro'test.—On bills of exchange, the solemn declaration of a notary public of the dishonor of a bill.

Quar'antine.—The term during which a ship, arriving in port, and suspected of being infected with a malignant, contagious disease, is obliged to forbear all intercourse with the shore.

Redemp'tion.—Repurchase by the issuer of notes, bills, or other evidences of debt by making payment to the holder.

Re-exchange'.—The expense chargeable on a bill of exchange or draft which has been dishonored in a foreign country, and returned to that country in which it was made or indorsed, and then taken up.

Reg'ister.—A document issued by the custom-house, containing a description of a vessel, its name, tonnage, country, ownership, etc., always to be kept on board on a foreign voyage, as evidence of its nationality.

Responden'tia.—A loan on goods laden on board of a ship.

Rever'sion.—A payment which is not to be received, or a benefit which does not begin, until the happening of some event, as the death of a person now living.

Sal'vage.—A recompense allowed to such persons as have assisted in saving goods from fire, loss at sea, or ships from shipwreck.

Specific Duty.—A tax upon goods of a specific sum upon given quantity or number.

Stamp-duty.—A duty or tax imposed on paper and parchment, the evidence of the payment of which is a stamp.

Ster'ling.—In English commerce, a term which is applied to money, signifying that it is of the fixed or standard national value.

Su'pra-protest.—An acceptance of a bill by a third person after protest for non-acceptance by the drawee.

- Tare.**—A deduction or abatement made from the weight of a parcel of goods on account of the weight of the cask, bag, etc., in which they are contained.
- Tar'iff.**—A list or table of duties or customs to be paid on goods imported or exported.
- Tontine'.**—An annuity or survivorship, or a loan raised on life-annuities with the benefit of survivorship.
- Trade'-mark.**—A distinguishing mark or device used by a manufacturer on his goods or labels, the legal right in which is recognized by law.
- Transit-duty.**—A duty paid on goods that pass through a country.
- Tret.**—An allowance to purchasers, for waste or refuse matter, of 4 pounds on every 104 pounds ofuttle weight, or weight after the tare is deducted.
- Ul'lage.**—The wantage of casks of liquor, or what a cask wants of being full.
- Un'derwriting.**—Subscribing one's name to a policy of insurance, for the purpose of becoming answerable for loss or damage, for a certain premium per cent.
- Warehousing-system.**—An arrangement for lodging imported articles in the custom-house stores, without payment of duties, until they are taken out for home consumption.

CONJURING.

- Jugglery.**—The art of a juggler.
- Magic (Natural).**—The art of employing the powers of nature to produce effects apparently supernatural.
- Thaumatur'gies.**—Feats of legerdemain or magical performances.
- The'urgy** (Gr. *Theos*, God, and *ergon*, work).—That species of magic in which effects are produced by supernatural agency, in distinction from *natural* magic.

DANCING.

- Choreg'raphy** (Gr. *choreia*, a dancing, and *grapho*, I describe).—The art of representing dancing by signs, as a tune is represented by notes.
- Orchesog'raphy** (Gr. *orchesis*, a dance, and *grapho*, I write).—A treatise on dancing.

DEAD BODIES.

Embalming.—The art of preserving dead bodies of men and animals.

DEATH.

Thanatol'ogy (Gr. *thanatos*, death, and *logos*, a discourse).—A description or the doctrine of death.

DIALS.

Di'aling, Horog'raphy.—The science which unfolds the principles of measuring time by dials, or the art of constructing dials.

Gno'mon.—The style or pin which by its shadow shows the hour of the day.

Gnomon'ics, Gnomonol'ogy (Gr. *gnomon*, an index, and *logos*, a discourse).—The art or science of dialing, or of constructing dials to show the hour of the day by the shadow of a gnomon.

Node.—A point or hole in the gnomon of a dial, by the shadow or light of which are shown the hour of the day, the parallels of the sun's declination, etc.

Sub'style.—The line on which the gnomon stands.

DISSECTION.

Anat'omy (Gr. *anatemno*, I cut up).—1. The art of dissecting or artificially separating the different parts of an animal body, to discover their situation, structure, and economy.

2. The doctrine of the structure of the body learned by dissection.

DISTANCE.

Longim'etry (Lat. *longus*, long, and Gr. *metreo*, I measure).—The art of measuring distances or lengths.

DRAMA.

Dram'aturgy (Gr. *drama*, a play, and *ergon*, a work).—The science or art of dramatic poetry and representation.

Act.—The name given to a division of a drama, at the end

of which there is a pause to afford rest to actors and spectators.

After-piece.—A piece performed after a play ; a farce or other short entertainment.

Burlesque'.—A composition of which the humor consists in a ludicrous mixture of things high and low.

Burlet'ta.—A light, comic species of musical drama.

Com'edy.—A dramatic composition intended to represent the lighter passions and actions of mankind.

Dram'atis Perso'næ.—The characters represented in a drama.

Ep'ilogue.—The closing address to the audience at the end of a play.

Farce.—A short piece of low comic character.

Histrion'ic Art.—The art which teaches how to bear a part in dramatic representations.

In'terlude.—A short dramatic piece introduced between the acts of longer performances.

Melodra'ma.—A dramatic performance in which songs are introduced.

Mon'odrame.—A dramatic performance by only one person.

Op'era.—A dramatic composition set to music and sung on the stage.

Orato'rio.—A sacred musical composition, usually in a dramatic form.

Pan'tomime.—A species of theatrical entertainment in which the whole action of the piece is represented by gesticulation without the use of words.

Trag'edy.—A dramatic composition representing some signal action performed by illustrious persons, and generally having a fatal result.

Vaude'ville.—A theatrical piece, usually a comedy, the dialogue of which is intermingled with light or satirical songs, sung in familiar airs ; also, sometimes, a drama of a higher order.

DRAWING.

Diagraph'ics (Gr. *diagrapho*, I mark out by lines).—The art of design or drawing.

Draw'ing.—The art of representing the appearances of objects upon a flat surface so as to exhibit their form and shadow, situation, distance, etc.

Orthog'raphy.—The representation of the front of a building

or other object by lines which are perpendicular to each other, or which make the same angle as the corresponding lines in the object represented,—distinguished from *perspective*.

Stereog'raphy (Gr. *stereos*, solid, and *grapho*, I write).—The art of drawing the figures of solids upon a plane.

Working-drawing.—A drawing, as of the whole or part of a structure, machine, etc., made to a scale, and in such detail as to be the guide in its construction. See PERSPECTIVE.

DREAMS.

Oneirocrit'ics (Gr. *óneiros*, a dream, and *kritikos*, fit for judging).—The art or the science of interpreting dreams.

EARTH.

Cosmol'ogy (Gr. *kosmos*, the world, and *logos*, a discourse).—The science of the world or universe; or a treatise relating to the structure and parts of the system of creation, the elements of bodies, the modifications of material things, the laws of motion, and the order and course of nature.

Cosmog'ony (Gr. *kosmos*, world, and *gonē*, generation).—The generation, *origin*, or creation of the world or universe.

Cosmog'raphy (Gr. *kosmos*, the world, and *graphē*, a description).—A *description of the world* or universe, or the mode of describing the several parts of the visible world.

Cosmcm'etry (Gr. *kosmos*, world, and *metreo*, I measure).—The art of *measuring in degrees* the world or sphere.

Geog'ony (Gr. *ge*, the earth, and *gonē*, generation).—The doctrine of the *formation of the earth*.

Geog'raphy.—See GEOGRAPHY.

Geol'ogy.—See GEOLOGY.

Geon'omy (Gr. *gē*, the earth, and *nomos*, law).—The science which relates to the *physical laws of the earth*, including geology and physical geography.

Geos'copy (Gr. *gē*, the earth, and *skopeo*, I view).—*Knowledge of the earth*, ground, or soil, obtained by inspection.

Palætiol'ogy (Gr. *palaios*, ancient, and *logos*, a discourse).—The science which explains the *past conditions of the earth* by the laws of causation.

EARTHQUAKES.

Seismol'ogy (Gr. *seismos*, an earthquake, and *logos*, a discourse).—A science constructed from the study of earthquake phenomena.

Seismom'eter (Gr. *seismos*, and *metron*, a measure).—An instrument for *measuring the shock of earthquakes* and other violent concussions.

EGGS.

Ool'ogy (Gr. *oon*, an egg, and *logos*, a discourse).—The science of eggs in relation to their coloring, size, shape, and number, and the law deduced from that knowledge.

ELECTRICITY.

Electrol'ogy (Gr. *elektron*, amber, and *logos*, a discourse).—That department of physical science which treats of electricity.

Absorption.—The process or act by which electricity is made passively to disappear in some other substance through molecular or other invisible means.

An'ode.—In *electro-chemistry*, the way by which the electric current enters substances through which it passes, or the surface at which the electric current enters the electrolyte; opposed to *cathode*, and equivalent to *positive pole*.

Cath'ode.—The way by which the electric current leaves substances through which it passes, or the surface at which the electric current passes out of the electrolyte; opposed to *anode*, and equivalent to *negative pole*.

Ca'tion.—An electro-positive substance, which, in electrolysis, passes to the cathode of the electrolyte.

Charge.—A quantity of electrical fluid communicated to a coated jar, vial, or pane of glass.

Conduct'or.—A substance which forms a medium for the transmission of some other substance or fluid, particularly of heat or electricity.

Declinom'eter.—An instrument for measuring the declination of the magnetic needle.

- Diamag'netism.**—The science which treats of *diamagnetic phenomena* and of the properties of diamagnetic bodies.
- Elec'tro-Biol'ogy.**—The science of *electrical forces* as shown in mesmerism.
- Elec'tro-Chem'istry.**—The science which treats of the agency of electricity and galvanism in effecting *chemical changes*.
- Elec'trode.**—A name applied to what is called the pole of the voltaic circle. The *electrodes* are the surfaces of air, water, metal, etc., which serve to convey an electric current into and from the liquid to be decomposed.
- Elec'tro-Dynam'ics.**—The phenomena of *electricity in motion*.
- Electrol'ysis.**—The act of *decomposing a compound substance* by the action of electricity or galvanism.
- Elec'trolyte.**—A compound which may be directly decomposed by an electric current.
- Elec'tro-Mag'net.**—A bar of iron made temporarily magnetic by causing a current of electricity to pass through a wire coiled around it.
- Elec'tro-Mag'netism.**—The science which treats of the *agency of electricity* and galvanism in communicating magnetic properties.
- Elec'tro-Met'allurgy.**—The art of *depositing metals* on prepared surfaces through the agency of voltaic electricity or galvanism.
- Electrom'eter** (Gr. *elektron*, amber, and *metreo*, I measure).—An instrument for measuring the quantity or intensity of electricity.
- Electro-Physiol'ogy.**—Electric results produced through physiological agencies.
- Elec'tro-Stat'ics** (Gr. *elektron*, amber, and *statikos*, belonging to a state of rest).—The science which treats of *electricity in equilibrium*, as distinguished from electro-dynamics.
- Gal'vanism.**—Electrical phenomena in which the *electricity* is developed *without the aid of friction*, and in which a chemical action takes place between certain bodies.
- Galvanol'ogy** (*galvanism*, and Gr. *logos*, a discourse).—A treatise on galvanism, or a description of its phenomena.
- Galvanom'eter, or Rheometer** (*galvanism*, and Gr. *metron*, measure).—An instrument or apparatus for measuring the force or detecting the presence of minute quantities of galvanic electricity.

Id'io-Elec'tric.—Electric *per se*, or containing electricity in its natural state.

Induc'tion.—An influence exerted by an electrified body through a non-conducting medium without apparent communication of a spark: thus electrical attractions and repulsions may be transmitted by *induction* through glass, although no spark can pass through such a medium.

Insula'tion.—In *electrical experiments*, the act of placing electrified bodies, by means of non-conductors, in such a situation that the electricity is prevented from escaping.

Insula'tor.—The substance or body that insulates; a non-conductor.

Magnet'ics.—The science or *principles* of *magnetism*.

Magnetism.—That branch of science which treats of the *properties of the magnet*.

Magnetiza'tion.—The mode by which magnetism can be communicated to a bar or mass of steel or iron.

Magnetom'eter (*magnet*, and Gr. *metron*, measure).—An instrument to ascertain the force of magnetism.

Thermo-Electricity (Gr. *thermē*, heat).—Electricity developed by the unequal distribution of heat through bodies.

Thermo-Mag'netism (Gr. *thermē*, heat).—Magnetism as affected or caused by the action of heat.

Voltam'eter.—An instrument for measuring the intensity, etc., of an electric current.

Zinc'ode.—The positive pole of a galvanic battery.

ENGINES.

En'ginery.—The art of managing engines.

ENGRAVING.

Engrav'ing.—The art of producing figures or designs on metal, etc., by incision or corrosion, for the purpose of being subsequently printed on paper.

Anaglyptog'raphy (Gr. *anaglypho*, I describe, and *grapho*, I write).—The art of *copying works in relief* by a process of machine-ruling on an etching-ground, which gives to the subject the appearance of being raised from the surface of the paper, as if it were embossed.

- Aquatin'ta** (L. *aqua*, water, and It. *tinta*, dye).—A method of engraving by *aqua-fortis*, by which an effect is produced resembling a drawing in water-colors or Indian ink.
- Bit'ing in**.—The process of corroding copper and steel plates with acids.
- Calcog'raphy** (Gr. *calx*, lime, and *grapho*, I write).—An engraving after the manner of a *drawing in chalk*.
- Cerog'raphy** (L. *cera*, wax, and Gr. *grapho*, I write).—The art of engraving on *wax* spread on a sheet of copper, from which a stereotype plate is taken.
- Chalcog'raphy** (Gr. *chalkos*, copper, and *grapho*, I write).—The art of engraving on *copper* or on *brass*.
- Cop'per-plate**.—A plate of polished copper on which concave lines are engraved or corroded according to some delineated figure or design. This plate, when charged with any colored fluid, imparts an impression of the figure or design to paper or parchment.
- Coun'ter-proof**.—A print taken off from another fresh printed, which, by being passed through the press, gives the figure of the former, but inverted.
- Dactylog'raphy** (Gr. *daktulos*, a finger, and *grapho*, I write).—The science or art of *gem* engraving.
- Damaskeen'ing**.—The art of engraving on and *inlaying* iron or steel with gold or silver.
- Ectypog'raphy** (Gr. *ektupos*, worked in high relief, and *grapho*, I write).—A method of *etching* in which the lines of the design upon the plate are in relief instead of being depressed or cut into it.
- Elec'trotint**.—A method of *etching by galvanism*. The subject being painted on copper with a thick varnish or paint, the plate is submitted to the electro-coppering process, by which a deposit is made upon it, forming another plate with the lines of the device marked in intaglio, or sunken.
- Emboss'ing** (Fr. *bosse*, a protuberance).—The art of producing figures in relief from a plane surface of metal by means of a chisel or punch.
- Etching**.—A mode of engraving by which figures or designs are produced on copper or other metallic plates *by means of lines* or strokes first drawn, and then eaten or corroded by *aqua-fortis*.
- Glyp'tics** (Gr. *glyptos*, engraved).—The art of engraving *figures* on *precious stones*.

Glyptog'raphy (Gr. *gluptos*, engraved, and *graphē*, description).—A description of the art of engraving *upon gems*.

Gypsog'raphy (Gr. *gypsos*, gypsum, and *grapho*, I engrave).—The art of engraving on *gypsum*.

Hatching.—A mode of execution in engraving in which the effect is produced by courses of *lines crossing each other* at angles more or less acute.

Héliogra'vure (Gr. *helios*, the sun, and *grapho*, I engrave).—The art of *photographic* engraving. There are two sorts of héliogravure,—that which prints like a copper-plate, and that which prints like a wood-cut.

Hyalog'raphy (Gr. *hualos*, glass, and *grapho*, I write).—The art of engraving on *glass*.

Impast'ing.—An intermixture of lines and points to represent thickness or depth of coloring.

Lithog'raphy (Gr. *lithos*, a stone, and *grapho*, I write).—The art of tracing letters, figures, or other designs on *stone*, and of transferring them to paper by impression.

Mezzotin'to (It. half-tinted).—A particular manner of engraving by an artificial disposition of the shades and different parts of a figure, on different plates. Mezzotintos are printed in colors so as to represent actual paintings.

Proof.—An early impression taken, as from an engraved plate, lithographic stone, and the like.

Siderog'raphy (Gr. *sideros*, steel or iron, and *grapho*, I engrave).—The art or practice of engraving on *steel*, by means of which impressions may be transferred from a steel plate to a steel cylinder in a rolling press of a particular construction.

Stip'pling.—A method of engraving in *dots*, as distinguished from etching in lines.

Xylog'raphy (Gr. *xulon*, wood, and *grapho*, I engrave).—The art of cutting figures in wood, in representation of natural objects; *wood-engraving*.

Zincog'raphy.—Engraving on *zinc* in the style of wood-cuts.

EXERCISE.

Calisthen'ics (Gr. *kalos*, beautiful, and *sthenos*, strength).—The art, science, or practice of healthful exercise of the body and limbs, to promote strength and graceful movements.

Gymnas'tics (Gr. *gumnazo*, I exercise).—The art of performing gymnastic exercises.

FARMING.

Agricul'ture (L. *ager*, a field, and *cultura*, cultivation).—The art of preparing the soil, sowing and planting seeds, dressing plants, and removing crops.

Arboricul'ture (L. *arbor*, a tree, *cultura*, cultivation).—The art of cultivating *trees* and shrubs, chiefly for timber or ornamental purposes.

Horticul'ture (*hortus*, a garden, and *cultura*).—The art of cultivating *gardens*.

Pomol'ogy (L. *pomum*, fruit, and Gr. *logos*, a discourse).—The art or science of raising *fruit*.

Ablacta'tion.—A method of ingrafting by approach or inarching, by which the scion of one tree is united to the stock of another without being cut before it is firmly attached and as it were weaned from the parent tree.

Ablaquee'a'tion.—A laying bare the roots of trees to expose them to the air and water.

Arcua'tion.—A method of *raising trees by layers*; that is, by bending branches to the ground, covering the small shoots with earth three inches deep upon the joints, and making a basin around them to hold water. Upon taking root, they are removed into a nursery.

Blanch'ing.—A term applied to the process of *whitening the stalks or leaves of plants*, by earthing them up or tying them together, so as to exclude the light or diminish its intensity.

Bos'ket.—A compartment formed by branches of trees regularly or irregularly disposed.

Bud'ding.—A method of *propagating plants*. A bud with a small portion of bark is neatly cut off and transferred to another tree, a slit being first made in the bark of the latter to receive the bud. It is then bound round with thread until the bud has grown to and become part of the tree. The branch springing from the bud will afford flowers and fruit similar to those of the tree from which it was taken.

Caprifica'tion.—The process by which the maturation of the fig is accelerated in the Levant.

Cleft'-Grafting.—A mode of *grafting* in which the scion is inserted in a cleft made in the stock.

Cross-tin'ing.—A harrowing by drawing the harrow or drag back and forth on the same ground.

Drill'ing.—A mode of putting seed into the ground by a machine called a *drill plough*, which makes channels in the ground and lets the seed into them, so that it comes up in rows in which the plants are at regular distances from each other.

Etiola'tion.—The rendering plants white, crisp, and tender, by excluding the action of light from them.

Fal'low.—Land that has lain a year or more untilled or unseeded. It is also called *fallow* when ploughed without being sowed.

Flo'riculture.—The cultivation of flowering plants.

Flute'-grafting.—A kind of budding in which a ring of bark is used instead of a single bud, and, a stock of similar thickness having been cut over, a ring of bark is removed, and the foreign one substituted.

Glean'ing.—The act of gathering after reapers.

Graft'ing.—The process of inserting a branch of one tree into the stock of another, so that it may receive nourishment from it, while at the same time it produces a new tree like the old one whence the graft was taken.

Har'rowing.—The act of drawing a harrow over for the purpose of breaking clods and levelling the surface, or for covering the seed sown.

Hus'bandry.—The practical part of the science of agriculture.

Irriga'tion.—The operation of causing water to flow over lands, for nourishing plants.

Mow'ing.—The cutting down of grass with a scythe.

Par'ing.—The act or practice of cutting off the surface of grass land, for tillage.

Plash'ing.—The operation of cutting small trees half through, and interweaving them, as in hedges.

Plough'ing.—The trenching and turning up of the soil with a plough.

Ring'ing.—The cutting out of a ring of bark down to the new wood, for the purpose of making a branch fruitful.

Tal'lowing.—The art or practice of causing animals to gather tallow.

Thrash'ing.—The beating out of grain from the husk.

Till'age.—The operation, practice, or art of tilling or preparing land for seed, and keeping the ground in a state favorable for the growth of crops.

Tongue'-grafting.—A mode of grafting by inserting the end of a scion in a particular manner.

Top'-dressing.—A dressing of manure laid on the surface of land.

Top'iary-Work.—The fanciful form sometimes given, by cutting and trimming, to arbors and thickets, trees and hedges.

Trench'ing.—The preparation of soils by digging two or more spades deep and exposing the soil.

Warp.—A slimy substance deposited on land by marine tides, by which a rich alluvial soil is formed.

Win'nowing.—The operation of separating and driving off the chaff from grain by means of wind.

FIREWORKS.

Pyrotech'nics (Gr. *pur*, fire, and *technē*, an art).—The art of making fireworks, or the science which teaches the management and application of fire in its various operations, particularly in making rockets and other artificial fireworks.

FISHES.

Ichthyol'ogy (Gr. *ichthūs*, a fish, and *logos*, a discourse).—The science of fishes, or that part of zoology which treats of fishes, their structure, habits, etc.

The class has been divided into five orders, as follows:

1. **Sela'chii.**—Fishes with cartilaginous skeletons and five or more gill-openings on each side, including the sharks and rays.
2. **Ganoid'ei.**—Fishes whose bodies are covered with hard plates, including the sturgeon, etc.
3. **Teleos'tei.**—Bony fishes.
4. **Cyclos'tomi.**—Boneless fishes, including the lampreys and other genera.
5. **Leptocar'dii.**—The amphioxus or lancelet.

The order *Teleostei* is divided into the following sub-orders:

- A. **Plectog'nathi.**—Those in which the bones of the upper jaw and face are firmly attached to, or amalgamated with,

those of the skull, including the globe-fishes, the file-fishes, etc.

B. Lophobran'chii.—Those having the branchial filaments arranged in little tufts along the branchial arches, and the face produced into a long snout, including the pipe-fishes, the sea-horse, etc.

C. Acanthop'teri.—Those having spinous rays in some of the fins, including the perch, mullet, mackerel, etc.

D. Pharyngog'nathi.—Those whose lower pharyngeal bones are united, including the flying-fishes, the wrasses, etc.

E. Anacan'thini.—Those without spinous rays in the fins, and having a completely closed air-bladder, including the cod family, the turbot family, the remoras, etc.

F. Physos'tomi.—Those which have soft fin-rays, except the first in the dorsal, anal, and pectoral fins, which are occasionally spinous, and an air-bladder which communicates with the pharynx by an open duct, including eels, herrings, the salmon and carp families, etc.

Piscicul'ture (Lat. *piscis*, a fish, and *cultura*, culture).—The artificial method of promoting the *propagation* and *nurture of fish*.

FOOD.

Aristol'ogy (Gr. *ariston*, luncheon, and *logos*, a discourse).—The art of preparing dinners.

Bromatog'raphy (Gr. *brōma*, food, and *graphē*, description).—A description of aliments.

Cu'linary Art (Lat. *culina*, a kitchen).—The art of preparing meats for the table.

Gastron'emy (Gr. *gaster*, the stomach, and *nomos*, law).—The art or science of good eating.

Threpsol'ogy (Gr. *threpsis*, nutrition, and *logos*, a discourse).—The doctrine of, or a treatise on, the nutrition of organized bodies.

FORESTS.

For'estry.—The art of forming or cultivating forests.

Dendrom'eter (Gr. *dendron*, a tree, and *metron*, measure).—An instrument to measure the height and diameter of trees.

FORTIFICATION.

En'gineering (Military).—The art of constructing, maintaining, and managing fortifications, and all buildings, engines, or machinery necessary in military posts; it includes instructions on all points relating to the attack and defence of places.

Approach'es.—The works thrown up by the besiegers to protect them in their advances toward a fortress.

Auget'.—The wooden pipe which contains the powder by which a mine is fired.

Bac'ule.—A kind of portecullis or gate, made like a pitfall, with a counterpoise, and supported by two great stakes.

Ban'quette.—The elevation of earth behind a parapet, on which the garrison of a fortress may stand on the approach of an enemy, in order to fire upon him.

Bar'bacan (1).—A fortification or outer defence to a city or castle, consisting of an elevation of earth about three feet high, along the foot of the rampart.

(2.) A fort at the end of a bridge, or at the outlet of a city, having a double wall with towers.

(3.) An opening in the wall of a fortress through which guns are levelled and fired upon an enemy.

Barbette'.—A mound of earth thrown up against the interior slope, by means of which a piece of artillery can fire over a parapet.

Barricade'.—A fortification, made in haste, of trees, earth, palisades, wagons, or anything that will obstruct the progress of an enemy or serve for defence against his shot.

Bas'tion.—A huge mass of earth, usually faced with sods, sometimes with brick or stones, standing out from the angles of a fortified work to protect the wall; formerly called a bulwark.

Batardeau'.—A solid piece of masonry, seven or eight feet thick, crossing the whole breadth of the ditch, opposite the flanked angles of the bastions. It retains the water in that part of the ditch which requires it to be inundated.

Bat'tlement.—A wall raised on a building with openings or embrasures, or the embrasure itself.

Berm.—A space of ground left between the rampart and the

moat or fosse, designed to receive the ruins of the rampart and prevent the earth from filling the fosse.

Bon'net.—A small work composed of two faces, usually raised before the salient angle of the counterscarp.

Breast'-Work.—Works thrown up to protect the besiegers against the fire of the besieged. It takes its name from its usual height.

Bridge-head.—A fortification covering the extremity of a bridge nearest the enemy.

Cheval'-de-frise (plural, **Chevaux'-de-frise**).—A piece of timber traversed with wooden spikes, pointed with iron, five or six feet long, used to defend a passage, stop a breach, or make a retrenchment to stop cavalry.

Circumvalla'tion.—The ramparts surrounding a besieged place.

Cit'adel.—A fort with four, five, or six bastions, raised on the most advantageous ground about a city, the better to command it, and commonly divided from it by an esplanade, the more effectually to hinder the approach of an enemy.

Contravalla'tion.—A trench guarded with a parapet, formed by the besiegers, between their camp and the place besieged, to secure themselves and check sallies of the garrison.

Cor'beil.—A little basket, filled with earth, and set upon a parapet, to shelter men from the fire of besiegers.

Cor'don.—A row of stones projecting from the rampart, at the basis of the parapet.

Coun'terguard.—A small rampart or work raised before the point of a bastion, consisting of two long faces parallel to the faces of the bastion, making a salient angle to preserve the bastion.

Coun'terscarp.—The exterior talus or slope of the ditch, or the talus that supports the earth of the covered way. Often, the whole covered way, with its parapet and glacis.

Crest.—The top line of a slope.

Crown'-Work.—An outwork running into the field, consisting of two demi-bastions at the extremes, and an entire bastion in the middle, with curtains. It is designed to gain some advantageous post, and cover the other works.

Cur'tain.—That part of the rampart which is between the flanks of two bastions. It is bordered with a parapet, behind which the soldiers stand to fire on the covered way and into the moat.

- Dem'i-Gorge.**—That part of the polygon which reaches from the curtain to the angle of the polygon.
- Embra'sure.**—An opening in a wall or parapet through which cannon are pointed and discharged.
- Enceinte'.**—The wall or rampart which surrounds a place, sometimes composed of bastions and curtains.
- En'velope.**—A mound of earth raised to cover some weak part of the works.
- Epaule'ment.**—A side work, or work to cover sidewise, made of gabions, fascines, or bags of earth.
- Escarp'ment.**—The exterior surface of the revetment.
- Esplanade'.**—An open, level space of ground, separating the citadel of a fortress from the town, and intended to prevent any person approaching the town without being seen from the citadel.
- Fas'cine.**—A fagot, a bundle of rods or small sticks of wood, bound at both ends and in the middle; used in raising batteries, filling ditches, strengthening ramparts, and making parapets.
- Flank.**—That part of a bastion which reaches from the curtain to the base, or any part of a work that defends another work along the outside of its parapet.
- Fleche.**—A field-work usually at the foot of a glacis, consisting of two faces forming a salient angle pointing outward from the position taken.
- Fosse.**—A ditch, commonly full of water, lying between the scarp and the counterscarp.
- Fougasse'.**—A little mine, charged with powder, and covered with stones or earth; sometimes dug outside of the works, to defend them, and sometimes beneath, to destroy them by explosion.
- Fourneau'.**—The chamber of a mine in which the powder is lodged.
- Fraise.**—Palisades placed in juxtaposition, either horizontally or slightly inclined.
- Ga'bion.**—A hollow cylinder of wicker-work, resembling a basket, having no bottom, filled with earth, and serving to shelter men from an enemy's fire.
- Gabionnade'.**—A parapet hastily formed by gabions.
- Ga'zons.**—Masses of fresh earth, covered with grass, used to line the outsides of ramparts, parapets, etc.
- Gla'cis.**—That mass of earth which serves as a parapet to the
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covered way, having an easy slope or declivity towards the campaign or field.

Gorge.—The entrance of a bastion, ravelin, or other outwork.

Horn'work.—A kind of work composed of two half-bastions and curtain, with two long sides divided upon the faces of the bastions or ravelins, so as to be defended from them.

Lines.—A series of field-works, either continuous or at intervals. The former are connected by means of curtains, or long straight walls. The rule in constructing the other is, that the works shall be within cannon-shot range of each other.

Lunette'.—An enveloped counter-guard, or elevation of earth made beyond the second ditch opposite to the places of arms. It is commonly raised in ditches full of water, to serve instead of *fausse brays*, to dispute the enemy's passage of the ditch.

Mer'lon.—The space in the parapet between two embrasures, generally from fifteen to eighteen feet in length.

Moi'neau.—A small, flat bastion, raised in front of an intended fortification, to defend it against attacks from small arms.

Oril'lon.—A rounding of earth faced with a wall raised on the shoulder of those bastions that have casemates to cover the cannon in the retired flank, and prevent their being dismounted.

Out'works.—All those works of a fortress which are situated without the principal wall, within or beyond the principal ditch.

Palisades'.—Stakes driven into the ground, and sharpened at the top, for the purpose of defence against the surprise of an enemy.

Par'apet.—A wall, rampart, or elevation of earth for covering soldiers from an enemy's shot.

Pick'ets.—Sharp stakes, sometimes shod with iron, used in laying out ground, or for pinning the fascines of a battery.

Pos'tern.—A small gate, usually in the angle of the flank of a bastion, or in that of the curtain descending into the ditch.

Ramp.—An inclined plane or path serving as a communication between different levels of works.

Ram'part.—An elevation or mound of earth round a place, capable of resisting cannon-shot, and formed into bastions, curtains, etc.

Redan'.—A kind of rampart in the form of an inverted V, having its angle toward the enemy.

Redoubt'.—A parapet enclosing a square or polygonal area.

Re-en'tering Angle.—The angle of a work which points inward, toward the place to be defended.

Relais'.—A narrow walk without the rampart, to receive the earth that may be washed down, and prevent its falling into the ditch.

Retirade'.—A kind of retrenchment in the body of a bastion or other work which is to be disputed inch by inch after the defences are dismantled.

Retired Flank.—A flank having an arc of a circle, with its convexity turned toward the place to be defended.

Revet'ment.—A strong wall on the outside of a rampart, intended to support the earth.

Ridge.—The highest portion of the glacis proceeding from the salient angle of the covered way.

Sa'lient Angle.—The angle of a polygon which projects outward from the figure. All the angles of any regular figure are salient.

Scarp.—The interior slope of the ditch next to the place, at the foot of the rampart.

Sil'lon.—A work raised in the middle of a ditch, to defend it when it is too wide.

Site.—The ground occupied by a work.

Star-Forts.—Forts with several salient angles, in the form of a star.

Stockade'.—A fence or barrier made with stakes or posts planted in the earth.

Ta'lus.—The slope of a work, as that of a bastion, rampart, or parapet.

Tam'bour.—A kind of work formed of palisades or pieces of wood ten feet long, planted close together and driven firmly into the ground.

Ten'ail.—An outwork consisting of two parallel sides with a front, in which is a re-entering angle. It is either single or double.

Ten'aillons.—Works constructed on each side of the ravelins, like the lunettes, but differing in this, that one of the faces of the tenaillon is in the direction of the ravelin, whereas that of the lunette is perpendicular to it.

Terre-Plein (Fr. an open space).—The horizontal surface of

the rampart where the guns are placed and worked. It is bounded outside by the parapet, and inside by the inner slope of the rampart.

Tête'-de-Pont'.—A field fortification in front of a bridge, to cover the retreat of an army across a river.

Trav'erse.—A trench with a little parapet for protecting men on the flank; also, a wall raised across a work.

Trench.—A deep ditch cut for defence or to interrupt the approach of an enemy.

Van-Fosse.—A ditch dug without the counterscarp, and running all along the glacis, usually full of water.

Works.—The fortifications about the body of a place. The word is also used to signify the approaches of the besiegers, and the several lines, trenches, etc., made round a place, an army, or the like, for its security.

FORTUNE-TELLING.

Astrol'ogy (Gr. *astron*, a star, and *logos*, a discourse).—The science which teaches how to judge of the effects and influences of the stars, and to foretell future events by their situation and different aspects.

Apot'esism.—The casting of a nativity.

Hor'oscope, or Nativity.—The aspect of the heavenly bodies, as observed at the hour of birth or at any particular moment.

Nec'romancy.—The art of revealing future events by means of a pretended communication with the dead.

Palm'istry.—A mode of telling fortunes by the lines of the hand; a trick of imposture much practised by the gipsies.

FOSSILS.

Paleontol'ogy (Gr. *palaïos*, ancient, and *ontology*, the science of being).—The science of ancient beings or creatures; applied to the science of the fossil remains of animals and plants now extinct.

Ichnol'ogy (Gr. *ichnos*, a trace, and *logos*, a discourse).—A treatise on *ichnites*, the fossil *footsteps* and tracks of animals, originally made on the sand or mud of an ancient sea-shore or lake-margin.

Oryctol'ogy (Gr. *orūctus*, dug out, and *logos*, a discourse).—That branch of science which treats of fossil *organic remains*.

