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FINE ARTS

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Chapter 1

Introduction

Fine art

Fine art, from the 17th century on, has meant art forms developed primarily for aesthetics, distinguishing them from applied arts that also have to serve some practical function. Historically, the five main fine arts were painting, sculpture, architecture, music and poetry, with minor arts including drama and dance. Today, the fine arts commonly include additional forms, including film, photography, conceptual art, and printmaking. However, in some institutes of learning or in museums, fine art and frequently the term fine arts (pl.) as well, are associated exclusively with visual art forms.

One definition of fine art is "a visual art considered to have been created primarily for aesthetic and intellectual purposes and judged for its beauty and meaningfulness, specifically, painting, sculpture, drawing, watercolor, graphics, and architecture." In that sense, there are conceptual differences between the Fine Arts and the Applied Arts. As originally conceived, and as understood for much of the modern era, the perception of aesthetic qualities required a refined judgement usually referred to as having good taste, which differentiated fine art from popular art and entertainment. However in the Postmodern era, the value of good taste is disappearing, to the point that having bad taste has become synonymous with being avant-garde.[4] The term "fine art" is now rarely found in art history, but remains common in the art trade and as a title for university departments and degrees, even if rarely used in teaching.

Fine Art is the making and study of visual art. It educates and prepares students to become artists and to follow other practices that are aligned to the making of art. The curriculum is centred on the individual student’s potential and imagination. Its an Art produced or intended primarily for beauty rather than utility. Any of the art forms, such as sculpture, painting, or music, used to create such art. Often used in the plural. Something requiring highly developed techniques and

skills. A visual art created primarily for aesthetic purposes and valued for its beauty or expressiveness, specifically, painting, sculpture, drawing, watercolor, graphics, or architecture.

History

The word "fine" does not so much denote the quality of the artwork in question, but the purity of the discipline. This definition tends to exclude visual art forms that could be considered craftwork or applied art, such as textiles. The visual arts has been described as a more inclusive and descriptive phrase for current art practice. Also, today there is an escalation of media in which high art is more recognized to occur.

According to some writers the concept of a distinct category of fine art is an invention of the Early Modern period in the West. Larry Shiner in his The Invention of Art: A Cultural History (2003) locates the invention in the 18th century: "There was a traditional "system of the arts" in the West before the eighteenth century. (Other traditional cultures still have a similar system.) In that system, an artist or artisan was a skilled maker or practitioner, a work of art was the useful product of skilled work, and the appreciation of the arts was integrally connected with their role in the rest of life. "Art," in other words, meant approximately the same thing as the Greek word techne, or in English "skill", a sense that has survived in phrases like "the art of war," "the art of love," and "the art of medicine." Similar ideas have been expressed by Paul Oskar Kristeller, Pierre Bourdieu, and Terry Eagleton (e.g. The Ideology of the Aesthetic), though the point of invention is often placed earlier, in the Italian Renaissance.

Other Cultures

The separation of arts and crafts that exists in Europe and the United States is not shared by all other cultures. In Japanese aesthetics the activities of everyday life are worthy of being done with both skill and creativity; integrating not only art with craft but man-made with nature. Traditional Chinese art distinguished within Chinese painting between the mostly landscape literati painting of scholar gentlemen and the artisans of the schools of court painting and sculpture. A high status was also given to many things that would be seen as craft objects in the West, in particular ceramics, jade carving, weaving, and embroidery. Latin American art was

dominated by European colonialism until the 20th Century, when indigenous art began to reassert itself inspired by the Constructivist Movement, which reunited arts with crafts based upon socialist principles.

Fine art photography is photography created in accordance with the vision of the artist as photographer. Fine art photography stands in contrast to representational photography, such as photojournalism, which provides a documentary visual account of specific subjects and events, literally re-presenting objective reality rather than the subjective intent of the photographer; and commercial photography, the primary focus of which is to advertise products or services.

Fine Artist was an image-creation program created by Microsoft's Microsoft Kids subsidiary in 1993. Using this program, which is specifically targeted at children, it is possible to create paintings. The interface and environment is especially targeted towards children and is set in Imaginopolis with the main helper being a character known as McZee. Fine Artist is discontinued.

Fine Artist was announced by Microsoft on 7 December 1993 and was released in 1994. It ran on both MS-DOS 3.2 and the Windows 3.1 operating system. A version for Apple Macintosh was also released.

The program took place in the fictional place of Imaginopolis and had several levels of a building each with a different topic (e.g. one for creating new images, one as a gallery of existing images). The design of the program was very similar to that of its sister program Creative Writer. The program runs full screen and creates an all inclusive environment.

Fine Artist was considerably more powerful than Microsoft Paint, as it included the clip art that could be easily manipulated and even sound effects that could be incorporated into the painting. Fine Artist also used sounds heavily where each tool would make a different noise.

It includes the following

1) Painting is the practice of applying paint, pigment, color or other medium to a surface (support base). The medium is commonly applied to the base with a brush but other implements, such as knives, sponges, and airbrushes, can be used. In art, the term painting describes both the act and the result of the action. However, painting is also used outside of art as a common trade

among craftsmen and builders. Paintings may have for their support such surfaces as walls,paper, canvas, wood, glass, lacquer, clay, leaf, copper or concrete, and may incorporate multiple other materials including sand, clay, paper, gold leaf as well as objects.

Painting is a mode of creative expression, and the forms are numerous. Drawing, composition or abstraction and other aesthetics may serve to manifest the expressive and conceptual intention of the practitioner. Paintings can be naturalistic and representational (as in a still life or landscape painting), photographic, abstract, be loaded with narrative content, symbolism, emotion or be political in nature.

A portion of the history of painting in both Eastern and Western art is dominated by spiritual motifs and ideas; examples of this kind of painting range from artwork depicting mythological figures on pottery to Biblical scenes rendered on the interior walls and ceiling of The Sistine Chapel, to scenes from the life of Buddha or other images of eastern religious origin.

2) Sculpture is the branch of the visual arts that operates in three dimensions and one of the plastic arts. Durable sculptural processes originally used carving (the removal of material) and modelling (the addition of material, as clay), in stone, metal, ceramics, wood and other materials but, since modernism, shifts in sculptural process led to an almost complete freedom of materials and process. A wide variety of materials may be worked by removal such as carving, assembled by welding or modelling, or molded, or cast.

Sculpture in stone survives far better than works of art in perishable materials, and often represents the majority of the surviving works (other than pottery) from ancient cultures, though conversely traditions of sculpture in wood may have vanished almost entirely. However, most ancient sculpture was brightly painted, and this has been lost.[1]

Sculpture has been central in religious devotion in many cultures, and until recent centuries large sculptures, too expensive for private individuals to create, were usually an expression of religion or politics. Those cultures whose sculptures have survived in quantities include the cultures of the Ancient Mediterranean, India and China, as well as many in South America and Africa.

The Western tradition of sculpture began in Ancient Greece, and Greece is widely seen as producing great masterpieces in the classical period. During the Middle Ages, Gothic sculpture

represented the agonies and passions of the Christian faith. The revival of classical models in the Renaissance produced famous sculptures such as Michelangelo's David. Modernist sculpture moved away from traditional processes and the emphasis on the depiction of the human body, with the making of constructed sculpture, and the presentation of found objects as finished art works.

3) Architecture (Latin architectura, from the Greek ἀρχιτέκτων – arkhitekton, from ἀρχι- "chief" and τέκτων "builder, carpenter, mason") is both the process and product of planning, designing, and construction, usually of buildings and other physical structures. Architectural works, in the material form of buildings, are often perceived as cultural symbols and as works of art. Historical civilizations are often identified with their surviving architectural achievements.

4) Music is an art form whose medium is sound and silence. Its common elements are pitch (which governs melody and harmony), rhythm (and its associated concepts tempo, meter, and articulation), dynamics, and the sonic qualities of timbre and texture. The word derives from Greek μουσική (mousike; "art of the Muses").

The creation, performance, significance, and even the definition of music vary according to culture and social context. Music ranges from strictly organized compositions (and their recreation in performance), through improvisational music to aleatoric forms. Music can be divided into genres and subgenres, although the dividing lines and relationships between music genres are often subtle, sometimes open to personal interpretation, and occasionally controversial. Within the arts, music may be classified as a performing art, a fine art, and auditory art. It may also be divided among art music and folk music. There is also a strong connection between music and mathematics.[2] Music may be played and heard live, may be part of a dramatic work or film, or may be recorded.

To many people in many cultures, music is an important part of their way of life. Ancient Greek and Indian philosophers defined music as tones ordered horizontally as melodies and vertically as harmonies. Common sayings such as "the harmony of the spheres" and "it is music to my ears" point to the notion that music is often ordered and pleasant to listen to. However, 20th-century composer John Cage thought that any sound can be music, saying, for example, "There is no noise, only sound." Musicologist Jean-Jacques Nattiez summarizes the relativist, post-

modern viewpoint: "The border between music and noise is always culturally defined—which implies that, even within a single society, this border does not always pass through the same place; in short, there is rarely a consensus ... By all accounts there is no single and intercultural universal concept defining what music might be."

5) Poetry (from the Greek poiesis — ποίησις — meaning a "making", seen also in such terms as "hemopoiesis"; more narrowly, the making of poetry) is a form of literary art which uses aesthetic and rhythmic qualities of language—such as phonaesthetics, sound symbolism, and metre—to evoke meanings in addition to, or in place of, the prosaic ostensible meaning.

Poetry has a long history, dating back to the Sumerian Epic of Gilgamesh. Early poems evolved from folk songs such as the Chinese Shijing, or from a need to retell oral epics, as with the Sanskrit Vedas, Zoroastrian Gathas, and the Homeric epics, the Iliad and the Odyssey. Ancient attempts to define poetry, such as Aristotle's Poetics, focused on the uses of speech in rhetoric, drama, song and comedy. Later attempts concentrated on features such as repetition, verse form and rhyme, and emphasized the aesthetics which distinguish poetry from more objectively-informative, prosaic forms of writing. From the mid-20th century, poetry has sometimes been more generally regarded as a fundamental creative act employing language.

Purpose of art

A Navajo rug made circa 1880

Mozarabic Beatus miniature. Spain, late 10th century

Art has had a great number of different functions throughout its history, making its purpose difficult to abstract or quantify to any single concept. This does not imply that the purpose of Art is "vague", but that it has had many unique, different reasons for being created. Some of these functions of Art are provided in the following outline. The different purposes of art may be grouped according to those that are non-motivated, and those that are motivated (Lévi-Strauss).

Non-motivated functions of art

The non-motivated purposes of art are those that are integral to being human, transcend the individual, or do not fulfill a specific external purpose. In this sense, Art, as creativity, is something humans must do by their very nature (i.e., no other species creates art), and is therefore beyond utility.

1. Basic human instinct for harmony, balance, rhythm.Art at this level is not an action or an object, but an internal appreciation of balance and harmony (beauty), and therefore an aspect of being human beyond utility.