GAMES.

Agonist'ics (Gr. *agonistēs*, a combatant).—The science of games, or *prize-fighting*.

GEOGRAPHY.

Geog'raphy (Gr. *ge*, the earth, and *grapho*, I describe).—A description of the earth, particularly of the *divisions of its surface*, natural or artificial, together with its productions and inhabitants.

An'tipodes, or **Antip'odes**.—A term applied to those who live on opposite sides of the globe, and, of course, whose feet are directly opposite.

Antœ'ci.—Those inhabitants of the earth who live under the same meridian, but on different sides of the equator and at equal distances from it.

As'cii.—Inhabitants of the globe who, at certain times, have no shadow: such as those in the torrid zone, who twice a year have the sun vertical at noon.

Equa'tor.—The great circle of the sphere, equally distant from the two poles of the world, or having the same poles as the world.

Lat'itude.—The distance of a place north or south from the equator.

Lon'gitude.—The distance of any place on the globe from another place, eastward or westward, measured on the equator; or the distance of any place from a given meridian, measured on the equator.

Merid'ian.—A great circle of the sphere passing through the earth's axis and the zenith of the spectator.

Orol'ogy (Gr. *oros*, a mountain, and *logos*, a discourse).—The science or description of *mountains*.

Perie'cian.—An inhabitant of the opposite side of the globe, in the same parallel of latitude.

Peris'cian.—An inhabitant of a frigid zone or within a polar circle, whose shadow moves round and, in the course of the day, falls in every point of the compass.

Poles.—The extremities of the earth's axis.

Potamol'ogy (Gr. *potamos*, a river, and *logos*, a discourse).—A treatise on rivers.

Zone.—A division of the earth with respect to the temperature of different latitudes.

GEOLOGY.

Geol'ogy (Gr. *ge*, the earth, and *logos*, a discourse).—The science which treats of the *structure and mineral constitution of the globe* and the causes of its physical features.

Lithol'ogy, or **Petrol'ogy** (Gr. *lithos* or *petros*, a stone, and *logos*, a discourse).—That division of geology which treats of *rocks* in their mineralogical aspect.

Stromatol'ogy (Gr. *stroma*, a bed, and *logos*, a discourse).—That division of geology which considers the *stratified rocks* in their chronological order, as exhibiting different phases of the history and development of the globe itself, and in their fossil contents setting forth the progress of life upon its surface.

GRAND DIVISIONS OF GEOLOGICAL TIME.

1. **Azo'ic**.—The preparatory time for the commencement of the systems of life.
 2. **Paleozo'ic**.—Including (1) The Age of Mollusks, or Silurian; (2) The Age of Fishes, or Devonian; (3) The Age of Coal Plants, or Carboniferous.
 3. **Mesozo'ic**.—Including the Reptilian Age.
 4. **Cenozo'ic**.—Including the Mammalian Age.
 5. **The Age of Mind**, or the Human Era.
- E'ocene** (early dawn).—A term applied to the earlier tertiary deposits, in which are a few organic remains of existing species of animals.
- Mi'ocene** (less recent).—The middle division of the tertiary strata, containing fewer fossil shells of recent species than the pliocene, but more than the eocene.
- Pleis'tocene** (most recent).—The newest of the tertiary strata, which contains the largest proportion of living species of shells.
- Pli'ocene** (more recent).—A name given to the most modern tertiary deposit, in which most of the fossil shells are of recent species.

GLASS.

Glaz'ing.—The art of setting glass.

GOVERNMENT.

Pol'itics (Gr. *politikos*, from *polis*, a city).—The science of government. That part of ethics which consists in the regulation and government of a nation or state for the preservation of its safety, peace, and prosperity.

Ä'lien.—One who is not a denizen, or entitled to the privileges of a citizen.

Alli'ance.—The union between nations, contracted by compact, treaty, or league.

Autoc'racy.—Supreme, uncontrolled, unlimited authority or right of governing in a single person.

Auton'omy.—The power or right of self-government.

Balance of Power.—Such an adjustment of power among sovereign states that no single state is in a condition to interfere with the independence of the rest.

Body Politic.—The collective body of a nation under civil government.

Branches of Government.—The *legislative* body deliberates and enacts laws; the *judicial* body judges, or applies the laws to particular cases; the *executive* carries the laws into effect, or superintends their enforcement.

Bud'get.—The annual financial statement which the British chancellor of the exchequer, or sometimes the first lord of the treasury, makes in the House of Commons. It comprehends a general view of the national debt, income, and expenditure, ways and means, etc., with the proposed plan of taxation for the ensuing year.

Bu'reau.—An inferior and subordinate department of the government.

Bureau'cracy.—A system in which the business of government is carried on in departments, each under the control of a chief, in contradistinction from a system in which the officers of government have a co-ordinate authority.

Cabinet, or Ministry.—Persons who compose the executive government or the council of a supreme magistrate.

Camaril'la.—A secret cabinet, not publicly recognized.

Cameralist'ics (*cameralist*, a financier).—The science of *finance* or public *revenue*, comprehending the means of raising and disposing of it.

Can'didate.—One who aspires to some office or privilege, and who offers himself for the same.

Capita'tion-Tax.—A tax upon each head or person; a poll-tax.

Char'gé-d'Affaires.—A person intrusted with the public interest in a foreign nation, in the place of an ambassador or other minister.

Confedera'tion.—Alliance of princes, nations, or states for some common object.

Confisca'tion.—The act of condemning as forfeited, and adjudging to the public treasury, as the goods of a criminal who has committed a public offence.

Con'gress.—An assembly of envoys, commissioners, deputies, etc., from different courts, who meet to concert measures for their common good, or to adjust their common concerns.

CONGRESS OF THE UNITED STATES OF AMERICA is the assembly of the senators and representatives of the several states of the American Union, forming the legislature of the United States, which consists of two houses, a senate and a house of representatives.

Conserv'atism.—Conservative principles, or the principles of the conservative party.

Constitu'tion.—A system of fundamental rules, principles, and ordinances for the government of a state or nation.

Coup d'état'.—A stroke of policy.

Creden'tials.—The letters of commendation and power given by a government to an ambassador or envoy, which give him credit at a foreign court.

Del'egate.—In the United States, a person elected or appointed to represent a state or a district, in Congress, or in a convention for forming or altering a constitution.

Democ'racy.—A form of government in which the supreme power is lodged in the hands of the people collectively, or in which the people exercise the powers of legislation.

Di'et.—The principal national assembly in several countries of modern Europe.

Din'archy.—A form of government in which the supreme power is vested in two persons.

- Diplo'macy.**—The science of negotiation with foreign states as founded on public law, positive engagements, or an enlightened view of the interests of each.
- Duloc'racy.**—A government in which slaves and base people hold the reins of power.
- Dy'nasty.**—A race or succession of kings, of the same line or family, who govern a particular country.
- Econom'ics.**—*Political economy*; the science of the utilities, or useful application of wealth or material resources.
- En'voy.**—A public minister sent from one government or power to another on a special mission, and so differing from an ambassador; a public diplomatic minister of second rank, inferior in dignity to an ambassador, but generally invested with equal powers.
- Exequa'tur.**—A written recognition of a person in the character of consul or commercial agent, issued by the government, and authorizing him to exercise his powers in the country.
- Extradition.**—The delivery, by one nation or state to another, of fugitives from justice, in pursuance of a treaty.
- Fac'tion.**—A party in political society, combined or acting in union, in opposition to the government.
- Federal Government.**—One that consists of several independent provinces or states united under one head; but the extent to which such states give up their individual rights may be very different, although, as relates to general politics, they have one common interest, and agree to be governed by one and the same principle.
- Feud'alism.**—The system of holding lands on condition of military service.
- Finan'ces.**—The revenues of a state.
- Fran'chise.**—A right reserved to the people by the constitution; as, "the elective *franchise*."
- Gynæoc'racy.**—Female government, government by a woman.
- Hep'tarchy.**—A government conducted by seven persons or sovereigns; as, "the Saxon *heptarchy*."
- Hi'erarchy.**—An ecclesiastical government.
- Hust'ings.**—*In England*, the booth or elevated place where candidates at a parliamentary election are proposed and address their constituents.
- Impeach'ment.**—An accusation or charge brought against a public officer for maladministration in his office.

Interna'tional Law.—The laws regulating the mutual intercourse between different nations.

Interreg'num.—The time during which a throne is vacant between the death or abdication of one sovereign and the accession of another.

Judi'ciary.—The system of courts of justice in a government.

Land-warrant.—An instrument issued from the Department of the Interior of the United States, certifying that the person in whose favor it is drawn is entitled to locate a specified number of acres of land at any land-office of the United States, etc., under certain limitations. This warrant conveys no title to the land, but is in many respects similar to a bond for a deed.

Lega'tion.—The person or persons sent as envoys or ambassadors to a foreign court.

Leg'islature.—The body of men in a state or kingdom invested with power to make and repeal laws. The national *legislature* of the United States is styled Congress, and consists of the President, the Senate, and the House of Representatives.

Letter of Marque.—A power granted by a state to its citizens, to make reprisals on the citizens of a state with which it is at war.

Manifes'to.—A declaration of motives by a belligerent state, or by a general having full powers, previous to the commencement of hostilities.

Mon'archy.—A government in which the supreme authority is vested in a single person. Where the monarch possesses an absolute power, the monarchy is termed *absolute*; where the supreme power is virtually in the laws, though the majesty of government and the administration is vested in a single person, it is a *limited* monarchy. It is *hereditary* if the regal power descends immediately from the possessor to the next heir by blood, as in Great Britain; *elective*, if the choice depends upon all who enjoy the benefit of freedom, as was the case in Poland.

Naturaliza'tion.—The making a foreigner a lawful subject of the state.

Neutral'ity (Armed).—The condition of a neutral power which holds itself ready to resist by force any aggression on the part of either of the belligerents between which it is neutral.

Nomol'ogy (Gr. *nomos*, law, and *logos*, a discourse).—The science or knowledge of law, legislation, and government.

Ochloc'racy.—A form of government in which the multitude or common people rule.

Oc'tarchy.—A government by eight persons.

Ol'igarchy.—A form of government in which the supreme power is placed in a few hands; a species of aristocracy.

Or'dinance.—A rule established by authority; a permanent rule of action; a statute, law, edict, decree, rescript.

Pen'sion.—A yearly stipend paid by government to retired public officers, disabled soldiers, the families of soldiers killed, meritorious and needy authors, artists, etc., or the like.

Pen'tarchy.—A government in the hands of five persons.

Plenipoten'tiary.—An ambassador or envoy to a foreign court, furnished with full power to negotiate a treaty or to transact other business.

Pol'icy.—The settled method by which the government and affairs of a nation are, or may be, administered; a system of public or official administration, as designed to promote the external or internal prosperity of a state.

Pol'ity.—The form or constitution of civil government by which a nation or state is organized; the framework or organization by which the various departments of a civil government are combined into a systematic whole.

Pol'ygarchy.—Government by several persons.

Primary Assembly.—A meeting of the people or legal voters in a town, city, or other district, who appear and act on public business in person, and a majority of whose votes originate the supreme power in a state.

Pro'tocol.—The original copy of any writing, as a treaty, despatch, or other instrument.

Reciprocity.—A treaty between nations which confers equal privileges as respecting customs, charges on imports, etc.

Re'gency.—The office of one who governs a kingdom in the minority, absence, or disability of the sovereign.

Republic.—A state in which the exercise of the sovereign power is lodged in the people. If it is an *aristocracy* such as the republic of Venice was, the authority is vested in a few privileged individuals; if a *democracy*, it is vested in rulers chosen by and from the whole population, or in representatives selected by it. Sometimes, as in Switzerland, aristocracy and democracy are combined.

Rev'enue.—The annual produce of taxes, excise, customs, duties, rents, etc., which a nation or state collects and receives into the treasury for public use.

Sen'ate.—The upper house of a national assembly, or of a state legislature, in the United States and many other modern republics.

Sociol'ogy.—Political science.

Statis'tics.—The name given to the science which exhibits the state or condition of a country or nation, principally in relation to its extent, population, industry, wealth, and power.

Statistol'ogy.—A discourse or treatise upon statistics.

Stratoc'rary.—A military government, or that form of government in which the soldiery bear the sway.

Syn'archy.—Joint rule or sovereignty.

Theoc'rary.—The government of a nation immediately by God, as that of the Israelites before the appointment of kings.

Timoc'rary.—A form of government in which a certain amount of property is requisite as a qualification for office, or one which is a kind of mean between an aristocracy and an oligarchy.

Tri'archy.—A government by three.

Ve'to (Lat. *veto*, I forbid).—The power possessed by the executive branch of a legislative body, as a king, president, governor, etc., to negative a bill that has passed the other branches of the legislature.

Zoll'verein.—An agreement or union among the German states, for the collection of custom-house duties.

GRAMMAR.

Grammar.—As an art, is the power of reading, writing, and speaking correctly; as a science, it teaches the right use of language.

Orthog'raphy.—Treats of letters, syllables, separate words, and spelling.

Etymol'ogy.—Treats of different parts of speech, with their classes and specifications.

Syn'tax.—Treats of the arrangement of words in sentences.

Pros'ody.—Treats of punctuation, utterance, figures, and versification.

Figures of Orthog'raphy :

ARCH'AISM is a word or phrase expressed according to ancient usage.

MIME'SIS is a ludicrous imitation of some mistake or mispronunciation of a word.

Figures of Etymol'ogy :

APHÆR'ESIS is the elision of some of the initial letters of a word.

APOC'OPE is the elision of some of the final letters of a word.

DIÆR'ESIS is the separating of two vowels that might be supposed to form a diphthong.

PARAGO'GE is the annexing of a syllable to a word.

PROS'THESIS is the prefixing of a syllable to a word.

SYNÆR'ESIS is the sinking of two syllables into one.

SYN'COPE is the elision of some of the middle letters of a word.

TME'SIS is the inserting of a word between two words which should be united if they stood together.

Figures of Syntax :

ELLIP'SIS is the omission of a word or words which the hearer or reader may supply.

ENAL'LAGE is the use of one part of speech for another.

HYPER'BATON is the transposition of words.

PLE'ONASM is the introduction of superfluous words.

SYLLEP'SIS is the mental conception of a thing spoken of, and not according to the literal or common use of the term.

Figures of Prosody :

ARTICULA'TION is the forming of words by the voice with reference to their component letters and sounds.

ELOCU'TION is the graceful utterance of words that are arranged into sentences and form discourse.

PRONUNCIA'TION, or OR'THOEPY, is the art of uttering words with propriety.

PUNCTUA'TION is the art of marking with points the divisions of a composition into sentences, etc.

UT'TERANCE is the art of vocal expression.

Rhetoric.—The *science of oratory* ; the art of speaking with propriety, elegance, and force.

Figures of Rhetoric :

AL'LEGORY is a continued narration of fictitious events, designed to represent and illustrate important realities.

ANTITHESIS is a placing of things in opposition to heighten their effect by contrast.

APOPHASIS is where the speaker pretends to omit what at the same time he really mentions.

APOSTROPHE is a turning from the regular course of the subject into an animated address.

CLIMAX is a figure by which the sense is made to advance by successive steps.

ECPHONESIS is a pathetic exclamation denoting some violent emotion of the mind.

EROTESIS is a form of interrogation, asserting the reverse of what is asked.

HYPERBOLE is extravagant exaggeration.

IRONY is where a speaker sneeringly utters the reverse of what he intends shall be understood.

METAPHOR expresses the resemblance of two objects by applying some attribute of one directly to another.

METONYMY is a change of names between things related.

ONOMATOPEIA is the use of a word, phrase, or sentence the sound of which resembles or imitates the sound of things spoken of.

PERSONIFICATION is a figure by which in imagination we ascribe intelligence to unintelligent beings or abstract qualities.

SIMILE is a simple and expressed comparison.

SYNECDOCHE is a naming of a part for the whole, or the whole for a part.

VISION, or **IMAGERY**, is a figure by which the speaker represents the objects of his imagination as actually before his eyes.

HAWKS.

Falconry.—The art of training certain of the falcon tribes to the pursuit and capture, on the wing, of birds, such as the heron, partridge, rook, wild-duck, pigeon, etc.

Be'wits.—Straps of leather by which bells are fastened to a hawk's legs.

Block.—The perch whereon a bird of prey is kept.

Brail.—A piece of leather to bind up a hawk's wing.

Car'vist.—A hawk which is of proper age and training to be carried on the hand.

Check.—The forsaking, by a hawk, of its proper game, to follow other birds.

Clap.—The nether part of the beak of a hawk.

Hood'ing.—The blinding of a hawk by means of a hood.

Leash.—A leather thong by which the falconer holds the hawk.

Lure.—An object, not unlike a fowl, held out by the falconer to call a hawk.

Quarry.—The hawk's prey.

Ruf'terhood.—A hood to be worn by a hawk when she is first drawn.

Seel'ing (Fr. *ciller*, to wink).—The running of a thread through the eyelids of a hawk when first taken, so that she may see very little, or not at all; to make her the better endure the hood.

HEAT.

Thermot'ics, or Pyronomics (Gr. *thermē*, heat, *pur*, fire, and *nomos*, a law).—The doctrine or the science of heat.

Absorption.—The process or act by which heat is made passively to disappear in some other substance, through molecular or other invisible means.

Actinom'eter.—An instrument for measuring the intensity of heat in the sun's rays.

Cerau'nics (Gr. *keraunos*, thunder and lightning).—That branch of natural philosophy which relates to the effect of heat and electricity.

Interfe'rence.—The mutual action of two intersecting pencils of radiant heat, by which, like two interfering pencils of light, they increase each other's effects at certain points, and diminish or destroy them at others.

Pyrol'ogy (Gr. *pur*, fire, and *logos*, a discourse).—The *natural history* of heat, or a treatise on the subject.

Pyrom'etry (Gr. *pur*, fire, and *metreo*, I measure).—The art of *measuring degrees* of heat, or the expansion of bodies by heat.

Radia'tion.—The divergence or shooting forth of heat from a point or surface.

Thermoch'rosy (Gr. *thermē*, heat, and *chrosis*, coloring).—The property possessed by heat of being composed, like light, of rays of different degrees of refrangibility, which are unequal in rate or degree of transmission through diathermic substances.

- Thermo-Dynam'ics** (Gr. *thermē*, heat, and *dunamis*, force).—
The science which treats of the *mechanical action* or relations of heat.
- Ther'mogen** (Gr. *thermē*, heat, and *genao*, I bring forth).—
The *elementary matter* of heat.
- Thermom'eter** (Gr. *thermē*, heat, and *metron*, measure).—
An instrument for *measuring* heat.

HEAVENS.

- Astron'omy** (Gr. *astron*, a star, and *nomos*, a law or rule).—
The science which treats of the heavenly bodies, explaining the motions, times and causes of the motions, distances, magnitudes, gravities, light, etc., of the sun, moon, and stars, the nature and causes of the eclipses of the sun and moon, the conjunction and apposition of the planets, and any other of their mutual aspects, with the times when they did or will happen.
- Aberra'tion**.—A small apparent motion of the fixed stars, occasioned by the progressive motion of light and the earth's annual motion in its orbit. By this they sometimes appear twenty seconds distant from their true situation.
- Am'plitude**.—An arc of the horizon intercepted between the true east and west points and the centre of the sun, or a star at its rising or setting.
- Anom'aly**.—The angular distance of a planet from its perihelion, as seen from the sun; either true, mean, or eccentric.
- Aphe'lion**.—That point of a planet's orbit which is most distant from the sun.
- Ap'ogee**.—That point in the orbit of the moon which is at the greatest distance from the earth.
- Appari'tion**.—The first appearance of a star or other luminary after having been obscured.
- Ap'pulse**.—The approach of a planet towards a conjunction with the sun or any of the fixed stars.
- Ap'sides, or Ap'sis**.—The two points of a planet's orbit in which it is at its greatest and least distance from the sun.
- Aqua'rius** (Lat., the Water-Bearer).—The eleventh sign of the zodiac, which the sun enters about the 21st of January.
- A'ries** (Lat., the Ram).—The first of the twelve signs of the zodiac, which the sun enters about the 21st of March.

- As'terism.**—A small cluster of stars, either included or not in a constellation.
- As'teroids'.**—The small planets that circulate between the orbits of Mars and Jupiter.
- Astrog'nosy** (Gr. *astron*, a star, and *gnosis*, knowledge).—The science of the stars.
- Astrog'raphy** (Gr. *astron*, a star, and *graphē*, a description).—A description of the stars, or the science of describing them.
- Astrom'etry** (Gr. *astron*, a star, and *metreo*, I measure).—The art of making *measurements* among the stars, or of determining their relative magnitudes.
- Astros'copy** (Gr. *astron*, a star, and *skopeo*, I view).—*Observation* of the stars.
- Ax'is.**—The imaginary line passing through the centre and poles of the earth, on which it performs its diurnal revolution from west to east.
- Az'imuth.**—An arc of the horizon intercepted between the meridian of the place and the vertical circle passing through the centre of a celestial object.
- Can'cer** (Lat., a crab).—The fourth sign of the zodiac, being that of the summer solstice, which the sun enters about the 21st of June.
- Cap'ricorn** (Lat. *caper*, a he-goat, and *cornu*, a horn).—The tenth sign of the zodiac, which the sun enters about the 21st of December, at the winter solstice.
- Colure'.**—Two great circles, supposed to intersect each other at right angles in the poles of the world, one of them passing through the solstitial and the other through the equinoctial points of the ecliptic, viz., Cancer and Capricorn, Aries and Libra, dividing the ecliptic into four equal parts.
- Co'ma.**—A dense, nebulous covering, which surrounds the *nucleus* or body of a comet.
- Com'et.**—A member of the solar system, commonly consisting of three parts: the nucleus, the envelope or coma, and the tail; but one or more of these parts is frequently wanting.
- Conjunc'tion.**—The meeting of two heavenly bodies in the same point or place in the heavens.
- Constella'tion.**—A number of stars which appear as if situated near each other in the heavens, and are considered as forming a particular division.

Curta'tion.—The interval between a planet's distance from the sun and the curtate distance.

Cy'nosure.—A name of the constellation Ursa Minor, or the Lesser Bear, which contains, in the tail, the pole-star by which mariners are guided.

Declina'tion.—The distance of any object from the celestial equator, either northward or southward.

Dichot'omy.—The phase of the moon when she shows just half her disk.

Disk.—The face or visible projection of a celestial body, usually predicated of the sun, moon, or planets; but the stars have also apparent disks.

Eclipse'.—An obscuration or interception of the light of the sun, moon, or other luminous body.

Eclip'tic.—The great circle of the heavens which the sun appears to describe in his annual revolution.

Equa'tor.—The great circle of the sphere, equally distant from the two poles of the world, or having the same poles as the world.

E'quinox.—The precise time when the sun enters one of the equinoctial points, making the day and night of equal length.

Fac'ulæ.—Certain spots sometimes seen on the sun's disk, which appear brighter than the rest of his surface.

Fixed Stars.—Those which retain the same or very nearly the same position with respect to each other.

Gal'axy.—The Milky-Way.

Gem'ini (Lat., the Twins).—The third sign or constellation in the zodiac, which the sun enters about the 21st of May.

Geocen'tric Par'allax.—The apparent change of a body's place that would arise from a change of the spectator's station from the surface to the centre of the earth.

Ha'lo.—A luminous circle, usually prismatically colored, round the sun or moon, and supposed to be caused by the refraction of light through crystals of ice in the atmosphere.

Heliocen'tric Par'allax.—The arc of a great circle of the celestial sphere, drawn from the heliocentric to the geocentric place of a body.

Heliom'eter (Gr. *helios*, the sun, and *metreo*, I measure).—An instrument for measuring with exactness the apparent diameter of the sun, moon, planets, etc.

Hori'zon.—A circle touching the earth at the place of the

spectator, and bounded by the line in which the earth and skies seem to meet.

Immer'sion.—The disappearance of a celestial body by entering into any medium, as into the light of the sun or the shadow of the earth.

In'gress.—The moon's entrance into the earth's shadow in eclipses, and the sun's entrance into a sign, especially Aries.

Lat'itude.—The distance of a heavenly body from the ecliptic.

Le'o (Lat., the Lion).—The fifth sign of the zodiac, which the sun enters about the 22d of July.

Li'bra (Lat., the Balance).—The seventh sign of the zodiac, which the sun enters at the autumnal equinox, in September.

Lon'gitude.—The distance of a heavenly body from the vernal equinox, reckoned on the ecliptic.

Luna'tion.—The period of a revolution of the moon round the earth, or the time from one new moon to the next.

Mac'ulæ.—Dark spots on the surfaces of sun and moon, and on some of the planets.

Mean.—*Mean distance of a planet from the sun*, a right line drawn from the sun to the extremity of the conjugate axis of the ellipsis in which the planet moves. *Mean motion*, that by which a planet is supposed to uniformly traverse its orbit, and which is always proportional to the time.

Meteoros'copy (*meteor*, and Gr. *skopeo*, I view).—That part of astronomy which treats of the more remote heavenly bodies, the distances of the fixed stars, etc.

Milky Way.—A broad, luminous path or circle in the heavens, supposed to be the blended light of innumerable fixed stars which are not distinguishable with ordinary telescopes.

Moon.—A secondary planet or satellite of the earth, whose light, borrowed from the sun, serves to dispel the darkness of night.

Na'dir.—The point of the heavens or lower hemisphere directly opposite the zenith.

Neb'ulæ.—Misty appearances among the stars, usually, but not always, resolved by the telescope into myriads of small stars.

Nodes.—The two points in which the orbit of a planet intersects the ecliptic.

- Nuta'tion.**—A vibratory motion of the earth's axis, arising from periodical fluctuations in the obliquity of the ecliptic.
- Occulta'tion.**—The hiding of a heavenly body from our sight by the intervention of some other of the heavenly bodies.
- Or'bit.**—The path described by a heavenly body in its periodical revolution.
- Par'allax.**—The change of place in a heavenly body in consequence of being viewed from different points.
- Parasele'ne.**—A luminous ring or circle encompassing the moon, in which sometimes are other bright spots bearing some resemblance to the moon.
- Penum'bra.**—A partial shadow or obscurity on the margin of the perfect shadow in an eclipse, or between the perfect shadow, where the light is entirely intercepted, and the full light.
- Per'igee.**—That point in the orbit of the sun or moon in which it is at the least distance from the earth.
- Perihe'lion.**—That part of the orbit of a planet or comet in which it is at its least distance from the sun.
- Pis'ces** (Lat., Fishes).—The twelfth sign or constellation of the zodiac.
- Plan'et.**—The name given to a few bright and conspicuous stars which are constantly changing their apparent situations in the celestial sphere.
- Ple'iades.**—A cluster of seven stars in the neck of Taurus, assigned by Mädler as the central point of the sidereal system.
- Precession of the Equinoxes.**—A continual shifting of the equinoctial points from east to west.
- Retrocession of the Equinoxes.**—The going backward of the equinoctial points.
- Sagitta'rius** (Lat., the Archer).—One of the twelve signs of the zodiac, which the sun enters about November 22.
- Sat'ellite.**—A small planet revolving round another planet.
- Scor'pio** (Lat., the Scorpion).—The eighth sign of the zodiac, which the sun enters about October 23.
- Sec'ondary.**—A great circle of the sphere passing through the poles of another great circle, perpendicular to its plane, as *secondaries* to the ecliptic.
- Selenog'raphy** (Gr. *selēnē*, the moon, and *graphē*, description).—The description of the *surface* of the *moon*.
- Sign.**—The twelfth part of the ecliptic.

Sol'stice.—The time when the sun, in its annual revolution, arrives at that point in the ecliptic farthest north or south of the equator, or reaches its greatest northern or southern declination.

Star.—An apparently small, luminous body in the heavens, that shines in the night, or when its light is not obscured by clouds or lost in the brighter effulgence of the sun.

Sun.—The central body of our system, about which all the planets and comets revolve, and by which their motions are regulated and controlled.

Syz'gy.—A common name for the period both of new and full moon, when the sun, the moon, and the earth are in one line.

Tau'rus (Lat., the Bull).—The second sign of the zodiac, which the sun enters about the 20th of April.

Vir'go (Lat., the Virgin).—The sixth sign of the zodiac, which the sun enters in August.

Ze'nith.—The point in the heavens directly overhead.

HORSES.

Hippopathol'ogy (Gr. *hippos*, a horse, *pathos*, a disease, and *logos*, a discourse).—The science of the diseases of the horse.

Hipposteol'ogy (Gr. *hippos*, a horse, *osteon*, a bone, and *logos*, a discourse).—Osteology of the horse.

Hippot'omy (Gr. *hippos*, a horse, and *temno*, to cut).—Anatomy of the horse.

Manége.—The art of *horsemanship* or of training horses.

Vet'erinary Art (Lat. *veterinarius*, a cattle doctor).—A modern term for what was formerly called farriery. It comprehends a knowledge of the external form as well as the internal structure and economy of the horse, and embraces whatever relates to the diseases to which the horse is liable, with an accurate knowledge of the principles and practice of shoeing, of feeding, exercising, etc., that very useful animal.

HUNTING.

Huntsmanship.—The art or practice of hunting, or the qualifications of a hunter.

IDOLS.

Iconol'ogy (Gr. *eikōn*, an image, and *logos*, a discourse).—
The doctrine of *images* or emblematical representations.

INSCRIPTIONS.

Epigraph'ics (Gr. *epigrafo*, I inscribe).—The science of
inscriptions.

INSECTS.

Entomol'ogy (Gr. *entoma*, insects, and *logos*, a discourse).—
That branch of zoology which treats of insects, a division
of articulated animals having their bodies in three distinct
portions, head, thorax, and abdomen; antennæ on the
head, three pairs of legs, usually one or two pairs of wings,
and aerial respiration. Thus defined, spiders, centipedes,
worms, and crustaceans are all excluded from the class of
insects.

This class has been divided into fifteen orders, viz.:

1. **Coleop'tera**.—The immense order of beetles.
2. **Euplexop'tera**.—Earwigs.
3. **Orthop'tera**.—Grasshoppers, locusts, crickets, etc.
4. **Thysanop'tera**.—Thrips insects.
5. **Neurop'tera**.—Dragon-flies, May-flies, etc.
6. **Trichop'tera**.—Caddice-flies.
7. **Hymenop'tera**.—Bees, wasps, etc.
8. **Strepsip'tera**.—Bee parasites.
9. **Lepidop'tera**.—Butterflies and moths.
10. **Homop'tera**.—Cicadas, lantern-flies, etc.
11. **Heterop'tera**, or **Hemip'tera**.—Bugs.
12. **Aphanip'tera**.—Fleas.
13. **Dip'tera**.—Two-winged insects, such as the house-fly,
blue-bottle fly, etc.
14. **Anoplu'ra**.—Parasites.
15. **Thysanu'ra**.—Spring-tails.

Arachnol'ogy (Gr. *arachnē*, a spider, and *logos*, a discourse).—
The science or history of *spiders* and other Arachnida.

Entomot'omy (Gr. *entoma*, insects, and *temno*, I cut).—The
science of the *dissection* of *insects*.

INSTRUCTION.

Didac'tics, Paideu'tics (Gr. *didasko*, *paideuno*, I teach).—
The art or science of teaching.

Catechet'ics.—The science or habit of instructing in questions and answers.

Curric'ulum (Lat. *curro*, I run).—A specified fixed course of study, as in a university.

LANGUAGE.

Chirol'ogy (Gr. *cheir*, the hand, and *logos*, a discourse).—
The art of *communicating thoughts by signs* made with the hands and fingers; a substitute for language much used by the deaf and dumb.

Cryptol'ogy (Gr. *krupto*, I conceal, and *logos*, a discourse).—
Secret or *enigmatical language*.

Dactylol'ogy (Gr. *daktulos*, a finger, and *logos*, a discourse).—
The art of conversing, or communicating ideas, by spelling words with the fingers, as practised by the *deaf and dumb*.

Dactylon'omy (Gr. *daktulos*, and *nomos*, law, distribution).—
The art of numbering on or *counting by the fingers*.

Di'alect.—The form or *idiom of a language* peculiar to a province or any particular part of a country.

El'oquence.—The art of clothing the thoughts in expressions the most suited to produce conviction or persuasion.

Glossol'ogy, or Linguis'tics (Gr. *glossa*, a tongue, and *logos*, a discourse, and Lat. *lingua*, a tongue).—The science which investigates the agreement and the differences of the various languages written or spoken by mankind.

Grammar.—See GRAMMAR.

Ideol'ogy.—The science of the *modification of language by grammatical forms*, according to the various points of view from which men contemplate the ideas which words are meant to express.

Lexicol'ogy (Gr. *lexikon*, a dictionary, and *logos*, a discourse).—The *science of words*; that branch of learning which treats of the proper signification and just application of words.

Lexig'raphy (Gr. *lexis*, diction, and *grapho*, I describe).—
The art or practice of *defining words*.

Or'atory.—The art of speaking well, or of speaking according to the rules of rhetoric, in order to persuade. Oratory consists of four parts, *invention*, *disposition*, *elocution*, and *pronunciation*.

Orthom'etry (Gr. *orthos*, right, and *metron*, measure).—The art of *constructing verses* correctly; the laws of *versification*.

Philol'ogy (Gr. *phileo*, I love, and *logos*, a word).—That branch of literature which comprehends the knowledge of the etymology or *origin and combination of words*.

Rhetoric.—See GRAMMAR.

Versification.—See VERSIFICATION.

LAW.

Jurispru'dence (Lat. *jus*, law, and *scientia*, science).—The science of law; the knowledge of the laws, customs, and rights of men in a state or community necessary for the due administration of justice.

Abstract of Title.—An epitome of the deeds and documents constituting the evidence of title to an estate.

Action.—The method of demanding the enforcement of a legal right, and procuring redress for a civil injury in the courts of common law.

Administra'tor.—The person to whom the estate and effects of an intestate are committed, for which he is to be accountable when required.

Affida'vit.—A declaration in writing, signed by the party, and sworn to, before an authorized magistrate.

Affilia'tion.—Proof of paternity in the case of an illegitimate child, with the view of obliging the father to contribute to its support.

Al'ibi.—An expression employed when an accused person attempts to prove his innocence by showing he was in another place when the act was committed.

Al'imony.—An allowance made for the support of a woman legally separated from her husband.

Allu'vion.—A gradual increase of land along the sea-shore, or on the banks of rivers. This, when slow and imperceptible, is deemed a lawful means of acquisition; but when a considerable portion of land is torn away at once, by the

violence of the current, and joined to a neighboring estate, it may be claimed again by the former owner.