"Imitation, then, is one instinct of our nature. Next, there is the instinct for 'harmony' and rhythm, meters being manifestly sections of rhythm. Persons, therefore, starting with this natural gift developed by degrees their special aptitudes, till their rude improvisations gave birth to Poetry." - Aristotle

2. Experience of the mysterious. Art provides a way to experience one's self in relation to the universe. This experience may often come unmotivated, as one appreciates art, music or poetry.

"The most beautiful thing we can experience is the mysterious. It is the source of all true art and science." -Albert Einstein

3. Expression of the imagination. Art provide a means to express the imagination in non-grammatic ways that are not tied to the formality of spoken or written language. Unlike words, which come in sequences and each of which have a definite meaning, art provides a range of forms, symbols and ideas with meanings that are malleable.

"Jupiter's eagle [as an example of art] is not, like logical (aesthetic) attributes of an object, the concept of the sublimity and majesty of creation, but rather something else – something that gives the imagination an incentive to spread its flight over a whole host of kindred representations that provoke more thought than admits of expression in a concept determined by words. They furnish an aesthetic idea, which serves the above rational idea as a substitute for logical presentation, but with the proper function, however, of animating the mind by opening out for it a prospect into a field of kindred representations stretching beyond its ken." -Immanuel Kant

4. Ritualistic and symbolic functions. In many cultures, art is used in rituals, performances and dances as a decoration or symbol. While these often have no specific utilitarian (motivated) purpose, anthropologists know that they often serve a purpose at the level of meaning within a particular culture. This meaning is not furnished by any one individual, but is often the result of many generations of change, and of a cosmological relationship within the culture.

"Most scholars who deal with rock paintings or objects recovered from prehistoric contexts that cannot be explained in utilitarian terms and are thus categorized as decorative, ritual or symbolic, are aware of the trap posed by the term 'art'." -Silva Tomaskova

Motivated functions of art

Motivated purposes of art refer to intentional, conscious actions on the part of the artists or creator. These may be to bring about political change, to comment on an aspect of society, to convey a specific emotion or mood, to address personal psychology, to illustrate another discipline, to (with commercial arts) to sell a product, or simply as a form of communication.

1. Communication. Art, at its simplest, is a form of communication. As most forms of communication have an intent or goal directed toward another individual, this is a motivated purpose. Illustrative arts, such as scientific illustration, are a form of art as communication. Maps are another example. However, the content need not be scientific. Emotions, moods and feelings are also communicated through art.

"[Art is a set of] artefacts or images with symbolic meanings as a means of communication." - Steve Mithen

2. Art as entertainment. Art may seek to bring about a particular emotion or mood, for the purpose of relaxing or entertaining the viewer. This is often the function of the art industries of Motion Pictures and Video Games.

3. The Avante-Garde. Art for political change. One of the defining functions of early twentieth-century art has been to use visual images to bring about political change. Art movements that had this goal—Dadaism, Surrealism, Russian Constructivism, and Abstract Expressionism, among others—are collectively referred to as the avante-garde arts.

"By contrast, the realistic attitude, inspired by positivism, from Saint Thomas Aquinas to Anatole France, clearly seems to me to be hostile to any intellectual or moral advancement. I loathe it, for it is made up of mediocrity, hate, and dull conceit. It is this attitude which today gives birth to these ridiculous books, these insulting plays. It constantly feeds on and derives strength from the newspapers and stultifies both science and art by assiduously flattering the lowest of tastes; clarity bordering on stupidity, a dog's life." -André Breton (Surrealism)

4. Art as a "free zone", removed from the action of the social censure. Unlike the avant-garde movements, which wanted to erase cultural differences in order to produce new universal values, contemporary art has enhanced its tolerance towards cultural differences as well as its critical and liberating functions (social inquiry, activism, subversion, deconstruction...), becoming a more open place for research and experimentation.

5. Art for social inquiry, subversion and/or anarchy. While similar to art for political change, subversive or deconstructivist art may seek to question aspects of society without any

specific political goal. In this case, the function of art may be simply to criticize some aspect of society.

Spray-paint graffiti on a wall in Rome

Graffiti art and other types of street art are graphics and images that are spray-painted or stencilledon publicly viewable walls, buildings, buses, trains, and bridges, usually without permission. Certain art forms, such as graffiti, may also be illegal when they break laws (in this case vandalism).

6. Art for social causes. Art can be used to raise awareness for a large variety of causes. A number of art activities were aimed at raising awareness of autism, cancer, human trafficking, and a variety of other topics, such as ocean conservation, human rights in Darfur, murdered and missing Aboriginal women, elder abuse, and pollution. Trashion, using trash to make fashion, practiced by artists such as Marina DeBris is one example of using art to raise awareness about pollution.

Marina DeBris dress made of trash from the beach

7. Art for psychological and healing purposes. Art is also used by art therapists, psychotherapists and clinical psychologists as art therapy. The Diagnostic Drawing Series, for example, is used to determine the personality and emotional functioning of a patient. The end product is not the principal goal in this case, but rather a process of healing, through creative acts, is sought. The resultant piece of artwork may also offer insight into the troubles experienced by the subject and may suggest suitable approaches to be used in more conventional forms of psychiatric therapy.

8. Art for propaganda, or commercialism. Art is often utilized as a form of propaganda, and thus can be used to subtly influence popular conceptions or mood. In a similar way, art that tries to sell a product also influences mood and emotion. In both cases, the purpose of art here is to subtly manipulate the viewer into a particular emotional or psychological response toward a particular idea or object.

9. Art as a fitness indicator. It has been argued that the ability of the human brain by far exceeds what was needed for survival in the ancestral environment. One evolutionary psychology explanation for this is that the human brain and associated traits (such as artistic ability and creativity) are the human equivalent of the peacock's tail. The purpose of the male peacock's extravagant tail has been argued to be to attract females (see also Fisherian runaway and handicap principle). According to this theory superior execution of art was evolutionary important because it attracted mates.

The functions of art described above are not mutually exclusive, as many of them may overlap. For example, art for the purpose of entertainment may also seek to sell a product, i.e. the movie or video game.

Chapter 2

Paintings

Painting is the practice of applying paint, pigment, color or other medium to a surface (support base). The medium is commonly applied to the base with a brush but other implements, such as knives, sponges, and airbrushes, can be used. In art, the term painting describes both the act and the result of the action. However, painting is also used outside of art as a common trade among craftsmen and builders. Paintings may have for their support such surfaces as walls,paper, canvas, wood, glass, lacquer, clay, leaf, copper or concrete, and may incorporate multiple other materials including sand, clay, paper, gold leaf as well as objects.

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Color and tone

Color and tone are the essence of painting as pitch and rhythm are of music. Color is highly subjective, but has observable psychological effects, although these can differ from one culture to the next. Black is associated with mourning in the West, but in the East, white is. Some painters, theoreticians, writers and scientists, including Goethe, Kandinsky, and Newton, have written their own color theory. Moreover the use of language is only an abstraction for a color equivalent. The word "red", for example, can cover a wide range of variations on the pure red of the visible spectrum of light. There is not a formalized register of different colors in the way that there is agreement on different notes in music, such as C or C♯ in music. For a painter, color is

not simply divided into basic and derived (complementary or mixed) colors (like red, blue, green, brown, etc.).

Painters deal practically with pigments, so "blue" for a painter can be any of the blues: phthalocyan, Paris blue, indigo, cobalt, ultramarine, and so on. Psychological, symbolical meanings of color are not strictly speaking means of painting. Colors only add to the potential, derived context of meanings, and because of this the perception of a painting is highly subjective. The analogy with music is quite clear—sound in music (like "C") is analogous to light in painting, "shades" to dynamics, and coloration is to painting as specific timbre of musical instruments to music—though these do not necessarily form a melody, but can add different contexts to it.

Non-traditional elements

Modern artists have extended the practice of painting considerably to include, for example, collage, which began with Cubism and is not painting in the strict sense. Some modern painters incorporate different materials such as sand, cement, straw or wood for their texture. Examples of this are the works of Jean Dubuffet and Anselm Kiefer. There is a growing community of artists who use computers to paint color onto a digital canvas using programs such as Adobe Photoshop, Corel Painter, and many others. These images can be printed onto traditional canvas if required.

Rhythm

Rhythm is important in painting as well as in music. If one defines rhythm as "a pause incorporated into a sequence", then there can be rhythm in paintings. These pauses allow creative force to intervene and add new creations—form, melody, coloration. The distribution of form, or any kind of information is of crucial importance in the given work of art and it directly affects the esthetical value of that work. This is because the esthetical value is functionality dependent, i.e. the freedom (of movement) of perception is perceived as beauty. Free flow of energy, in art as well as in other forms of "techne", directly contributes to the esthetical value.

History

The oldest known paintings are at the Grotte Chauvet in France, claimed by some historians to be about 32,000 years old. They are engraved and painted using red ochre and black pigment and show horses, rhinoceros, lions, buffalo, mammoth, abstract designs and what are possibly partial human figures. However the earliest evidence of the act of painting has been discovered in two rock-shelters in Arnhem Land, in northern Australia. In the lowest layer of material at these sites there are used pieces of ochre estimated to be 60,000 years old. Archaeologists have also found a fragment of rock painting preserved in a limestone rock-shelter in the Kimberley region of North-Western Australia, that is dated 40,000 years old. There are examples of cave paintings all over the world—in India, France, Spain, Portugal, China, Australia, etc.

In Western cultures oil painting and watercolor painting have rich and complex traditions in style and subject matter. In the East, ink and color ink historically predominated the choice of media with equally rich and complex traditions.

The invention of photography had a major impact on painting. In the decades after the first photograph was produced in 1829, photographic processes improved and became more widely practiced, depriving painting of much of its historic purpose to provide an accurate record of the observable world. A series of art movements in the late 19th and early 20th centuries—notably Impressionism, Post-Impressionism, Fauvism,Expressionism, Cubism, and Dadaism—challenged the Renaissance view of the world. Eastern and African painting, however, continued a long history of stylization and did not undergo an equivalent transformation at the same time.

Modern and Contemporary Art has moved away from the historic value of craft and documentation in favour of concept; this led some to say in the 1960s that painting, as a serious art form, is dead. This has not deterred the majority of living painters from continuing to practice painting either as whole or part of their work. The vitality and versatility of painting in the 21st century belies the premature declarations of its demise. In an epoch characterized by the idea of pluralism, there is no consensus as to a representative style of the age. Important works of art continue to be made in a wide variety of styles and aesthetic temperaments, the marketplace being left to judge merit.

Among the continuing and current directions in painting at the beginning of the 21st century are Monochrome painting, Hard-edge painting, Geometric abstraction, Appropriation, Hyperrealism,

Photorealism, Expressionism, Minimalism, Lyrical Abstraction, Pop Art, Op Art, Abstract Expressionism, Color Field painting, Neo-expressionism, Collage, Intermedia painting, Assemblage painting, Computer art painting, Postmodern painting, Neo-Dada painting, Shaped canvas painting, environmental mural painting, traditional figure painting, Landscape painting, Portrait painting, and paint-on-glass animation.