Appeal'.—The removal of a cause from an inferior into a superior court for the purpose of impeaching the judgment of the inferior court.

Arraign'ment.—The bringing of a prisoner forth, reading the indictment to him, and putting the question of guilty or not guilty.

Arrest of Judgment.—Where the court stays a judgment, after verdict, on some question of law.

Assignee'.—A person to whom any real or personal property is transferred by the act of law, as an executor, an assignee of a bankrupt, etc., or by the act of a party, as a purchaser of a lease.

Assump'sit.—An implied promise to pay for work or goods, such as will sustain an action.

Attach'ment.—A taking of the person, goods, or estate, by a writ or precept in a civil action, to secure a debt or demand.

Bail.—Sureties given for the appearance, when required, of a person on his being set free from custody.

Bail-bond.—A document under seal, by which a person becomes bail.

Bail'ment.—A delivery of a thing in trust for some special object or purpose.

Bank'rupt.—A trader who is indebted in a certain amount, and has committed an act of bankruptcy.

Bar'ratty.—Any species of cheating or fraud in a shipmaster, by which the owners or insurers are injured, as by running away with the ship, sinking or deserting her, by wilful deviation, or by embezzling the cargo.

Bill of Sale.—A writing given by the seller of personal property to the purchaser, answering to a deed of real estate.

Bond.—A written obligation, under seal.

Breach of Covenant.—The doing of an act which a party has covenanted not to do, or the neglecting to do that which he has covenanted to perform.

Breach of Promise.—The doing something contrary to an undertaking or contract.

Breach of the Peace.—An act by which the public repose is disturbed and the safety of the community more or less endangered.

Breach of Trust.—A neglect of duty by a trustee, or person standing in a fiduciary relation, in violation of his trust.

Brief.—An abridgment of the client's case, made out for the instruction of counsel on a trial or hearing.

By-Law.—A private law made by those duly authorized by charter, custom, or prescription; but such by-law must be consonant to the public laws and statutes, and for the common benefit.

Ca'pias.—A writ authorizing the arrest of a defendant in a suit.

Ca'veat.—An entry made in certain courts and offices, after which no proceedings are taken in the matter to which it relates without notice to the person making the entry.

Certiora'ri.—A writ issuing out of some superior court, to call up the records of an inferior court, or remove a cause there depending, that it may be tried in the superior court.

Chal'enge.—An exception taken by a prisoner against one or more jurors, who, when *challenged*, are set aside, if the challenge be allowed, and new ones put in their places.

Char'ter.—An instrument, executed with form and solemnity, bestowing rights or privileges.

Charter-Party.—An instrument between merchants and owners or masters of ships, containing the particulars of the contract for the hire of the ship. It is, in fact, a mercantile lease of the ship.

Chat'tels.—There are two kinds, chattels real and chattels personal; the former are leasehold property, and the latter movable goods, as furniture, money, corn, animals, etc.

Cir'cuit.—The counties or states in which the same judge or judges hold courts and administer justice.

Civil Law.—The ancient Roman law, with the modifications thereof that have been made in the different countries into which that law has been introduced.

Cli'ent.—A party who employs a lawyer or counsellor in any legal proceeding.

Code.—Any orderly collection or digest of laws.

Cod'icil.—A supplement to a will.

Cogno'vit.—A writing by which the defendant admits that the plaintiff's cause of action against him is just, and suffers judgment to be entered against him without trial.

Commit'ment.—The sending of a person to prison by warrant or order, either for a crime or contumacy.

Common Law.—The unwritten law, the law that receives its binding force from immemorial usage and universal reception, in distinction from the written or statute law.

Contempt, or Con'tumacy.—A refusal to appear in court when legally summoned, or other disobedience to its rules and orders.

Con'tract.—A covenant or agreement between two or more persons with a lawful consideration.

Convey'ance.—A deed which passes or conveys land from one person to another.

Convey'ancing.—The art of preparing the *deeds* or instruments used for the transference of property from one person to another.

Cop'yright.—The sole right which an author has in his own original literary compositions.

Costs.—The expenses incurred in the prosecution or defence of legal proceedings, of which there are two kinds, those between party and party, and those between attorney and client.

Cov'enant.—An agreement under seal.

Cross-examination.—The interrogation of a witness by or on behalf of the party *against* whom the evidence is given.

Damages.—The amount of money awarded by a jury to be paid by a defendant to a plaintiff, as a compensation for the injury of which the latter complains.

Deben'ture.—A written instrument of the nature of a bond or bill for a certain sum of money.

De bonis non.—When an administrator dies, the right does not descend to his own representative, but a fresh grant of administration must be obtained of the goods remaining unadministered, and which is called an administration *de bonis non*.

Decree'.—The judgment of a court of equity on any bill preferred.

De Fac'to.—A thing actually done or existing.

Default'.—If a defendant omits to appear or plead to an action within the time allowed, the plaintiff can sign judgment by default.

Defeas'ance.—A collateral deed made at the same time with a deed of conveyance, containing conditions by the performance of which the estate created by the deed of conveyance may be defeated.

- Defend'ant.**—The party against whom an action or suit is brought.
- Deforce'ment.**—The holding of lands or tenements to which another person has a right.
- Demise'.**—A grant by lease of heritable property. It may be either for life or years.
- Demur'rer.**—A mode of raising a point of law upon the facts stated in the pleadings, assuming them to be true.
- Deposi'tion.**—The testimony of a witness set down in writing, in answer to interrogations legally made.
- Der'elicts.**—Such goods as are wilfully relinquished by the owner. It also signifies what is forsaken, or cast away by the sea; thus lands which the sea has suddenly left are called *derelict lands*, and vessels forsaken at sea *derelict ships*.
- Detain'er.**—A writ whereby a person may be detained in custody.
- Disclaim'er.**—A denial, disavowal, or renunciation, as of a title, claim, interest, estate, or trust.
- Distress.**—The distraining or taking the effects of a tenant, in order to satisfy the rent due to his landlord.
- Distringas (on stock).**—A writ which stops the transfer of stock by the party in whose name it stands, and can be obtained at the instance of any party beneficially interested in the stock.
- Dow'er.**—That portion of the lands or tenements of a man which his widow enjoys during her life, after the death of her husband.
- Du'ces Te'cum (bring with thee).**—A clause in a subpoena, commanding a person to bring with him to the trial of an action books and papers which the party who issues the subpoena may think material to his purpose.
- Ease'ment.**—A privilege or convenience which one man has upon another man's land, such as a right of way.
- Eject'ment.**—An action at law to recover the possession of lands.
- Embra'cery.**—The attempt to corrupt or influence a jury.
- Enceinte'.**—A term for a state of pregnancy.
- Endow'ment.**—The act of giving or assuring a dower to a woman. Also, the settlement of a property for the support of some religious or charitable institution, etc.
- En'try.**—The act of taking possession of lands and tenements

where a man has title of entry. Also, a writ showing that the tenant commenced possession in an unlawful way, and thus disproving his title.

Eq'uitable Mort'gage.—The most familiar instance is the deposit (either with or without a memorandum, although it is better to have one) of the title-deeds of an estate, by way of security, which constitutes an equitable mortgage without the execution of any formal mortgage-deed.

Equity of Redemption.—The right which equity gives to a mortgagor of redeeming his estate after the appointed time for payment has passed, and which right can only be barred by a foreclosure.

Er'ror.—A writ of error is a commission to judges of a superior court, by which they are authorized to examine the record upon which a judgment was given in an inferior court, and to affirm, reverse, or vary the same, according to law.

Escheat'.—The reversion of land to the original grantor. It occurs when a tenant in fee-simple dies without having left any heir to the land.

Es'crōw.—A deed of lands or tenements delivered to a third person, to hold until some condition is performed by the grantee, and which is not to take effect until the condition is performed.

Estate'.—The interest which a person has in lands or other property.

Estop'pel (Fr. *étouper*, to stop).—Where a man is precluded from alleging or denying a fact in consequence of his own previous act, allegation, or denial to the contrary.

Ev'idence.—Proof, either written or unwritten, of the facts in issue in any legal proceeding.

Execu'tion.—The carrying into effect a sentence or judgment of court.

Exec'utor.—The person appointed by a testator to execute his will or to see it carried into effect.

Ex-par'te (Lat., from a part).—A statement is called *ex-par'te* where only one of the parties gives an account of a transaction in which two or more are concerned.

Ex Post Facto (Lat., from something done afterwards).—A law declaring an act penal or criminal which was innocent when done.

Fee-simple.—That estate or interest which a person holds to him and his heirs forever.

Fe'lo-de-se (Mod. Lat., a felon with reference to himself).—A person who being of sound mind, and of the age of discretion, wilfully causes his own death.

Fi'at (Lat., let it be done).—A short order or warrant of some judge for making out certain processes, etc.

Fie'ri Fa'cias (Lat. *quod fieri facias de bonis*, that you cause the sum or debt to be made from the goods).—A writ of execution by which the sheriff is commanded to levy the debt and damages of the goods and chattels of the defendant.

Fine.—A penalty or amends, made in money, for an offence; also money paid for the renewal of a lease.

Freehold.—Lands held in fee-simple, fee-tail, or at least for life.

Garnishee'.—The party in whose hands money, due a defendant, is attached.

Grand Jury.—The jury to whom all bills of indictment are referred in the first instance.

Ha'beas Cor'pus (Lat., you may have the body).—A writ for delivering a person from false imprisonment, or for removing a person from one court to another.

Heredit'aments.—All things which may be inherited, that is, which would descend to the heir if not disposed of by deed or will.

Hypoth'ecate.—A term used for pawning a ship and goods, or either, for necessities, which a master of a ship may do when in distress at sea.

Indent'ure.—A writing containing a contract.

Indict'ment.—A written accusation of one or more persons for a crime or misdemeanor, preferred to, and presented on oath by, a grand jury.

Injunc'tion.—A writ forbidding certain acts to be done under pain of contempt.

In'quest.—A meeting of jurors who are summoned to take into consideration certain matters which may appear in evidence before them, and to bring in their verdict accordingly.

Inqui'ry, Writ of.—A writ that issues out to the sheriff to summon a jury to inquire what damages a plaintiff has sustained in an action upon the case where judgment goes by default.

In'terpleader.—A bill in equity filed by one from whom the

same article or sum is claimed by two parties, with a view to ascertain the person to whom it ought to be delivered or paid.

Interrog'atory.—A question in writing, demanded of a witness in a cause, who is to answer it under the solemnity of an oath.

Joint'ure.—A settlement of lands and tenements made on a woman in consideration of marriage.

Judg'ment.—The sentence or doom pronounced in any cause, civil or criminal, by the judge or court by which it is tried.

Ju'rat.—The clause written at the foot of an affidavit, stating when, and before whom, it was sworn.

Ju'ry.—A certain number of persons sworn to decide justly on the matter before them.

Justifying Bail.—The act of proving to the satisfaction of the court that the persons proposed as bail are sufficient for the purpose.

Law Merchant.—Part of the unwritten or common law, consisting of particular customs that have gradually grown into the force of law, and are recognized as such by the courts, such as the law relating to bills of exchange, etc.

Law of Nations.—The laws established between different kingdoms and states, in relation to each other.

Lease.—A conveyance or demise of lands or tenements for life, or years, or at will, but always for a less term than the party conveying has in the premises.

Leg'acy.—A bequest or gift by will of any personal effects.

Lessor and Lessee.—The person who grants a lease is called the *lessor*, the party to whom it is granted, the *lessee*, and the person to whom either of them assigns, the *assignee*.

Lien.—A qualified right which a person has in or to a thing in his possession, arising from a claim upon the owner.

Li'gan.—Goods sunk in the sea but tied to a cork or buoy.

Liquidator.—A person appointed to wind up the affairs of an insolvent company.

Manda'mus (Lat., we command).—A command or writ issued from some of the higher courts, directed to any person, corporation, or inferior court, requiring them to do some act therein specified which appertains to their office or duty.

Med'ical Jurispru'dence.—The science which applies the prin-

ciples and practice of the different branches of *medicine* to doubtful questions in courts of justice.

Misprision.—Any high offence under the degree of what is capital, but bordering on it.

Mit'timus (Lat., we send).—A warrant of commitment to prison. Also a writ for transferring records from one court to another.

Mort'gage.—A pledge of goods or chattels by a debtor to a creditor as security for the debt.

Mort'main (Fr., a dead hand).—Lands held by corporations are said to be held in mortmain.

Mu'niments.—Deeds, evidences, and writings in general.

Ne Ex'eat (Lat. *ne exeat regno*, let him not go out of the kingdom).—A writ to prevent a person from going out of the country without a license.

Nolle Pros'equi (Lat., to be unwilling to prosecute).—A proceeding in an action by which the plaintiff undertakes not to proceed further.

Non Pros (Lat., abb. of *non prosequitur*, he does not prosecute).—When the plaintiff neglects to take any step within the prescribed time, the defendant may move for a judgment against him, which is called judgment of non pros.

Non'suit.—The renunciation of a suit by the plaintiff.

Obligee'.—An individual for whose benefit an obligation is entered into.

Obligor'.—He who enters into a bond or obligation.

Overt Act.—An open act, capable of being manifested by legal proof.

Pan'el.—A schedule or roll of parchment containing the names of the jurors returned by the sheriff.

Par'ticeps Crim'inis (Lat., a sharer in the crime).—An accomplice, or one who participates in the guilt.

Penal Laws.—Laws made for the punishment of criminal offences.

Personal Estate, or Personalty.—Movable things, whether alive or dead, as distinguished from land, or immovables, which are termed real estate.

Plaint.—Process by which actions are commenced in the county court.

Plain'tiff.—The complainant in an action or suit.

Plea.—The defendant's answer to the plaintiff's declaration.

Pos'se Comita'tus (Mod. Lat. *posse*, to be able, and *comitatus*,

belonging to the county).—Authority vested in the sheriff to summon citizens to his aid in case of riot, etc.

Power of Attorney.—An instrument by which a party empowers another to perform certain acts for him.

Pre'amble.—The introductory part of a statute, which states the reasons and intent of the law.

Pre'cept.—A command in writing sent by a justice of the peace, etc., for the purpose of bringing a person, record, or other matter before him.

Prescrip'tion.—A title acquired by use and time, and allowed by law.

Pro'bate.—The copy of a will made out on parchment, with a certificate of its having been proved.

Proc'ess.—A general term applied to formal judicial proceedings.

Prohibi'tion.—A writ issuing out of the superior courts directing the judge of an inferior court not to proceed further in a suit.

Pur'view.—The body of a statute, or that part which begins with "*Be it enacted*," as distinguished from the *preamble*.

Quan'tum Vale'bat (Lat., as much as it was worth).—An action to recover from the defendant, for goods sold, as much as they were worth.

Qui Tam (Lat., who as well, or equally).—A popular action on a penal statute, prosecuted partly at the suit of the government, and partly at that of an informer.

Quo'rum.—Such a number of officers or members of any body as is competent by law or constitution to transact business.

Quo Warran'to (Lat., by what authority).—A writ brought before a proper tribunal to inquire by what warrant a person or corporation exercises certain powers.

Real Estate, or Realty.—The term applied to land, in contradistinction to personalty.

Recogn'izance.—A bond or obligation acknowledged in some court, or before some judge, with condition to do some particular act, as to appear at the assizes, to keep the peace, etc.

Rejoin'der.—The defendant's answer to the plaintiff's replication.

Remain'der.—A vested or contingent estate or interest in land, limited to take effect and come into possession on the termination of a prior estate created at the same time.

Replev'in.—An action of tort, in which the plaintiff seeks the recovery of goods illegally distrained.

Reprieve'.—A suspension of the execution of sentence of death on a criminal.

Resid'uary Devisee'.—The person to whom a testator devises the remainder of his lands not otherwise disposed of.

Resid'uary Estate'.—The portion of a testator's estate not specifically disposed of.

Resid'uary Legatee'.—A legatee to whom is bequeathed the residue or remainder of a testator's personal estate after payment of all legacies, claims, and demands.

Retain'er.—A fee paid to engage a lawyer or counsellor to maintain a cause.

Retrax'it (Lat., he has withdrawn).—A proceeding in an action by which a plaintiff withdraws from the prosecution of it. It is a bar to any future action for the same cause.

Return'.—A certificate from sheriffs and bailiffs of what is done in the execution of a writ.

Rever'sion.—The residue of an estate left in the grantor, and returning to him or to his heirs after the grant is determined.

Rule.—An order made by the court at the instance of one of the parties in an action.

Sci're Fa'cias (Lat., cause you to know).—A judicial writ founded on some matter of record, as judgments and letters patent, on which it lies to enforce the execution of them or to set them aside.

Search-Warrant.—A precept authorizing a person to enter houses, shops, and the like, to search, usually for goods stolen, but sometimes for other purposes.

Subpœ'na (Lat., under the penalty).—A writ commanding the attendance in court of the person to whom it is served.

Suit.—An action or process for the recovery of a right or claim.

Sum'mons.—A warning or citation to appear in court.

Superse'deas (Lat., you may suspend).—A command to stay some ordinary proceedings at law, on good cause shown.

Testa'tor, or Testa'trix.—The maker of a will.

Tort.—Any wrong or injury.

Trav'erse.—A plea which denies the truth of some part of the plaintiff's declaration in an action.

- Treasure Trove.**—Any money, etc., *found* hidden under the earth, the owner thereof being unknown.
- Tro'ver.**—The form of action used to try a disputed question of property in goods or chattels, in which the plaintiff can only recover their estimated value, and not the goods or chattels themselves.
- True Bill.**—The words endorsed upon an indictment by a grand jury, when satisfied that the charge against the offender is made out.
- Vendor and Vendee.**—A vendor is the person who sells, and a vendee the person who buys anything.
- Ven'ue.**—The place where an action is laid, that is, the county in which the cause will be tried.
- Ver'dict.**—The answer of a jury given to the court concerning any matter of fact in any case, civil or criminal, committed to their trial and examination.
- Waifs.**—Stolen goods which the thief has thrown away or left behind him.
- War'rant.**—A precept under hand and seal, directed to a proper officer, to arrest an offender.
- Warrant of Attorney.**—An authority given by any one to an attorney-at-law to appear and plead for him, or to suffer judgment to pass against him by confessing the action.
- Welsh Mortgage.**—A mortgage in which there is no redemption-day fixed, thereby giving the mortgagor a perpetual right of redemption.
- Writ.**—A precept commanding some particular act to be done or omitted.

LEATHER.

- Tan'ning.**—The art of converting the raw hides of animals into leather by the use of tan.
- Taw'ing.**—The art of preparing skins and forming them into white leather, by imbuing them with alum, salt, and other matters.

LETTER-WRITING.

- Epistolog'raphy** (Gr. *epistolē*, a letter, and *grapho*, I write).
—The art of writing letters.

LIGHT.

Op'tics (Gr. *optikos*, pertaining to seeing).—The science which treats of the laws of light and vision.

Aberra'tion.—A deviation in the rays of light, when inflected by a lens or speculum, by which they are prevented from uniting in the same point. It is occasioned by the figure of the glass or speculum, or by the unequal refrangibility of the rays of light.

Absorp'tion.—The process or act by which light is made passively to disappear in some other substance, through molecular or other invisible means.

Ac'tinism.—That power in the sun's rays by which chemical changes are produced, as in photography.

Actin'ograph.—An instrument for registering the variations of the chemical influence of the solar rays.

Anamorpho'sis.—A distorted representation of an object, so contrived as to appear symmetrical, or an exact representation when seen from a certain point of view, or as reflected by a curved mirror, or through a polyhedron.

Apparent Magnitude.—The angle under which any line appears at the eye, or the angle made by lines drawn from its extremities to the eye.

Apparent Motion.—The seeming motion of a body arising from some other cause than its actual motion.

Astrom'eter (Gr. *astron*, a star, and *metron*, a measure).—An instrument invented and employed by Sir John Herschel for the purpose of comparing the intensities of light of the stars, one with another, by the intervention of the moon, or the planet Jupiter, or some other natural standard.

Ax'is (Visual).—A particular ray of light from any object, which falls perpendicularly on the eye.

Catop'trics (Gr. *kata*, against, and *optomai*, to see).—That part of optics which explains the properties of *reflected light*.

Chromat'ics (Gr. *chrōma*, color).—That part of optics which treats of the properties of the *colors of light* and of natural bodies.

Depolariza'tion.—The act of depriving of polarity, as the rays of light.

Di'chroism.—A property of some crystallized bodies of appear-

ing under two distinct colors, according to the direction in which they are viewed, or in which the rays of light pass through them.

Diffraction.—A change which light undergoes, when, by passing very near the borders of an opaque body, it forms parallel bands or fringes.

Diop'trics (Gr. *diptomai*, to see through).—That part of optics which treats of the *refractions of light* passing through different mediums, as through air, water, or glass.

Emis'sion.—The theory, adopted by Newton, that light consists of exceedingly minute particles of a peculiar matter thrown out by a luminous body.

Fo'cus.—The point of convergence at which all the rays of light meet after passing through a convex lens.

Irradia'tion.—An apparent enlargement of objects beyond their proper bounds, in consequence of the vivid impression of light on the eye.

Optom'eter (Gr. *ōps*, sight, and *metron*, a measure).—An instrument for measuring the limits of direct vision.

Photog'raphy (Gr. *phōs*, light, and *grapho*, I write).—The science of the *action of light on bodies*.

Photol'ogy (Gr. *phōs*, light, and *logos*, a discourse).—The doctrine or *science of light*, explaining its nature and phenomena.

Photom'eter (Gr. *phōs*, light, and *metron*, a measure).—An instrument for measuring the relative intensities of light.

Photom'etry (Gr. *phōs*, light, and *metreo*, I measure).—The science which treats of the *measurement of light*.

Pleoch'roism.—The exhibition of several shades of colors, as when a mixture of polarized and non-polarized light passes through a double refracting crystal.

Polarim'etry.—The art or process of measuring the polarization of light.

Ra'diant.—The luminous point or object from which light emanates.

Reflec'tion.—The rebound or turning back of rays of light from a smooth opposing surface.

Refrac'tion.—The deviation of a ray of light from a right line in entering a medium of greater density.

Refrangibility.—A disposition of rays of light to be refracted or turned out of a direct course, in passing out of one transparent body or medium into another.

Sciop'tics (Gr. *skiaë*, shadow, and *optomai*, I shall see).—The science of exhibiting images of external objects, received on some extended surface through a double convex glass into a darkened room.

Spec'troscope.—An optical instrument for forming and examining spectra, particularly those produced by flames in which different substances are volatilized, so as to determine, from the position of the spectral lines, the composition of the substance.

Spectrum.—The several colored and other rays of which light is composed, separated by the refraction of a prism or other means, and exhibited either as spread out on a screen or by direct vision.

Spherom'eter (Gr. *sphaira*, a sphere, and *metron*, a measure).—An instrument for measuring the thickness of small bodies, the curvature of optical glasses, etc.

Tith'onic'ity.—That property of light by which it produces chemical effects.

Undulatory Theory.—The theory according to which light is transmitted by the undulations of an elastic medium supposed to pervade the universe.

LITERATURE.

Lit'erature.—The results of learning, knowledge, and imagination preserved in writing.

Æne'id.—A heroic poem, written by Virgil, in which Æneas is the hero.

Anthol'ogy (Gr. *anthologia*, a gathering of flowers).—A selection of poems, or of elegant extracts from authors.

Ap'ologue.—A story or relation of fictitious events, intended to convey useful truths; a moral fable.

Autobiog'raphy (Gr. *autos*, self, *bios*, life, and *grapho*, I write).—The biography or memoirs of one's life written by one's self.

Bed'agat.—The name of the sacred books of the Boodhists in Burmah.

Belles-Lettres.—Polite or elegant literature; including especially rhetoric, history, poetry, philology, and criticism, with the languages in which the standard works in these departments are written.

Bib'licism.—Biblical doctrine, learning, or literature.

Biog'raphy (Gr. *bios*, life, and *grapho*, I write).—The history of the life and character of a particular person.

Chrestom'athy (Gr. *chrēstos*, useful, and *manthano*, I learn).—A book introductory to the learning of languages, containing selected passages, with notes, explanations, etc.

Chron'icle.—A historical register of events, in the order of time.

Cid.—The name of an epic poem of the Spaniards.

Clas'sic.—A book written by an author of the first class.

Collecta'nea.—Notes, observations, or any matter collected from a variety of works.

Com'mentary.—A book of annotations, comments and remarks.

Compend'ium.—A brief compilation or composition, containing the principal heads, or general principles, of a larger work or system.

Concord'ance.—A dictionary of the Bible in which all the leading terms used in Scripture are arranged alphabetically, and reference is made to the various places in which they occur.

Crit'icism.—The art of judging with propriety of the beauties and faults of a literary performance or of any production in the fine arts.

Critique'.—The science of criticism; a critical essay.

Cyclopæ'dia.—A book, or series of volumes, containing a view of the arts, sciences, and literature, arranged in alphabetical order.

Decam'eron.—A volume consisting of ten books; applied particularly to the celebrated collection of tales by Boccaccio.

Disserta'tion.—A written essay, treatise, or disquisition.

Ed'da.—A book containing a system of Runic or Scandinavian mythology, with some account of the theology and philosophy of the northern nations of Europe.

Ephem'eris.—A book or collection of notices indicating events that have occurred on the same day in different years.

Ep'igraph.—A citation from some author, or a sentence framed for the purpose, placed at the commencement of a work or at its separate divisions.

Ep'isode.—An incidental narrative, or digression, separable from the main subject, but naturally arising from it.

Epit'ome.—A brief summary or abstract of any book or writing.

Es'say.—A composition intended to prove or illustrate a par-

ticular subject, and usually shorter or less methodical than a treatise.

Excur'sus.—A dissertation appended to a work, containing a more full exposition of some important point or topic.

Fa'ble.—A fictitious narration intended to enforce some useful truth or precept.

Face'tiæ.—Witty or humorous writings.

Fic'tion.—Fictitious literature or writings, as novels, romances, etc.

Gazette'.—A kind of official newspaper, containing an account of public or private transactions and events which are deemed sufficiently important for insertion.

Gazetteer'.—A topographical work, containing brief descriptions, alphabetically arranged, of empires, kingdoms, cities, towns, and rivers. It may either include the whole world, or be limited to a particular country.

Geor'gics.—Books or didactic poems treating of husbandry; the title of Virgil's poem, in four books, on agriculture.

Glos'sary.—A dictionary of difficult words or phrases in any language or by any writer. Also, a dictionary of obscure or antiquated words.

Gnomol'ogy (Gr. *gnomē*, an opinion, and *logos*, a discourse).—A treatise on, or a collection of, *maxims*.

Hagiol'ogy (Gr. *hagios*, holy, and *logos*, a discourse).—That department of literature which treats of *sacred things*, or of the lives of the saints.

Hermeneut'ics (Gr. *hermeneutikos*, skilled in interpreting).—The science or art of *literary interpretation*.

Historiog'raphy (Gr. *historia*, history, and *grapho*, I write).—The art or employment of a historian.

Historiol'ogy (Gr. *historia*, history, and *logos*, a discourse).—A treatise on *history*; explanation of history.

Il'iad.—An epic poem, composed by Homer, in twenty-four books.

Jour'nal.—A paper published daily; hence, also, a periodical publication, whether sheet or book, giving an account of passing events, the proceedings and memoirs of societies, and the like.

Jour'nalism.—The profession of *editing*, or writing for, journals.

Ko'ran.—The Mohammedan Bible, or the book written and left by Mohammed and containing the doctrines and precepts of his religion.

- Lexicog'raphy** (Gr. *lexis*, diction, and *grapho*, I write).—The art of composing *dictionaries*.
- Lex'icon**.—A book containing the words of a language arranged alphabetically and defined. The term was originally, and is still usually, confined to dictionaries of the Greek and Hebrew tongues.
- Magazine'**.—A periodical work containing miscellaneous matter.
- Man'uscript**.—A book or paper written with the hand or pen.
- Martyrol'ogy**.—A history or account of *martyrs*, with their sufferings.
- Met'aphrase**.—A version or translation of one language into another, word for word; opposed to PARAPHRASE.
- Mis'cellany**.—A book or pamphlet containing a collection of compositions on various subjects, or a collection of various kinds of compositions.
- Nov'el**.—A fictitious tale or narrative in prose, intended to exhibit the operation of the passions, and particularly of love.
- Od'yssey**.—An epic poem attributed to Homer; the subject is the return of Ulysses from Troy to Ithaca.
- Pam'phlet**.—A small book consisting of a sheet of paper, or of sheets stitched together, but not bound.
- Pan'dect**.—A treatise which contains the whole of any science.
- Pantol'ogy** (Gr. *pas*, *pantos*, all, and *logos*, a discourse).—A systematic view of all branches of *human knowledge*.
- Par'aphrase**.—A loose or free translation; opposed to METAPHRASE.
- Pasquinade'**.—A lampoon or satirical writing.
- Pol'yglot**.—A book containing many languages, or in which are comprised versions in many languages.
- Pref'ace**.—Observations prefixed to a literary work intended to inform the reader respecting its design, plan, etc.
- Prose**.—Composition not in verse, and without metre or poetic measure.
- Pura'na**.—One of a class of sacred poetical books in the Hindoo language which treats of the creation, destruction, and renovation of worlds, the genealogy of gods and heroes, the reigns of the Manus, and the transactions of their descendants. The Puranas are eighteen in number.
- Review'**.—A critical notice of a literary work. Also, a periodical publication, giving critical examinations or analyses of books, a character of them, and remarks upon them; as "*The Edinburgh Review*."

- Romance'.**—A tale or fictitious history of extraordinary adventures. The *Romance* differs from the *Novel*, as it treats of great actions and extravagant adventures, soaring beyond the limits of fact and real life. Romances have of late years given way to *historical novels*.
- Rubric.**—Any writing or printing in red ink in old books and manuscripts, especially the date or place on the title-page.
- Sad'da.**—A work in the Persian tongue, being a summary of the Zendavesta, or sacred books.
- Sat'ire.**—A discourse or poem in which wickedness or folly is exposed with severity. It differs from LAMPOON and PASQUINADE in being general rather than personal.
- Shas'ter.**—The name of a book in high estimation among the idolaters of Hindostan, containing all the dogmas of the religion of the Brahmins, and all the ceremonies of their worship.
- Tal'mud.**—A collection of Jewish writings.
- Tet'rapla.**—The name of a Bible arranged by Origen, in four columns, and consisting of four different versions, viz.: that of the Septuagint, that of Aquila, that of Symmachus, and that of Theodotion.
- Text'-book.**—A book containing the leading principles or most important points of a science or branch of learning, arranged in order for the use of students.
- Trav'esty.**—A literary work so translated or imitated as to be rendered ridiculous.
- Treat'ise.**—A written composition on a particular subject, in which the principles of it are discussed or explained. A treatise is of an indefinite length; but it implies more form and method than an essay, and less fulness or copiousness than a system.
- Ve'da.**—The technical name of those ancient Sanscrit works on which the first period of the religious belief of the Hindoos is based.
- Vocab'ulary.**—A list or collection of the words of a language arranged in alphabetical order and explained. The term is often used in a sense somewhat different from that of *dictionary*, its signification being restricted to the list of words.
- Vul'gate.**—An ancient Latin translation of the Bible, made chiefly by St. Jerome, being the only one which the church of Rome acknowledges to be authentic.

Zend'aves'ta.—A sacred book of the Guebers or Parsees, ascribed to Zoroaster, and revered as a sole rule of faith and practice.

MAMMALS.

Mammal'ogy (Lat. *mamma*, the breast).—The science or doctrine of mammiferous animals, or mammalia. Those having hoofs are termed *ungulate*; the others *unguiculate*. The mammalia have been divided into two classes, the Placentalia and the Implacentalia.

CLASS 1. The *Placentalia*, or those having a placenta or a vascular chorion, by which the fœtus is attached to the uterus, are divided into

1. **Bima'na.**—Two-handed, whose posterior extremities are used only to keep them in an erect position, and for the purpose of locomotion. They comprehend the varieties of man.
2. **Quadru'mana.**—Those having four hands, whose hinder extremities, in some instances, resemble hands more than the anterior, the thumb being sometimes wanting or incapable of being opposed to the other digits. They comprehend the ape, monkey, etc.
3. **Cheiop'tera.**—Those having the exterior extremities so modified as to serve for wings, the fingers being lengthened, and connected together by a thin membrane. They comprehend the different kinds of bats.
4. **Insectiv'ora.**—Insect-eaters. They comprehend the shrew, mole, hedge-hog, etc.
5. **Carniv'ora.**—The flesh-eaters. They comprehend the dog, cat, bear, seal, etc.
6. **Ceta'cea.**—The whale tribe. They live in the sea or in large rivers. The caudal fin is horizontal, not vertical, as in the true fishes. They comprehend the whale, porpoise, etc.
7. **Pachyder'mata.**—The thick-skinned. They are distinguished by the thickness of their skins, and comprehend the hippopotamus, elephant, horse, hog, etc.
8. **Ruminan'tia.**—Those that chew the cud. They have cloven feet, want incisors, and have a stomach with four cavities.
9. **Edenta'ta.**—Those having imperfect dental apparatus. Their digits are generally sunk in large and crooked claws.

They have no incisors and sometimes no dental organs. They comprehend the sloth, ant-eater, armadillo, etc.

10. **Roden'tia**.—Those animals which gnaw. Their posterior are generally larger than their anterior parts, and hence they rather leap than walk. The brain is of an inferior type; the eyes are lateral. Some of them use their feet to convey their food to the mouth. They comprehend the rat, squirrel, rabbit, etc.

CLASS 2. The *Implucentalia*, or those having no placenta or vascular chorion, are divided into,

1. **Marsupia'lia**.—The pouched, which have the abdominal integument folded inwards, forming a depression containing the mammaræ, or a pouch for the temporary shelter of their young. The fœtus is not attached to the uterus; it is prematurely born, in the great kangaroo after a gestation of only thirty-eight days, at the end of which period it does not exceed an inch in length. It is then received into the pouch, where, adhering to the nipple, it remains for many months.

2. **Monotrem'ata**.—Those having but one outlet for the excremental and generative products. They are ovo-viviparous; that is, extrude the living fœtus, more or less extricated from the egg coverings which had been developed within the body of the parent. They include only two genera, both found in Australia, the *Ornithorhynchus* and the *Schidna*.

MAN.

Anatomy.—See ANATOMY.

Anthropog'raphy (Gr. *anthrōpos*, man, and *graphē*, a description).—That branch of *physical geography* which treats of the actual distribution of the human race, as distinguished by physical character, language, institutions, and customs; in distinction from *ethnology*, which treats historically of the origin and filiation of races and nations.

Anthropol'ogy (Gr. *anthrōpos*, man, and *logos*, a discourse).—The science of man, considered physically, intellectually, and morally, or in his entire nature.

Anthropos'copy (Gr. *anthrōpos*, a man, and *skopeo*, I view).—The art of discovering or judging of a man's character, passions, and inclinations from the lineaments of his body.

Biol'ogy (Gr. *bios*, life, and *logos*, a discourse).—That branch of scientific inquiry which is concerned with the nature and relations of living bodies.

Ethnol'ogy (Gr. *ethnos*, a nation, and *logos*).—The science which treats of the different natural *races and families of men*.

Medicine.—See MEDICINE.

Mes'merism (from Mesmer, who first wrote on the subject).—The art of communicating a species of sleep which is supposed to affect the body while the *mind* or intellectual power is active and intelligent.

Phonol'ogy (Gr. *phouē*, sound, and *logos*, a discourse).—The science or doctrine of the elementary sounds uttered by the *human voice* in speech, including its various distinctions or subdivisions of tones.

Physian'thropy (Gr. *phūsis*, nature, and *anthrōpos*, a man).—The philosophy of *human life*, or the doctrine of the constitution and diseases of man, and the remedies.

Physiog'onomy (Gr. *phūsis*, nature, and *gnomonikos*, knowing).—The art or science of discerning the *character of the mind* from the features of the face.

Physiol'ogy (Gr. *phūsis*, nature, and *logos*, a discourse).—That branch of science which treats of the peculiar functions and properties of living bodies, that is, of bodies which grow and produce their kind,—a definition which includes both vegetables and animals.

Psychol'ogy (Gr. *psuchē*, the soul, and *logos*).—The science which relates more immediately to the *human mind*, its powers, and their cultivation.

Surgery.—See SURGERY.

MAPS.

Cartog'raphy (Gr. *chartē*, a chart, and *grapho*, I write).—The art or practice of *forming charts* or maps of a country.

Chorog'raphy (Gr. *chora*, a district, and *grapho*, I write).—The art or practice of making a map or description of a particular region or country, in distinction from *topography*, which is concerned with minute details, and from *geography*, which properly refers to the description of the whole earth.

Hydrog'raphy (Gr. *hudōr*, water, and *grapho*, I write).—The art of *forming charts* exhibiting a representation of the sea-coast, gulfs, bays, soundings, etc.

Topog'raphy (Gr. *topōs*, a place, and *grapho*, I write).—The accurate description of some particular place or tract of land. Topography goes into minute details which geography does not enter upon.

MATHEMATICS.

Mathematics.—The science of quantity, the science which treats of magnitude and number, or of whatever can be measured or numbered.

Al'gebra (Arab. *al*, the, and *gebr*, resolution).—The science of quantity in general, or universal arithmetic.

Altim'etry (Lat. *altus*, high, and Gr. *metreo*, I measure).—The art of ascertaining *altitudes* by taking angles with a proper instrument, and by trigonometrical calculations without actual mensuration.

Arith'metic (Gr. *arithmos*, number).—The science of numbers, or the art of computation.

Chorom'etry (Gr. *chora*, a district, and *metreo*, I measure).—The art of measuring or surveying a country.

Con'ic Sec'tions.—That part of mathematics which treats of the properties, measurements, etc., of the sections of a cone.

Geod'esy (Gr. *ge*, the earth, and *daio*, I divide).—That part of practical geometry which has for its object the determination of the magnitude and figure either of the whole earth or of any portion of its surface.

Geom'etry (Gr. *ge*, the earth, and *metreo*, I measure).—The science of magnitude in general; the mensuration of surfaces, etc.

Hypsom'etry (Gr. *hūpsos*, height, and *metreo*, I measure).—The art of measuring the relative or the absolute *heights of places* upon the surface of the earth, either by the barometer or by trigonometrical observation.

Mensura'tion.—That branch of applied geometry which gives rules for finding the length of lines, the areas of surfaces, or the volumes of solids, from certain simple data of lines and angles.

Rabdol'ogy (Gr. *rhabdos*, a rod, and *logos*, a discourse).—The

method or art of performing arithmetical operations by means of little square rods, called Napier's bones.

Spher'ics.—The doctrine of the *sphere*; the science of the properties and relations of the circles, figures, and other magnitudes of a sphere, produced by planes intersecting it.

Stereom'etry (Gr. *stereos*, solid, and *metreo*, I measure).—That part of geometry which teaches the art of *measuring solids* or ascertaining the solid contents of bodies.

Survey'ing.—The art of determining the area of any portion of the earth's surface, the lengths and directions of the boundary-lines, the contour of the surface, etc., with an accurate delineation of the whole on paper.

Trigonom'etry (Gr. *trigōnon*, a triangle, and *metreo*, I measure).—The science of determining the sides and angles of triangles by means of certain parts which are given.

Mechanics,	}	See MECHANICAL PHILOSOPHY.
Statics,		
Dynamics,		
Hydrodynamics,		
Hydrostatics,		
Hydraulics,		
Pneumatics.		

MECHANICAL PHILOSOPHY.

Mechanics (Gr. *mēchanē*, a machine).—That branch of practical science which treats of the effects of powers or *motive forces*, and their action on bodies, either directly or by means of machines and engines.

Aerodynam'ics (Gr. *aēr*, air, and *dunamis*, power).—The science which treats of the *motion of the air* and its mechanical effects when in motion; also its resistance to bodies moving in it.

Aerostat'ics (Gr. *aēr*, air, and *statos*, sustaining).—Treats of the *equilibrium of elastic fluids*, or of bodies sustained in them.

Barol'ogy (Gr. *baros*, weight, and *logos*, a discourse).—The science of weight, or of the gravity of bodies.

Dynam'ics (Gr. *dunamis*, power).—Treats of *bodies in motion*.

Hydrau'lics (Gr. *hudōr*, water, and *aulos*, a pipe).—That branch of hydrodynamics which teaches how to estimate the velocity of moving *inelastic fluids*. It is this im-

portant science that furnishes the principles upon which engines are constructed by which water is raised. It treats of pumps, fountains, etc.

Hydrodyna'mics (Gr. *hudōr*, water, and *dunamis*, power).—Treats of the properties and relations of water and other fluids, whether in motion or at rest. It includes

HYDROSTATICS, which regards fluids at rest, and

HYDRAULICS, which regards fluids in motion.

Kinemat'ics (*kinco*, to move).—A term used by some writers to denote the doctrine which treats of the *effects of motion* without reference to its causes, and in contradistinction to dynamics.

Mech'anurgy (Gr. *mēchanē*, a machine, and *ergein*, to work).—That branch of science which treats of moving machines.

Pneumat'ics (Gr. *pneumatikos*, belonging to the air).—Treats of air, steam, and other elastic fluids.

Pyrom'eter (Gr. *pur*, fire, and *metron*, measure).—An instrument for measuring the expansion of bodies by heat.

Stat'ics (Gr. *statikos*, belonging to a state of rest.)—Treats of the force that keeps bodies at rest or in equilibrium.

Trochil'ics (Gr. *trochos*, anything circular, a wheel).—The science of *rotary motion*.

MEDICINE.

Med'icine.—The art of preventing, curing, or alleviating the *diseases* of the human body.

Acol'ogy (Gr. *akos*, a remedy, and *logos*, a discourse).—*Materia Medica*—the doctrine of *remedies*.

Allop'athy (Gr. *allos*, another, and *pathos*, affection).—The opposite to Homœopathy; or, according to Hahnemann, a method of treatment in which remedial agents are employed, the action of which on healthy man produces morbid phenomena different from those that are observed in the sick person.

Asthenol'ogy (Gr. *a*, *sthenos*, strength, and *logos*, a discourse).—The doctrine of *diseases* connected with debility.

Atmom'eter (Gr. *atmos*, vapor, and *metron*, a measure).—An instrument to measure the quantity of exhalation from the human surface in a given time.

Auscul'tation.—A method of distinguishing diseases, particu-

larly in the thorax, by observing the sounds in the part, generally by means of a tube applied to the surface.

Cosmetol'ogy (Gr. *kosmo*, to adorn, and *logos*).—A treatise on the *dress*, and cleanliness of the body.

Cyesiol'ogy (Gr. *kuēsis*, pregnancy, and *logos*).—The doctrine of *gestation*.

Diagno'sis (Gr. *dia*, through, and *ginōsko*, I know).—The art of distinguishing one disease from another.

Dietet'ics.—A branch of medicine comprising the rules to be followed for preventing, relieving, or *curing diseases by diet*.

Endemiol'ogy (*endemic*, and Gr. *logos*, a discourse).—The doctrine of *endemic diseases*.

Epidemiol'ogy (*epidemic*, and Gr. *logos*, a discourse).—That branch of medical science which treats of epidemics.

Etiol'ogy (Gr. *aitia*, a cause, and *logos*).—That branch of medical science which treats of the *causes of disease*.

Geroc'omy (Gr. *gerōn*, an old man).—That part of medicine which treats of the proper regimen for old people.

Gynecol'ogy (Gr. *gunē*, *gunaikos*, a woman, and *logos*).—The doctrine of the nature and *diseases of women*.

Hemastat'ics (Gr. *haima*, blood, and *statics*).—The doctrine of the *motion of the blood* in living bodies.

Hematol'ogy (Gr. *haima*, blood, and *logos*).—That part of medicine which treats of the *blood*.

Hydrog'raphy (Medical) (Gr. *hudōr*, water, and *grapho*, I write).—The study of the influence exerted by the sea or by navigation on the health of man.

Hydrol'ogy (Medical) (Gr. *hudōr*, water, and *logos*).—That part of physics whose object is the *study of water*, considered as it respects medicine; and, consequently, embracing that of mineral waters.

Hydrop'athy (Gr. *hudōr*, water, and *pathos*, suffering).—The art of treating diseases by the copious and frequent *use of water*, both externally and internally.

Hy'giene, Hygiol'ogy (Gr. *hugieia*, health, and *logos*).—The science which treats of the *preservation of health*.

Kinesip'athy (Gr. *kinco*, I move, and *pathos*, suffering).—A mode of treating disease by gymnastics or exercise, called also *movement-cure*.

Mate'ria Med'ica (Lat., medical stuff).—An auxiliary branch of the science of medicine, which treats of the nature and

properties of all the substances that are employed for the cure of diseases.

Metabole'ogy (Gr. *metabolē*, change, and *logos*, a discourse).—A description of the changes which supervene in the course of a disease.

Nosol'ogy (Gr. *nosos*, disease, and *logos*).—That branch of medical science which treats of the *classification of diseases*.

Obstet'rics (Lat. *obstetrix*, a midwife).—The science of midwifery; the art of assisting women in parturition.

Ophthalmotol'ogy (Gr. *ophthalmos*, the eye, and *logos*).—The science of *ophthalmia*, or a treatise on it.

Osmonosol'ogy (Gr. *osme*, an odor, *nosos*, a disease, and *logos*, a discourse).—The doctrine of, or a treatise on, the diseases of the sense of *smell*.

Osphresiol'ogy (Gr. *osphresis*, smell, and *logos*).—A treatise on olfaction and *odors*.

Ourology (Gr. *ouron*, urine, and *logos*, a discourse).—The judgment of diseases from the examination of the *urine*.

Pathog'eny (Gr. *pathos*, suffering, and *genaio*, I produce).—That branch of pathological science which relates to the generation, production, and *development of disease*.

Pathol'ogy (Gr. *pathos*, suffering, and *logos*).—That part of medicine which explains the *nature of diseases*, their *causes* and symptoms.

Pedot'rophy.—The doctrine of the nourishment of *children*.

Pep'tics (Gr. *pepsis*, digestion).—The doctrine of *digestion*.

Percus'sion.—The act of determining the condition of an internal organ by the sound given when the external surface is gently knocked upon.

Pharmacol'ogy (Gr. *pharmakon*, a medicine, and *logos*, a discourse).—The science or *knowledge of drugs*, or the art of preparing medicines.

Phar'macy, or **Pharmaceu'tics**.—The art of preserving, preparing, compounding, and combining whatever substances may be necessary for medical purposes.

Phon'ascet'ics (Gr. *phonaskeo*, I practise the voice).—The art or method of *restoring the voice*.

Posol'ogy (Gr. *posos*, how much, and *logos*).—The science or *doctrine of doses*.

Psychonosol'ogy (Gr. *psychē*, mind, *nosos*, a disease, and *logos*).—The doctrine of, or a treatise on, diseases of the *mind*.

Pyretol'ogy (Gr. *puretos*, fever, and *logos*).—A treatise on *fevers*.

Spermatol'ogy.—A discourse on *sperm*, or the fecundating fluid.

Spirom'eter (Lat. *spiro*, to breathe, and Gr. *metron*, measure).—Any instrument for measuring the quantity of air concerned in respiration, and, consequently, the capacity of the lungs.

Symptomatology (Gr. *sumtōma*, a falling or accident, and *logos*).—The doctrine of symptoms; that part of the science of medicine which treats of the *symptoms of diseases*.

Syphilization.—Saturation of the system by inoculation with syphilis.

Tecnol'ogy (Gr. *teknos*, a child, and *logos*, a discourse).—A treatise on *children*.

Teratol'ogy (Gr. *teras*, a prodigy, and *logos*).—That branch of physiology which treats of *malformations* and *monstrosities*.

Therapeut'ics (Gr. *therapeutikos*, from *therapeno*, to nurse, to cure).—That part of medicine which respects the discovery and application of *remedies for diseases*. That which teaches also the use of diet and of medicines.

Tocol'ogy (Gr. *tokos*, bringing forth, and *logos*).—The science of *obstetrics* or *midwifery*.

Toxicol'ogy (Gr. *toxicon*, a poison, and *logos*).—That branch of medicine which treats of the morbid and deleterious effects of excessive and inordinate doses and quantities of medicines, commonly called *poisoning*.

Uronol'ogy (Gr. *ouron*, urine, and *logos*).—That part of medicine which treats of the urine.

Vaccina'tion (Lat. *vacca*, a cow).—The art or practice of inoculating persons with the cow-pox.

See also under headings PHARMACEUTICAL PREPARATIONS and REMEDIAL AGENTS.

MEMORY.

Mnemon'ics (Gr. *mnemonikos*, belonging to memory).—The art of improving and using the memory.

Topol'ogy (Gr. *topōs*, a place, and *logos*).—The art of assisting the memory by associating the object to be remembered with some place or building the parts of which are well known.

METALLURGY.

Met'allurgy (Gr. *metallon*, a metal, and *ergon*, a work).—The art of *obtaining metals from their ores* and preparing them for the various uses to which they are applied.

Af'finage (Fr. *affiner*, to refine).—The art of refining metals by the cupel.

Amalgama'tion.—The process of separating gold and silver from certain of their ores by dissolving these metals in mercury.

As'say.—A term used to express those chemical operations which are made to ascertain the quantity of metal contained in ores, or to discover the value or purity of any mass of gold, silver, or other metal.

Case'-hardening.—The process of converting the surface of iron into steel.

Doc'imacy (Gr. *dokimasia*, an examination).—The act or the art of examining by test; applied, in metallurgy, to experiments made to determine the nature and purity of a metal.

Docimol'ogy (Gr. *dokimos*, proved, and *logos*).—A treatise on the art of *assaying* or examining in metallurgy, chemistry, obstetrics, etc.

Eliqua'tion.—A separation of the different parts of mixed metals by the different degrees of heat required to melt them.

Flux.—Reduction or conversion of ores to metal; any substance or mixture used to promote the fusion of metallic ores, as carbonate of potash, or *white flux*, equal parts of nitre and tartar deflagrated, or *black flux*, limestone, fluor-spar, borax, and several metallic oxides.

Hydro-met'allurgy (Gr. *hudôr*, water, and *metallurgy*).—The act or process of *assaying* or reducing ores in the wet way, or by means of liquid reagents.

Lab'yrinth.—A series of canals through which a stream of water is transmitted for suspending, carrying off, and depositing at different distances the ground ore of a metal.

Proplas'tice.—The art of making moulds for castings.

Pud'dling.—The process of converting cast iron into wrought or malleable iron, by subjecting it to the continued action of intense heat in a reverberatory furnace, with frequent

stirring, so as to free it from impurities, as carbon, silica, etc.

Reduc'tion.—The operation of separating a metal from other substances with which it is combined.

Refin'ing.—A process whereby the substances acted upon are purified by the chemical separation of dross and impurities, and of such foreign matters as may be in combination with them.

Roast'ing.—The protracted application of heat, below a fusing-point, to metallie ores.

Sco'riæ.—The dross of metals in fusion.

Smelt'ing.—The operation of melting ores for the purpose of extracting the metal.

Torrefac'tion.—The operation of roasting ores.

Toss'ing.—A process which consists in suspending ores by violent agitation in water, in order to separate the lighter or earthy particles.

Ustula'tion.—The operation of expelling one substance from another by heat, as sulphur and arsenic from ores, in a muffle.

METALS.

Found'ing.—The art of casting or forming of melted metal any article according to a given design or pattern.

Lacq'uering.—The art of *covering* metals *with lacquer*.

Metalloch'romy (Gr. *metallon*, a metal, and *chroma*, a color).
—The art of *coloring* metals.

Metallog'raphy (Gr. *metallon*, metal, and *graphē*, description).—An account of metals, or a treatise on metallie substances.

Met'allurgy.—See METALLURGY.

Metals have been divided by Prof. Rosee into eleven classes, which are as follows :

ALKALIES.

1. **Potas'sium.**—The metallic base of pure potash. It is lighter than water, and of a silver-white color.

2. **So'dium.**—The metallic base of soda. It is white, opaque, and has the lustre and general appearance of silver.

3. **Lith'ium**.—The metallic base of lithia. It is the lightest element in nature. Its appearance is white and lustrous.
4. **Cæ'sium**.—A metal which was first discovered in Dürkheim water, and which has since been found in a rare mineral called pollux.
5. **Rubid'ium**.—A white metal, capable of rapid oxidation, and having a specific gravity of 1.52. It is present in small quantities in lepidolite, and was originally discovered in the mineral water of Dürkheim.

METALS OF THE ALKALINE EARTHS.

1. **Ba'rium**.—The metallic base of baryta or baria. It has the color and lustre of silver, but is soon tarnished by the oxygen of the air.
2. **Stron'tium**.—The metallic base of strontia. A heavy white metal which oxidizes in the air, and decomposes water at ordinary temperatures.
3. **Cal'cium**.—The metallic base of lime. It is solid, rather yellowish, highly lustrous, but tarnishes quickly in the air.

METALS OF THE EARTHS.

1. **Alumin'ium**.—The metallic base of alumina, the chief constituent of clay. It has a white color somewhat resembling that of tin.
2. **Glucin'ium**.—The metallic base of the earth glucina. It is of a grayish-black color, and acquires a dark metallic lustre by burnishing.
3. **Yt'trium**.—A brittle metal of a dark-gray color, the basis of yttria.
4. **Er'bium**.—A metal found in ores of yttrium. In its compounds and properties it resembles the metal aluminium.
5. **Zirco'nium**.—The metallic base of zirconia; it does not resemble a metal, being like charcoal powder. Heated in the air, it burns with almost explosive violence, forming the oxide.
6. **Ce'rium**.—A metal of a flesh-red color, obtained from cerite. It becomes friable from heat, but does not melt.
7. **Lan'thanum**.—A metal occurring with cerium in certain minerals. It is of a very pale salmon color.

8. **Didym'ium**.—A metal found with cerium in certain minerals.
9. **Tho'rium**.—The metallic base of thorina. It is of a grayish color.

ZINC CLASS.

1. **Magne'sium**.—The metallic base of magnesia. It is a white, lustrous, malleable metal, which fuses at a red heat and oxidizes in hot water.
2. **Zinc**.—A metal of a brilliant white color, with a shade of blue, and appearing as if composed of plates adhering together. It is not brittle, but is less malleable than copper, lead, or tin. It is procured either from *calamine*, the native carbonate, or from *blende*, the native sulphuret.
3. **Cad'mium**.—A ductile and malleable white metal, which is like tin, but fuses and volatilizes at a lower temperature than that at which tin melts.

IRON CLASS.

1. **Co'balt**.—A metal of a reddish-gray or grayish-white color, very brittle, and easily reducible to powder. It is never found in a pure state, but usually as an oxide, or combined with arsenic or its acid, with sulphur, iron, etc.
2. **Nick'el**.—A metal of a white or reddish-white color, of great hardness, very difficult to be purified, always magnetic, and, when perfectly pure, malleable and ductile. It is generally obtained from its sulphuret.
3. **Ura'nium**.—A metal discovered in the minerals called pechblende and uranite. It is either a black coherent powder or a white malleable metal, according to the state of aggregation.
4. **Iron**.—A metal of a peculiar gray color, and very bright when polished; it is not very malleable, but is extremely ductile and tenacious. It is attracted by the magnet. It has been found native only in bodies of meteoric origin.
5. **Chro'mium**.—A metal consisting of a porous mass of agglutinated grains, very hard, brittle, and of a grayish-white color.
6. **Man'ganese**.—A metal of grayish-white color, and of considerable brilliancy; it has neither taste nor smell, is of the hardness of iron, very brittle, and, when reduced to powder, is attracted by the magnet.

7. **In'dium**.—A white malleable metal discovered in zinc-blende. It has a specific gravity of about 7.36, and is easily fusible.

TIN CLASS.

1. **Tin**.—A metal of a silver-white color, very ductile and malleable. There are only two ores of tin,—the *peroxide*, which is tin-stone or capiterite, and *tin pyrites*, which is sulphuret of tin or stannine.
2. **Tita'nium**.—A metal of an orange-red color. It occurs in different states of oxidation. The minute copper-colored crystals sometimes found in the slag of the iron-smelting furnaces are pure titanium.
3. **Nio'bium**.—A rare metal discovered in the mineral tantalite. It is obtained in the form of a black powder, by reducing the double fluoride of niobium and potassium with sodium.
4. **Tan'talum**.—The metallic base of the mineral tantalite. It is of a grayish color, and but little acted on by the ordinary acids.

TUNGSTEN CLASS.

1. **Molybde'num**.—A metal which has been obtained only in small, separate globules, in a blackish, brilliant mass. These are brittle and extremely infusible.
2. **Vana'dium**.—A metal found in the iron ore of Taberg, in Sweden, and in lead ore from Wanlockhead, in Scotland. It is white, with a metallic lustre, brittle, and difficult to be reduced. It is not oxidized by air or water.
3. **Tung'sten**.—A white, hard, and brittle metal, very difficult of fusion. It is obtained chiefly from *wolfram*, or tungstate of iron and manganese.

ARSENIC CLASS.

1. **Ar'senic**.—A metal of a steel-gray color, brilliant lustre, and quite brittle. It forms alloys with most of the metals. Combined with sulphur, it forms orpiment and realgar, which are the yellow and red sulphurets of arsenic.
2. **An'timony**.—A metal of a bluish-white color. It is so brittle that it is easily reduced to powder. Its principal ore is the sulphuret, known in commerce as *crude anti-mony*, and the metal is obtained by fusing the sulphuret

with scrap-iron, when the iron unites with the sulphur and turns out the antimony.

3. **Bis'muth.**—A metal of a yellowish or reddish-white color and crystalline structure. It is somewhat harder than lead, and scarcely, if at all, malleable. It is more commonly found in a native state than any other metal.

LEAD CLASS.

1. **Lead.**—A metal of a dull white color, with a cast of blue. It is the least elastic and sonorous of all the metals, and at the same time is soft and easily fusible. It is found native in small masses, but generally mineralized by sulphur, and sometimes by other substances.
2. **Thal'lium.**—One of the metals recently discovered by means of the spectrum analysis. It has been found in certain mineral waters, but the largest quantity has been yielded by flue-dust. It has a metallic lustre, with a color near that of tin.

SILVER CLASS.

1. **Cop'per.**—A metal of a pale-red color, tinged with yellow. Next to gold, silver, and platinum, it is the most ductile and malleable of the metals. It is more elastic than any metal except steel, and is the most sonorous of all the metals. It is usually found as an ore, the most common being some form of pyrites, a compound of the sulphurets of copper and iron.
2. **Mer'cury.**—A metal found sometimes native, but chiefly as a sulphuret. It is white, and very brilliant. It forms two oxides,—the black protoxide, and the red peroxide; two chlorides,—the protochloride, or *calomel*, and the perchloride, or *corrosive sublimate*; and two sulphurets,—the black protosulphuret, and the bisulphuret, *cinnabar* or *vermilion*.
3. **Sil'ver.**—A precious metal of a brilliant white color, next to gold the most malleable of all metals. It is found native in thin plates or leaves, or in fine threads, or mineralized by various substances.

GOLD CLASS.

1. **Gold.**—A precious metal of a bright yellow color, and the most ductile and malleable of all the metals. It is found

in beds of quartz, sandstone, etc., and also in many rivers, in minute and irregular grains.

2. **Plat'inum**.—A white metal, extremely ductile and malleable. It is the heaviest substance known, its specific gravity being 21.5. It is not affected by air, moisture, or any of the pure acids. It is found generally in small grains, combined with palladium, rhodium, iridium, and osmium.
3. **Palla'dium**.—A metal obtained in very small grains, of a steel-gray color and fibrous structure, found associated with platinum, or in auriferous sand. When native it is alloyed with a little platinum and iridium. It is ductile and very malleable, superior to wrought iron in hardness.
4. **Rho'dium**.—A metal discovered among the grains of crude platinum. It is of a whitish color, when pure is brittle, and requires a much higher temperature for its fusion than any other metal, unless perhaps iridium. It readily alloys with every other metal but mercury, and is insoluble in all acids.
5. **Ruthe'nium**.—A metal extracted from the ore of platinum. It is of a gray color, very hard and brittle.
6. **Irid'ium**.—A metal occurring only in the ore of platinum; it is the most refractory of all the metals, is brittle, and has a white color. No acid will attack it, but it oxidizes when ignited to redness in the air.
7. **Os'mium**.—A rare metal, generally found in the ores of platinum. It is, in the most compact shape in which it has yet been obtained, of a bluish-white color, and, though somewhat flexible in thin plates, is easily powdered.

METEORS AND ATMOSPHERIC PHENOMENA.

- Acon'tias**.—A comet or meteor resembling the serpent.
- A'erolite**.—A stone which has fallen from the air or atmospheric regions.
- A'erolithology** (Gr. *aēr*, air, *lithos*, a stone, and *logos*, description).—The science of *aërolites*, or meteoric stones.
- Anthe'lion**.—Luminous colored rings, or glories, observed round the shadow of the spectator's own head, projected on a surface covered with dew, or on a dense cloud or fog-bank.

Auro'ra Austrá'lis.—A phenomenon, corresponding to the *aurora borealis*, seen in the Southern hemisphere, the streams of light ascending in the same manner from near the southern horizon.

Auro'ra Borea'lis.—A nocturnal luminous meteor, supposed to be electrical. It consists of white or variously colored mellow light, and exhibits various and changing forms and appearances, which sometimes cover the whole heavens.

Clouds.—For names of clouds, see CLOUDS.

Coro'na.—A circle, usually colored, around a luminous body, as the sun or moon.

Cor'posant.—A name given by seamen to a luminous appearance, supposed to be electrical, often beheld, in dark, tempestuous nights, about the decks and rigging of a ship, but particularly at the mast-heads and yard-arms.

Fa'ta Morga'na.—A meteoric phenomenon, nearly allied to the mirage, witnessed in the Straits of Messina, between the coasts of Calabria and Sicily, and occasionally, but rarely, on other coasts, and consisting in the appearance in the air over the surface of the sea of multiplied images of objects on the surrounding coasts.

Fog.—A dense vapor near the surface of land or water.

Hail.—Moisture precipitated from the atmosphere in the form of ice. The concretions of ice are usually more or less spherical, constituting hail-stones, but sometimes consist of plates or laminae, or of agglomerated masses.

Hoar-Frost.—The white particles formed by the congelation of dew.

Hydrome'teors (Gr. *hudōr*, water, and *metron*, measure).—Meteors or atmospheric phenomena dependent upon the vapor of water; a general term for the whole aqueous phenomena of the atmosphere, as *rain*, *snow*, *hail*, etc.

Ig'nis-Fat'uus.—A meteor or light that appears in the night over marshy grounds, supposed to be occasioned by the decomposition of animal or vegetable substances, or by some inflammable gas; vulgarly called *Will-with-the-wisp*, and *Jack-with-a-lantern*.

Light'ning.—A sudden flash of light in the atmosphere, and commonly disappearing in the same instant; sometimes attended with clouds and thunder.

Mirage'.—An optical illusion arising from an unequal refraction in the lower strata of the atmosphere, and causing

remote objects to be seen double, as if reflected in a mirror, or as if suspended in the air. It is frequently seen in deserts, presenting the appearance of water.

Mist.—Water falling in very numerous but fine and almost imperceptible drops.

Parhe'lion.—A mock sun or meteor, appearing in the form of a bright light near the sun, and sometimes tinged with colors like the rainbow, with a luminous train.

Rain.—Vapor precipitated upon the earth in the form of drops of water.

Rain'bow.—A bow or arch exhibiting, in concentric bands, the several colors of the spectrum, and formed in the part of the hemisphere opposite to the sun by the refraction and reflection of his rays in drops of falling rain.

Snow.—A congelation of vapor produced in the middle region of the air, when the temperature of the atmosphere sinks below the freezing-point of water.

Winds.—For names of winds, see WINDS.

MIND.

Philos'ophy (Gr. *phileo*, I love, and *sophia*, wisdom).—The science of the attainment of truth by the way of reason.

Æsthet'ics (Gr. *aisthetikos*, fitted to perception).—The science of the beautiful, and philosophy of the *fine arts*.

Ætiol'ogy (Gr. *aitia*, a cause, and *logos*, a discourse).—The science which investigates *causes*.

Analyt'ics.—The science of *analysis*.

Anthropol'ogy (Gr. *anthrōpos*, a man, and *logos*, a discourse).—The science of *man* considered physically, intellectually, and morally.

At'omism.—The theory that accounts for existence by the action, interaction, and combination of atoms.

Biol'ogy (Gr. *bios*, life, and *logos*, a discourse).—The science of *life*.

Cosmog'ony (Gr. *kosmos*, the world, and *gonos*, birth).—The science of the origin or foundation of the *universe*.

Cosmol'ogy (Gr. *kosmos*, the world, and *logos*, a discourse).—The science which treats of the structure and parts of the *system of creation*, the law of motion, etc.

Craniol'ogy (Gr. *kranion*, the skull, and *logos*, a discourse).—

The science which investigates the *structure of the skulls* in the various animals, particularly in relation to their specific character and intellectual power.

Dialect'ics (Gr. *dialektikos*, skilled in argument).—That branch of logic which teaches the rules and modes of *reasoning*.

Econom'ics.—The science of *household affairs*.

Epistemol'ogy (Gr. *epistēmē*, knowledge, and *logos*).—The theory or science of the method or grounds of knowledge.

Eschatol'ogy (Gr. *eschatos*, last, and *logos*, a discourse).—The doctrine of the last or final things, as death, judgment, etc.

Eth'ics.—The science of *morals*. It may be divided into :

1. **Moral Philosophy**, which treats of the relations, rights, and duties by which men are under obligations toward God, themselves, and their fellow-creatures.
2. **The Law of Nations**, or those laws by which all nations are bound in their mutual relations one to another.
3. **Public or Political Law**, or the relation between the different ranks in society.
4. **Civil Law**, or those laws, rights, and duties by which individuals in civil society are bound.

Ethnol'ogy (Gr. *ethnos*, a people, and *logos*, a discourse).—The science of *racēs* ; it investigates the mental and physical differences of mankind, and the organic laws upon which they depend.

Ethol'ogy (Gr. *ethos*, custom, and *logos*).—The science of the *formation of character*.

Grammatol'ogy.—The science or theory of the *grammatic* ; *philosophical grammar*.

Human'ics.—The doctrine or science of human nature, or of matters pertaining to humanity.

Hylozo'ism.—The doctrine that *matter possesses life* ; that life and matter are inseparable.

Ide'alism.—The theory that makes everything to consist in ideas, and denies the existence of material bodies.

Ideol'ogy (*idea*, and Gr. *logos*, a discourse).—The science of *mind* ; the doctrine of ideas, or of the operations of the understanding.

Immate'rialism.—The doctrine that there is no material substance, and that all being may be reduced to mind, and ideas in a mind.

Log'ic (Gr. *logikos*, belonging to the reason).—The science and art of *reasoning*.

Mate'rialism.—The doctrine that the soul of man is not a spiritual substance distinct from matter.

Mechanics.—See MECHANICAL PHILOSOPHY.

Metaphys'ics (Gr. *meta*, after, and *phusis*, nature).—The science of the principles and causes of all things existing.

Nat'uralism.—The doctrine of those who deny a supernatural agency in the miracles and revelations of the Bible.

Noe'mics (Gr. *noēma*, the understanding).—The science of the understanding.

Nom'inalism.—The doctrine that general notions, such as the notion of a tree, have no existence but as names or words.

Nomol'ogy (Gr. *nomos*, a law, and *logos*, a discourse).—The science of the *laws of the mind*; rational psychology.

Nool'ogy (Gr. *nous*, *noos*, the mind, and *logos*).—The science of intellectual facts, or the *facts of the intellect*.

Ontol'ogy (Gr. *ōn*, a being, and *logos*, a discourse).—The science that investigates every real existence incapable of being the direct object of consciousness.

Op'timism.—The doctrine that everything in nature is ordered for the best.

Pes'simism.—The doctrine that the world is the worst possible.

Phrenology.—See PHRENOLOGY.

Phys'ics, or Natural Philosophy (Gr. *phusikē*, from *phusis*, nature).—The science of the phenomena of material attraction and those terrestrial phenomena which are studied in the separate sciences of mechanics, acoustics, optics, thermotics, electricity, and meteorology, but not chemistry or physiology.

Physiog'raphy (Gr. *phusis*, nature, and *grapho*, I write).—The science of natural objects, or a description of nature.

Physiol'ogy (Gr. *phusis*, nature, and *logos*, a discourse).—The science that determines the matter and form of living beings, and the functions of their organs.

Psy'chism (Gr. *psuchē*, the soul).—The doctrine that there is a fluid diffused throughout all nature, animating equally all living and organized beings.