Painting media

Honoré Daumier (1808–79), The Painter

Different types of paint are usually identified by the medium that the pigment is suspended or embedded in, which determines the general working characteristics of the paint, such as viscosity, miscibility, solubility, drying time, etc.

Oil

Oil painting is the process of painting with pigments that are bound with a medium of drying oil—especially in early modern Europe, linseed oil. Often an oil such as linseed was boiled with a resin such as pine resin or even frankincense; these were called 'varnishes' and were prized for their body and gloss. Oil paint eventually became the principal medium used for creating artworks as its advantages became widely known. The transition began with Early Netherlandish painting in northern Europe, and by the height of the Renaissance oil painting techniques had almost completely replaced tempera paints in the majority of Europe.

Pastel

Pastel is a painting medium in the form of a stick, consisting of pure powdered pigment and a binder. The pigments used in pastels are the same as those used to produce all colored art media, including oil paints; the binder is of a neutral hue and low saturation. The color effect of pastels is closer to the natural dry pigments than that of any other process. Because the surface of a pastel painting is fragile and easily smudged, its preservation requires protective measures such as framing under glass; it may also be sprayed with a fixative. Nonetheless, when made with permanent pigments and properly cared for, a pastel painting may endure unchanged for centuries. Pastels are not susceptible, as are paintings made with a fluid medium, to the cracking and discoloration that result from changes in the color, opacity, or dimensions of the medium as it dries.

Acrylic

"Jungle Arc" by Ray Burggraf. Acrylic paint on wood. (1998)

Acrylic paint is fast drying paint containing pigment suspension in acrylic polymer emulsion. Acrylic paints can be diluted with water, but become water-resistant when dry. Depending on how much the paint is diluted (with water) or modified with acrylic gels, media, or pastes, the finished acrylic painting can resemble a watercolor or an oil painting, or have its own unique characteristics not attainable with other media. The main practical difference between most acrylics and oil paints is the inherent drying time. Oils allow for more time to blend colors and apply even glazes over under-paintings. This slow drying aspect of oil can be seen as an advantage for certain techniques, but in other regards it impedes the artist trying to work quickly.

Watercolor

Watercolor is a painting method in which the paints are made of pigments suspended in a water soluble vehicle. The traditional and most common support for watercolor paintings is paper; other supports include papyrus, bark papers, plastics, vellum or leather, fabric, wood and canvas. In East Asia, watercolor painting with inks is referred to as brush painting or scroll painting. In Chinese, Korean, and Japanese painting it has been the dominant medium, often in monochrome black or browns. India, Ethiopia and other countries also have long traditions. Finger-painting with watercolor paints originated in China. Watercolor pencils (water-soluble color pencils) may be used either wet or dry.

Ink

Ink paintings are done with a liquid that contains pigments and/or dyes and is used to color a surface to produce an image, text, or design. Ink is used for drawing with a pen, brush, or quill. Ink can be a complex medium, composed of solvents, pigments, dyes, resins, lubricants, solubilizers, surfactants, particulate matter, fluorescers, and other materials. The components of inks serve many purposes; the ink's carrier, colorants, and other additives control flow and thickness of the ink and its appearance when dry.

Hot wax

Encaustic painting, also known as hot wax painting, involves using heated beeswax to which colored pigments are added. The liquid/paste is then applied to a surface—usually prepared wood, though canvas and other materials are often used. The simplest encaustic mixture can be made from adding pigments to beeswax, but there are several other recipes that can be used—some containing other types of waxes, damar resin, linseed oil, or other ingredients. Pure, powdered pigments can be purchased and used, though some mixtures use oil paints or other forms of pigment. Metal tools and special brushes can be used to shape the paint before it cools, or heated metal tools can be used to manipulate the wax once it has cooled onto the surface. Other materials can be encased or collaged into the surface, or layered, using the encaustic medium to adhere it to the surface.

Fresco by Dionisius representing Saint Nicholas in a Ferapontov Monastery

Fresco

Fresco is any of several related mural painting types, done onplaster on walls or ceilings. The word fresco comes from the Italian word affresco [af□ fres□ ko] which derives from the Latin word for "fresh". Frescoes were often made during the Renaissance and other early time periods. Buon fresco technique consists of painting in pigment mixed with water on a thin layer of wet, fresh, lime mortar or plaster, for which the Italian word for plaster, intonaco, is used. A secco painting, in contrast, is done on dry plaster (secco is "dry" in Italian). The pigments require a binding medium, such as egg (tempera), glue or oil to attach the pigment to the wall.

A Fresco "White Angel" from Mileševa, Serbia

Gouache

Gouache is a water based paint consisting of pigment and other materials designed to be used in an opaque painting method. Gouache differs from watercolor in that the particles are larger, the ratio of pigment to water is much higher, and an additional, inert, white pigment such as chalk is also present. This makes gouache heavier and more opaque, with greater reflective qualities. Like all water media, it is diluted with water.

Enamel

Enamels are made by painting a substrate, typically metal, with frit, a type of powdered glass. Minerals called color oxides provide coloration. After firing at a temperature of 750–850 degrees Celsius (1380–1560 degrees Fahrenheit), the result is a fused lamination of glass and metal. Enamels have traditionally been used for decoration of precious objects,[14]but have also been used for other purposes. In the 18th century, enamel painting enjoyed a vogue in Europe, especially as a medium for portrait miniatures.[15] In the late 20th century, the technique of porcelain enamel on metal has been used as a durable medium for outdoor murals.[16]

Spray paint

Aerosol paint (also called spray paint) is a type of paint that comes in a sealed pressurized container and is released in a fine spray mist when depressing a valve button. A form of spray painting, aerosol paint leaves a smooth, evenly coated surface. Standard sized cans are portable, inexpensive and easy to store. Aerosol primer can be applied directly to bare metal and many plastics.

Speed, portability and permanence also make aerosol paint a common graffiti medium. In the late 1970s, street graffiti writers' signatures and murals became more elaborate and a unique style developed as a factor of the aerosol medium and the speed required for illicit work. Many now recognize graffiti and street art as a unique art form and specifically manufactured aerosol paints are made for the graffiti artist. A stencil can be used to protect a surface except the specific shape that is to be painted. Stencils can be purchased as movable letters, ordered as professionally cut logos or hand-cut by artists.

Tempera

Tempera, also known as egg tempera, is a permanent, fast-drying painting medium consisting of colored pigment mixed with a water-soluble binder medium (usually a glutinous material such as egg yolk or some other size). Tempera also refers to the paintings done in this medium. Tempera paintings are very long lasting, and examples from the first centuries AD still exist. Egg tempera was a primary method of painting until after 1500 when it was superseded by the invention of oil painting. A paint which is commonly called tempera (although it is not) consisting of pigment and glue size is commonly used and referred to by some manufacturers in America as poster paint.

Water miscible oil paint

Water miscible oil paints (also called "water soluble" or "water-mixable") is a modern variety of oil paint which is engineered to be thinned and cleaned up with water, rather than having to use chemicals such as turpentine. It can be mixed and applied using the same techniques as traditional oil-based paint, but while still wet it can be effectively removed from brushes, palettes, and rags with ordinary soap and water. Its water solubility comes from the use of an oil medium in which one end of the molecule has been altered to bind loosely to water molecules, as in a solution.

Painting styles

Style is used in two senses: It can refer to the distinctive visual elements, techniques and methods that typify an individual artist's work. It can also refer to the movement or school that an artist is associated with. This can stem from an actual group that the artist was consciously involved with or it can be a category in which art historians have placed the painter. The word 'style' in the latter sense has fallen out of favor in academic discussions about contemporary painting, though it continues to be used in popular contexts. Such movements or classifications include the following:

Western

Modernism

Modernism describes both a set of cultural tendencies and an array of associated cultural movements, originally arising from wide-scale and far-reaching changes to Western society in the late 19th century and early 20th century. Modernism was a revolt against the conservative values of realism. The term encompasses the activities and output of those who felt the "traditional" forms of art, architecture, literature, religious faith, social organization and daily life were becoming outdated in the new economic, social and political conditions of an emerging fully industrialized world. A salient characteristic of modernism is self-consciousness. This often led to experiments with form, and work that draws attention to the processes and materials used (and to the further tendency of abstraction).

Impressionism

The first example of modernism in painting was impressionism, a school of painting that initially focused on work done, not in studios, but outdoors (en plein air). Impressionist paintings demonstrated that human beings do not see objects, but instead see light itself. The school gathered adherents despite internal divisions among its leading practitioners, and became increasingly influential. Initially rejected from the most important commercial show of the time, the government-sponsored Paris Salon, the Impressionists organized yearly group exhibitions in commercial venues during the 1870s and 1880s, timing them to coincide with the official Salon. A significant event of 1863 was the Salon des Refusés, created by Emperor Napoleon III to display all of the paintings rejected by the Paris Salon.

Abstract styles

Abstract painting uses a visual language of form, color and line to create a composition which may exist with a degree of independence from visual references in the world. Abstract expressionism was an American post-World War II art movement which had a combination of the emotional intensity and self-denial of the German Expressionists with the anti-figurative aesthetic of the European abstract schools such as Futurism, the Bauhaus and Synthetic Cubism and the image of being rebellious, anarchic, highly idiosyncratic and, some feel, nihilistic.

Action painting, sometimes called "gestural abstraction", is a style of painting in which paint is spontaneously dribbled, splashed or smeared onto the canvas, rather than being carefully applied. The resulting work often emphasizes the physical act of painting itself as an essential aspect of

the finished work or concern of its artist. The style was widespread from the 1940s until the early 1960s, and is closely associated with abstract expressionism (some critics have used the terms "action painting" and "abstract expressionism" interchangeably).

Other modernist styles include:

- Expressionism
- Cubism
- Pop art

Other styles

Outsider art

The term outsider art was coined by art critic Roger Cardinal in 1972 as an English synonym for art brut (French: [aʁ bʁyt], "raw art" or "rough art"), a label created by French artist Jean Dubuffet to describe art created outside the boundaries of official culture; Dubuffet focused particularly on art by insane-asylum inmates.[23] Outsider art has emerged as a successful art marketing category (an annual Outsider Art Fair has taken place in New York since 1992). The term is sometimes misapplied as a catch-all marketing label for art created by people outside the mainstream "art world," regardless of their circumstances or the content of their work.

Photorealism

Photorealism is the genre of painting based on using the camera and photographs to gather information and then from this information, creating a painting that appears to be very realistic like a photograph. The term is primarily applied to paintings from the United States art movement that began in the late 1960s and early 1970s. As a full-fledged art movement, Photorealism evolved from Pop Art [24][25][26] and as a counter to Abstract Expressionism.

Hyperrealism is a genre of painting and sculpture resembling a high-resolution photograph. Hyperrealism is a fully fledged school of art and can be considered an advancement of Photorealism by the methods used to create the resulting paintings or sculptures. The term is primarily applied to an independent art movement and art style in the United States and Europe that has developed since the early 2000s.