Psychol'ogy (Gr. *psuchē*, the soul, and *logos*).—The *doctrine of the soul*. or man's spiritual nature.

Qui'etism.—The doctrine that the highest character of virtue consists in the perpetual contemplation and love of supreme excellence.

Re'alism.—The doctrine that genera and species are real things existing independently of our conceptions and expressions ; opposed to nominalism.

Sociol'ogy.—The science which relates to, or treats of, human society.

Somatol'ogy (Gr. *soma*, *somatos*, a body, and *logos*, a discourse).—The doctrine of bodies or material substances.

Teleol'ogy (Gr. *telē*, far off, and *logos*, a discourse).—The science of the *final causes* of things.

Theod'icy.—A vindication of the ways of God. (See OPTIMISM.)

Theol'ogy (Gr. *Theos*, God, and *logos*, a discourse).—The science of things divine ; the *knowledge of God*, and our duty to him.

MINERALS.

Mineral'ogy (*mineral*, and Gr. *logos*, a discourse).—The science which treats of the properties of mineral substances, and teaches us to characterize, distinguish, and class them according to their properties. It comprehends the study or science of all inorganic substances in the earth or on its surface.

Crystallog'eny (Gr. *krystallos*, rock-crystal, and *gennao*, I produce).—The formation and *internal structure of minerals*.

Crystallog'raphy (*crystal*, and Gr. *graphē*, a description).—The science of crystallization, teaching the principles of the process, and the forms and structure of crystals.

Crystalol'ogy (*crystal*, and Gr. *logos*, a discourse).—The science of the crystalline structure of inorganic bodies.

Lithogen'esy (Gr. *lithos*, a stone, and *genesis*, generation).—The doctrine or science of the *origin of minerals* composing the globe, and of the causes which have produced their form and disposition.

For classification of metals, and names of precious stones, see METALS and PRECIOUS STONES.

MINING.

Min'ing.—The art or the occupation of procuring metals or other mineral substances from mines.

Ad'it.—The horizontal opening by which a mine is entered, or by which water and ores are carried away; called also *drift*.

At'tal.—Stony cast-off matter.

Batch.—A quantity of ore sent to the surface by a couple of men.

Bind.—Indurated clay or argillaceous slate in coal mines; called also *clunch*.

Breast.—The face of coal-workings.

Bret'tices.—The wooden planks used in supporting the roofs of coal mines.

Bud'dling.—The process of separating the metalliferous ores from the earthy matters with which they are associated, by means of an inclined hutch called a *buddle*, over which the water flows.

Bunch.—A small quantity of ore in a mine.

Bur'row.—A heap or heaps of rubbish, or earth, void of ore, raised out of a mine, and commonly lying around the shafts.

Caus'alty.—The lighter, earthy parts of ore carried off by washing.

Cham'ber.—A place, generally of a cubical form, where the powder is confined.

Cledge.—The upper stratum of fuller's earth.

Cock-water.—A stream of water brought into a trough to wash away sand from ores.

Coe.—A little lodgment made by miners under ground as they work lower and lower.

Col'liery.—A place where coals are dug; a coal mine.

Cos'teaning.—The process by which miners seek to discover metallic lodes.

Creep.—A heaving up of the floor of a mine, occasioned by the weight of the strata on either side, and so called because it takes place very gradually.

Day'-coal.—The upper stratum of coal in a mine.

Driftway.—A passage cut between shaft and shaft, or between turn and turn.

Druse.—A cavity in a rock, having its interior surface studded with crystals or filled with water.

Fang.—A niche cut in the side of an adit or shaft, to serve as an air-course.

Fire-damp.—An explosive carburetted hydrogen of coal mines.

- Flook'ing.**—An interruption or shifting of a lode of ore by a cross vein or fissure.
- Flume.**—An artificial channel for gold-washing.
- Gangue.**—The mineral substance which encloses any metallic ore in the vein without being combined with it.
- Glebe.**—A piece of earth in which is contained some mineral ore.
- Hād'ing.**—The direction of a slip, or fault, in mineral strata.
- Hōl'ing.**—The undermining of beds of coal.
- Leader.**—A branch or small vein, not important in itself, but indicating the proximity of a better one.
- Lode.**—A metallic vein, or any regular vein or course, whether metallic or not, but commonly a metallic vein.
- Nog.**—One of the square blocks of wood piled up to support the roof of a mine.
- Pla'cer.**—A gravelly place where gold is found, especially by the side of a river or in the bed of a mountain torrent.
- Plum'ing.**—The operation of finding, by means of a mine dial, the place where to sink an air-shaft, or to bring an adit to the work, or to find which way the lode inclines.
- Ri'der.**—A mass of rock material in a vein, dividing it.
- Shaft.**—A pit or long narrow vertical opening into a mine.
- Sham'bles.**—Niches or shelves left at suitable distances to receive the ore, which is thrown from one shamble to another, and thus raised to the top.
- Stamp'ing-Mill.**—An engine consisting of pestles, moved by water or steam power, for breaking or bruising ore.
- Stemples.**—Cross-bars of wood in the shafts of a mine.
- String.**—A small, filamentous ramification of a metallic vein.
- Stulm.**—A gallery to drain a mine.
- Sump.**—A pit sunk below the lowest workings of a mine.
- Tail'ings.**—The refuse part of stamped ore thrown behind the tail of the buddle or washing apparatus, which is dressed over again to secure whatever metal may exist in it.
- Tamp'ing.**—In mining operations, where the process of blasting with gunpowder is necessary for loosening masses of rock or ore, the powder is pressed in a cavity prepared for its reception by a careful process of ramming: this is called *tamping*.
- Tun'nel.**—A level passage driven across the measures or at right angles to the veins which its object is to reach, and

thus distinguished from the *drift* or *gangway*, which is led along the vein when reached by the tunnel.

Turn.—A pit sunk in some part of a drift.

Underlay'er.—A perpendicular shaft sunk to cut the lode at any required depth.

Wind'-Hatch.—The opening or place where the ore is taken out of the earth.

Winze.—A small shaft sunk from one level to another for the purpose of ventilation.

Work.—Ores before they are cleaned and dressed.

MUSIC.

Mu'sic.—The science of harmonical sounds. It treats of the number, time, division, and combination of sounds.

Al'to.—The counter-tenor part, or that immediately below the treble.

Al'to-Ripie'no.—The tenor of the great chorus, which sings and plays only in particular places.

An'them.—A sacred tune or piece of music set to words taken from the Psalms or other parts of the Scriptures.

A'ria.—An air or song.

Ariet'ta.—An air or little air.

Bar'ytone.—A male voice, the compass of which partakes of the common bass and the tenor, being lower than the latter and higher than the former.

Bass.—The lowest or fundamental part in music.

Canta'ta.—A song or composition intermixed with recitative airs and different movements, chiefly intended for a single voice with an instrumental accompaniment.

Canzo'ne.—A song or air in two or three parts, with passages of fugue and imitation.

Canzonet'.—A short song in one, two, or three parts. It sometimes consists of two strains, each of which is sung twice. Sometimes it is a species of jig.

Chant.—A peculiar kind of sacred music, in which prose is sung, with less variety of intonation than in common airs.

Cho'ral.—A tune of a simple and uniform character, adapted to worship.

Chord.—The combination of two or more sounds heard at the same time, and forming a concord or discord.

Cho'rus.—Those parts of a song at which the whole company

are to join the singer in repeating certain couplets or verses.

Co'da.—A few measures added beyond the natural close of a composition, which may usually be omitted at pleasure.

Col'orature.—All manner of variations, trills, etc., intended to make a song agreeable.

Concert'o.—A piece of music composed for a particular instrument, which bears the greatest part in it, or in which the performance is partly alone and partly accompanied by other parts.

Conser'vatory.—A musical school expressly intended for the scientific cultivation of musical talent.

Coun'terpoint.—The science of harmony, including the art of combining and modulating consonant sounds, or of disposing several parts in such a manner as to make an agreeable whole.

Coun'ter-Ten'or.—One of the middle parts between the treble and the tenor.

Dirge.—A song or tune intended to express grief, sorrow, or mourning.

Duet', Duett'o.—A song or piece for two performers.

Echom'eter.—Among musicians, a kind of scale or rule, serving to measure the duration and length of sounds and to determine their intervals and ratios.

Extravagan'za.—A kind of composition remarkable for its wildness and incoherence.

Falset'to.—That species of voice in a man the compass of which lies above his natural voice.

Fanfare'.—A short, lively, loud, and warlike piece of music, composed for trumpets and kettle-drums.

Fanta'sia.—A fanciful air, not restricted to the severe laws of composition.

Fina'le.—The concluding part of a musical composition.

Fin'gering.—The art of applying the fingers to a musical instrument so skilfully as to produce the notes desired.

Fugue.—A species of composition in which the different parts follow one another, each repeating in order what the first had performed, but at a certain interval above or below the preceding part.

Gam'ut.—A scale on which notes in music are written or printed, consisting of lines and spaces, which are named after the first seven letters of the alphabet.

Glee.—A composition of three or more parts.

Harmon'ics.—The doctrine or science of *musical sounds*.

Hymnog'raphy.—The science which treats of the writing of hymns.

Instrumenta'tion.—The art of distributing the harmony among the different instruments of an orchestra or band.

Libret'to.—A book containing the words of an opera or extended piece of music.

March.—Any piece adapted to a soldiers' march.

Melod'ics.—The department of music which treats of the *pitch of tones* and of the *laws of melody*.

Motet'.—A musical composition of a sacred character, consisting of from one to eight parts.

Move'ment.—The rhythm, or method of progression, of the notes, as regards time. Also, any single strain, or part, having the same measure or time.

Musicog'raphy.—The symbolic writing of music.

Oc'tave.—An eighth, or an interval of seven degrees, or twelve semitones.

Psal'mody.—The art of singing psalms or sacred songs.

Quartette'.—A piece for four voices or four instruments.

Quintette'.—A composition in five parts, each performed by a single voice or instrument.

Recitative'.—A species of singing, approaching to ordinary speaking.

Re'quiem.—A mass for the repose of the souls of deceased persons.

Rhyth'mics.—The department of musical science which treats of the *length of sounds*.

Ritornelle', Ritornel'lo.—A short introductory or concluding symphony to an air, often consisting of the burden of the song. Also, a short intermediate symphony, or instrumental passage, in the course of a vocal piece.

Roman'za, or Romance'.—A short lyric tale set to music, or a simple and elegant melody suitable to such words.

Rondeau', or Ron'do.—A composition of several strains or members, at the end of each of which the first part or subject is repeated.

Scale.—A series of lines and spaces, rising one above another, or falling one below another, on which notes are placed.

Score.—The original draft of the whole composition, in which the several parts are distinctly marked.

- Sig'nature.**—The flats or sharps at the beginning of a composition, which indicate the key or scale.
- So'lo.**—A composition, or even a passage, for a single voice or instrument.
- Sona'ta.**—A piece or composition wholly executed by instruments, and generally supposed to exhibit the composer's powers without confining him within the rigid rules of counterpoint or measure.
- Sopra'no.**—The first treble, or highest vocal part.
- Staff.**—The five lines and the spaces on which music is written.
- Sym'phony.**—A piece of concerted music composed of several parts.
- Treb'le.**—The highest or most acute of the parts in music, and adapted to the voices of females or boys.
- Tri'o.**—A composition consisting of three parts; one of which must make a third with the bass, and the other a fifth or octave.
- Vaude'ville.**—A kind of song of a lively character, frequently embodying a satire on some person or event, sung to a familiar air in couplets with a refrain.
- Vol'untary.**—A composition for the organ.

MYTHOLOGY.

- Mythology** (Gr. *muthologia*, literally a telling of fables).—The science treating of myths, or of legendary and religious popular fables.
- Achelo'us.**—A river-god. In a struggle with Hercules, whom he had offended, he assumed the form of a bull; Hercules rent off one of his horns, which the Naiads took, consecrated, and filled with fragrant flowers. *Plenty* adopted it, and called it Cornucopia.
- A'cis.**—Son of Faunus, was beloved by Galatea, and slain by the envious Cyclops.
- Actæ'on.**—Son of king Cadmus; while hunting, he came accidentally upon the huntress Diana engaged in cooling her limbs in a fountain. Seeing the intruder, Diana dashed water into his face, converting him into a stag, that his own dogs slew.
- Ado'nis.**—A beautiful youth beloved by Venus.
- Æscula'pius.**—Son of Apollo. He became a renowned physi-

- cian, which fact Pluto resented, and prevailed upon Jupiter to kill him with a stroke of lightning.
Afrit' (Mohammedan myth.).—A powerful evil demon or genius.
Ag'ni.—The Hindu god of fire.
Ahri'man.—A Persian god, the source of all good.
Alci'des.—Another name for Hercules.
Alec'to.—See FURIES.
Alf'adur.—Odin.
Ambro'sia.—The imaginary food of the gods.
Am'mon.—During the war of the gods with the giants, Jupiter fled into Egypt, where he assumed the form of a ram, and was worshipped by the Egyptians as the god Ammon.
An'teros.—Son of Venus, and the avenger of blighted love.
Anu'bis.—The guardian god of the Egyptians.
Aphrodi'te.—Venus.
A'pis.—The sacred bull of Memphis, worshipped with the greatest reverence by the Egyptians.
Apol'lo.—The god of archery, prophecy, and music; god of the sun. The son of Jupiter and Latona.
Arim'anes.—A Persian deity, the author of all evil upon earth.
Ar'temis.—Another name for Diana.
As'gard (Northern myth.).—The abode of the gods.
Astar'te, or Ash'toreth.—A goddess of the Sidonians; the same as Venus of the Romans.
Astræ'a.—Goddess of innocence and purity; daughter of Themis.
A'te.—Goddess of discord.
Athe'ne.—Minerva.
Atlan'tis.—The happy island.
At'ropos.—See FATES.
Au'gury.—A species of divination, or the art of foretelling events, practised by the ancients.
Auro'ra.—Goddess of the dawn.
Aus'ter.—The south wind.
Bac'chus.—God of wine; son of Jupiter and Semele.
Bal'dur.—The Good; son of Odin.
Bello'na.—The goddess of war.
Bo'reas.—The north wind.
Bra'gi.—The Scandinavian god of poetry.
Brah'ma.—The first person in the trinity of the Hindus; the creator. The other two are *Vishnu*, the preserver or redeemer, and *Siva*, the destroyer.

Buddh'a.—A pagan deity whose image is represented by a human figure, and who is worshipped by the greater part of the inhabitants of Asia to the east of Hindostan.

Cabi'ri.—Certain deities greatly venerated by the ancient pagans in Greece and Phœnicia. They were supposed to have a particular influence over the sea and maritime affairs.

Cadu'ceus.—The rod borne by Mercury.

Calli'ope.—See MUSES.

Calyp'so.—A sea-nymph enamored of Ulysses, a famous Greek warrior.

Castor and Pollux.—The offspring of Jupiter, who, disguised as a swan, won the affections of Leda, who gave birth to an egg that produced the twins.

Cen'taur.—Supposed to be half man and half horse.

Cer'berus.—A monster in the shape of a dog, guarding the entrance into the infernal regions, and described by different ancient writers as having three, fifty, and even a hundred heads.

Ce'res.—The goddess who presided over agriculture.

Cha'ron.—Ferryman at the river Styx.

Cir'ce.—Daughter of the sun, and a powerful enchantress.

Cly'tie.—A nymph enamored of Apollo, who made no return. She sat repining till her limbs rooted in the ground, and was transformed into a sunflower.

Coryban'tes.—The frantie priests of Cybele; celebrated for their wild and extravagant attitudes in dancing.

Cron'os.—See SATURN.

Cu'pid.—Son of Venus, and god of love.

Daph'ne.—A water-nymph, Apollo's first love. Opposed to marriage, she fled Apollo's pursuit, but, becoming exhausted, called upon Peneus, her father, to open the earth and enclose her, when she immediately became transformed into the laurel.

De'los.—A floating island of Greece; the refuge of Latona, who there gave birth to Apollo and Diana.

Dia'na.—Goddess of the moon, and queen of the chase.

Do'ris.—Wife of Nereus; mother of the Nereids.

Dry'ads.—Wood-nymphs that were believed to perish with the trees which had been their abode, and with which they had come into existence.

Elec'tra.—The lost Pleiad.

Epime'theus.—A Titan to whom, with his brother Prometheus, was committed the office of making man.

Er'ato.—See MUSES.

Er'ebus.—The infernal regions.

E'ris.—Discord.

E'ros.—Cupid.

Euphros'yne.—See GRACES.

Euryd'ice.—The wife of Orpheus. She was bitten by a serpent and died of the wound. Orpheus followed her to Tartarus, where with his lyre he so charmed the powers that he was permitted to take Eurydice, on condition that he should not turn to look upon her till he reached the upper air. He looked behind him, and Eurydice was forever taken from him.

Eu'rus.—The east wind.

Euryn'ome.—See TITANS.

Euter'pe.—See MUSES.

Fates (1, *Atropos*; 2, *Clotho*; 3, *Lachesis*).—Their office was to spin the thread of human destiny, and cut it when they pleased.

Fau'nus.—The grandson of Saturn. He was worshipped as the god of fields and shepherds.

Flo'ra.—Goddess of flowers.

Frey (Northern myth).—Presides over rain and sunshine, and all the fruits of the earth.

Freya.—Sister of Frey. Goddess of music, spring, and flowers.

Furies.—Three goddesses who punished by their secret stings the crimes of those who escaped or defied public justice. Their names were *Alecto*, *Megæra*, and *Tisiphone*.

Gan'ymede.—A Trojan boy whom Jupiter carried off and made cup-bearer to the gods.

Giants.—Extraordinary monsters whose strength enabled them to contend with the gods. They were finally subdued by thunderbolts invented by Minerva, who taught Vulcan and his Cyclops to make them for Jupiter.

Gor'gons.—Monstrous females with huge teeth, brazen claws, and snaky hair. They symbolize the white-crested waves that dash against the rocks of the coast.

Graces.—Goddesses presiding over the banquet, the dance, and all social enjoyments and elegant arts. Their names were *Aglaiâ*, *Euphrosyne*, and *Thalia*.

Grææ.—Three sisters who were gray-haired from their birth. They symbolize the strong billows of the wide open main.

Hamad'ryads.—Dryads.

Har'pies.—Disgusting birds with the heads of maidens and faces pale with hunger. They were sent by the gods to torment a certain Phineas in punishment for his cruelty.

He'be.—Daughter of Juno, and goddess of youth. She was cup-bearer to the gods, which office she resigned upon becoming the wife of Hercules, and was succeeded by Ganymede.

Heim'dal (Northern myth.).—The watchman of the gods.

He'la (Death).—One of the children of Loki.

He'ra.—Juno.

Her'cules.—The son of Jupiter and Alcmena, a mortal. He was celebrated for his strength.

Her'mes.—Mercury.

Ho'rus.—Son of Osiris; Egyptian god of silence.

Hyacin'thus.—A youth beloved by Apollo, by whom he was accidentally killed in playing quoits, and became a flower.

Hyge'ia.—Goddess of health.

Hym'en.—God of marriage.

Hype'rion.—The father of the sun, moon, and dawn. The original sun-god.

I'chor.—An ethereal fluid that supplied the place of blood in the veins of the ancient gods.

Idu'na.—The wife of Bragi, the northern god of poetry. She keeps in a box the apples which the gods taste to renew their youth.

In'dra.—Hindu god of heaven, of thunder, lightning, storm, and rain.

I'no.—See LEUCOTHEA.

Io.—A water-nymph, loved by Jupiter, who turned her into a heifer to baffle the jealous suspicions of Juno, his wife.

I'ris.—Goddess of the rainbow, and messenger of Juno.

I'sis.—The wife of the Egyptian god Osiris. She represents the earth.

Ja'nus.—The porter of heaven. He is the guardian deity of gates, and is represented with two faces.

Jove.—Jupiter.

Ju'no.—The wife of Jupiter, and queen of the gods.

Ju'piter.—Called the father of gods. He was the offspring of Saturn and Rhea.

La' res.—Deified spirits of mortals.

Lato' na.—The mother of Apollo and Diana.

Le' da.—The mother of Castor and Pollux.

Le' the.—A river in the infernal regions, the drinking of whose waters caused forgetfulness of the past.

Leucothe'a.—Ino, flying from her husband, jumped into the sea with her son Melicertes. The gods out of compassion made her a goddess of the sea, under the name given, and Melicertes a god; they were powerful to save from shipwreck, and were invoked by sailors.

Lo' ki.—A northern deity, the contriver of all fraud and mischief.

Luci' na.—The goddess of childbirth.

Mahade' va (Hindu).—The representative of regeneration.

Ma' nes.—The benevolent infernal deities.

Ma' nu (Hindu).—The ancestor of the human race.

Mars.—The god of war, and the son of Jupiter and Juno.

Medu' sa.—A personage who was fabled to possess the power of turning all who looked upon her into stone.

Melicer' tes.—A god of the sea. See **LEUCOTHEA**.

Melpom' ene.—See **MUSES**.

Men' tor.—A disguise of Minerva.

Mer' cury.—Son of Jupiter and Maia. He presided over commerce, wrestling, and other exercises which required skill and dexterity. He was also the messenger of Jupiter, and wore a winged cap and winged shoes.

Me' tis (Prudence).—Wife of Jupiter. She administered a draught to Saturn which caused him to disgorge his children whom he had devoured; these with Jupiter rebelled and vanquished Saturn, whose dominions were then divided between Jupiter, Neptune, and Pluto.

Miner' va.—The goddess of wisdom. She was a daughter of Jupiter, from whose brain she is said to have leaped mature and in complete armor. She presided over the useful and ornamental arts. Athens was her chosen seat, awarded her by the gods for having produced to man the olive.

Mnemos' yne (Memory).—The mother of the Muses.

Mo' mus.—The god of laughter.

Mor' pheus.—The god of dreams; son of Somnus.

Mors (Roman myth.).—The goddess of death, one of the deities of the lower world, born of Night, without a sire.

Mul'ciber.—Latin name for Vulcan.

Muses.—The daughters of Jupiter and Mnemosyne, nine in number, viz. :

1. **Calli'ope**, the Muse of epic poetry.
2. **Cli'o**, of history.
3. **Euter'pe**, of lyric dance and song.
4. **Melpom'ene**, of tragedy.
5. **Terpsich'ore**, of choral dance and song.
6. **Er'ato**, of love poetry.
7. **Polyhym'nia**, of sacred poetry.
8. **Ura'nia**, of astronomy.
9. **Thali'a**, of comedy.

Mys'tagogy.—The interpretation of mysteries.

Na'iads.—Female deities presiding over rivers, brooks, and fountains.

Nem'esis.—The goddess of retribution or vengeance.

Nep'tune.—Chief of the water deities. The symbol of his power was the trident. He created the horse, and was the patron of horse-races.

Ne'reids.—Sea-nymphs ; daughters of Nereus.

Ne'reus and **Do'ris.**—A sea-god and goddess ; parents of the Nereids.

Ni'obe.—The daughter of Tantalus, and wife of Amphion, king of Thebes. Her pride in her children provoked Apollo and Diana, who slew them all.

Oce'anus.—One of the 'Titans, who ruled over the watery element with Tethys, his wife. They were succeeded by Neptune and Amphitrite.

O'din (Northern myth.).—The creator.

Olym'pus (Mount).—The abode of the gods.

Ophi'on.—See **TITANS**.

Or'acle.—The name used to denote the place where answers were given by any of the divinities to those who consulted them respecting the future ; also to signify the response which was given.

O'reads.—Nymphs of mountains and grottos.

Ormuzd (Persian myth.).—The source of all good.

Oromas'des.—Greek for Ormuzd.

Or'pheus.—Son of Apollo and the Muse Calliope. He was a skilful player upon the lyre. See **EURYDICE**.

Osi'ris (Egypt).—God of the sun ; the source of warmth, life, and usefulness.

Pæ'an.—A name for both Apollo and Æsculapius.

Palai'mon.—Son of Leucothea, and a god of the sea, invoked by sailors.

Pa'les.—The goddess presiding over cattle and pastures.

Pal'las.—Minerva.

Pan.—The god of shepherds, guardian of bees, and patron of fishing and fowling. His favorite residence was Arcadia.

Pando'ra.—A goddess sent by Jupiter to bless man. She was furnished with a box containing her marriage presents, into which every god had put some blessing. She opened the box incautiously, and the blessings all escaped, hope only excepted.

Peg'asus.—A certain winged horse of the Muses who sprang from the blood of Medusa when she was slain, and with a blow of his hoof caused Hippocrene, the fountain of the Muses, to spring from Mount Helicon. Bellerophon is fabled to have ridden him when he slew the Chimaera. But when Bellerophon wished to fly on his back to heaven, he threw him off and ascended to the skies alone, where he was changed into a constellation.

Pena'tes.—The gods who were supposed to attend to the welfare and prosperity of the family.

Pe'neus.—A river-god, and father of Daphne.

Perseph'one.—Proserpine.

Phœ'bus.—Apollo.

Plei'adēs.—The daughters of Atlas and the nymphs of Diana's train. Fleeing from Orion, who became enamored of them, Jupiter turned them into pigeons and made them a constellation in the heavens. Electa, one of them, left her place that she might not behold the ruins of Troy.

Plu'to.—King of the lower world or region of departed spirits.

Plu'tus.—God of wealth.

Polyhym'nia.—See MUSES.

Pol'lux.—See CASTOR.

Pomo'na.—The goddess presiding over fruit-trees.

Portu'nus.—The Romans so called Leucothea.

Posei'don.—Neptune.

Prome'theus.—One of the Titans to whom, with his brother Epimetheus, was committed the office of making man. Having transgressed the will of Jupiter, he was chained to a rock on Mount Caucasus, where a vulture preyed on his liver, which was renewed as fast as devoured.

- Pros'erpine.**—A daughter of Ceres. Pluto loved her, and finally carried her off to his dominions as his queen.
- Pro'teus.**—A sea-god who possessed the power of prophecy, and of changing himself into different shapes.
- Psy'che.**—A beautiful mortal whom Cupid made his wife, and Jupiter made immortal; a daughter was born and named *Pleasure*.
- Quiri'nus.**—A war-god, said to be Romulus, the founder of Rome, exalted after his death to a place among the gods.
- Sat'urn.**—A Roman deity, answering to the Greek Cronos, or Time; one of the oldest and principal gods, the son of Cœlus and Terra, and the father of Jupiter.
- Sem'ele.**—The mother of Bacchus by Jupiter.
- Sera'pis.**—Hermes.
- Si'rens.**—Sea-nymphs, who had the power of charming by their song all who heard them.
- Si'va.**—The third person of the Hindu triad. He is the personification of the destroying principle.
- Som'nus.**—The god who presides over sleep.
- Sphinx.**—A monster usually represented as having the winged body of a lion and the face and breast of a young woman; represented also in other forms.
- Styx.**—A river that encompasses the nether world, flowing round it seven times.
- Su'rya** (Hindu myth.).—The god of the sun.
- Sylva'nus.**—A Latin divinity corresponding to Pan.
- Tar'tarus.**—The bottomless pit.
- Tell'us.**—The goddess of the world, by whose power plants potent for enchantment are produced.
- Ter'minus.**—The god of landmarks.
- Te'thys.**—A Titan who with Oceanus ruled over the watery element till succeeded by Neptune and Amphitrite.
- Thali'a.**—See MUSES.
- The'mis** (Law).—The mother of the Fates.
- Theog'ony** (Gr. *theos*, God, and *gonos*, a race).—That branch of heathen theology which treated of the *genealogy* of their deities.
- Thor** (The Thunderer).—Odin's eldest son; the strongest of gods and men.
- Thoth.**—The god of eloquence among the ancient Egyptians, supposed to be the inventor of writing and philosophy.
- Tisiph'one.**—See FURIES.

Ti'tans.—A gigantic race who inhabited the earth before the creation of man.

Tri'ton.—A son of Neptune and Amphitrite. The poets made him his father's trumpeter.

Tyr (Northern myth.).—The god of battles.

Ura'nia.—See **MUSES**.

Valhal'la (Northern myth.).—The most beautiful of the palaces of the gods.

Valkyr'iur.—Warlike virgins, mounted on horses, and armed with helmets, spears, and shields. Odin's messengers.

Varu'na.—The god of the waters, the Indian Neptune, and regent of the west division of the earth.

Ve'nus.—Goddess of love and beauty. Daughter of Jupiter and Dione.

Ves'ta.—A goddess presiding over the public and private hearth.

Vish'nu.—The second in the triad of the Hindus. He is the personification of the preserving principle.

Vul'can.—The celestial artist; son of Jupiter and Juno. He was born lame, and his mother was so displeased at the sight of him that she flung him out of heaven. After falling a day, he alighted in the isle of Lemnos, which was thenceforth sacred to him.

Wo'den.—Odin.

Ya'ma (Hindu myth.).—The god of the infernal regions.

Zeph'yrus.—The west wind, and lover of Flora.

Zeus.—Greek name for Jupiter.

NAMES.

Onomatol'ogy (Gr. *onoma*, a name, and *logos*, a discourse).—The science of names.

ORATORY.

Chiron'omy (Gr. *cheir*, the hand, and *nomos*, rule).—The art or rule of moving the hands in oratory and in pantomime.

Rhet'oric.—The science of oratory. See **GRAMMAR**.

PAINTING.

Paint'ing.—The art of representing objects in nature, or scenes in human life, with fidelity and expression.

Accident'als.—Those chance effects arising from luminous rays falling on certain objects, by which they are brought into a stronger light and their shadows rendered more intense than they otherwise would be.

Accom'paniment.—An object accessory to the principal object, and serving for its ornament or illustration.

Ac'tion.—The attitude or position of the several parts of the body by which they seem to be actuated by passions; as the arm extended, to represent the act of giving or receiving.

Adumbra'tion.—The shadow only of a figure, outlined, and painted of a color darker than the field.

Affec'tion.—A lively representation of passion.

An'imated.—Appearing as if endowed with life.

Ar'abesque.—A capricious, fantastic, or heterogeneous species of ornament, adopted from ancient art in Arabian and Moorish architecture, and consisting of fruits, flowers, foliage, and many other forms, except those of animals.

At'titude.—The posture or action in which a figure is placed.

Aure'ola.—The circle of rays with which painters surround the head of Christ and the saints.

Aus'tere.—When a painter in the treatment of a subject rejects all ornament or adventitious aid, he is called austere.

Back'painting.—The method of painting mezzotinto prints, pasted on glass of a size to fit the print.

Bear'ing.—The mutual relations of the parts of a figure.

Bish'op.—Canvas measuring 58 inches by 94. The *half bishop* measures 45 inches by 56.

Blend'ing.—The process of fusing or melting pigments by means of a soft brush.

Body.—Colors are said to bear a body when they are capable of being ground so fine and of being mixed so entirely with oil as to seem only a very thick oil of the same color.

Bosc'age.—A landscape representing thickets of wood.

Brooch.—A painting all of one color.

Cama'ieu.—A painting in which there is only one color, and where the lights and shades are of gold wrought on a golden or azure ground. When the ground is yellow, the French call it *cirage*; when gray, *grisaille*. This work is chiefly used to represent *basso-relievos*.

Cartoon'.—A sketch executed in colors as a pattern for tapestry, for working in mosaic, etc.; as “the *cartoons* of Raffaele.”

Cat'agraph.—The first draught of a picture.

Chiaroscuro (Ital., the clear-obscure).—The art of distributing *lights and shadows* in painting so as to give effect to the composition.

Coloring.—The manner of applying colors, or the mixture of light and shade formed by the various colors employed.

Composi'tion.—That combination of the several parts in which each is presented in its due proportion.

Con'trast.—Opposition or dissimilitude of figures, etc., by which one contributes to the visibility or effect of the other.

Crude.—Roughly or coarsely done; having colors inharmonious or not well blended; not accurately shaded.

Dem'itint.—A gradation of color between positive light and positive shade.

Design'.—The first idea represented by visible lines.

Detached'.—Applied to all objects in a picture which appear to stand out from those by which they are surrounded.

Distem'per.—When colors are mixed with size, white of egg, or other unctuous or glutinous matter, and not with oil, it is said to be done in *distemper*.

Dra'pery.—The representation of the clothing or dress of human figures, etc.

Dry'ness.—A term applied to a style of painting in which the outline is harsh and formal, and the color deficient in mellowness and harmony.

Enam'el.—The art of painting with vitrifiable colors on metal plates.

Encaus'tic.—The method of painting in heated or burnt wax.

Foreshor'tening.—The representation of objects on a plane surface as they appear to the eye when viewed at an oblique angle.

Fres'co Painting.—A method of painting on walls, performed with water-colors on fresh plaster, or on a wall laid with mortar not yet dry.

Glaz'ing.—Transparent or semi-transparent colors passed thinly over other colors, to modify the effect.

Grada'tion.—The gradual blending of one tint into another.

Ground.—The first layer of color which is put upon the canvas; in a finished picture, the scenery around the principal objects, that part nearest the eye being called the *foreground*, and the more distant parts the *background*.

Gump'tion.—The art of preparing colors.

Impas'to.—The thickness of the layer or body of pigment applied by the painter to his canvas.

Impres'sion.—The ground color, or that which is first laid on to receive the other colors.

Keep'ing.—The observance of a due proportion in the general light and coloring of a picture, so that a proper harmony and gradation shall prevail throughout the whole.

Land'scape.—A picture exhibiting the form of a district of country, so far as the eye can reach, or a particular extent of land and the objects it contains, or its various scenery.

Lim'ning.—The art or act of drawing or painting in *water-colors*.

Man'ner.—The particular habit of a painter in managing colors, lights, and shades.

Morbidezza.—Softness and delicacy of style in the coloring of flesh.

Moresque'.—Ornamental painting, in which foliage, fruits, flowers, etc., are combined, without the introduction of the human figure or the figures of animals.

Nim'bus.—A circle or disk of rays of light around the heads of divinities, saints, and sovereigns in pictures, etc.

Panora'ma.—A painting representing a complete or entire view, as of a country, a river, a city, etc.

Pastic'cio (Ital., from *pasticheo*, a pie).—A picture painted by a master in a style dissimilar to that which he usually adopted.

Penumbra (Lat. *pene*, almost, and *umbra*, a shadow).—The point of a picture where the shade blends with the light.

Pornog'raphy.—Licentious painting used to adorn the walls of rooms sacred to bacchanalian orgies.

Relief'.—The apparent prominence or standing out of a figure from the ground on which it is painted.

Renaissance.—A style of decorative art freer than the antique, but resulting therefrom, revived by Raffaele in the Pontificate of Leo X., as the result of the exhuming of certain ancient paintings.

Rep'lica.—A copy of an original picture done by the hand of the same master.

Repose'.—The harmony observed when the subject is not divided into too many unconnected parts, or when nothing glares, either in the shade, light, or coloring.

Romanesque'.—A fantastic style of ornament in which animals and foliage are represented.

Scene'-Painting.—The act or the art of painting *scenery for a theatre*, etc.

Sciag'raphy (Gr. *skia*, a shadow, and *grapho*, I describe).—The art of casting and *delineating shadows* with truth and upon mathematical principles.

Scum'bling.—The act of thinly spreading or rubbing opaque or semi-opaque colors over other colors, to modify the effect.

Stereoch'romy (Gr. *stereos*, solid, and *chroma*, pigment).—A kind of wall-painting in which the colors are mixed with water, and the whole picture permanently fixed by profuse sprinklings of water containing a certain proportion of fluoric acid.

Still'-Life.—The class or style of painting which represents objects not having animate existence, and which are usually only adjuncts to a picture, as fruits, flowers, dead game or animals, and the like.

Strength.—Boldness of conception or treatment.

Study.—A work undertaken for improvement in the art, and often left incomplete.

Syn'chronism.—A representation of two or more events occurring at different times, in the same picture.

Tab'lature.—A distinct, consistent piece or composition, definitely circumscribed, as on a wall or a ceiling.

Tone.—The prevailing color of a picture, or its general effect, depending on the right relation of objects in shadow to the principal light, and on the quality of color, by which it is felt to owe part of its brightness to the hue of the light upon it.

Tout Ensemble (Fr., all together).—The general effect of a work as a whole, without regard to the execution of the separate parts.

Unity.—Such a combination of parts as to constitute a whole, or a kind of symmetry of style and character.

PERSPECTIVE.

Perspectog'raphy.—The science or theory of perspective.

Bird's-eye View.—A view taken from a great elevation, the point of sight being at a very considerable distance above

the objects viewed and delineated. It is a useful mode of drawing to represent extensive districts of country, battle-fields, panoramic views, etc.

Ichnog'raphy (Gr. *ichnos*, a trace, and *grapho*, I draw).—The view of anything cut off by a plane parallel to the horizon just at the base of it.

Projec'tion.—The appearance or representation of an object on the perspective plane.

Scenog'raphy.—The art of perspective, or the representation on a plane of an object as it appears to the eye.

PHARMACEUTICAL PREPARATIONS.

Ce'rate.—A composition made of oil, wax, and other ingredients.

Chalyb'eate.—Any medicine into which iron enters.

Confec'tion.—Anything made up or preserved with sugar.

Conserve'.—A vegetable substance and a sufficient quantity of sugar beaten into a uniform mass.

Decoc'tion.—A medicinal liquor, made by extracting the soluble and efficacious part of many drugs, particularly of barks, woods, seeds, roots, etc., by boiling.

Den'tifrice.—A powder or paste for cleansing the enamel of the teeth and removing the tartar which covers them.

Elec'tuary.—A form of medicine of a soft consistence, somewhat thicker than honey, and formed of powders, pulp, extracts, syrups, honey, etc.

Elix'ir.—A medicine composed of various substances held in solution in alcohol.

Emul'sion.—A milk-like mixture which is composed of oil divided and held in suspension in water by means of mucilage.

Es'sence.—A compound used in flavoring liquors or confectionery, and consisting chiefly of ethers and essential oils.

Ethe'real Tinc'ture.—A tincture formed by the action of sulphuric ether, at the ordinary temperature, on medicinal substances.

Ex'tract.—A solution of the purer parts of a mixed body in spissated by distillation or evaporation nearly to the consistence of honey.

Infu'sion.—Liquor the virtues of which have been obtained by steeping, without boiling.

Lin'imént.—An unctuous medicine, containing usually oil or lard, which is used externally in the form of friction.

Liq'uer.—A name given to many compound liquids, and especially to those the bases of which are water and alcohol.

Lo'tion.—A liquid intended for application to any external part of the body.

Mix'ture.—A liquid medicine which contains not only extracts, salts, and other substances soluble in water, but powders, etc., which are insoluble.

Pill.—A simple or compound medicine, weighing from one to five grains, of a firm consistence and spherical form; intended to be swallowed at once without chewing.

Tinc'ture.—Spirituous solutions of vegetable, animal, and some saline substances.

Un'guent.—A soft composition used as a topical remedy for SORES.

PHOTOGRAPHS.

Photog'raphy (Gr. *phōs*, light, and *grapho*, I write).—The art or practice of producing fac-similes or representations of objects by the action of light upon a prepared surface. The pictures, however obtained, are called *negative photographs*, and those which have their lights and shadows disposed as in nature—dark upon a light ground—are *positive photographs*.

Am'brotýpe.—A picture taken on a plate of prepared glass, in which the lights are represented in silver and the shades are produced by a dark background, visible through the unsilvered portions of the glass.

Cal'otype (Gr. *kalos*, beautiful, and *tupos*, a sketch).—A process for obtaining photogenic drawings on paper by the action of light upon certain salts of silver.

Cam'era-Obseu'ra (Lat., a dark chamber).—An apparatus representing an artificial eye, in which the images of external objects, received through a double convex glass, are exhibited distinctly and in their native colors, on a white surface placed on the focus of the glass within a darkened chamber.

Chro'matype (Gr. *chroma*, color, and *tupos*, a sketch).—A

process of taking photographic pictures by the use of paper made sensitive with bichromate of potash.

Chrysotype (Gr. *chrusos*, gold, and *tupos*, a sketch).—A process of taking pictures, by photography, on paper impregnated with a neutral solution of chloride of gold.

Daguerreotype (*Daguerre*, the inventor, and Gr. *tupos*, a sketch).—A process by which all images produced by the camera-obscura are retained and fixed in a few moments, by the action of light upon metallic surfaces coated with a salt of silver.

Ferrotypes (Lat. *ferrum*, iron, and Gr. *tupos*, a sketch).—A picture on a plate of sheet-iron, first covered with a surface of black Japan varnish, and afterwards immersed in collodion, and later in the silver solution.

Heliochromy (Gr. *hēlios*, the sun, and *chromē*, color).—The process by which photographic pictures in their natural colors are obtained.

Heliotype (Gr. *hēlios*, the sun, and *tupos*, a sketch).—Any process for obtaining pictures by the actinic power of the sun's rays on a prepared surface, from which to print in fatty inks.

Hyalotype (Gr. *hualos*, glass, and *tupos*).—A photographic picture taken on glass.

Ivorytype, or **Hellenotype**.—A picture in which two finished photographs are used. One is taken very light, the paper made translucent by varnish, tinted on the back, and laid upon the stronger print, so that there is a combination of effects.

Opalotype.—A picture on milky glass.

Photogeny (Gr. *phōs*, *photos*, light, and *gennaō*, I produce).—The art or the practice of producing pictures by the action of light on prepared paper.

Photozincography.—A method of copying ancient documents, etc., recently invented. Paper, after having been washed over with a solution of the bichromate of potash and gum, and then dried, is placed under a collodion negative, which is a reduced picture of the document, obtained by the photographic process. After it has been exposed to the light, its whole surface is coated over with lithographic ink, and a stream of hot water is then poured upon it. As that portion of the coating which was exposed to the light is insoluble, while the other parts are easily washed

off, a picture of the document, etc., is obtained on the paper, and is ready for transference either to stone, zinc, or a copper plate.

PHRENOLOGY.

Phrenol'ogy (Gr. *phrēn*, the mind, and *logos*, a discourse).—

The science of the human mind as manifested in the configuration of the skull. In this science the faculties are located in thirty-five places, and classified as follows, viz. :

PROPENSITIES.	SENTIMENTS.	INTELLECTUAL.
Amativeness,	Self-esteem,	Individuality,
Philoprogenitiveness,	Love of approbation,	Form,
Inhabitativeness,	Cautiousness,	Size,
Adhesiveness,	Benevolence,	Weight,
Combativeness,	Veneration,	Coloring,
Destructiveness,	Firmness,	Locality,
[Alimentiveness],	Conscientiousness,	Number,
[Love of life],	Hope,	Order,
Secretiveness,	Wonder,	Eventuality,
Acquisitiveness,	Ideality,	Time,
Constructiveness.	Wit or ludicrousness,	Tune,
	Imitation.	Language.
	REFLECTIVE.	
	Comparison,	Causality.

PLANTS.

Botany (Gr. *botanē*, a plant).—That branch of natural history which treats of plants. It is divisible into, 1. Structural Botany, Organography, or Vegetable Anatomy, which has reference to the parts of which plants are composed. 2. Physiological Botany, which has reference to the processes carried on by living plants. 3. Systematic Botany, or Taxonomy, in which the relations of plants to one another are considered with a view to their arrangement and classification.

PRINCIPAL SUBDIVISIONS OF PLANTS.

- 1. Cryp'togams.**—Plants without distinct flowers or proper fruit, the so-called seed being only a spore.
 - 1. THAL'LOGENS**, growing in fronds without distinct stems,

leaves, or roots, and consisting wholly of cellular tissue ; as, (a) *Algæ*, or Seaweeds ; (b) Lichens.

2. AN'OGENS, having short stems, usually leafy, and roots, and consisting wholly of cellular tissue ; as, (a) *Hepaticæ*, or Liverworts ; (b) Mosses.

3. AC'ROGENS, having stems, leaves, and roots, and consisting, in part, of vascular tissue ; as, (a) Ferns, or Brakes ; (b) *Lycopodia*, or the Ground-pine tribe ; (c) *Equiseta*, or the Horse-tail tribe.

2. Phen'ogams (called also Phanerogams).—Plants having distinct flowers and true seed.

1. GYM'NOSPERMS, having the flower exceedingly simple, and the seed naked, the latter being ordinarily on the inner surface of the scales of cones. They are exogenous, and consequently have bark and rings of annual growth, but are without spiral ducts ; as, (a) Conifers, or the Pine tribe ; (b) Cycads, or plants related to the *Cycads* and *Zamia* ; (c) Sigillarids, extinct species of the later Paleozoic era in geology.

2. EN'DOGENS (called also Monocotyledons), having regular flowers and covered seeds. They are endogenous, and therefore without bark or rings of annual growth, as Palms, the Rattan, Grasses, Indian Corn, the Lily, and the like.

3. AN'GIOSPERMS (called also Dicotyledons), having regular flowers and covered seeds. They are exogenous, and therefore have bark and rings of growth as in the Gymnosperms, and the wood consists, in part, of spiral ducts ; as the Maple, Elm, Apple, Rose, and the like.

The Gymnosperms and Angiosperms make up the division of plants called *Exogens*.

ELEMENTARY ORGANS OF FRUCTIFICATION.

Ca'lyx.—The outer or lower part of the flower, the divisions of which are called *sepals*.

SUBDIVISIONS OF THE CALYX.

PER'IANTH.

AM'ENT.

INVOLU'CRE.

CALYPT'RE.

SPATHE.

VOL'VA.

GLUME.

Cor'ol.—The colored blossom within or above the calyx (divisions called *petals*).

SUBDIVISIONS OF THE COROL.

MONOPETALOUS.

BELL-FORM.

FUNNEL-FORM.

SALVER-FORM.

WHEEL-FORM.

LA'BIATE.

POLYPETALOUS.

CRU'CIFORM.

CARYOPHYL'LOUS.

LILIA'CEOUS.

ROSA'CEOUS.

PAPILIONA'CEOUS.

Per'icarp.—The fruit, whether pod, shell, bag, or pulpy substance.

SUBDIVISIONS OF THE PERICARP.

SILIQUE'.

LEGUME'.

CAP'SULE.

DRUPE.

ACHENE' (ACINE).

POME.

BERRY.

PEPONE'.

STROB'ILE.

Pis'til.—The central organ of the flower, whose base becomes the seed or PERICARP.

SUBDIVISIONS OF THE PISTIL.

GERM (OVARIUM).

STIG'MA.

STYLE.

Placen'ta.—A cellular substance to which seeds are attached and from which they originate.

Recep'tacle.—The base which sustains the other parts, being at the end of the flower stem. It is called TORUS when a thickened mass.

SUBDIVISIONS OF THE RECEPTACLE.

PROPER.

COMMON.

RA'CHIS.

COLUMEL'LA.

SPA'DIX.

Seed.—The essential part which contains the rudiments of a new plant

SUBDIVISIONS OF THE SEED.

COTYL'EDON.

EM'BRYO (CORCLE).

TEG'UMENT, or INTEGUMENT.

ALBU'MEN.

HI'LUM, or UMBIL'ICUS.

Sta'men.—The organs immediately surrounding or adjoining the central one.

SUBDIVISIONS OF THE STAMEN.

AN'THER.

FIL'AMENT.

POL'LEN.

Tu'nic.—The membranaceous covering of the seed, whether it is enveloped in fruit or naked.

GENERAL DIVISIONS OF FLOWERS.

SIMPLE.

PISTILLATE.

AGGREGATE.

PERFECT.

COMPOUND.

NEUTRAL.

STAMINATE.

COMPLETE.

INFLORESCENCE.

The manner in which flowers are situated on plants.

WHORL.

CYME.

RACEME'.

COR'YMB.

PAN'ICLE.

FAS'CICLE.

SPIKE.

HEAD.

UMBEL.

CONCENTRIC CYLINDERS OF ROOTS AND HERBAGE.

The substance of roots and herbage consists of—

CU'TICLE.

WOOD.

CELLULAR INTEGUMENT.

PITH.

BARK.

MEDULLARY SHEATH.

CAMB.

Roots are of seven kinds:

BRANCHING.

TUBEROUS.

FIBROUS.

BULBOUS.

CREEPING.

GRANULATED.

SPINDLE.

Herbage, is all the plant except the roots and fructification.

It includes stems, leaves, and appendages.

Stems.—Subdivisions are:

TIGE, or PROPER STEM.

PET'IOLE.

CULM.

FROND.

SCAPE.

STIPE.

PEDUN'CLE.

SYNOPSIS OF CLASSES.

MONAN'DRIA, one stamen to each flower.

DIAN'DRIA, two stamens.

TRIAN'DRIA, three stamens.

TETRA'N'DRIA, four stamens.

PENTAN'DRIA, five stamens.

HEXAN'DRIA, six stamens.

HEPTAN'DRIA, seven stamens.

OCTAN'DRIA, eight stamens.

ENNEAN'DRIA, nine stamens.

DECAN'DRIA, ten stamens.

DODECAN'DRIA, from eleven to seventeen stamens.

ICOSAN'DRIA, many stamens inserted in the calyx.

POLYAN'DRIA, twenty stamens and upwards inserted in the receptacle.

DIDYNA'MIA, four stamens in one flower, two longer than the rest.

TETRADYNA'MIA, six stamens in one flower, two shorter than the rest.

MONADEL'PHIA, the filaments connected in the form of a tube.

DIADEL'PHIA, the filaments forming two parcels.

POLYDEL'PHIA, the filaments forming several parcels.

SYNGENE'SIA, the anthers formed into a tube.

GYNAN'DRIA, the stamens united with the pistil.

MONŒ'CIA, stamens and pistils in separate flowers, but in one plant.

DIO'CIA, stamens and pistils in separate plants.

POLYGA'MIA, stamens and pistils separate in some flowers and united in others, either in the same plant or two or three different ones.

CRYPTOGA'MIA, flowers inconspicuous or invisible to the naked eye.

Agrostography (Gr. *agrōstis*, grass, and *graphē*, a description).—A description of the *grasses*.

Anthology (Gr. *anthos*, a flower, and *logos*, a discourse).—A discourse on *flowers*.

Botanology (Gr. *botanē*, a plant, and *logos*, a discourse).—A discourse on *plants*.

Bryology (Gr. *bruon*, moss, and *logos*, a discourse).—The natural history of *mosses*.

Carpol'ogy (Gr. *karpōs*, fruit, and *logos*, a discourse).—A description of *fruits*; more strictly that division of botany which relates to the structure of *seeds* and *seed-vessels*.

Dendrol'ogy (Gr. *dendron*, a tree, and *logos*, a discourse).—The natural history of *trees*.

Epir' rheol'ogy (Gr. *epirreo*, to overflow, and *logos*, a discourse).—That branch of botany treating on the *influence of external agents on plants*.

Flo'ra.—The term used to designate the plants which are indigenous in a country, as we say, the Flora of the United States, meaning the wild plants of the country.

Histol'ogy (Gr. *histos*, tissue, and *logos*, a discourse).—The science which treats of the minute tissues of plants, animals, etc.

Lichenog'raphy (Gr. *leichēn*, a lichen, and *grapho*, I write).—The science which illustrates the natural history of the *lichens*.

Morphol'ogy (Gr. *morphē*, shape, and *logos*, a description).—That division of botany which treats of the *metamorphoses of organs*.

Muscol'ogy (Lat. *muscus*, moss, and Gr. *logos*, a discourse).—That part of botany which treats of the *mosses*.

Mycol'ogy (Gr. *mukēs*, a fungus, and *logos*, a discourse).—A treatise on, or the science of, the *fungi* or mushrooms.

Orchidol'ogy.—The science of *orchidaceous plants*.

Organog'raphy.—A description of the *organs of plants*, or of the names and kinds of their organs.

Phytoch'imy (Gr. *phuton*, a plant, and Fr. *chimie*, chemistry).—The *chemistry of plants*.

Phytog'eny (Gr. *phuton*, a plant, and *gennao*, I beget).—The doctrine of the *generation of plants*.

Phytogeog'raphy.—The *geography of plants*.

Phytog'raphy (Gr. *phuton*, a plant, and *grapho*, I describe).—The science of describing plants in a systematic manner.

Phytolithol'ogy (Gr. *phuton*, a plant, *lithos*, a stone, and *logos*, a discourse).—A treatise on *fossil plants*.

Phytol'ogy (Gr. *phuton*, a plant, and *logos*, a discourse).—The doctrine of plants. A description of the *kinds and properties of plants*.

Phyton'omy (Gr. *phuton*, a plant, and *nomos*, a name).—The science of the *origin and growth of plants*.

Phytopathol'ogy (Gr. *phuton*, a plant, and *pathologeo*, I treat

of disease).—An account of the *diseases to which plants are liable*.

Pro'tophyte.—The lowest order of plants, either unicellular or without any essential mutual dependence between the cells, as the silicious infusoria, or diatoms, the desmidians, etc.

Pro'tophytol'ogy.—The science of *protophytes*; fossil botany.

POETRY.

Po'esy.—The art of composing poems.

Acrost'ic.—A poem so contrived that the first or the last letters of the lines or words, taken together, will make a proper name or some other word.

Alexan'drine.—A kind of verse, consisting of twelve syllables, or of twelve and thirteen alternately.

Anacreon'tic.—Pertaining to Anacreon, a Greek poet, whose odes and epigrams are celebrated for their delicate, easy, and graceful air, and for their éxact imitation of nature. They consist of three feet and a half, the first foot always a spondee, iambus, or an anapest, the rest usually spondees or iammbuses.

Asmatog'raphy (Gr. *asma*, a song, and *grapho*, I write).—The art of song-writing.

Bal'lad.—A species of narrative poetry, displaying the condition and the habits, the tastes and the sentiments of the various nations among whom it is found.

Blank Verse.—That which is without rhyme.

Bucol'ics.—Pastoral poems.

Can'to.—A part or division of a poem, answering to what in prose is called a book.

Canzo'ne.—A poem to which music may be composed in the style of a cantata.

Cen'to.—A composition formed by verses or passages from different authors, disposed in a new order.

Didac'tic Po'etry.—That species of metrical composition which has *instruction* for its primary object.

Dis'tich.—A couplet in poetry making complete sense.

Dith'yramb.—In *ancient poetry*, a hymn in honor of Bacchus, full of transport and poetical rage.

Ec'logue.—A pastoral composition in which shepherds are introduced conversing with each other; as the *Eclogues* of Virgil.

- Ep'ic.**—A narrative poem, describing generally the exploits of heroes.
- Epice'dium.**—An elegiac poem on the occasion of a funeral solemnity in honor of some deceased person.
- Ep'igram.**—An interesting thought represented happily in a few words.
- Ep'isode.**—A minor story which a poet adds to the main story of the piece by way of giving variety.
- Epithala'mium.**—A nuptial song or poetical composition in praise of the bridegroom and bride, with wishes for their prosperity.
- Ep'ode.**—The name given any little verse or verses that follow one or more great ones. Thus, a pentameter after a hexameter is an epode.
- Geor'gic.**—A poetical composition on the subject of husbandry, containing rules for cultivating lands; as the *Georgics* of Virgil.
- Hem'istich.**—Half a verse, or a verse not completed.
- I'dyl.**—A short pastoral poem.
- Lay.**—A species of narrative poetry among the ancient minstrels.
- Le'onine Verse.**—A kind of Latin verse, consisting of hexameters and pentameters, of which the final and middle syllables rhyme.
- Mad'rigal.**—A little amorous poem of unequal verse, not confined to the scrupulous regularity of the sonnet or the subtlety of the epigram.
- Mon'ody.**—A species of poem of a mournful character, in which a single mourner is supposed to bewail himself.
- Mon'orhyme.**—A composition in verse in which all the lines end with the same rhyme.
- Mon'ostich.**—A composition consisting of one verse only.
- Paracros'tic.**—A poetical composition in which it is necessary that the first verse should contain in order all the letters with which the succeeding verses commence.
- Par'ody.**—A kind of poetical pleasantry, in which verses written on one subject are altered and applied to another by way of burlesque.
- Pindar'ic.**—An ode in imitation of the odes of Pindar, the celebrated lyric poet of ancient Greece.
- Quartette'.**—A stanza of four lines.
- Qua'train.**—A piece consisting of four lines, the rhymes usu-

ally alternate, sometimes also, especially in French poetry, intermixed, the first and fourth, second and third, rhyming together.

Recur'rent Verses.—Verses that read the same backwards as they do forwards.

Refrain'.—The burden of a song; a phrase or verse which recurs at the end of each of the separate divisions of a poetic composition.

Sex'tain.—A stanza containing six lines.

Son'net.—A short poem of fourteen lines, two stanzas of four verses each and two of three each, the rhymes being adjusted by a particular rule.

Stan'za.—A number of lines or verses connected with each other, being a portion of a poem containing every variation of measure in that poem.

Teles'tich.—A poem in which the final letters of the lines make a name.

Thren'ody.—A song of lamentation; especially a species of short occasional poem, composed for the occasion of the funeral of some distinguished personage.

Tri'olet.—A stanza of eight lines in which the first line is thrice repeated.

Trip'let.—Three verses rhyming together.

Versifica'tion.—The art of adjusting the syllables and forming them into harmonious measure.

See also general heading VERSIFICATION.

POTTERY.

Ceram'ics (Gr. *keramos*, potter's earth).—The art of pottery.

Bis'cuit.—A term applied to articles that have been only once baked or burnt, and have not yet received the glaze or vitreous coat with which most articles of porcelain or earthenware are covered.

Cheko'a.—The Chinese porcelain clay.

Delf.—Earthenware covered with enamel or white glazing, in imitation of porcelain.

Earth'enware.—Ware made of burnt or baked clay, or other like substances.

Glaz'ing.—The art of *crusting* with a vitreous substance.

Pa'rian.—A fine quality of porcelain clay, used for making

statuettes and the like ; so called from its resemblance to Parian marble.

Por'celain.—A fine, translucent kind of earthenware ; called also *china*.

Ter'ra Cotta.—A name given to statues, architectural decorations, figures, vases, etc., modelled or cast in a paste made of pipe or potter's clay and a fine colorless sand.

PRECIOUS STONES.

Ag'ate.—A variety of chalcedony, of different colors, arranged in bands of various thicknesses, often variegated, in small masses in a matrix of chalcedony. When the lines are thin and zigzag it is called fortification agate ; when in nearly straight lines, ribbon agate ; and when containing apparent marks of vegetation, moss agate.

Am'ethyst.—A variety of quartz, consisting chiefly of silica, colored in various shades of violet by the oxides of iron and manganese.

Avant'urine.—A vitreous variety of quartz, of a pearly gray, brown, or reddish-brown color, and containing minute spangles of mica, which give it a glistening appearance.

Bello'culus.—Cat's-eye, which see.

Ber'yl.—The name of a class of crystallized minerals, to which the emerald and the precious beryl belong. Common beryl is of a light-green color.

Bloodstone, or He'liotrope.—A jasper variety of quartz, of a dark-green color, and having those minute blood-red specks disseminated throughout which give it its name.

Cairn'gorm-Stone.—A yellow or brown variety of rock-crystal, from the mountain Cairngorm, in Scotland.

Cam'eo.—A peculiar sort of onyx ; or a stone or shell on which figures are cut in relief on a differently-colored ground.

Cap'nias.—A kind of jasper, of a smoky color.

Carne'lian.—A precious stone, either red, flesh-colored, or white, which is made into seals, brooches, etc.

Cat's-eye.—A chalcedonic variety of quartz, found of a yellowish-green, yellowish-brown, blackish, and hyacinth-red color. It derives its name from a peculiar opalescent lustre. When held towards the light, it resembles the contracted pupil of the eye of a cat.

Chab'asite.—A precious stone, white, and sometimes transparent; a kind of zeolite.

Chalced'ony.—An uncrystallized variety of quartz. It is usually of a grayish color, but sometimes occurs milky-white, pinkish, or of a smalt-blue; in the latter case it is called *sapphirine*.

Chalced'onys.—A variety of chalcedony, having alternate stripes of white and gray.

Chrys'oberyl.—A yellowish-green gem, next to sapphire in hardness, consisting of alumina and the earth glucina. On account of a peculiar opalescence presented by the crystals, the mineral has been called *cymophane*.

Chrys'olite.—A mineral of a greenish hue, often transparent. It is sometimes granular, and at other times occurs in small crystals.

Chrys'oprase.—A chalcedonic variety of quartz. Its color is commonly apple-green, and often extremely beautiful. It is translucent, or sometimes semi-transparent.

Col'ophonite.—A variety of garnet, of a reddish-yellow or brown color, occurring in small amorphous granular masses.

Di'amond.—The most valuable and hardest of gems. When pure it is perfectly clear and pellucid, and is eminently distinguished from all other substances by its vivid splendor and the brightness of its reflections.

Em'erald.—A gem of a beautiful green color, somewhat harder than quartz; it occurs in prisms with a regular hexagonal base, and ranks next in value to the Oriental ruby and sapphire. It consists chiefly of glucina, with silica, alumina, a very little lime and iron.

Eu'clase.—A very rare mineral, of a pale-blue or green color. A species of emerald.

Gar'net.—A mineral or gem of which there are several varieties, mostly crystallized, and of a reddish color. It is a silicate of alumina with oxide of iron.

Jas'per.—A genus of stones of the silicious class. It is very compact, is found of various colors,—dark green, red, brown, yellow, grayish, and sometimes bluish and black,—and emulates the appearance of the finer marbles or semi-pellucid gems.

Mesom'elas.—A precious stone, with a black vein parting every color in the midst.

O'nyx.—A species of agate, stratified with opaque and trans-

lucent lines. It is generally of a blackish or brownish color, striped with white; occasionally, also, with a greenish layer.

O'pal.—The *precious opal* presents a peculiar play of colors of delicate tints. It consists of silex and about ten per cent. of water.

Plas'ma.—A faintly translucent chalcedony, approaching jasper, having a greenish color sprinkled with yellow and whitish dots, and a glistening lustre.

Ru'by.—A precious stone, next to the diamond in hardness and value. Its constituents are alumina, magnesia, and chromic acid,—its color being due to the latter. The rarest color of this gem is pure carmine, or blood-red of considerable intensity.

Sap'phire.—A gem having the same composition, hardness, and other properties as the ruby. It varies in color from white to the deepest blue and black.

Sard.—A variety of chalcedony which has a rich brownish-red color, but when held between the eye and the light appears of a deep blood-red.

Sar'donyx.—A silicious stone or gem nearly allied to onyx. It is of a deep rich brown, inclining to orange, and, when held against the light, exhibits a deep-red hue.

St. Stephen's-stone.—White chalcedony, with minute blood-red spots.

To'paz.—A gem consisting of silica, alumina, and fluoric acid. It is generally of a fine yellow or gold color.

Tur'quoise.—A mineral of a beautiful sky-blue color; occurring in thin layers or in rounded masses. It is destitute of lustre, but susceptible of a high polish. It consists chiefly of hydrated alumina; and its color is probably due to oxides of copper and iron.

Yellow Sapphire.—A gem of a yellow tint, seldom deep, but generally of a light straw-color, extremely brilliant.

Zir'con.—A crystalline mineral, transparent to translucent, of various colors, adamantine lustre, and consisting of silica and zirconia. It comprises three varieties,—hyacinth, jargon, and zirconite.

PRINTING.

Typog'raphy (Gr. *typos*, a type, and *grapho*, I write).—The art of printing; or the operation of impressing letters and words on forms of types.

Anastatic Printing (Gr. *anastasis*, a setting up again).—A process by which the productions of typography, lithography, or engraving may be transferred from the originals without injury to them, and afterwards fixed on metal or wood, so as to be printed from again.

Calk'ing.—A method of transferring a print or design by covering the back of it with black-lead or with some kind of chalk, laying it upon a sheet of clean paper, and then tracing the outlines with a hard point.

Case.—The receptacle for type, divided into numerous compartments.

Chap'el.—A printer's workhouse; also, an association of workmen in a printing-office.

Chase.—An iron frame used to confine types when set in columns or pages.

Chro'mo-Lithog'raphy.—The obtaining lithographic impressions *by means of colored inks*.

Chro'mo-Typog'raphy.—A French process for printing *letter-press in colors*.

Cof'fin.—A wooden frame enclosing the stone on which the form is imposed.

Compos'ing.—Setting type.

Composi'tion.—The act of setting types or characters in the composing-stick to form lines, and of arranging the lines in a galley to make a column or page, and from this to make a form.

Copy.—The manuscript, or original of a book, given to be printed.

Em.—The square of the body of a type.

En.—Half of the dimensions of an em.

Fat.—Such type-work as contains much blank space, and is consequently easily set up and profitable to the workmen.

Font.—An assortment of type in definite proportions.

Form.—The type set up and locked in a chase, ready for printing.

Gal'ley.—A frame which receives the types from the composing-stick.

Graph'otype.—A process by which prints are made without engraving. A tablet of prepared and compressed chalk is used, and upon it the draughtsman makes his drawing with a peculiar ink. The tablet is gone over with a brush in such a way as to leave the inked parts in relief. The chalk is now hardened by an appropriate process, and from it electrotypes may be taken.

Homog'raphy (Gr. *homos*, like, and *grapho*, I write).—The art of *reproducing copies* of a printed work, engraving, or lithograph.

Impos'ing.—The act of putting the pages of a sheet in proper order on the imposing-stone, and preparing them to be printed.

Impres'sion.—Edition; number printed at once; one course of printing of a literary work.

Jus'tifying.—The act of properly adjusting the words, lines, spaces, etc., of a page.

Lead.—A plate of type-metal used to separate lines of type.

Lithochro'mics (Gr. *lithos*, a stone, and *chroma*, color).—The art of printing colored pictures from oil-paintings on stone.

Lithophotog'raphy (Gr. *lithos*, a stone, and *photography*).—The art of producing *prints from lithographic stones*, by means of photographic pictures developed on their surface.

Lith'otint.—A process by which the effect of a marked or *tinted drawing* can be obtained on stone by the aid of lithography.

Logog'raphy (Gr. *logos*, a discourse, and *grapho*, I write).—A method of printing in which types containing whole words are used instead of single letters.

Mat'ter.—Composed type.

Papyrog'raphy (Gr. *papyrus*, *papyrus*, and *grapho*, I write).—A lately invented art, which consists in taking impressions from a kind of pasteboard covered with a calcareous substance (called lithographic paper) in the same manner as from stones in the process of lithography.

Phytog'lyphy (Gr. *phuton*, a plant, and *gluphein*, engraving).—The art of printing from nature, by taking impressions from plants, or other objects, on soft metal or other substances, and from these taking an electrotype plate, by means of which impressions are multiplied. *Nature-Printing.*

Pi.—Type promiscuously intermingled.

Plate-Print'ing.—The process of printing from an engraved plate.

Pol'ychrome Print'ing.—The art of *printing in one or more colors* at the same time.

Proof.—A rough impression of a sheet, taken for correction.

Pyrog'raphy (Gr. *pur*, fire, and *grapho*, I write).—A mode of printing by a system of heated metallic cylinders, which burn into the wood any design required.

Re'print.—A second or a new impression of any printed work ; specifically, the publication in one country of a work previously published in another.

Revise'.—A second proof-sheet. •

Script.—A kind of type made in imitation of handwriting.

Sorts.—The letters in the several case-boxes are separately called sorts.

Stereotypog'raphy.—The art of printing on *stereotype*.

To'ken.—Two hundred and fifty sheets.

PUNISHMENTS.

Penol'ogy (Lat. *pœna*, pain, and Gr. *logos*, a discourse).—The science which treats of public punishments as they respect the public and the sufferer.

RELIGION.

Theol'ogy (Gr. *Theos*, God, and *logos*, a discourse).—The science of God and divine things. It may be divided into several branches, as

1. **Exegetical Theology**, which consists in the explanation and interpretation of the Scriptures.
2. **Didactic or Speculative Theology**, by which the several doctrines of religion are stated, explained, and supported.
3. **Systematic Theology**, which arranges religious dogmas methodically, so as to enable us to contemplate them in their natural connection and to perceive both the mutual dependence of the parts and the symmetry of the whole.
4. **Practical Theology**, which consists of an exhibition, first, of precepts and directions ; and, secondly, of the motives for complying with them.

Absolu'tion.—A religious ceremony of the Church of Rome,

in which the priest uses the formula, "Ego te absolvo a peccatis tuis," I absolve thee from thy sins.

Ab'stinance.—In the Roman Catholic Church, the refraining from the use of certain kinds of food, such as meat, eggs, milk, etc., which are forbidden to members of that church on particular days.

Ad'vent.—A season of devotion with reference to the coming of Christ in the flesh, and his second coming to judge the world. It includes four Sabbaths before Christmas, beginning on Saint Andrew's day, or on the Sabbath next before or after it.

Anath'ema.—A curse or denunciation by ecclesiastical authority, accompanying excommunication.

Annuncia'tion.—A festival kept by the church to commemorate the tidings brought by the angel Gabriel to the Virgin Mary of the incarnation of Christ; called *Lady Day*.