Surrealism

Surrealism is a cultural movement that began in the early 1920s, and is best known for the visual artworks and writings of the group members. Surrealist artworks feature the element of surprise, unexpected juxtapositions and non sequitur; however, many Surrealist artists and writers regard their work as an expression of the philosophical movement first and foremost, with the works being an artifact. Leader André Breton was explicit in his assertion that Surrealism was above all a revolutionary movement.

Surrealism developed out of the Dada activities of World War I and the most important center of the movement was Paris. From the 1920s onward, the movement spread around the globe, eventually affecting the visual arts, literature, film and music of many countries and languages, as well as political thought and practice, philosophy and social theory.

Chapter 3

Mural

A mural is any piece of artwork painted or applied directly on a wall, ceiling or other large permanent surface. A distinguishing characteristic of mural painting is that the architectural elements of the given space are harmoniously incorporated into the picture.

Some wall paintings are painted on large canvases, which are then attached to the wall (e.g., with marouflage). Whether these works can be accurately called "murals" is a subject of some controversy in the art world, but the technique has been in common use since the late 19th century.

A mural is a painting done directly on the wall. It comes from the Latin word murus, which means wall. Murals often show the concerns, hopes, values and memories of the community where the murals are painted.

Murals are not like other paintings. They have a different purpose, a different kind of effect on the lives of those who see them. They are public art in the best sense, because they are actually created in public, with the community looking on. Good public art says something about the community. It says, this is who we are or, this is what we think, this is where we came from, this is what we want. And it says these things in a way that everybody can understand and enjoy.

Canvas Murals are murals painted on canvas that are attached to the wall like wall paper. Canvas Murals are a permanent decoration, but have the flexibility of being removed in the future if needed. Canvas Murals can be painted in the studio and shipped anywhere in the world.

History

Murals of sorts date to Upper Paleolithic times such as the paintings in the Chauvet Cave in Ardèche department of southern France (around 30,000 BC). Many ancient murals have survived in Egyptian tombs (around 3150 BC),[2] the Minoan palaces (Middle period III of the Neopalatial period, 1700-1600 BC) and in Pompeii (around 100 BC - AD 79).

In modern times, the term became more well-known with the Mexican "muralista" art movement (Diego Rivera, David Siqueiros, or José Orozco). There are many different styles and techniques. The best-known is probably fresco, which uses water-soluble paints with a damp lime wash, a rapid use of the resulting mixture over a large surface, and often in parts (but with a sense of the whole). The colors lighten as they dry. The marouflage method has also been used for millennia.

Murals today are painted in a variety of ways, using oil or water-based media. The styles can vary from abstract to trompe-l'œil (a French term for "fool" or "trick the eye"). Initiated by the works of mural artists like Graham Rust or Rainer Maria Latzke in the 1980s, trompe-l'oeil painting has experienced a renaissance in private and public buildings in Europe. Today, the beauty of a wall mural has become much more widely available with a technique whereby a painting or photographic image is transferred to poster paper or canvas which is then pasted to a wall surface (see wallpaper, Frescography) to give the effect of either a hand-painted mural or realistic scene.

Technique

Historical mural techniques

In the history of mural several methods have been used:

A fresco painting, from the Italian word affresco which derives from the adjective fresco ("fresh"), describes a method in which the paint is applied on plaster on walls or ceilings. The buon fresco technique consists of painting in pigment mixed with water on a thin layer of wet, fresh, lime mortar or plaster. The pigment is then absorbed by the wet plaster; after a number of hours, the plaster dries and reacts with the air: it is this chemical reaction which fixes the pigment particles in the plaster. After this the painting stays for a long time up to centuries in fresh and brilliant colors.

Fresco-secco painting is done on dry plaster (secco is "dry" in Italian). The pigments thus require a binding medium, such as egg (tempera), glue or oil to attach the pigment to the wall.

Mezzo-fresco is painted on nearly-dry plaster, and was defined by the sixteenth-century author Ignazio Pozzo as "firm enough not to take a thumb-print" so that the pigment only penetrates slightly into the plaster. By the end of the sixteenth century this had largely displaced the buon

fresco method, and was used by painters such as Gianbattista Tiepolo or Michelangelo. This technique had, in reduced form, the advantages of a secco work.

Material

In Greco-Roman times, mostly encaustic colors ground in a molten beeswax or resin binder and applied in a hot state was used.

Tempera painting is one of the oldest known methods in mural painting. In tempera, the pigments are bound in an albuminous medium such as egg yolk or egg white diluted in water. Tempera, also known as egg tempera, is a permanent, fast-drying painting medium consisting of colored pigment mixed with a water-soluble binder medium (usually a glutinous material such as egg yolk or some other size). Tempera also refers to the paintings done in this medium. Tempera paintings are very long lasting, and examples from the 1st centuries AD still exist. Egg tempera was a primary method of painting until after 1500 when it was superseded by the invention of oil painting. A paint consisting of pigment and glue size commonly used in the United States as poster paint is also often referred to as "tempera paint," although the binders and sizes in this paint are different from traditional tempera paint.

In 16th-century Europe, oil painting on canvas arose as an easier method for mural painting. Oil painting is the process of painting with pigments that are bound with a medium of drying oil. Commonly used drying oils include linseed oil, poppy seed oil, walnut oil, and safflower oil. The oil may be boiled with a resin, such as pine resin or frankincense to create a varnish; often prized for its body and gloss. Different oils confer various properties to the oil paint, such as less yellowing or different drying times. Certain differences are also visible in the sheen of the paints depending on the oil. An artist might use several different oils in the same painting depending on specific pigments and effects desired. The paints themselves also develop a particular consistency depending on the medium.

Although oil paint was first used for the Buddhist Paintings by Indian and Chinese painters in western Afghanistan sometime between the fifth and tenth centuries, [1] it did not gain popularity until the 15th century. Its practice may have migrated westward during the Middle Ages. Oil paint eventually became the principal medium used for creating artworks as its advantages became widely known. The transition began with Early Netherlandish painting in

northern Europe, and by the height of the Renaissance oil painting techniques had almost completely replaced tempera paints in the majority of Europe.

In recent years, water miscible oil paint has come to prominence, to some extent replacing the usage of traditional oils. Water soluble paints contain an emulsifier which allows them to be thinned with water (rather than with paint thinner), and allows very fast drying times (1–3 days) when compared with traditional oils (1–3 weeks).

The advantage was that the artwork could be completed in the artist's studio and later transported to its destination and there attached to the wall or ceiling. Oil paint can be said to be the least satisfactory medium for murals because of its lack of brilliance in colour. Also the pigments are yellowed by the binder or are more easily affected by atmospheric conditions. The canvas itself is more subject to rapid deterioration than a plaster ground.

Modern mural techniques

Different muralists tend to become experts in their preferred medium and application, whether that be oil paints, emulsion or acrylic paints applied by brush, roller or airbrush/aerosols. Clients will often ask for a particular style and the artist may adjust to the appropriate technique.[3]

A consultation usually leads to a detailed design and layout of the proposed mural with a price quote that the client approves before the muralist starts on the work. The area to be painted can be gridded to match the design allowing the image to be scaled accurately step by step. In some cases the design is projected straight onto the wall and traced with pencil before painting begins. Some muralists will paint directly without any prior sketching, preferring the spontaneous technique.

Once completed the mural can be given coats of varnish or protective acrylic glaze to protect the work from UV rays and surface damage.

CAM designed Frescography by Rainer Maria Latzke, digitally printed on canvas

As an alternative to a hand-painted or airbrushed mural, digitally printed murals can also be applied to surfaces. Already existing murals can be photographed and then be reproduced in near-to-original quality.

The disadvantages of pre-fabricated murals and decals are that they are often mass-produced and lack the allure and exclusivity of an original artwork. They are often not fitted to the individual wall sizes of the client and their personal ideas or wishes could not be added to the mural as it progresses. The Frescography technique, a digital manufacturing method (CAM) invented by Rainer Maria Latzke addresses some of the personalization and size restrictions.

Digital techniques are commonly used in advertisements. A "wallscape" is a large advertisement on or attached to the outside wall of a building. Wallscapes can be painted directly on the wall as a mural, or printed on vinyl and securely attached to the wall in the manner of a billboard. Although not strictly classed as murals, large scale printed media are often referred to as such. Advertising murals were traditionally painted onto buildings and shops by sign-writers, later as large scale poster billboards.

Significance of murals

Murals are important in that they bring art into the public sphere. Due to the size, cost, and work involved in creating a mural, muralists must often be commissioned by a sponsor. Often it is the local government or a business, but many murals have been paid for with grants of patronage. For artists, their work gets a wide audience who otherwise might not set foot in an art gallery. A city benefits by the beauty of a work of art. Patronage is the support, encouragement, privilege, or financial aid that an organization or individual bestows to another. In the history of art, arts patronage refers to the support that kings, popes and the wealthy have provided to artists such as musicians, painters, and sculptors. It can also refer to the right of bestowing offices or church benefices, the business given to a store by a regular customer, and the guardianship of saints. The word "patron" derives from the Latin patronus, "patron," one who gives benefits to his clients (see Patronage in ancient Rome).

In some countries the term is used to describe political patronage, which is the use of state resources to reward individuals for their electoral support. Some patronage systems are legal, as in the Canadian tradition of the Prime Minister to appoint senators and the heads of a number of commissions and agencies; in many cases, these appointments go to people who have supported the political party of the Prime Minister. As well, the term may refer to a type of corruption or favoritism in which a party in power rewards groups, families, ethnicities for their electoral support using illegal gifts or fraudulently awarded appointments or government contracts.

Murals can be a relatively effective tool of social emancipation or achieving a political goal. Murals have sometimes been created against the law, or have been commissioned by local bars and coffee shops. Often, the visual effects are an enticement to attract public attention to social issues. State-sponsored public art expressions, particularly murals, are often used by totalitarian regimes as a tool of mass-control and propaganda. However, despite the propagandist character of that works, some of them still have an artistic value.

Murals can have a dramatic impact whether consciously or subconsciously on the attitudes of passers by, when they are added to areas where people live and work. It can also be argued that the presence of large, public murals can add aesthetic improvement to the daily lives of residents or that of employees at a corporate venue.

Other world-famous murals can be found in Mexico, New York, Philadelphia, Belfast, Derry, Los Angeles, Nicaragua, Cuba and in India. [1] They have functioned as an important means of communication for members of socially, ethnically and racially divided communities in times of conflict. They also proved to be an effective tool in establishing a dialogue and hence solving the cleavage in the long run. The Indian state Kerala has exclusive murals. The Kerala mural paintings are on walls of Hindu temples. They can be dated from 9th century AD. Kerala mural paintings are the frescos depicting mythology and legends, which are drawn on the walls of temples and churches in South India, principally in Kerala. Ancient temples, churches and palaces in Kerala, South India, display an abounding tradition of mural paintings mostly dating back between the 9th to 12th centuries CE when this form of art enjoyed Royal patronage.

The San Bartolo murals of the Maya civilization in Guatemala, are the oldest example of this art in Mesoamerica and are dated at 300 BC.

Many rural towns have begun using murals to create tourist attractions in order to boost economic income. Colquitt, Georgia is one such town. Colquitt was chosen to host the 2010 Global Mural Conference. The town has more than twelve murals completed, and will host the Conference along with Dothan, Alabama, and Blakely, Georgia. In the summer of 2010, Colquitt will begin work on their Icon Mural.

Murals in contemporary interior design

Traditional interior murals

Many people like to express their individuality by commissioning an artist to paint a mural in their home, this is not an activity exclusively for owners of large houses. A mural artist is only limited by the fee and therefore the time spent on the painting; dictating the level of detail; a simple mural can be added to the smallest of walls.

Private commissions can be for dining rooms, bathrooms, living rooms or, as is often the case- children's bedrooms. A child's room can be transformed into the 'fantasy world' of a forest or racing track, encouraging imaginative play and an awareness of art.

The current trend for feature walls has increased commissions for muralists in the UK. A large hand-painted mural can be designed on a specific theme, incorporate personal images and elements and may be altered during the course of painting it. The personal interaction between client and muralist is often a unique experience for an individual not usually involved in the arts.

Public commissions of murals in schools, hospitals and retirement homes can achieve a pleasing and welcoming atmosphere in these caring institutions.

In the 1980s, illusionary wall painting experienced a renaissance in private homes. The reason for this revival in interior design could, in some cases be attributed to the reduction in living space for the individual. Faux architectural features as well as natural scenery and views can have the effect of 'opening out' the walls. Densely built up areas of housing may also contribute to people's feelings of being cut off from nature in its free form. A mural commission of this sort may be an attempt by some people to re-establish a balance with nature.

Graffiti-style interior murals

Recently, graffiti and street art have played a key role in contemporary wall painting. Such graffiti/street artists as Keith Haring, Shepard Fairey, ABOVE, Mint & Serf, Futura 2000, Os Gemeos, and Faile among others have successfully transcended their street art aesthetic beyond the walls of urban landscape and onto walls of private and corporate clients. As graffiti/street art became more main stream in the late 1990s, youth oriented brands such as Nike, Red Bull and Wieden Kennedy have turned to graffiti/street artists to decorate walls of their respective offices. This trend continued through 2000's with graffiti/street art gaining more recognition from art institutions worldwide.

Tile mural

Tile murals are murals made out of stone, ceramic, porcelain, glass and or metal tiles that are installed within, or added onto the surface of, an existing wall. There are also inlaid into floors. Mural tiles are painted, glazed, sublimation printed (as described below) or more traditionally cut or broken into pieces. Unlike the traditional painted murals described above- Tile Murals are always made with the use of tiles.

Mosaic murals are made by combining small 1/4" to 2" size pieces of colorful stone, ceramic, or glass tiles which are then laid out to create a picture. Modern day technology has allowed commercial mosaic mural makers to use computer programs to separate photographs into colors that are automatically cut and glued onto sheets of mesh creating precise murals fast and in large quantities.

The azulejo (Portuguese pronunciation: [ɐzu□ leʒu], Spanish pronunciation: [aθu□ lexo]) refers to a typical form of Portugueseor Spanish painted, tin-glazed, ceramic tile work. They have become a typical aspect of Portuguese culture, manifesting without interruption during five centuries, the consecutive trends in art.

Azulejos can be found inside and outside churches, palaces, ordinary houses and even railway stations or subway stations.

They were not only used as an ornamental art form, but also had a specific functional capacity like temperature control in homes. Many azulejos chronicle major historical and cultural aspects of Portuguese history.

Custom-printed tile murals can be produced using digital images for kitchen splash backs, wall displays, and flooring. Digital photos and artwork can be resized and printed to accommodate the desired size for the area to be decorated. Custom tile printing uses a variety of techniques including dye sublimation and ceramic-type laser toners. The latter technique can yield fade-resistant custom tiles which are suitable for long term exterior exposure.

In architecture and decorative art, ornament is a decoration used to embellish parts of a building or object. Large figurative elements such as monumental sculpture and their equivalents in decorative art are excluded from the term; most ornament does not include human figures, and if present they are small compared to the overall scale. Architectural ornament can be carved from stone, wood or precious metals, formed with plaster or clay, or painted or impressed onto a surface as applied ornament; in other applied arts the main material of the object, or a different one such as paint or vitreous enamel may be used. A wide variety of decorative styles and motif shave been developed for architecture and the applied arts, including pottery, furniture, metal work. In textiles, wallpaper and other objects where the decoration may be the main justification for its existence, the terms pattern or design are more likely to be used.

In a 1941 essay, the architectural historian Sir John Summerson called it "surface modulation". Decoration and ornament has been evident in civilizations since the beginning of recorded history, ranging from Ancient Egyptian architecture to the apparent lack of ornament of 20th century Modernist architecture.

Chapter 4

Drawing

Drawing is a form of visual art that makes use of any number of drawing instruments to mark a two-dimensional medium. Instruments used include graphite pencils, pen and ink, inked brushes, wax color pencils, crayons, charcoal, chalk, pastels, various kinds of erasers, markers, styluses, and various metals (such as silverpoint). An artist who practices or works in drawing may be called a draftsman or draughtsman.

A small amount of material is released onto a surface, leaving a visible mark. The most common support for drawing is paper, although other materials, such as cardboard, plastic, leather, canvas, and board, may be used. Temporary drawings may be made on a blackboard or whiteboard or indeed almost anything. The medium has been a popular and fundamental means of public expression throughout human history. It is one of the simplest and most efficient means of communicating visual ideas. The wide availability of drawing instruments makes drawing more common than other media.

Overview

Madame Palmyre with Her Dog, 1897. Henri de Toulouse-Lautrec

Drawing is one of the major forms of expression within the visual arts, and is generally concerned with the marking of lines and areas of tone onto paper. Traditional drawings were monochrome, or at least had little colour,[3] while modern colored-pencil drawings may approach or cross a boundary between drawing and painting. In Western terminology, drawing is distinct from painting, even though similar media often are employed in both tasks. Dry media, normally associated with drawing, such as chalk, may be used in pastel paintings. Drawing may be done with a liquid medium, applied with brushes or pens. Similar supports likewise can serve both: painting generally involves the application of liquid paint onto prepared canvas or panels, but sometimes an under-drawing is drawn first on that same support.

Drawing is often exploratory, with considerable emphasis on observation, problem-solving and composition. Drawing is also regularly used in preparation for a painting, further obfuscating their distinction. Drawings created for these purposes are called studies.

There are several categories of drawing, including figure drawing, cartooning, doodling and shading. There are also many drawing methods, such as line drawing, stippling, shading, the surrealist method of entopic graphomania (in which dots are made at the sites of impurities in a blank sheet of paper, and lines are then made between the dots), and tracing (drawing on a translucent paper, such as tracing paper, around the outline of preexisting shapes that show through the paper).

A quick, unrefined drawing may be called a sketch.

In fields outside art, technical drawings or plans of buildings, machinery, circuitry and other things are often called "drawings" even when they have been transferred to another medium by printing.

History

André Masson. Automatic Drawing. 1924. Ink on paper, 23.5 x 20.6 cm. Museum of Modern Art, New York

Sketches and paintings have been produced since prehistoric times, as demonstrated by cave and rock paintings. By the 12th to 13th centuries A.D., monks were preparing illuminated manuscripts on vellum and parchment in monasteries throughout Europe and were using lead styli to draw lines for their writings and for the outlines for their illuminations. Soon artists generally were using silverpoint to make drawings and under-drawings. Initially they used and re-used wooden tablets with prepared ground for these drawings.[4] When paper became generally available, from the 14th century onwards, artists' drawings, both preparatory studies and finished works, became increasingly common.

Materials

Antoine Watteau, trois crayons technique

The medium is the means by which ink, pigment or color are delivered onto the drawing surface. Most drawing media are either dry (e.g. graphite, charcoal, pastels, Conté, silverpoint), or use a fluid solvent or carrier (marker, pen and ink). Watercolor pencils can be used dry like ordinary

pencils, then moistened with a wet brush to get various painterly effects. Very rarely, artists have drawn with (usually decoded) invisible ink. Metal point drawing usually employs either of two metals: silver or lead.[5] More rarely used are gold, platinum, copper, brass, bronze, and tinpoint.

Paper comes in a variety of different sizes and qualities, ranging from newspaper grade up to high quality and relatively expensive paper sold as individual sheets.[6] Papers can vary in texture, hue, acidity, and strength when wet. Smooth paper is good for rendering fine detail, but a more "toothy" paper will hold the drawing material better. Thus a coarser material is useful for producing deeper contrast.

Newsprint and typing paper may be useful for practice and rough sketches. Tracing paper is used to experiment over a half-finished drawing, and to transfer a design from one sheet to another. Cartridge paper is the basic type of drawing paper sold in pads. Bristol board and even heavier acid-free boards, frequently with smooth finishes, are used for drawing fine detail and do not distort when wet media (ink, washes) are applied. Vellum is extremely smooth and suitable for very fine detail. Cold pressed watercolor paper may be favored for ink drawing due to its texture.

Acid-free, archival quality paper keeps its color and texture far longer than wood pulp based paper such as newsprint, which will turn yellow and become brittle much sooner.

The basic tools are a drawing board or table, pencil sharpener and eraser, and for ink drawing, blotting paper. Other tools used are circle compass, ruler, and set square. Fixative is used to prevent pencil and crayon marks from smudging. Drafting tape is used to secure paper to drawing surface, and also to mask an area to keep it free of accidental marks sprayed or spattered materials and washes. An easel or slanted table is used to keep the drawing surface in a suitable position, which is generally more horizontal than the position used in painting.

Technique

Raphael, study for what became the Alba Madonna, with other sketches

Almost all draftsmen use their hands and fingers to apply the media, with the exception of some handicapped individuals who draw with their mouth or feet.

Prior to working on an image, the artist will likely want to gain an understanding of how the various media will work. The different drawing implements can be tried on practice sheets in order to determine value and texture, and how to apply the implement in order to produce various effects.

The drawing strokes used control the appearance of the image. Pen and ink drawings often use hatching, which consists of groups of parallel lines.[7] Cross-hatching uses hatching in two or more different directions to create a darker tone. Broken hatching, or lines with intermittent breaks, can be used to form lighter tones, and by controlling the density of the breaks a gradation of tone can be achieved. Stippling, uses dots to produce tone, texture or shade. Different textures can be achieved depending on the method used to build tone.

Drawings in dry media often use similar techniques, although with pencils and drawing sticks continuous variations in tone can be achieved. Typically a drawing will be filled in based on which hand the artist favors. A right-handed artist will want to draw from left to right in order to avoid smearing the image. Erasers can be used with many media to remove unwanted lines, lighten tones and clean up stray marks.