Antiph'onary.—A service book in the Roman Catholic Church, containing all the invitatories, responsories, collects, and whatever is said or sung in the choir, except the lessons; called also a *responsary*.

An'titype.—That of which the type is the prefiguration.

Apoc'alyptse.—The book of Revelation in the New Testament.

Apoc'hrypha.—Books not admitted into the canon of Scripture, being either spurious, or at least not acknowledged as divine.

Apologet'ics.—That branch of theology which defends the Holy Scriptures, and sets forth the evidence of their divine authority.

Archiepis'copate.—The office of an archbishop.

Article of Faith.—A point of Christian doctrine which we are obliged to believe, as having been revealed by God himself, and allowed and established as such by the church.

Ascen'sion Day.—A festival observed in the Christian Church on a Thursday, ten days before Whitsuntide, in commemoration of Christ's ascent into heaven.

Ash-Wednesday.—The first day in Lent, so called from the ancient custom of fasting in sackcloth and ashes.

Assump'tion.—A festival in the Roman Catholic Church, kept on the 15th of August, in honor of the alleged miraculous ascent of the Virgin Mary into heaven.

Astrol'atry.—The worship of the stars.

As'tro-Theol'ogy (Gr. *astron*, a star, and *theology*).—Theology founded on the observation of the celestial bodies.

Auric'ular Confes'sion.—The disburdening of the conscience privately to a confessor.

Bap'tism.—The rite of initiation into the community of Christians.

Bap'tistery.—A place where the sacrament of baptism is administered.

Beatifica'tion.—In the Roman Catholic Church, an act of the pope by which he declares a person beatified or blessed after death. This is the first step toward canonization, or the raising of one to the dignity of a saint.

Benedic'tion.—A solemn act of imploring the blessing of God, performed by a priest or minister in the official services of the church.

Ben'efice.—An ecclesiastical living.

Benefi'ciary.—One who holds a benefice. A beneficiary is not the proprietor of the revenues of his church, but he has the administration of them without being accountable to any person.

Bre'viary.—A book containing the daily service of the Roman Catholic Church.

Bulls.—Popish bulls are letters called apostolic by the canonists, strengthened with a leaden seal, and containing in them the decrees and commandments of the pope.

Can'on.—In an ecclesiastical sense, a rule either of doctrine or discipline, enacted especially by a council, and confirmed by the authority of the sovereign.

Cas'uistry.—The doctrine and science of conscience and its cases, with the rules and principles of resolving the same, drawn partly from natural reason or equity, and partly from the authority of Scripture, the canon law, councils, etc.

Christ'mas.—The day on which the nativity of Jesus Christ is celebrated.

Christol'ogy (Gr. *Christos*, Christ, and *logos*, a discourse).—A discourse or treatise concerning Christ.

Circuminc'es'sion.—The reciprocal existence in each other of the three persons of the Trinity.

Confirma'tion.—A rite whereby a person, arrived to years of discretion, undertakes the performance of every part of

the baptismal vow made for him by his godfathers and godmothers.

Consecra'tion.—The act of devoting and dedicating anything to the service and worship of God.

Dec'alogue.—The ten commandments given by God to Moses.

Di'ocese.—The circuit of every bishop's jurisdiction.

Dispensa'tion.—License or permission to do something forbidden or to omit something commanded.

Dogmat'ics.—The science which treats of the arrangement and the statement of the doctrines of Christianity.

Eas'ter.—The day on which the Christian Church commemorates our Saviour's resurrection.

Ecumen'ical Coun'cil.—An assembly which represents the whole body of the Christian Church; as the *Council* of Nice.

Epiph'any.—A Christian festival, otherwise called the manifestation of Christ to the Gentiles, observed on the 6th of January, in honor of the appearance of our Saviour to the three magi, or wise men, who came to adore and bring him presents.

Esoter'ics.—Doctrines mysterious or hidden.

Eu'charist.—The sacrament of the Lord's Supper, commemorating the death of our Saviour.

Euchol'ogy.—The ritual of the Greek Church, in which are set down the order of ceremonies, sacraments, and ordinances.

Excommunica'tion.—A penalty or censure, whereby persons who are guilty of any notorious crime or offence are separated from the communion of the church, and deprived of all spiritual advantages.

Exege'sis.—The science of interpreting the Holy Scriptures.

Ex'orcism.—The act of exorcising, or the expulsion of evil spirits from persons or places by certain adjurations and ceremonies; also a form of prayer or incantation used for this end.

Extreme' Unc'tion.—One of the sacraments of the Roman Catholic Church, administered to people dangerously sick, by anointing them with holy oil and praying over them.

Good Friday.—A fast of the Christian Church in memory of the sufferings and death of Jesus Christ.

Hagiol'ogy (Gr. *hagios*, holy, and *logos*, a discourse).—A history or description of the sacred writings.

Hea'ven.—Among Christians, the habitation of the omnipresent Deity, the angels, and blessed spirits.

Hell.—The place of divine punishment after death.

Impana'tion, Consubstantia'tion.—The substantial union of the body and blood of Christ with the elements of the eucharist without a change in their nature.

Incarna'tion.—The act whereby the Son of God assumed the human nature.

Indul'gences.—In the Roman Catholic Church, a remission of the punishment due to sin, granted by the Church, and supposed to save the sinner from purgatory.

Infallibil'ity.—By the *infallibility of the Church of Rome* is understood that she cannot at any time cease to be orthodox in her doctrine, or fall into any pernicious errors; but that she is constituted by divine authority the judge of all controversies of religion, and that all Christians are obliged to acquiesce in her decisions.

In'terdict.—An ecclesiastical censure by which the Church of Rome forbids the performance of divine service in a kingdom, province, town, etc.

Is'lamism.—The Mohammedan religion.

Lec'tionary.—The Roman Catholic service-book, containing portions of Scripture.

Lent.—A solemn time of fasting in the Christian Church, observed as a time of humiliation before Easter.

Lit'urgy.—The ritual according to which the religious services of a church are performed.

Mat'ins.—The first part of the daily service, particularly in the Roman Catholic Church.

Mis'sal.—The Roman Catholic mass-book, containing the several masses to be said on particular days.

Mythol'ogy.—See MYTHOLOGY.

Neol'ogy (Gr. *neos*, new, and *logos*, a word).—Rationalistic views in theology subversive of revealed truth. The term is applied especially to the philosophical theology of the Germans.

Novi'tiate.—In *religious houses*, as convents and nunneries, a year or other time of probation for the trial of a novice, to determine whether he has the necessary qualifications for living up to the rule to which his vow is to bind him.

Of'fertory.—An anthem chanted in the Catholic service, being the first part of the mass, in which the priest prepares the

elements for consecration. In the communion service of the Church of England, the sentences read while the alms or offerings are collected.

Or'dinances of the Gos'pel.—Institutions of divine authority relating to the worship of God, such as baptism.

Ordina'tion.—The act of conferring holy orders, or of initiating a person into the priesthood by prayer and the laying on of hands.

Pantheol'ogy (Gr. *pas*, all, and *theology*).—A system of theology which comprises all known religious beliefs.

Pa'parchy.—Papal rule.

Par'adise.—The garden of Eden, in which Adam and Eve were placed. It is also used to denote heaven.

Pass'over.—A solemn festival of the Jews, instituted in commemoration of their coming out of Egypt.

Pen'ance.—A punishment, either voluntary or imposed by authority, for the faults a person has committed. It is one of the sacraments of the Roman Catholic Church.

Pen'tecost.—A solemn festival of the Jews, so called because it was celebrated fifty days after the feast of the passover. It corresponds with the Christians' Whitsuntide.

Phys'ico-Theol'ogy.—Theology illustrated or enforced by physics or natural philosophy.

Pontif'icate.—Signifies the state or dignity of a pontiff or high-priest; but more particularly, in modern writers, the reign of a pope.

Pri'macy.—The office or dignity of an archbishop.

Purg'atory.—A supposed place or state after death, in which the souls of persons are purified, or in which they expiate such offences committed in this life as do not merit eternal damnation.

Rit'ual.—A book in which the different rites or services of the church are contained.

Sa'bianism.—That species of idolatry which consisted in worshipping the sun, moon, and stars.

Sac'raments.—The sacraments of the Roman Catholic Church are seven, viz. : Baptism, the Eucharist, Confirmation, Penance, Extreme Unction, Ordination, and Matrimony, which see.

Skep'ticism.—A doubting of the truth of revelation, or a denial of the divine origin of the Christian religion or of the being, perfections, or truth of God.

Soteriol'ogy (Gr. *sotēr*, saviour, and *logos*, a discourse).—The doctrine of salvation by Jesus Christ.

Sun'day.—A solemn festival observed by Christians on the first day of every week, in memory of our Saviour's resurrection.

Syn'od.—A meeting or assembly of ecclesiastical persons to consult on matters of religion.

Transubstantia'tion.—The supposed conversion of the bread and wine in the Eucharist into the body and blood of Christ.

Trin'ity.—The doctrine of three persons in one God,—Father, Son, and Holy Ghost.

Type.—A sign or symbol; a figure of something to come; as, the paschal lamb was a type of Christ. To this word in this sense is opposed *antitype*; Christ, therefore, is the antitype.

Ves'pers.—The evening song, or evening service, in the Roman Catholic Church.

Whit'sunday.—A solemn festival of the Christian Church, observed on the fiftieth day after Easter, in memory of the descent of the Holy Ghost upon the apostles in the visible appearance of fiery cloven tongues.

RELIGION, SYSTEMS OF.

Acos'mism is the theory of the non-existence of God and his works.

An'imism is the theory of spirit in nature.

Anthropomorph'ism.—The theory that God has all the parts of a man.

A'theism.—The doctrine that there is no God.

De'ism.—The doctrine of belief in God, without belief in revelation.

Di'theism.—The doctrine of the existence of two Gods.

Du'alism.—The doctrine of the existence of two Gods, or of a good and an evil principle.

Fa'talism.—The doctrine that all things are subject to fate, or that they take place by inevitable necessity.

Hed'onism.—The doctrine that the chief good of man lies in the pursuit of pleasure.

Metempsycho'sis.—The passage of the soul of man after death into the body of some other animal.

Mon'oth'eism.—Belief in one God.

Pan'theism.—The doctrine that the universe is God.

Pol'ytheism.—The doctrine of more than one supreme designing mind or principle.

1. **Idol'atry.**—The worship of idols and false gods.

2. **Sab'aism.**—The worship of stars and fire.

3. **Fet'ichism.**—The worship of anything that strikes the imagination and gives the notion of great power.

Ra'tionalism.—A system of opinions deduced from reason, as distinct from inspiration or opposed to it.

The'ism.—A belief in one intelligent and free spirit, and that everything is governed or regulated for the best.

Trinita'rianism.—The doctrine of the union of three persons in the Godhead.

Tri'theism.—The opinion that the Father, Son, and Holy Spirit are three distinct beings or Gods.

Unita'rianism denies the doctrine of the Trinity, and ascribes divinity to God the Father only.

Univer'salism.—The doctrine that all men will be happy in a future life.

REMEDIAL AGENTS.

Absorb'ents.—Calcareous earths or other substances which remove acids from the stomach.

Acous'tics.—Medicines or instruments to help the hearing.

Al'terative.—An agent considered to be capable of producing a salutary change in a disease, but without exciting any sensible evacuation.

Anæsthet'ic.—A substance which produces insensibility, apparently by suspending certain of the functions of the nervous system.

Analep'tic.—A restorative which serves to repair the strength and to raise the depressed spirits.

Anaplas'tic.—An agent that increases the amount of plastic matter—fibrin—in the blood.

Anaplerot'ic.—A medicine which promotes the growth of flesh in wounds and ulcers.

Anastal'tic.—An astringent or styptic medicine.

Antaphrodis'iac.—A medicine which quells amorous desires.

Anthelmin'tic.—A remedy which destroys or expels worms, or prevents their formation or development.

An'tidote.—A medicine that counteracts poison.

Antiphlogis'tic.—A remedy for inflammation.

Ape'rient.—A gentle laxative.

Astrin'gent.—A medicine which has the property of constringing the organic textures.

Atten'uant.—A medicine which augments the fluidity of the humors.

Calefa'cient.—A substance which excites a degree of warmth in the part to which it is applied.

Carmin'ative.—A remedy which allays pain by causing the expulsion of flatus from the alimentary canal.

Catalot'ic.—A remedy which removes unseemly cicatrices.

Catalytic.—A medicine which is presumed to act by the destruction or counteraction of morbid agencies in the blood.

Cat'aplasm.—A medicine applied externally under the form of a thick pap.

Cathar'tic.—A medicine which, when taken internally, increases the number of alvine evacuations.

Catheretic.—Substances applied to warts, etc., to eat them down. Mild caustics.

Cau'tery.—A medicine for burning, eating away, or corroding any solid part of the body.

Corro'sive.—A substance which, when placed in contact with living parts, gradually disorganizes them.

Coun'ter-Ir'ritant.—A remedy used for the purpose of exciting an irritation in one part of the body, with the view of relieving one existing in another.

Demul'cent.—A medicine supposed to be capable of correcting certain acrid conditions imagined to exist in the humors, as a mucilaginous or saccharine substance.

Deriv'ative.—A remedy which by prodncing a modified action in some organ or texture *derives* from the morbid condition of some other organ or texture.

Desic'cant, or Desic'cative.—Any medicine or application that has the property of exhausting moisture from, or drying up, a sore.

Deter'gent.—A medicine which possesses the power to deterge or cleanse parts, as wounds, ulcers, etc.

Diaphoret'ic, Sudorif'ic.—A medicine which induces perspiration to a degree more than natural.

Diapyyret'ic.—A medicine that promotes suppuration.

Dil'uent.—A medicine for augmenting the fluidity of the

blood and other animal liquids. All aqueous drinks are diluents.

Discu'tient.—A substance which possesses the power of repelling or resolving tumors.

Diuret'ic.—A medicine which has the power of increasing the secretion of urine.

Ectylo't'ic.—A substance applied to the skin for the removal of warts or other indurated excrescences.

Embroca'tion.—A fluid application to be rubbed on any part of the body.

Emet'ic.—A substance capable of producing vomiting.

Emmen'agogue.—A medicine believed to favor the discharge of the menses.

Emol'lient.—A substance which relaxes and softens parts that are inflamed or too tense.

Emplas'tic.—A medicine which constipates and shuts up the pores of the body.

Ené'ma.—A form of conveying medicine into the intestinal canal.

Epispas'tic.—Any medicinal substance which, when applied to the skin, excites pain, heat, and more or less redness, followed by separation of the epidermis, which is raised up by the effused serum.

Er'rhone.—A remedy whose action is exerted on the Schneiderian membrane, exciting sneezing and increased discharge.

Eutroph'ic.—An agent whose action is exerted on the system of nutrition, without necessarily occasioning manifest increase of any of the secretions.

Evac'uants.—Medicines which occasion a discharge by some emunctory, such as purgatives, emetics, etc.

Expect'orant.—A medicine capable of facilitating or provoking expectoration.

Feb'rifuge.—A medicine which possesses the property of abating or driving away fever.

Frigorif'ic.—A medicine that has the power of producing cold.

Hæmospas'tic.—An agent which draws or attracts blood to a part, as a cupping-glass.

Hy'dragogue.—A medicine believed to be capable of expelling serum effused into any part of the body.

Incarn'ative.—A medicine which tends to promote the growth of new flesh and assist nature in the healing of wounds.

Indu'rans.—A medicine which hardens the part to which it is applied.

Ine'briant.—An agent that intoxicates.

Inspis'sant.—Any remedial agent that renders the blood thicker, directly or indirectly.

Ir'ritant.—That which causes irritation or pain, heat and tension, either chemically, mechanically, or in a specific manner.

Ischuret'ic.—A medicine for relieving suppression of the urine.

Lac'tifuge.—A medicine which dispels milk.

Lax'ative.—A medicine which gently opens the bowels.

Len'itive.—A medicine which allays irritation or palliates disease.

Liquefa'cient.—A medicinal agent supposed to have the power of liquefying solid depositions.

Lithontrip'tic.—A medicine which is supposed to have the power of preventing or dissolving *calculi* in the urinary passages.

Mat'urant.—A medicine or application which promotes sup-puration.

Narcot'ic.—A substance which has the property of stupefying.

Ob'struens.—A medicine which closes the orifices of ducts or vessels.

Oppil'ative.—A medicine which shuts up the pores.

Partu'rient, or Parturifa'cient.—A medicine which induces or promotes labor.

Pep'tic.—An agent that promotes digestion.

Prophylac'tic.—An epithet for whatever preserves or defends against disease.

Pur'gative.—A medicine which operates more powerfully on the bowels than a laxative, stimulating the muscular, and exciting increased secretion from the mucous coat.

Refrig'erant.—A medicine which depresses the morbid temperature of the body.

Repellent.—A medicine which, when applied to a tumefied part, causes the fluids that render it tumid to recede, as it were, from it.

Rubefa'cient.—A medicine which causes redness of the skin.

Sed'ative.—A medicine which directly depresses the vital forces.

Sial'agogue.—A medicine which promotes the flow of saliva.

Sorbefa'cient.—A remedy that promotes absorption.

Specif'ic.—A remedy which either certainly cures some particular disease or is less fallible with regard to it than other remedies.

Stim'ulant.—A medicine which has the power of exciting the organic action of the different systems of the economy.

Styp'tic.—A substance employed to arrest hemorrhage.

Tet'anic.—A remedy which acts on the nerves, and through them on the muscles, occasioning in large doses convulsions.

Ton'ic.—A medicine which has the power of exciting slowly, and by insensible degrees, the organic actions of the different systems of the animal economy, and of augmenting their strength in a durable manner.

Ves'icant.—A substance which raises blisters upon the skin.

REPTILES.

Herpetol'ogy (Gr. *herpeton*, a reptile, and *logos*, a discourse).
—That part of Natural History which treats of reptiles.

Excluding the amphibia (frogs, toads, etc.), which are now formed into a separate class, reptiles are divided into four orders, viz. :

1. **Chelo'nia.**—Turtles and tortoises.
2. **Lorica'ta.**—Crocodiles and alligators.
3. **Sau'ria.**—Lizards.
4. **Ophid'ia.**—Snakes.

RIDDLES.

Enigmatog'raphy (Gr. *ainigma*, an enigma, and *grapho*, I write).—The art of making riddles; or the art of solving them.

RINGS.

Dactylol'ogy (Gr. *daktulos*, a finger, and *logos*, a discourse).—The science which treats of the history and qualities of finger-rings.

SEA-SOUNDING.

Bathym'etry (Gr. *bathos*, depth, and *metreo*, I measure).—The art or science of sounding, or measuring depths in the sea.

SEALS.

Sphragis'tics (Gr. *sphragis*, a seal).—The science of seals, their history, age, distinctions; a branch of diplomatics.

SHELLS.

Conchol'ogy (Gr. *kogchē*, a shell, and *logos*, a discourse).—The doctrine or science of shells and of the animals inhabiting them.

The upper part of the shell is the *spire*, and the point of this the *apex*. The whorls twist round a central axis, or *columella*. The mouth of the shell is termed the *aperture*. The margin, with its outer and inner, or columellar lips, is styled the *peristome*.

Conchylion'etry (Lat. *conchilium*, a shell-fish, and Gr. *metron*, measure).—The science of measuring shells or their curves.

Bys'sus.—A tuft or thread of fibres by which the mytilus, pinna, and other shells are attached to contiguous bodies.

Di'aphragm.—A straight calcareous plate which divides the cavity of certain shells into two parts only.

Dor'sum.—The upper surface of the body of a shell, when it is so held that the aperture is downward.

Fau'ces.—That portion of the first chamber of a shell which can be seen by looking in at the aperture.

La'brum.—The outer lip of a shell, or that one farthest from the axis.

Oper'culum.—The lid closing the aperture of various species of snails' shells, as the common whelk.

Si'nus.—A groove or cavity.

Umbil'icus.—A conical depression at the base of a univalve shell.

Var'icus.—Ridges on the outside of a shell which indicate the different stages of growth.

SHIPS.

Naviga'tion (Lat. *navis*, a ship).—The science or art of conducting ships or *vessels* from one place to another.

Bearing.—To take *bearings* is to ascertain the points of the compass on which objects lie.

Dead-Reck'oning.—The calculation made of a ship's place by observing the way she makes by the log, and allowing for currents, etc., no recourse being had to observation.

Log.—The record of the rate of a ship's velocity.

Loxodrom'ies (Gr. *loxos*, oblique, and *dromos*, a course).—The art of *oblique sailing* by the rhumb, a line which always makes an equal angle with every meridian; that is, when a ship sails neither directly under the equator nor under the same meridian, but obliquely.

Orthodrom'ies (Gr. *orthos*, right, and *dromos*, a course).—The art of *sailing on the arc of a great circle*.

Reck'oning.—An account of the ship's course and distance; the course being determined by the compass and the distance by the log-books, and no aid being had from observation.

Rhumb.—A circle on the earth's surface making a given angle with the meridian of the place, marking the direction of any object through which it passes.

Sea'manship.—The art, or skill in the art, of working a ship.

Trav'erse-sail'ing.—A sailing by compound courses.

PARTS AND BELONGINGS OF A SHIP.

Back'stays.—The ropes or stays which extend from the top-mast-heads to both sides of a ship, to assist the shrouds in supporting the masts when strained by a weight of sail, and to prevent them from giving way and falling over-board.

Beam.—The large main timbers that stretch across a ship to support a deck.

Belay'ing-pin.—A strong pin in the side of a vessel, or by the mast, round which ropes are wound when they are fastened or belayed.

Bin'nacle.—A wooden case or box in which the compass and lights are kept.

Bitts.—A frame of two strong pieces of timber fixed perpendicularly in the fore-part of a ship on which to fasten the cables.

Blue'-Peter.—In the *British marine*, a blue flag with a white square in the centre, used as a signal for sailing, to recall boats, etc.

Bob'stay.—Ropes to confine the bowsprit of a ship downward to the stem.

Bolt-rope.—A rope to which the edges of sails are sewed to strengthen them.

Boom.—A long spar run out from various parts of a ship or vessel, for the purpose of extending the bottom of particular sails.

Bow'line.—A rope fastened near the middle of the leech or perpendicular edge of the square-sails, by subordinate parts, called bridles, and used to keep the weather edge of the sail tight forward when the ship is close hauled.

Bow'sprit.—A large boom or spar which projects over the stem of a ship or other vessel to carry sail forward.

Brace.—A rope reeved through a block at the end of a yard to square or traverse the yard.

Brail.—Ropes passing through pulleys, and fastened to the aftmost leech of the sail in different places to truss it up close.

Breast'fast.—A large rope to confine a ship sidewise to a wharf or quay.

Bri'dle-port.—A port-hole or opening in the foremost part of a ship for getting out hawsers, etc.

Bulk'heads.—Partitions made athwart a ship, by which one part is divided from another.

Bunt'lines.—Small ropes fastened to cringles, which serve to force up the bunt of the sail for the better furling of it.

But'tock.—That part which is right astern, from the tack upwards.

Ca'ble-tier.—The place where the cables are coiled away.

Caboose'.—The cook-room or kitchen of a ship.

Cap'stan.—A strong, massy column of timber formed like a truncated cone, and having its upper extremity pierced to receive bars or levers for winding a rope round it to perform work that requires great power.

Cat'head.—A piece of timber projecting over a ship's bow, to which the anchor may be raised and secured.

Cat'holes.—Two small holes astern, above the gun-room ports.

Chains.—Strong links or plates of iron, bolted, at the lower end, to the ship's side; used to contain the blocks called dead-eyes, by which the shrouds of the mast are extended.

Cleat.—A piece of wood, having different forms according to its particular use, employed in vessels to belay ropes to, or to lead ropes through; the most common form is that of a piece of wood having two arms.

- Coam'ings.**—The raised borders or edges of the hatches, made to prevent water from running into the lower apartments from the deck.
- Cock'pit.**—In *ships of war*, a room or apartment in which the wounded men are dressed; situated near the after hatch-way, under the lower gun-deck.
- Compan'ion-way.**—A covered stairway leading to the cabin.
- Courses.**—The principal sails; those attached to the lower masts.
- Cross'trees.**—Pieces of timber in a ship, supported by the cheeks and trestle-trees, at the upper ends of the lower masts, to sustain what is above and to extend the top-gallant shrouds.
- Cut'-water.**—The fore-part of a ship's prow, which cuts the water.
- Dav'it.**—A beam used on board ship as a crane to hoist the flukes of the anchor to the top of the bow; an operation called fishing the anchor. The term is also applied to pieces of timber or iron projecting over a ship's side or stern, having tackle to raise a boat by; these are called *boat-davits*.
- Deck.**—The flooring.
- En'sign.**—A large flag hoisted on a staff, and carried over the poop or stern of a vessel.
- Fig'ure-Head.**—An ornamental figure on the bow.
- Fore'castle.**—That part of the upper deck of a vessel forward of the foremast.
- Fore'stay.**—A rope reaching from the foremast-head towards the bowsprit end, to support the mast.
- Gaff.**—A sort of boom or pole used to extend the upper edge of sails; as the mainsail of a sloop, etc.
- Gal'ley.**—The cook-room or kitchen of a ship of war.
- Gas'ket.**—A flat plaited cord fastened to the sail-yard of a ship, and used to furl or tie the sail to the yard.
- Grap'nel, or Grap'line.**—A small anchor fitted with four or five flukes or claws, used to hold boats or small vessels.
- Ground-tack'le.**—The ropes, etc., belonging to anchors.
- Gun'wale, or Gun'nel.**—The upper edge of a ship's side; the uppermost wale of a ship, or that piece of timber extending on either side from the quarter-deck to the forecastle.
- Hal'yards.**—Ropes or tackle for hoisting or lowering yards or sails.

Hatch'way.—A large square or oblong opening in the deck, affording a passage into the hold, etc.

Hawse.—The part of the bows of a ship close to the cable.

Hold.—The whole interior cavity of a ship between the floor and the lower deck. In a vessel of one deck, the whole interior space from the keel or floor to the deck.

Hulk.—The body of a vessel, or that part which is, in truth, the vessel itself.

Hur'ricane-deck.—The upper deck of steamboats, which, from its height, is liable to be injured by sudden and violent winds.

Jib'-boom.—A spar which is run out from, and is a continuation of, the bowsprit; beyond this is the flying jib-boom. The sails attached, in order, are the foretop-mast stay-sail jib, jib, and flying jib.

Ju'ry-mast.—A temporary or occasional mast, used in the place of the foremast or mainmast which has been destroyed by a storm.

Keel.—The principal timber in a ship, extending from stem to stern at the bottom, and supporting the whole frame.

Keel'son, or Kel'son.—The inside keel.

Lan'yard.—A short piece of rope or line fastened to several portions of a ship's rigging, etc., and serving to secure them in their places; but more especially those used to extend the shrouds and stays of the masts.

Lift.—A rope or tackle extending from a yard-arm to the mast-head, to support and move the yard.

Lug'-sail.—A square sail bent upon a yard that hangs obliquely to the mast at about one-fourth of its length.

Mar'tinets.—Small lines fastened to the leech of sail, reeved through a block on the topmast-head, and coming down by the mast to the deck. Their use is to bring the leech of the sail close to the yard for the purpose of being furled.

Mar'tingale.—A short perpendicular spar under the bowsprit end, used for reeving the stays.

MASTS.

Foremast.—The mast of a ship which is placed in the fore-part or forecastle.

Foretop-mast.—A perpendicular spar next above the foremast.

- Fore-topgallant-mast.**—A spar next above the foretop-mast.
- Fore-royal-mast.**—A spar next above the fore-topgallant-mast.
- Skysail-mast.**—The topmost spar of the tier of masts.
- Ships have, ordinarily, a mainmast and mizzenmast constructed to correspond with the foremast. The *yards* and *sails* attached bear each the name of the mast on which it is set, prefixed; as foreyard, foretop-sail, main-royal, etc.
- Pen'dant.**—A long, narrow flag or streamer displayed from the ship's mast-head, and usually terminating in two points.
- Prow.**—The head or fore-part of a ship.
- Quar'ter-deck.**—That part of the deck of a ship which extends from the stern to the mainmast.
- Rat'lines.**—Lines which make the ladder steps for going up the shrouds and ascending to the mast-head.
- Round'top.**—A platform at the mast-head.
- Rud'der.**—The instrument, attached to the stern-post, by which a ship is steered.
- Scup'pers, or Scup'per-holes.**—Channels cut through the water-ways and sides of a vessel at proper distances, and lined with lead, for carrying off the water from the deck.
- Scut'tle.**—A small hatchway or opening in the deck, large enough to admit a man, and with a lid for covering it.
- Sheet.**—A rope fastened to one or both the lower courses of a sail to extend and retain it in a particular situation.
- Shrouds.**—A range of large ropes extending from the head of a mast to the right and left sides of a ship to support the masts and enable them to carry sail.
- Spank'er.**—The after-sail of a ship or bark.
- Spars.**—The round pieces of timber used for the yards and topmasts of ships.
- Spen'cer.**—A fore-and-aft sail set abaft the fore and main mast; a trysail.
- Stay.**—A large strong rope employed to support the mast by being extended from its upper end toward the stem of the ship.
- Stay'sail.**—Any sail extended on a stay.
- Steer'age.**—An apartment in the fore-part of a ship, for passengers.
- Stud'ing-sail.**—A sail that is set beyond the skirts of the principal sails in moderate weather.
- Tac'kle.**—The rigging, blocks, and other apparatus of a ship.

- Taff'rail.**—The upper part of a ship's stern, which is flat like a table on top, and sometimes ornamented with carved work.
- Tran'som.**—A beam or timber extended across the stern-post of a ship, to strengthen the aft-part and give it due form.
- Truck.**—A small wooden cap at the summit of a flag-staff or mast-head, having holes in it for reeving halyards through.
- Vangs.**—Braces to steady the peak of a gaff.
- Waist.**—The middle part of a ship.
- Yard.**—A long, slender piece of timber nearly cylindrical, suspended upon the mast, by which a sail is extended.

NAMES OF VESSELS.

- Bag'gala.**—A two-masted Arab boat, used both for commerce and piracy in the Indian Ocean, between the Malabar coast and the Red Sea. It is generally of two hundred or two hundred and fifty tons burden, and sails with great rapidity.
- Bark.**—A three-masted vessel, having her fore and main masts rigged as a ship, and her mizzen as a schooner.
- Bomb'-vessel.**—A small ship or vessel, constructed for throwing bombs into a fortress from the sea, and built remarkably strong, in order to sustain the shocks produced by the discharge of the mortars.
- Brig.**—A vessel with two masts, square-rigged, or rigged nearly like a ship's mainmast and foremast.
- Brig'antine.**—A small light vessel, which can both row and sail well, being adapted either for fighting or for chase.
- Cham'pan.**—A Chinese sailing punt or flat-bottomed vessel.
- Clip'per.**—A vessel built for fast sailing.
- Corvette'.**—A sloop-of-war, ranking next below a frigate, and carrying not more than twenty guns; frigate-rigged, with three masts, and built for fast sailing.
- Cruis'er.**—A small armed vessel that sails to and fro in quest of the enemy, to protect the commerce of its own nation, or for plunder.
- Cut'ter.**—A boat attached to a vessel of war, which is rowed with six oars, and is employed in carrying light stores, passengers, etc. Also a vessel with one mast and a straight running bowsprit, which may be drawn in upon deck.
- Feluc'ca.**—A boat or vessel, with oars and lateen-sails, used in the Mediterranean. It has this peculiarity, that the helm may be applied to the head or stern as occasion requires.

- Flag'-ship.**—A ship which has on board an officer who has a right to carry a flag, in distinction from the other vessels under his command.
- Frig'ate.**—A ship of war having one covered gun-deck and more than twenty-eight guns.
- Gal'iot.**—A Dutch vessel carrying a mainmast and a mizzen-mast and a large gaff mainsail.
- Gallivat.**—A small vessel used on the Malabar coast.
- Junk.**—A Chinese vessel.
- Ketch.**—A strongly-built vessel of no well-specified rig, but usually two-masted, and from one hundred to two hundred and fifty tons' burden.
- Lug'ger.**—A vessel carrying three masts, with a running bowsprit, upon which she sets lug-sails, and sometimes has topsails adapted to them.
- Pin'nace.**—A small vessel navigated with oars and sails, and having generally two masts, which are rigged like those of a schooner.
- Privateer'.**—An armed vessel belonging to one or more private individuals, licensed by government to take prizes from an enemy.
- Sa'ic.**—A Turkish or Grecian vessel very common in the Levant; a kind of ketch, which has no topgallant-sail or mizzen-topsail.
- Schoon'er.**—A small, sharp-built vessel, with two masts, of considerable length and rake, with small topmasts, and fore-and-aft sails. It carries a square topsail and a topgallant-sail.
- Shal'lop.**—A kind of large boat with two masts, usually rigged like a schooner.
- Sloop.**—A vessel of one mast, the mainsail of which is attached to a gaff above, to a boom below, and to the mast on its foremost edge; differing from a cutter by having a fixed bowsprit and a jib-stay.
- Sloop-of-War.**—A vessel rigged either as a ship, brig, or schooner, and usually carrying from ten to eighteen guns.
- Snow.**—A vessel equipped with two masts resembling the main and fore masts of a ship, and a third small mast just abaft the mainmast carrying a try-sail.
- Tar'tan.**—A small coasting-vessel used in the Mediterranean, having one mast and a bowsprit, and the principal sail, which is very large, extended by a lateen-yard.

Yacht.—A sailing-vessel, pleasure-boat, or small ship with one deck, sufficiently large for a sea-voyage.

Xe'bec.—A small three-masted vessel, used in the Mediterranean Sea. With a fair wind, in good weather, it carries two large square-sails; when close-hauled it carries large lateen-sails.

SHORT-HAND WRITING.

Ideog'raphy (*idea*, and Gr. *grapho*, I write).—The representation of ideas independently, or in an ideographic manner, as sometimes is done in short-hand writing.

Phonog'raphy (Gr. *phonē*, a sound, and *grapho*, I write).—A method of writing short-hand by representing all the consonants by straight lines and curves, and the vowels by dots or short dashes, which are made heavy or light, to represent long or short vowels.

This system professes to be founded on the analysis of the sounds of the English language.

Stenog'raphy, Brachy'raphy (Gr. *stenos*, close, or *brachūs*, short, and *grapho*, I write).—The art of writing in short-hand by using abbreviations or characters for whole words.

SILK-WORMS.