In a sketch or outline drawing, the lines drawn often follow the contour of the subject being drawn, creating depth by looking like shadows cast from a light in the artist's position.

Sometimes the artist will want to leave a section of the image untouched while filling in the remainder of the picture. The shape of the area to be preserved can be painted on with masking fluid or cut out of a frisket and applied to the drawing surface, protecting the surface from stray marks until the mask is removed.

Another method to preserve a section of the image is to apply a spray-on fixative to the surface. This will hold loose material more firmly to the sheet and prevent it from smearing. However the fixative spray typically uses chemicals that can harm the respiratory system, so it should be employed in a well-ventilated area such as outdoors.

Tone

Line drawing in sanguine by Leonardo da Vinci

Shading is the technique of varying the tonal values on the paper to represent the shade of the material as well as the placement of the shadows. Careful attention to reflected light, shadows and highlights can result in a very realistic rendition of the image.

Blending uses an implement to soften or spread the original drawing strokes. Blending is most easily done with a medium that does not immediately fix itself, such as graphite, chalk, or charcoal, although freshly applied ink can be smudged, wet or dry, for some effects. For shading and blending, the artist can use a blending stump, tissue, akne aded eraser, a fingertip, or any combination of them. A piece ofchamois is useful for creating smooth textures, and for removing material to lighten the tone. Continuous tone can be achieved with graphite on a smooth surface without blending, but the technique is laborious, involving small circular or oval strokes with a somewhat blunt point.

Shading techniques that also introduce texture to the drawing includehatching and stippling. There are a number of other methods for producing texture in the picture: in addition to choosing a suitable paper, the type of drawing material and the drawing technique will result in different textures. Texture can be made to appear more realistic when it is drawn next to a contrasting texture; a coarse texture will be more obvious when placed next to a smoothly blended area. A similar effect can be achieved by drawing different tones close together; a light edge next to a dark background will stand out to the eye, and almost appear to float above the surface.

Form and proportion

Pencil portrait by Ingres

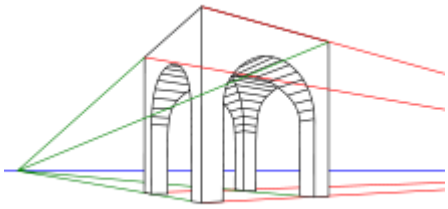
Measuring the dimensions of a subject while blocking in the drawing is an important step in producing a realistic rendition of the subject. Tools such as a compass can be used to measure the angles of different sides. These angles can be reproduced on the drawing surface and then rechecked to make sure they are accurate. Another form of measurement is to compare the relative sizes of different parts of the subject with each other. A finger placed at a point along the drawing implement can be used to compare that dimension with other parts of the image. A ruler can be used both as a straightedge and a device to compute proportions.

When attempting to draw a complicated shape such as a human figure, it is helpful at first to represent the form with a set of primitive shapes. Almost any form can be represented by some combination of the cube, sphere, cylinder, and cone. Once these basic shapes have been assembled into a likeness, then the drawing can be refined into a more accurate and polished form. The lines of the primitive shapes are removed and replaced by the final likeness. Drawing the underlying construction is a fundamental skill for representational art and is taught in many books and schools, as its correct application will resolve most uncertainties about smaller details and make the final image look self-consistent.

A more refined art of figure drawing relies upon the artist possessing a deep understanding of anatomy and the human proportions. A trained artist is familiar with the skeleton structure, joint location, muscle placement, tendon movement, and how the different parts work together during movement. This allows the artist to render more natural poses that do not appear artificially stiff. The artist is also familiar with how the proportions vary depending on the age of the subject, particularly when drawing a portrait.

Perspective

Linear perspective is a method of portraying objects on a flat surface so that the dimensions shrink with distance. Each set of parallel, straight edges of any object, whether a building or a table, will follow lines that eventually converge at a vanishing point. Typically this point of convergence will be along the horizon, as buildings are built level with the flat surface. When multiple structures are aligned with each other, such as buildings along a street, the horizontal tops and bottoms of the structures will all typically converge at a vanishing point.



Two-point perspective drawing

When both the fronts and sides of a building are drawn, then the parallel lines forming a side converge at a second point along the horizon (which may be off the drawing paper.) This is a two-point perspective.[10] Converging the vertical lines to a third point above or below the horizon then produces a three-point perspective.

Depth can also be portrayed by several techniques in addition to the perspective approach above. Objects of similar size should appear ever smaller the further they are from the viewer. Thus the back wheel of a cart will appear slightly smaller than the front wheel. Depth can be portrayed through the use of texture. As the texture of an object gets further away it becomes more compressed and busy, taking on an entirely different character than if it was close. Depth can also be portrayed by reducing the contrast in more distant objects, and by making their colors less saturated. This will reproduce the effect of atmospheric haze, and cause the eye to focus primarily on objects drawn in the foreground.

Artistry

The composition of the image is an important element in producing an interesting work of artistic merit. The artist plans the placement of elements in the art in order to communicate ideas and feelings with the viewer. The composition can determine the focus of the art, and result in a harmonious whole that is aesthetically appealing and stimulating.

The illumination of the subject is also a key element in creating an artistic piece, and the interplay of light and shadow is a valuable method in the artist's toolbox. The placement of the light sources can make a considerable difference in the type of message that is being presented. Multiple light sources can wash out any wrinkles in a person's face, for instance, and give a more

youthful appearance. In contrast, a single light source, such as harsh daylight, can serve to highlight any texture or interesting features.

When drawing an object or figure, the skilled artist pays attention to both the area within the silhouette and what lies outside. The exterior is termed the negative space, and can be as important in the representation as the figure. Objects placed in the background of the figure should appear properly placed wherever they can be viewed.

A study is a draft drawing that is made in preparation for a planned final image. Studies can be used to determine the appearances of specific parts of the completed image, or for experimenting with the best approach for accomplishing the end goal. However a well-crafted study can be a piece of art in its own right, and many hours of careful work can go into completing a study.

Chapter 5

Architecture

Architecture (Latin architectura, from the Greek ἀρχιτέκτων – arkhitekton, from ἀρχι- "chief" and τέκτων "builder, carpenter, mason") is both the process and product of planning, designing, and construction, usually of buildings and other physical structures. Architectural works, in the material form of buildings, are often perceived as cultural symbols and as works of art. Historical civilizations are often identified with their surviving architectural achievements.

"Architecture" can mean:

- A general term to describe buildings and other physical structures.
- The art and science of designing and erecting buildings and non-building structures.
- The style and method of design and construction of buildings and other physical structures.
- The practice of the architect, where architecture means the offering or rendering of professional services in connection with the design and construction of buildings, or built environments.
- The design activity of the architect, from the macro-level (urban design, landscape architecture) to the micro-level (construction details and furniture).
- The term "architecture" has been adopted to describe the activity of designing any kind of system, and is commonly used in describing information technology.

In relation to buildings, architecture has to do with the planning, designing and constructing form, space and ambience that reflect functional, technical, social, environmental, and aesthetic considerations. It requires the creative manipulation and coordination of material, technology, light and shadow. Architecture also encompasses the pragmatic aspects of realizing buildings and structures, including scheduling, cost estimating and construction administration. As documentation produced by architects, typically drawings, plans and technical specifications,

architecture defines the structure and/or behavior of a building or any other kind of system that is to be or has been constructed.

Theory of architecture

The earliest surviving written work on the subject of architecture is De architectura, by the Roman architect Vitruvius in the early 1st century AD.[5] According to Vitruvius, a good building should satisfy the three principles of firmitas, utilitas, venustas,[6][7] which translate roughly as:

- Durability – it should stand up robustly and remain in good condition.
- Utility – it should be useful and function well for the people using it.
- Beauty – it should delight people and raise their spirits.

According to Vitruvius, the architect should strive to fulfill each of these three attributes as well as possible. Leone Battista Alberti, who elaborates on the ideas of Vitruvius in his treatise, De Re Aedificatoria, saw beauty primarily as a matter of proportion, although ornament also played a part. For Alberti, the rules of proportion were those that governed the idealised human figure, the Golden mean. The most important aspect of beauty was therefore an inherent part of an object, rather than something applied superficially; and was based on universal, recognisable truths. The notion of style in the arts was not developed until the 16th century, with the writing of Vasari.[8] The treatises, by the 18th century, had been translated into Italian, French, Spanish and English.

In the early 19th century, Augustus Welby Northmore Puginwrote Contrasts (1836) that, as the titled suggested, contrasted the modern, industrial world, which he disparaged, with an idealized

image of neo-medieval world. Gothic architecture, Pugin believed, was the only "true Christian form of architecture."

The 19th-century English art critic, John Ruskin, in his Seven Lamps of Architecture, published 1849,[9] was much narrower in his view of what constituted architecture. Architecture was the "art which so disposes and adorns the edifices raised by men ... that the sight of them" contributes "to his mental health, power, and pleasure".

For Ruskin, the aesthetic was of overriding significance. His work goes on to state that a building is not truly a work of architecture unless it is in some way "adorned". For Ruskin, a well-constructed, well-proportioned, functional building needed string courses or rustication, at the very least.

On the difference between the ideals of architecture and mere construction, the renowned 20th-century architect Le Corbusier wrote: "You employ stone, wood, and concrete, and with these materials you build houses and palaces: that is construction. Ingenuity is at work. But suddenly you touch my heart, you do me good. I am happy and I say: This is beautiful. That is Architecture".[10]

By contrast, le Corbusier's contemporary, Ludwig Mies van der Rohe said that architecture begins "when 2 bricks are put together."

Modern concepts of architecture

The great 19th-century architect of skyscrapers, Louis Sullivan, promoted an overriding precept to architectural design: "Form follows function".

While the notion that structural and aesthetic considerations should be entirely subject to functionality was met with both popularity and skepticism, it had the effect of introducing the concept of "function" in place of Vitruvius' "utility". "Function" came to be seen as encompassing all criteria of the use, perception and enjoyment of a building, not only practical but also aesthetic, psychological and cultural.

Nunzia Rondanini stated, "Through its aesthetic dimension architecture goes beyond the functional aspects that it has in common with other human sciences. Through its own particular way of expressing values, architecture can stimulate and influence social life without presuming that, in and of itself, it will promote social development.'

To restrict the meaning of (architectural) formalism to art for art's sake is not only reactionary; it can also be a purposeless quest for perfection or originality which degrades form into a mere instrumentality".[11]

Among the philosophies that have influenced modern architects and their approach to building design are rationalism, empiricism, structuralism, poststructuralism, and phenomenology.

In the late 20th century a new concept was added to those included in the compass of both structure and function, the consideration of sustainability. To satisfy the contemporary ethos a building should be constructed in a manner which is environmentally friendly in terms of the production of its materials, its impact upon the natural and built environment of its surrounding area and the demands that it makes upon non-sustainable power sources for heating, cooling, water and waste management and lighting.

History

Origins and vernacular architecture

Building first evolved out of the dynamics between needs (shelter, security, worship, etc.) and means (available building materials and attendant skills). As human cultures developed and knowledge began to be formalized through oral traditions and practices, building became a craft, and "architecture" is the name given to the most highly formalized and respected versions of that craft.

It is widely assumed that architectural success was the product of a process of trial and error, with progressively less trial and more replication as the results of the process proved increasingly satisfactory. What is termed vernacular architecture continues to be produced in many parts of the world. Indeed, vernacular buildings make up most of the built world that people experience

every day. Early human settlements were mostly rural. Due to a surplus in production the economy began to expand resulting in urbanization thus creating urban areas which grew and evolved very rapidly in some cases, such as that of Çatal Höyük in Anatolia and Mohenjo Daro of the Indus Valley Civilization in modern-day Pakistan.

Ancient architecture

In many ancient civilizations, such as those of Egypt and Mesopotamia, architecture and urbanism reflected the constant engagement with the divine and the supernatural, and many ancient cultures resorted to monumentality in architecture to represent symbolically the political power of the ruler, the ruling elite, or the state itself.

The architecture and urbanism of the Classical civilizations such as the Greek and the Roman evolved from civic ideals rather than religious or empirical ones and new building types emerged. Architectural "style" developed in the form of the Classical orders.

Texts on architecture have been written since ancient time. These texts provided both general advice and specific formal prescriptions or canons. Some examples of canons are found in the writings of the 1st-century BCE Roman military engineer Vitruvius. Some of the most important early examples of canonic architecture are religious.

Asian architecture

Early Asian writings on architecture include the Kao Gong Ji of China from the 7th–5th centuries BCE; the Vaastu Shastra of ancient India and Manjusri Vasthu Vidya Sastra of Sri Lanka.

The architecture of different parts of Asia developed along different lines from that of Europe; Buddhist, Hindu and Sikh architecture each having different characteristics. Buddhist architecture, in particular, showed great regional diversity. In many Asian countries a pantheistic religion led to architectural forms that were designed specifically to enhance the natural landscape.

Islamic architecture

Islamic architecture began in the 7th century CE, incorporating architectural forms from the ancient Middle East and Byzantium, but also developing features to suit the religious and social needs of the society. Examples can be found throughout the Middle East, North Africa, Spain and the Indian Sub-continent. The widespread application of the pointed arch was to influence European architecture of the Medieval period.

The medieval builder

In Europe during the Medieval period, guilds were formed by craftsmen to organize their trades and written contracts have survived, particularly in relation to ecclesiastical buildings. The role of architect was usually one with that of master mason, or Magister lathomorum as they are sometimes described in contemporary documents.

The major architectural undertakings were the buildings of abbeys and cathedrals. From about 900 CE onwards, the movements of both clerics and tradesmen carried architectural knowledge across Europe, resulting in the pan-European styles Romanesque and Gothic.

Renaissance and the architect

In Renaissance Europe, from about 1400 onwards, there was a revival of Classical learning accompanied by the development of Renaissance Humanism which placed greater emphasis on the role of the individual in society than had been the case during the Medieval period. Buildings were ascribed to specific architects – Brunelleschi, Alberti, Michelangelo, Palladio – and the cult of the individual had begun. There was still no dividing line between artist, architect and engineer, or any of the related vocations, and the appellation was often one of regional preference.

A revival of the Classical style in architecture was accompanied by a burgeoning of science and engineering which affected the proportions and structure of buildings. At this stage, it was still possible for an artist to design a bridge as the level of structural calculations involved was within the scope of the generalist.

Early modern and the industrial age

With the emerging knowledge in scientific fields and the rise of new materials and technology, architecture and engineering began to separate, and the architect began to concentrate on aesthetics and the humanist aspects, often at the expense of technical aspects of building design. There was also the rise of the "gentleman architect" who usually dealt with wealthy clients and concentrated predominantly on visual qualities derived usually from historical prototypes, typified by the many country houses of Great Britain that were created in the Neo Gothic or Scottish Baronial styles. Formal architectural training in the 19th century, for example at Ecole des Beaux Arts in France, gave much emphasis to the production of beautiful drawings and little to context and feasibility. Effective architects generally received their training in the offices of other architects, graduating to the role from draughtsmen or clerks.

Meanwhile, the Industrial Revolution laid open the door for mass production and consumption. Aesthetics became a criterion for the middle class as ornamented products, once within the province of expensive craftsmanship, became cheaper under machine production.

Vernacular architecture became increasingly ornamental. House builders could use current architectural design in their work by combining features found in pattern books and architectural journals.

Modernism and reaction

Around the turn of the 20th century, a general dissatisfaction with the emphasis on revivalist architecture and elaborate decoration gave rise to many new lines of thought that served as precursors to Modern Architecture. Notable among these is the Deutscher Werkbund, formed in 1907 to produce better quality machine made objects. The rise of the profession of industrial design is usually placed here. Following this lead, the Bauhaus school, founded in Weimar, Germany in 1919, redefined the architectural bounds prior set throughout history, viewing the creation of a building as the ultimate synthesis—the apex—of art, craft, and technology.

When Modern architecture was first practiced, it was an avant-garde movement with moral, philosophical, and aesthetic underpinnings. Immediately after World War I, pioneering modernist architects sought to develop a completely new style appropriate for a new post-war social and economic order, focused on meeting the needs of the middle and working classes. They rejected the architectural practice of the academic refinement of historical styles which served the rapidly declining aristocratic order. The approach of the Modernist architects was to reduce buildings to pure forms, removing historical references and ornament in favor of functionalist details. Buildings displayed their functional and structural elements, exposing steel beams and concrete surfaces instead of hiding them behind decorative forms.

Architects such as Frank Lloyd Wright developed Organic architecture in which the form was defined by its environment and purpose, with an aim to promote harmony between human habitation and the natural world with prime examples being Robie House and Falling Water.

Architects such as Mies van der Rohe, Philip Johnson and Marcel Breuer worked to create beauty based on the inherent qualities of building materials and modern construction techniques, trading traditional historic forms for simplified geometric forms, celebrating the new means and methods made possible by the Industrial Revolution, including steel-frame construction, which gave birth to high-rise superstructures. By mid-century, Modernism had morphed into the International Style, an aesthetic epitomized in many ways by the Twin Towers of New York's World Trade Center.

Many architects resisted Modernism, finding it devoid of the decorative richness of ornamented styles and as the founders of that movement lost influence in the late 1970s, Postmodernism

developed as a reaction against its austerity. Postmodernism viewed Modernism as being too extreme and even harsh in regards to design. Instead, Postmodernists combined Modernism with older styles from before the 1900s to form a middle ground. Robert Venturi's contention that a "decorated shed" (an ordinary building which is functionally designed inside and embellished on the outside) was better than a "duck" (an ungainly building in which the whole form and its function are tied together) gives an idea of these approaches.

Architecture today

Since the 1980s, as the complexity of buildings began to increase (in terms of structural systems, services, energy and technologies), the field of architecture became multi-disciplinary with specializations for each project type, technological expertise or project delivery methods. In addition, there has been an increased separation of the 'design' architect from the 'project' architect who ensures that the project meets the required standards and deals with matters of liability. The preparatory processes for the design of any large building have become increasingly complicated, and require preliminary studies of such matters as durability, sustainability, quality, money, and compliance with local laws. A large structure can no longer be the design of one person but must be the work of many. Modernism and Postmodernism, have been criticised by some members of the architectural profession who feel that successful architecture is not a personal philosophical or aesthetic pursuit by individualists; rather it has to consider everyday needs of people and use technology to create liveable environments, with the design process being informed by studies of behavioral, environmental, and social sciences.

Environmental sustainability has become a mainstream issue, with profound affect on the architectural profession. Many developers, those who support the financing of buildings, have become educated to encourage the facilitation of environmentally sustainable design, rather than solutions based primarily on immediate cost. Major examples of this can be found in greener roof designs, biodegradable materials,and more attention to a structure's energy usage. This major shift in architecture has also changed architecture schools to focus more on the environment. Sustainability in architecture was pioneered by Frank Lloyd Wright, in the 1960s by Buckminster Fuller and in the 1970s by architects such as Ian McHarg and Sim Van der Ryn

in the US and Brenda and Robert Vale in the UK and New Zealand. There has been an acceleration in the number of buildings which seek to meet green building sustainable design principles. Sustainable practices that were at the core of vernacular architecture increasingly provide inspiration for environmentally and socially sustainable contemporary techniques.[12] The U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) rating system has been instrumental in this. An example of an architecturally innovative green building is the Dynamic Tower which will be powered by wind turbines and solar panels.

Chapter 6

Introduction to Music

Music is an art form whose medium is sound and silence. Its common elements are pitch (which governs melody and harmony), rhythm (and its associated concepts tempo, meter, and articulation), dynamics, and the sonic qualities of timbre and texture. The word derives from Greek μουσική (mousike; "art of the Muses").

The creation, performance, significance, and even the definition of music vary according to culture and social context. Music ranges from strictly organized compositions (and their recreation in performance), through improvisational music to aleatoric forms. Music can be divided into genres and subgenres, although the dividing lines and relationships between music genres are often subtle, sometimes open to personal interpretation, and occasionally controversial. Within the arts, music may be classified as a performing art, a fine art, and auditory art. It may also be divided among art music and folk music. There is also a strong connection between music and mathematics. Music may be played and heard live, may be part of a dramatic work or film, or may be recorded.

To many people in many cultures, music is an important part of their way of life. Ancient Greek and Indian philosophers defined music as tones ordered horizontally as melodies and vertically as harmonies. Common sayings such as "the harmony of the spheres" and "it is music to my ears" point to the notion that music is often ordered and pleasant to listen to. However, 20th-century composer John Cage thought that any sound can be music, saying, for example, "There is no noise, only sound. Musicologist Jean-Jacques Nattiez summarizes the relativist, post-modern viewpoint: "The border between music and noise is always culturally defined—which implies that, even within a single society, this border does not always pass through the same place; in short, there is rarely a consensus ... By all accounts there is no single and intercultural luniversal concept defining what music might be."

History

Prehistoric eras

Prehistoric music can only be theorized based on findings from paleolithic archaeology sites. Flutes are often discovered, carved from bones in which lateral holes have been pierced; these are thought to have been blown at one end like the Japanese shakuhachi. The Divje Babe flute, carved from a cave bear femur, is thought to be at least 40,000 years old. Instruments such as the seven-holed flute and various types ofstringed instruments, such as the Ravanahatha, have been recovered from the Indus Valley Civilizationarchaeological sites. India has one of the oldest musical traditions in the world—references to Indian classical music (marga) are found in the Vedas, ancient scriptures of the Hindu tradition. The earliest and largest collection of prehistoric musical instruments was found in China and dates back to between 7000 and 6600 BC. The Hurrian song, found on clay tablets that date back to approximately 1400 BC, is the oldest surviving notated work of music.