Ser'iculture (Lat. *sericum*, silk, and *cultura*, cultivation).—Cultivation of silk-worms.

SLEEP.

Hypnol'ogy (Gr. *hūpnos*, sleep, and *logos*, a discourse).—The doctrine of sleep.

SOCIETY.

Sociol'ogy.—The science which relates to, or treats of, human society.

SOUNDS.

Acous'tics (Gr. *akouo*, I hear).—That branch of science which treats of the laws of sound. It is usually divided into two parts, viz.: *diacoustics*, which explains the properties of

those sounds that come directly from the sonorous body to the ear; and *catacoustics*, which treats of reflected sounds.

Acou'meter (Gr. *akouo*, I hear, and *metron*, a measure).—An instrument for *measuring* the degree of *hearing*.

Echom'etry (Gr. *echos*, sound, and *metreo*, I measure).—1.

The art of measuring the *duration of sounds*.

2. The art of constructing vaults to produce echoes.

Harmonom'eter (Gr. *harmonia*, concert, and *metron*, a measure).—An instrument for measuring the *harmonic relations of sounds*.

Microphon'ics (Gr. *mikros*, small, and *phonē*, a sound).—The science or art of *magnifying low sounds*.

Phonetics, Phon'ics (Gr. *phonē*, a sound).—The doctrine or *science of sounds*, especially those of the human voice.

Pho'nograph.—An instrument for the mechanical registration and reproduction of audible sounds.

Polyacoust'ics (Gr. *polūs*, many, and *akouo*, I hear).—The art of *multiplying sounds*.

Sonom'eter (Lat. *sonus*, a sound, and Gr. *metron*, a measure).—An instrument for measuring sounds or the intervals of sounds.

Tel'ephone.—An instrument for reproducing sounds, especially articulate speech, at a distance, by the aid of electricity or electro-magnetism.

Teleph'ony (Gr. *tēle*, far, and *phonē*, sound).—The art or process of reproducing sounds at a distance by the aid of electricity, as with the telephone.

STATUARY.

Toreumatology (Gr. *toreuma*, embossed work, and *logos*, a discourse).—The science or art of sculpture, or a description of ancient and modern sculpture and bass-relief.

Sculpt'ure.—The art of carving or chiselling in wood, stone, or other materials, or of forming images or statues of visible objects from solid substances.

Ac'rolith.—A statue the extremities of which are formed of stone.

Ac'tion.—The attitude or position of the several parts of the body by which they seem to be actuated by passions; as the arm extended, to represent the act of giving or receiving.

Al'to-Riliev'o (It. high relief).—A representation of figures and other objects against a flat surface; it differs from demi-rilievo and basso-rilievo only by the greater projection, or higher relief, of the figures.

An'imated.—Appearing as if endowed with life.

Ar'abesque.—A capricious, fantastic, or heterogeneous species of ornament, adopted from ancient art in Arabian and Moorish architecture, and consisting of fruit, flowers, foliage, and many other forms, except those of animals, which, in pure arabesque, were excluded by the law of Mohammed.

At'titude.—The posture or action in which a statue is placed.

Bas'so-Riliev'o, or **Bass-Relief** (It. low relief).—In which the figures project but little from the plane on which they are formed.

Bear'ing.—The mutual relations of the parts of a figure.

Bis'cuit.—A species of unglazed porcelain in which groups and figures are formed in miniature.

Boast.—To cut roughly, as stone, in order to form the outline of a figure.

Boss.—A projecting mass of material to be afterward cut or carved.

Bust.—A figure or portrait showing only the head and shoulders, the arms being absent.

Cam'eo.—A precious stone carved in relief.

Carv'ing.—The art of cutting figures in wood or stone.

Cast'ing.—The art of taking casts or impressions of figures, busts, medals, etc.

Ceroplas'tic (Gr. *keros*, wax, and *plastikos*, relative to the art of the modeller or carver).—The art of modelling or of *forming models in wax*.

Chas'ing.—The art of *embossing* or representing figures on metals by a kind of basso-rilievo, punched out from behind, and carved on the front with small gravers.

Contour'.—That line which defines or bounds a figure.

Creux.—A term used where the lines and figures are cut below the surface of the substances engraved; thus it stands opposed to rilievo.

Dem'i-Riliev'o (It. half relief).—The projection of one-half of the figure from the plane.

Dra'pery.—The representation of the clothing or dress of human figures, etc.

- Embos'sing.**—The forming of works in relief, whether by raising or by depression.
- Ground.**—The flat surface from which the figures rise; said of a work in relief.
- Intag'lio.**—Anything engraved, or a precious stone with a head or an inscription cut in or hollowed out.
- Moresque'.**—A style of decoration much used by the Moors and Arabs, first introduced about the tenth century, in which foliage, fruit, flowers, etc., without the introduction of the figure of any animal, are combined by springing out of each other.
- Plastog'raphy, Plas'tic Art.**—The art of *forming figures in plaster.*
- Pointing.**—The process of measuring, at the various distances from the surface of a block of marble, the outlines of a future piece of statuary.
- Pol'ychromy** (Gr. *polūs*, many, and *chroma*, a color).—The ancient art or practice of *coloring statuary* to imitate nature, and also buildings, in harmonious, prismatic, or compound tints.
- Pro'file.**—A head represented sideways or in a side view.
- Relief.**—The prominence of a figure above or beyond the ground or plane on which it is formed. Relief is of three kinds, *high relief* (*alto-rilievo*), *low relief* (*basso-rilievo*), and *demi-relief* (*demi-rilievo*), which see.
- Strength.**—Boldness of conception or treatment.
- Stud'y.**—A work undertaken for improvement in the art, and often left incomplete.
- Tor'so.**—The trunk of a statue mutilated of head and limbs.
- Tout Ensemble** (Fr. all together).—The general effect of a work as a whole, without regard to the execution of the separate parts.
- U'nity.**—Such a combination of parts as to constitute a whole, or a kind of symmetry of style and character.

STEREOSCOPES.

- Stereos'copy.**—The art or science of using the stereoscope, or of constructing the instrument or the views used with it.

SURGERY.

Sur'gery (corrupted from *chirurgery*; Gr. *cheir*, the hand, and *ergon*, a work).—That part of the healing art which relates to *external diseases* and their treatment, especially to the manual operations adopted for their cure.

A'cupuncture (Lat. *acus*, a needle, and *punctura*, a puncture).—A surgical operation which consists in puncturing parts with a very fine needle.

Agmatol'ogy (Gr. *agma*, *agmatos*, a fracture, and *logos*).—The doctrine of *fractures*. A treatise on fractures.

Amputa'tion.—The operation of separating, by means of a cutting instrument, a limb or a part of a limb, or a projecting part, from the rest of the body.

Au'topsy (Gr. *autos*, self, and *ōpsis*, sight).—Dissection of a dead body for the purpose of ascertaining the cause, seat, or nature of a disease.

Brachiot'omy (Gr. *brachiōn*, an arm, and *tomē*, a cutting).—Amputation of the arm.

Castra'tion.—The operation of removing the testicles.

Cephalom'eter (Gr. *kephalē*, a head, and *metron*, a measure).—An instrument for measuring the different dimensions of the foetal head during the process of accouchement.

Cicatriza'tion.—The process by which a cicatrix is formed.

Cionot'omy (Gr. *kīōn*, the uvula, and *tomē*, a cutting).—Excision of the uvula when too long.

Coapta'tion.—The adjusting of parts to each other.

Colpot'omy (Gr. *kolpos*, the vagina, and *tomē*, a cutting).—An incision of the vagina in parturition.

Craniot'omy (Gr. *kranion*, the cranium, and *tomē*, a cutting).—The operation of opening the head in parturition.

Cystot'omy (Gr. *kustis*, the bladder, and *tomē*, a cutting).—Incision of the bladder.

Detrunca'tion.—Separation of the trunk from the head of the foetus, the latter remaining in the uterus.

Diortho'sis.—A surgical operation by which crooked or distorted limbs are restored to their proper shape.

Embryot'omy (Gr. *embruon*, an embryo, and *tomē*, a cutting).—A division of the foetus into fragments, to extract it by piecemeal, when the narrowness of the pelvis or other faulty conformation opposes delivery.

Gastrot'omy (Gr. *gastēr*, the stomach, and *tomē*, a cutting).—

The Cæsarean section, and other operations involving an incision into the abdomen.

Granula'tion.—Granulations are the reddish, conical, flesh-like shoots which form at the surface of suppurating wounds and ulcers. They are the product of inflammatory excitement, and may be produced by indolent ulcers, or by exciting the parts by proper stimulants. They form the basis of the cicatrix.

Hypodermat'omy (Gr. *hupo*, under, *derma*, the skin, and *tomē*, a cutting).—The section of subcutaneous parts, as of tendons and muscles.

Iridec'tomy (Gr. *iris*, and *ektomē*, cutting out).—The process of cutting out a portion of the iris in order to form an artificial pupil.

Laryngot'omy (*larynx*, and Gr. *tomē*, a cutting).—A surgical operation which consists in opening the larynx, either to extract a foreign body or to remedy an obstruction of the glottis.

Lithot'omy (Gr. *lithos*, a stone, and *tomē*, a cutting).—The operation by which a stone is extracted from the bladder.

Lithot'rity (Gr. *lithos*, a stone, and *tribo*, I wear away).—The operation by which a calculus is broken or pulverized in the bladder.

Œsophagot'omy (Gr. *oisophagos*, the œsophagus, and *tomē*, a cutting).—An incision made into the œsophagus for the purpose of extracting foreign bodies from it.

Omphalot'omy (Gr. *omphalos*, the umbilicus, and *tomē*, a cutting).—The division of the navel-string.

Oncot'omy (Gr. *ogkos*, a tumor, and *tomē*, a cutting).—The opening of an abscess with a cutting instrument, or the removal of a tumor.

Opera'tion.—The application of instruments to the human body with the view of curing disease.

Os'teoplas'ty (Gr. *osteon*, a bone, and *plasso*, I form).—An operation to remedy the loss of a bone.

Ovariot'omy (Gr. *ovarion*, the ovary, and *tomē*, a cutting).—The operation for removing the ovary.

Phlebot'omy, or **Venesec'tion** (Gr. *phleps*, *phlebos*, a vein, and *tomē*, a cutting).—An operation which consists in making an opening into a vessel to draw or let blood from it.

Posthet'omy (Gr. *posthē*, the prepuce, and *tomē*, a cutting).—Circumcision.

Proth'esis.—The addition of some artificial part to the human body, as a wooden leg.

Reclina'tion.—The process of removing a cataract by applying the needle to its anterior surface and depressing it into the vitreous humor, in such a way that the front surface of the cataract becomes the upper one and its back surface the lower one.

Reduc'tion.—An operation the object of which is to restore displaced parts to their original situation.

Resec'tion.—A name given to operations in which the carious extremities of long bones, or the unconsolidated extremities of fractured bones forming irregular joints, are removed with the saw.

Rhi'noplasty (Gr. *rin*, the nose, and *plasso*, I form).—The process of forming an artificial nose. It consists in bringing down a piece of flesh from the forehead and causing it to adhere to the anterior part of the remains of the nose.

Scarifica'tion.—The operation of scarifying, especially with the cupping instrument.

Scar'ificator.—An instrument used in cupping, containing several lancets moved simultaneously by a spring, for making a number of incisions at once.

Staphyloplas'tic (Gr. *staphulē*, the uvula, and *plasso*, I form).—The operation for restoring or replacing the soft palate when it has been lost.

Staphylot'omy (Gr. *staphulē*, the uvula, and *tomē*, a cutting).—Amputation of the uvula.

Strabot'omy (Gr. *strabos*, one who squints, and *tomē*, a cutting).—The operation for the removal of squinting by the division of the muscle or muscles which distort the eyeball.

Sut'ure.—The uniting of the parts of a wound by stitching.

Symphyseot'omy (Gr. *symphysis*, and *tomē*, a cutting).—The operation of dividing the symphysis pubis for the purpose of facilitating labor.

Syn'thesis.—The uniting or the approximation of parts that are divided.

Syringot'omy (Gr. *surinx*, a pipe, and *tomē*, a cutting).—The operation of cutting for fistula.

Tarsor'raphy (Gr. *tarsus*, a cartilage of the eyelids, and *raphē*, a suture).—An operation for diminishing the size of the opening between the eyelids when it is enlarged by surrounding cicatrices.

Tarsot'omy (*tarsus*, and Gr. *tomē*, a cutting).—The section or removal of the tarsal cartilages.

Tax'is (Gr. an arranging).—An operation by which those parts which have left their natural situation are replaced by the hand, without the assistance of instruments ; as in reducing hernia, etc.

Tenot'omy (Gr. *tenōn*, a tendon, and *tomē*, a cutting).—The operation of dividing a tendon.

Trachea-Laryngot'omy.—A surgical operation which consists in making an opening into both the larynx and trachea.

Tracheot'omy (*trachea*, and Gr. *tomē*, a cutting).—A surgical operation which consists in making an opening into the trachea.

Trepan'ning (Gr. *trupanon*, a borer).—The perforation of the skull with a trepan, and the removal of a piece. When a trephine is used in the operation, it is termed *trephining*.

Union by First Intention.—The process by which the opposite surfaces of recent wounds, when they are kept in contact with each other, grow together and unite without suppuration, the result of a self-healing power in living bodies.

Uranis'coplas'ty (Gr. *ouraniskos*, the palate, and *plasso*, I form).—The process of forming an artificial palate.

Urethrot'omy (*urethra*, and Gr. *tomē*, a cutting).—An operation which consists in opening the urethra with the urethrotome, for the removal of stricture.

SYMBOLS.

Symbol'ogy.—The art of expressing by symbols.

TEETH.

Den'tistry.—The art of the dentist.

TELEGRAPH.

Telegraph'y (Gr. *tēle*, at a distance, and *grapho*, I write).—The art or practice of communicating intelligence by telegraph.

Tel'otype.—An electric telegraph which prints automatically the messages it delivers.

TERMS.

Terminol'ogy (Lat. *terminus*, a term, and Gr. *logos*, a discourse).—That branch of a science or art which explains the meaning of its technical terms.

Orismol'ogy (Gr. *orismos*, the marking out as a boundary, and *logos*).—That department of *Natural History* which relates to the technical terms of the science.

TIME.

Chronol'ogy (Gr. *chronos*, time, and *logos*, a discourse).—The science which determines the dates of events and the civil distinctions of time.

Anach'ronism.—An error with respect to chronology by which an event is placed *earlier* than it really happened.

Chronom'eter (Gr. *chronos*, time, and *metron*, a measure).—An instrument that measures time, particularly one that measures time with great exactness.

Concur'rent.—The supernumerary days in the year over fifty-two weeks, so called because they concur with the solar cycle, whose course they follow.

Cy'cle.—A revolution of a certain period of time within which the same facts or events recur regularly and perpetually in the same order.

Cyclom'etry (*cycle*, and Gr. *metron*, a measure).—The art of measuring cycles.

Emer'gent Year.—The year or epoch from which any computation of time is made.

E'pact.—A term denoting the moon's age at the end of the year, or the number of days by which the last new moon has preceded the beginning of the year.

Ep'och.—A fixed point of time from which succeeding years are numbered.

E'ra.—A fixed point of time from which any number of years is begun to be counted. It differs from *epoch* in this: *era* is a point of time fixed by some nation or denomination of men; *epoch* is a point fixed by historians and chronologists.

Hegi'ra.—The flight of Mohammed from Mecca, July 16, A.D. 622,—the epoch from which the Mohammedan era is reckoned.

Indic'tion.—A cycle or period of fifteen years, the origin of which is involved in obscurity; but it is said by some to have been instituted by Constantine the Great in place of the Olympiads.

Horol'ogy (Gr. *hora*, an hour, and *logos*, a discourse).—That branch of mathematics which treats of the principles and construction of machines for measuring and indicating portions of time, as clocks, watches, etc.

Metempto'sis.—The solar equation necessary to prevent the new moon from happening a day too late, or the suppression of the bissextile once in one hundred and thirty-four years.

Parach'ronism.—An error in chronology by which an event is related as having happened at a *later* period than its true date.

Proempto'sis.—The lunar equation, or addition of a day, necessary to prevent the new moon from being reckoned as happening a day too soon.

Sciag'raphy (Gr. *skia*, a shadow, and *grap'ho*, I write).—The art of finding the hour of the day or night by the shadows of objects caused by the sun, moon, or stars.

Synchronol'ogy.—Contemporaneous chronology.

TYPE.

Type-Founding.—The art of manufacturing the metal letters used by printers.

Acrog'raphy (Gr. *akros*, extreme, and *grapho*, I write).—The art of producing blocks in relief for the purpose of printing from, along with types, and thus to supersede wood-engraving.

Elec'trotypy (Gr. *elektron*, amber (for electricity), and *typos*, a model or type).—The process of copying metals, engravings, etc., and of making stereotype plates by means of electric deposition.

Photo-galvanog'raphy.—The art or process of obtaining from a photographic negative on glass, by means of a gutta-percha impression, an electrotype plate from which may be taken, as in copper-plate printing, any number of copies, exactly similar to the photograph.

Ster'eotypy (Gr. *stereos*, solid).—The art or mode of forming

solid metallic plates from pages of movable types, or from wood engravings, etc., by the process of casting, from an impression in plaster, for the purpose of printing from them.

VERSIFICATION.

Versifica'tion is the forming of that species of composition which is called verse.

Poetic Feet.—A verse or line of poetry consists of successive combinations of syllables, called feet, viz.:

IAM'BUS is a foot of one short syllable and one long one.

TRO'CHEE is a poetic foot of a long syllable and a short one.

AN'APEST is a poetic foot of two short syllables and a long one.

DAC'TYL is a poetic foot of one long syllable and two short ones.

SPON'DEE is a poetic foot of two long syllables.

PYR'RHIC is a poetic foot of two short syllables.

MOLOSSE' is a poetic foot of three long syllables.

TRI'BRACH is a poetic foot of three short syllables.

AM'PHIBRACH is a poetic foot of three syllables, having both sides short, the middle long.

AM'PHIMAC is a poetic foot of three syllables, having both sides long, the middle short.

BAC'CHY is a poetic foot of one short syllable and two long ones.

ANTIBAC'CHY is a poetic foot of two long syllables and a short one.

Measure, or Metre, is the manner of ordering and combining the quantities, or the long and short syllables.

CATALEC'TIC is applied to a verse when a syllable is wanting.

ACATALEC'TIC is applied to a verse when the measure is exact.

HYPER'METER is applied to verse when there is a redundant syllable.

SCAN'SION is the dividing of poetry into feet.

OCTOM'ETER.—A verse of eight metrical feet.

HEPTAM'ETER.—A verse of seven metrical feet.

HEXAM'ETER.—A verse of six metrical feet.

PENTAM'ETER.—A verse of five metrical feet.

TETRAM'ETER.—A verse of four metrical feet.

TRIM'ETER.—A verse of three metrical feet.

DIM'ETER.—A verse of two metrical feet.

MONOM'ETER.—A verse of one metrical foot.

COMPOS'ITE VERSE consists of various metres of feet combined.

WAR.

Logis'tics (Lat. *logista*, the administrator or intendant of Roman armies).—That branch of military art which embraces all details of *moving or supplying armies*; by some writers extended to include strategy.

Strat'egy, or **Strategetics** (Gr. *stratego*, I lead an army).—The science of *military command*, or the science of directing great military movements.

Tac'tics (Gr. *taktikos*, from *tasso*, to set or appoint).—The science and art of disposing military and naval forces in order of battle, and performing military and naval evolutions.

Accou'trements.—The necessities of a soldier, as belts, pouches, cartridge-boxes, etc.

Ambuscade'.—A snare set for an enemy, either to surprise him when marching without precaution, or drawing him on by different stratagems to attack him with superior force.

Am'bush.—A place of concealment where an enemy may be surprised by a sudden attack.

Ammuni'tion.—All warlike stores, and especially powder, ball, bombs, guns, and other weapons necessary for warfare.

Appoint'ments.—The accoutrements of an officer.

Artill'ery.—Guns and their equipment; troops serving them; the science of their construction and use.

Ballis'tics (Gr. *ballo*, I throw).—The art of using *projectiles*.

Ban'derole.—A small flag used for marking out a camp, etc.

Bar'racks.—Large buildings erected for the security and accommodation of soldiers, whether infantry or cavalry.

Battal'ion.—A body of infantry of undetermined number, generally from six hundred to one thousand men.

Bat'tery.—A name given to any number of pieces of ordnance placed behind an elevation of earth, or even without such covering, either to destroy the works or dismount the artillery, or repel the advance of the enemy.

Bay'onet.—A triangular dagger, made with a hollow handle and a shoulder, to fix on the muzzle of a firelock, so that its presence does not impede either the charging or firing of the piece.

Biv'ouac.—A night-guard, performed by the whole army when there is any apprehension of danger; or an encampment in the open air.

Block'house.—A small fortified barrack, frequently used as a keep or place of final defence in a field-work.

Boom.—A chain of masts, a large cable, or other obstacle, stretched across a river or harbor-mouth, to protect a military bridge or bar access.

Breach.—The opening formed by the partial demolition of a rampart in order to permit an assault to be made upon the defenders of a fortified place.

Brevet' Rank.—A rank in the army higher than that for which pay is received.

Brigade'.—A division of troops, whether infantry, artillery, or cavalry, commanded by a brigadier-general. It consists of an indeterminate number of regiments, squadrons, or battalions. A brigade of infantry may consist of from one to six battalions; of cavalry, of two or three regiments; of artillery, of six pieces of ordnance.

Cais'son.—An ammunition-wagon or tumbrel.

Cal'ibre.—The bore or opening of a gun.

Campaign'.—The military operations of one season in the field.

Canteen'.—*In the British army*, a public-house licensed in every barrack or fort to sell liquors; also a semi-cylindrical tin case over a soldier's knapsack, to carry his cooked victuals in.

In the United States army, a tin vessel used by soldiers for carrying liquor for drink.

Can'tonments.—When troops are detached and quartered in different adjacent towns and villages, they are said to be placed in cantonments.

Capitula'tion.—The surrender of a fortress or army on stipulated conditions.

Car'tel.—A mutual agreement between two states at war, or rival armies, for the exchange of prisoners.

Castrameta'tion.—The art of regulating and laying out the encampment of troops of all kinds.

Cav'alry.—A body of military troops on horses.

Chas'seurs.—A select body of infantry, formed on the left of a battalion, and required to be particularly light, active, and courageous.

- Cim'eter.**—A short sword, with a convex edge or recurvate point, used by the Persians and Turks.
- Col'umn.**—A formation of troops, narrow in front, and deep from front to rear. It is contradistinguished from the line, in which the troops display their front in its whole extent with their minimum depth of formation.
- Commissa'riat.**—That department of the service which is charged with the supply of provisions for the soldiers.
- Com'pany.**—A small body of infantry or artillery, the number of which is never fixed, but is generally about one hundred, commanded by a captain, assisted by two lieutenants.
- Con'voy.**—A guard of troops employed to escort prisoners, stores, ammunition, or money, conveyed in time of war from one point or place to another.
- Corps.**—A grand division of an army, composed of an indefinite number of organized troops.
- Coun'tersign.**—A watchword demanded by sentries of those who approach their posts.
- Court'-Mar'tial.**—A court consisting of military or naval officers, for the trial of offences of a military or naval character.
- Court of Inqui'ry.**—A meeting of officers who are empowered to inquire into the conduct of an officer of the army, to see whether there be ground for a court-martial.
- Cuirassiers'.**—Heavy cavalry armed with cuirasses.
- Cul-de-sac'.**—A position in which an army finds itself with no way of exit but to the front.
- Cut'lass.**—A broad, curving sword with but one cutting edge.
- Divis'ion.**—A body consisting of a certain number of brigades, usually two or three, and commanded by a major-general.
- Dragoons'.**—A useful kind of cavalry, mounted on horses too heavy for the hussars and too light for the cuirassiers.
- Engineer' Corps.**—That branch of the service employed in forming plans of works for offence or defence.
- Enlist'ment.**—The writing by which a soldier is bound.
- Entrepôts'.**—Magazines and places appropriate in garrison towns for the reception of stores, etc.
- Ep'aulet.**—An ornamental badge worn on the shoulder by military men.
- Eq'uiPAGE.**—The furniture of an army or body of troops, infantry or cavalry, including whatever is necessary for a military expedition. Camp equipage includes tents, and

everything required for accommodation in camp. Field equipage consists of arms, artillery, wagons, tumbrels, etc.

Flank.—The side of an army, or a battalion encamped on the right or left.

Fusileer'.—A soldier belonging to what is termed the light infantry. Fusileers are distinguished by the white cockade.

Gar'rison.—The guard of a fortified place; also, the place itself.

Grenadier'.—Formerly, a soldier who threw grenades; in modern use, one of a company of tall, stout soldiers, selected for the place, which takes post on the right of a battalion and leads it in every attack.

Gui'don.—A cavalry banner.

Gun'nery.—The science of *using artillery* judiciously and with the greatest effect.

Hav'ersack.—A coarse linen bag issued to every soldier proceeding on service, for the purpose of carrying provisions.

Hollow Square.—A body of foot-soldiers drawn up to receive the charge of cavalry, having an empty space in the middle to receive the officers, artillerymen, etc., and protected on all sides by a line of bayonets.

In'fantry.—Soldiers who serve on foot.

Knep'sack.—A square case of canvas or leather, properly prepared for strapping on the infantry soldier's back and containing the whole of his regimental necessaries.

Lan'cers.—A body of men armed with long lances and mounted on swift horses.

Land'sturm.—A local militia of Germany, formed of men above forty years of age, which never leaves its own district, and is only called out in case of actual invasion.

Land'wehr.—The militia of Prussia and Austria.

Life'-Guards.—The body-guard of a sovereign prince.

Light Horse.—All mounted soldiers that are lightly armed and accoutred for active and desultory service.

Lodg'ment.—An intrenchment hastily constructed on a captured breach or outwork in order to maintain the position against recapture.

Man'ual Ex'ercise.—The exercise by which soldiers are taught the use of their muskets and other arms.

Marines'.—Soldiers raised for naval service and trained to fight both on shipboard and on land. They are clothed and armed in the same way as infantry of the line.

- Mili'tia.**—A body of soldiers in a state enrolled for discipline, but not engaged in actual service, except in emergencies.
- Mobiliza'tion.**—The calling into active service troops not previously on the war establishment.
- Ord'nance.**—A general name for artillery of every description.
- Out'post.**—A post or station without the limits of the camp, at a distance from the army; troops placed at such a station.
- Par'ley.**—A conference with an enemy on particular subjects.
- Parole'.**—The promise on honor to reappear when called for, given by a prisoner of war allowed to go at large.
- Pass-Parole'.**—A command given at the head of an army, and passed from mouth to mouth to the rear.
- Pick'et.**—A certain number of men, horse or foot, who do duty as an outguard to prevent surprises.
- Pioneer'.**—A military laborer, or one whose business it is to attend an army in its march in order to clear the way, by cutting down trees and levelling roads, etc.
- Post.**—Any spot of ground occupied by troops.
- Pouch.**—A case of strong leather, lined with tin divisions, for the purpose of carrying a soldier's ammunition. It is covered by a flap to preserve the cartridges from wet.
- Præliog'raphy** (Lat. *prælium*, a battle, and Gr. *grapho*, I describe).—A description of *battles*.
- Quar'ter.**—The sparing of men's lives, and giving good treatment to a vanquished enemy. Hence, to *give quarter*.
- Quar'ters.**—Stations or lodgings assigned to soldiers; also, the apartments occupied by an officer in barracks.
- Recon'noissance.**—The reconnoitring or examination of any tract of country preparatory to the march of an army, in order either to take up quarters for the season or commence operations against an opposing enemy.
- Reg'iment.**—A body of men, either cavalry, infantry, or artillery, commanded by a colonel, a lieutenant-colonel, and a major, and consisting of a number of companies, usually from eight to ten.
- Reserve' Corps.**—The third or last line of an army drawn up for battle; so called because they are reserved to sustain the rest, as occasion requires, and not to engage except in case of necessity.
- Reveil'le.**—The beat of drum about break of day, to give notice that it is time for the soldiers to rise, and for the sentinels to forbear challenging.

- Review'.**—An inspection of the general appearance and regular disposition of a body of troops assembled for that purpose.
- Ri'cochet.**—The firing of guns or howitzers, usually with small charges, and elevated a few degrees, so as to cause the balls or shells to rebound or roll along the ground on which they fall.
- Ros'ter.**—A list of officers for duty.
- Sa'bre.**—A sword or cimeter, with a broad and heavy blade, thick at the back and a little curved toward the point.
- Sa'bre-tasche.**—A leather case or pocket worn by a cavalry officer at the left side, suspended from the sword-belt.
- Safe'guard.**—A protection granted by the general of an army for the safety of an enemy's lands or person, to preserve them from being insulted or plundered.
- Salute'.**—A discharge of cannon or small arms, the lowering of the colors, or beating of drums, in honor of some distinguished personage.
- Sal'vo.**—A general discharge of firearms not intended for a salute.
- Scab'bard.**—A case made of black leather, with a ferrule at the end, or of steel, in which a sword, sabre, etc., may be sheathed.
- Se'poys.**—The name given to the native troops in India.
- Sig'nal Ser'vice.**—A branch of the army equipped in time of war to maintain *communication by signals*, by telegraph, or by semaphores between different portions of an army or armies, or between armies and fleets. In time of peace it transmits intelligence in reference to storms or approaching weather-change by the display of signals of warning and by reports posted in different cities and ports of the United States. Signal stations are also established in connection with the life-saving stations.
- Skir'mish.**—A loose, desultory kind of engagement, in the presence of two armies, between small detachments, sent out for the purpose either of drawing on a battle or of concealing by their fire the movements of the troops in the rear.
- Sortie'.**—The issuing of a body of troops from a besieged place to attack the besiegers.
- Squad.**—Any small number of men, horse or foot, collected together for the purpose of drill, etc.

Squad'ron.—A body of cavalry, usually from one hundred to two hundred. *Squadron of ships*, a division of a fleet employed on a particular expedition, and commanded by a vice-admiral or rear-admiral, or a commodore.

Stratarith'metry (Gr. *stratos*, an army, *arithmos*, a number, and *metron*, a measure).—The art of *drawing up an army*, or any given number of men, in any geometrical figure, or of estimating or expressing the number of men in such a figure.

Stratog'raphy (Gr. *stratos*, an army, and *grapho*, I describe).—Description of armies, or what belongs to an army.

Tattoo'.—A beat of drum at night, giving notice to soldiers to retreat, or to repair to their quarters in garrison or to their tents in camp.

Tirailleurs' (Fr. marksmen).—A name given to a species of infantry seldom intended to fight in close order, but generally dispersed two and two, always supporting each other, and usually skirmishing in front of the line.

Truce.—A temporary cessation of hostilities by agreement of the commanders, for negotiation or other purpose; an armistice.

Ultima'tum.—A term used in military negotiations to express the final conditions upon which any proposition or treaty can be ratified.

Van'guard.—That part of an army which marches in the front.

Vedette'.—A sentinel on horseback, detached from the main body of the army to discover and give notice of the enemy's movements.

See FORTIFICATIONS.

WATER.

Hydrol'ogy (Gr. *hudōr*, water, and *logos*, a discourse).—The science which treats of and explains the nature and properties of waters in general.

WEALTH.

Chrysol'ogy, or **Chrematis'tics** (Gr. *chrusos*, gold, *logos*, a discourse, and *chrematistikē*, the art of traffic).—That branch of political economy which relates to the production of wealth.

WEIGHTS.

Metrol'ogy (Gr. *metron*, a measure, and *logos*, a discourse).—The science of weights and measures.

WELLS.

Well'-sinking.—The art or process of sinking or digging a well or wells.

WINDS.

Anemol'ogy (Gr. *anemos*, wind, and *logos*, a discourse).—The doctrine of winds.

Anemom'eter (Gr. *anemos*, wind, and *metron*, a measure).—An instrument or machine for measuring the force of the winds.

Cy'clone.—A rotatory storm or whirlwind of extended circuit.

Harmat'tan.—A hot, dry wind, which blows on the western coast of Africa. It corresponds to the simoom.

Lim'bat.—A cooling, periodical wind in the isle of Cyprus, blowing from the northwest from eight o'clock A.M. to the middle of the day or later.

Monsoon'.—A periodical wind prevailing in the East Indies, which blows from the northeast in summer and from the southwest in winter.

Pampe'ro.—A violent wind from the west or the southwest, which sweeps over the pampas in the southern part of Buenos Ayres.

Simoom', Simoon', or Sa'miel.—A hot, dry wind, that blows in the Eastern deserts; generated by the extreme heat.

Siroc'co.—An oppressive, relaxing wind from the Libyan deserts, chiefly experienced in Italy, Malta, and Sicily.

Torna'do.—A violent gust of wind, or a tempest, distinguished by a whirling motion; usually accompanied with severe thunder, lightning, and torrents of rain.

Trade'-wind.—Certain winds in the torrid zone, and often a little beyond it, which blow from the same quarter throughout the year, unless when affected by local causes.

Typhoon'.—A violent tornado or hurricane in the Chinese seas. It is produced chiefly by the action of heat.

WRITING.

Chirog'raphy (Gr. *cheir*, the hand, and *grapho*, I write).—

The art of writing, or a writing with one's own hand.

Cryptog'raphy (Gr. *krāpto*, I conceal, and *grapho*).—The art of writing in *secret characters*.

Diplomat'ics, or **Palæog'raphy** (Gr. *palaaios*, ancient, and *graphē*, a writing).—The science of *diplomas*, or the art of *deciphering ancient writings*, assigning their date, etc.

Graphiol'ogy (Gr. *graphē*, a writing, and *logos*, a discourse).—

The art of *writing or delineation*, or a treatise on that art.

Pasig'raphy (Gr. *pas*, all, and *grapho*, I write).—A manner or system of writing that may be understood by all nations without translation.

Polyg'raphy (Gr. *polūs*, many, and *grapho*, I write).—The art of writing in, and deciphering, *various ciphers*.

Short-hand Writing. See SHORT-HAND WRITING.

Steganog'raphy (Gr. *steganos*, a secret, and *grapho*, I write).

—The art of *writing in ciphers*, or characters which are not intelligible except to the persons who correspond with each other.

Stelog'raphy (Gr. *stelos*, a pillar, and *grapho*, I write).—The art of writing or *inscribing characters on pillars*.

Tachyg'raphy (Gr. *tachūs*, quick, and *grapho*, I write).—The art or practice of rapid writing.

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