Ancient Egypt

The ancient Egyptians credited one of their gods, Thoth, with the invention of music, which Osiris in turn used as part of his effort to civilize the world. The earliest material and representational evidence of Egyptian musical instruments dates to the Predynastic period, but the evidence is more securely attested in the Old Kingdom when harps, flutes anddouble clarinets were played. Percussion instruments,lyres and lutes were added to orchestras by the Middle Kingdom. Cymbals frequently accompanied music and dance, much as they still do in Egypt today. Egyptian folk music, including the traditional Sufi dhikr rituals, are the closest contemporary music genre to ancient Egyptianmusic, having preserved many of its features, rhythms and instruments.

Asian cultures

Indian classical music is one of the oldest musical traditions in the world. The Indus Valley civilization has sculptures that show dance and old musical instruments, like the seven holed flute. Various types of stringed instruments and drums have been recovered from Harrappa and Mohenjo Daro by excavations carried out by Sir Mortimer Wheeler. The Rigveda has elements of present Indian music, with a musical notation to denote the metre and the mode of chanting. Indian classical music (marga) is monophonic, and based on a single melody line or raga rhythmically organized through talas. Silappadhikaram by Ilango Adigal gives so much

information about how new scale can be formed by modal shift of tonic from existing scale. Hindustani music was influenced by the Persian performance practices of the Afghan Mughals. Carnatic music popular in the southern states, is largely devotional; the majority of the songs are addressed to the Hindu deities. There are a lot of songs emphasising love and other social issues.

Asian music covers the music cultures of Arabia, Central Asia, East Asia, South Asia, and Southeast Asia.Chinese classical music, the traditional art or court music of China, has a history stretching over around three thousand years. It has its own unique systems of musical notation, as well as musical tuning and pitch, musical instruments and styles or musical genres. Chinese music is pentatonic-diatonic, having a scale of twelve notes to an octave (5 + 7 = 12) as does European-influenced music. Persian music is the music ofPersia and Persian language countries: musiqi, the science and art of music, and muzik, the sound and performance of music (Sakata 1983).

References in the Bible

Music and theatre scholars studying the history and anthropology of Semitic and early Judeo-Christian culture have discovered common links in theatrical and musical activity between the classical cultures of the Hebrews and those of later Greeks and Romans. The common area of performance is found in a "social phenomenon called litany," a form of prayer consisting of a series of invocations or supplications. The Journal of Religion and Theatre notes that among the earliest forms of litany, "Hebrew litany was accompanied by a rich musical tradition:"

"While Genesis 4.21 identifies Jubal as the “father of all such as handle the harp and pipe,” the Pentateuch is nearly silent about the practice and instruction of music in the early life of Israel. Then, in I Samuel 10 and the texts that follow, a curious thing happens. “One finds in the biblical text,” writes Alfred Sendrey, “a sudden and unexplained upsurge of large choirs and orchestras, consisting of thoroughly organized and trained musical groups, which would be virtually inconceivable without lengthy, methodical preparation.” This has led some scholars to believe that the prophet Samuel was the patriarch of a school, which taught not only prophets and holy men, but also sacred-rite musicians. This public music school, perhaps the earliest in recorded history, was not restricted to a priestly class—which is how the shepherd boy David appears on the scene as a minstrel to King Saul."

Antiquity

Western cultures have had a major influence on the development of music. The history of the music of the Western cultures can be traced back to Ancient Greece times.

Ancient Greece

Music was an important part of social and cultural life in Ancient Greece. Musicians and singers played a prominent role in Greek theater. Mixed-gender choruses performed for entertainment, celebration, and spiritual ceremonies. Instruments included the double-reed aulos and a plucked string instrument, thelyre, principally the special kind called a kithara. Music was an important part of education, and boys were taught music starting at age six. Greek musical literacy created a flowering of music development. Greek music theory included the Greek musical modes, that eventually became the basis for Western religious and classical music. Later, influences from the Roman Empire, Eastern Europe, and the Byzantine Empire changed Greek music. The Seikilos epitaph is the oldest surviving example of a complete musical composition, including musical notation, from anywhere in the world.

The Middle Ages

The medieval era (476 AD to 1400 AD) started with the introduction of chanting into Roman Catholic Church services. Western Music then started becoming more of an art form with the advances in music notation. The only European Medieval repertory that survives from before about 800 is the monophonic liturgical plainsong of the Roman Catholic Church, the central tradition of which was called Gregorian chant. Alongside these traditions ofsacred and church music there existed a vibrant tradition of secular song. Examples of composers from this period are Léonin, Pérotin and Guillaume de Machaut.

The Renaissance

Renaissance music (c. 1400 A.D. to 1600 A.D.) was more focused on secular themes. Around 1450, the printing press was invented, and that helped to disseminate musical styles more quickly

and across a larger area. Thus, music could play an increasingly important role in daily life. Musicians worked for the church, courts and towns. Church choirs grew in size, and the church remained an important patron of music. By the middle of the 15th century, composers wrote richly polyphonic sacred music. Prominent composers from this era are Guillaume Dufay, Giovanni Pierluigi da Palestrina, Thomas Morley, and Orlande de Lassus. However, musical activity shifted to the courts. Kings and princes competed for the finest composers.

Many leading important composers came from Holland, Belgium, and northern France and are called the Franco-Flemish composers. They held important positions throughout Europe, especially in Italy. Other countries with vibrant musical lives include Germany, England, and Spain.

The Baroque

The Baroque era of music took place from 1600 to 1750, as the Baroque artistic style flourished across Europe; and during this time, music expanded in its range and complexity. Baroque music began when the first operas were written and when contrapuntal music became prevalent. German Baroque composers wrote for small ensembles including strings, brass, and woodwinds, as well as choirs, pipe organ, harpsichord, and clavichord. During this period several major music forms were defined that lasted into later periods when they were expanded and evolved further, including the fugue, the invention, the sonata, and the concerto.[20] The late Baroque style was polyphonically complex and ornamental and rich in its melodies. Composers from the Baroque era includeJohann Sebastian Bach, George Frideric Handel, and Georg Philipp Telemann.

Classicism

The music of the Classical Period (1750 A.D. to 1830 A.D.) looked to the art and philosophy of Ancient Greece and Rome, to the ideals of balance, proportion and disciplined expression. It has a lighter, clearer and considerably simpler texture, and tended to be almost voice like and sing able. New genres were discovered. The main style was the homophony, where prominent melody and accompaniment are clearly distinct.

Importance was given to instrumental music. It was dominated by further evolution of musical forms initially defined in the Baroque period: the sonata, the concerto, and the symphony. Others main kinds were trio, string quartet, serenade and divertimento. The sonata was the most important and developed form. Although Baroque composers also wrote sonatas, the Classical style of sonata is completely distinct. All of the main instrumental forms of the Classical era were based on the dramatic structure of the sonata.

One of the most important evolutionary steps made in the Classical period was the development of public concerts. The aristocracy would still play a significant role in the sponsorship of musical life, but it was now possible for composers to survive without being its permanent employees. The increasing popularity led to a growth in both the number and range of the orchestras. The expansion of orchestral concerts necessitated large public spaces. As a result of all these processes, symphonic music (including opera, ballet andoratorio) became more extroverted.

The best known composers of Classicism are Carl Philipp Emanuel Bach, Christoph Willibald Gluck, Johann Christian Bach, Joseph Haydn, Wolfgang Amadeus Mozart, Ludwig van Beethoven and Franz Schubert. Beethoven and Schubert are also considered to be composers in evolution towards Romanticism.

Romanticism

Romantic Music (c. 1810 A.D. to 1900 A.D.) turned the rigid styles and forms of the Classical era into more passionate and expressive pieces. It attempted to increase emotional expression and power to describe deeper truths or human feelings. The emotional and expressive qualities of music came to take precedence over technique and tradition. Romantic composers grew in idiosyncrasy, and went further in the syncretism of different art-forms (such as literature), history (historical figures), or nature itself with music. Romantic love was a prevalent theme in many works composed during this period. In some cases the formal structures from the classical period were preserved, but in many others existing genres, forms, and functions were improved. Also, new forms were created that were deemed better suited to the new subject matter. Opera and ballet continued to evolve.

In 1800, the music developed by Ludwig van Beethoven and Franz Schubert introduced a more dramatic, expressive style. In Beethoven's case, motifs, developed organically, came to replace melody as the most significant compositional unit. Later Romantic composers such as Pyotr Ilyich Tchaikovsky, Antonín Dvořák, and Gustav Mahler used more elaborated chords and more dissonance to create dramatic tension. They generated complex and often much longer musical works. During Romantic period tonality was at its peak. The late 19th century saw a dramatic expansion in the size of the orchestra, and in the role of concerts as part of urban society. It also saw a new diversity in theatre music, including operetta, and musical comedy and other forms of musical theatre.

20th- and 21st-century music

With 20th-century music, there was a vast increase in music listening as the radio gained popularity and phonographs were used to replay and distribute music. The focus of art music was characterized by exploration of new rhythms, styles, and sounds.Igor Stravinsky, Arnold Schoenberg, and John Cage were all influential composers in 20th-century art music. The invention of sound recording and the ability to edit music gave rise to new sub-genre of classical music, including the acousmatic and Musique concrète schools of electronic composition.

Jazz evolved and became an important genre of music over the course of the 20th century, and during the second half of that century, rock music did the same. Jazz is an American musical art form that originated in the beginning of the 20th century in African American communities in the Southern United States from a confluence of African and European music traditions. The style's West African pedigree is evident in its use of blue notes, improvisation, poly rhythms, syncopation, and the swung note.[23] From its early development until the present, jazz has also incorporated music from 19th- and 20th-century American popular music.[24] Jazz has, from its early-20th-century inception, spawned a variety of subgenres, ranging from New Orleans Dixieland (1910s) to 1970s and 1980s-era jazz-rock fusion.

Rock music is a genre of popular music that developed in the 1960s from 1950s rock and roll, rockabilly, blues, and country music. The sound of rock often revolves around the electric guitar or acoustic guitar, and it uses a strong back beat laid down by a rhythm section of electric bass guitar, drums, and keyboard instruments such as organ, piano, or, since the 1970s, analog synthesizers and digital ones and computers since the 1990s. Along with the guitar or keyboards, saxophone and blues-style harmonica are used as soloing instruments. In its "purest form," it "has three chords, a strong, insistent back beat, and a catchy melody."[25] In the late 1960s and early 1970s, it branched out into different subgenres, ranging from blues rock and jazz-rock fusion to heavy metal and punk rock, as well as the more classical influenced genre of progressive rock and several types of experimental rock genres.

Performance

Performance is the physical expression of music. Often, a musical work is performed once its structure and instrumentation are satisfactory to its creators; however, as it gets performed, it can evolve and change. A performance can either be rehearsed or improvised. Improvisation is a musical idea created without premeditation, while rehearsal is vigorous repetition of an idea until it has achieved cohesion. Musicians will sometimes add improvisation to a well-rehearsed idea to create a unique performance.

Many cultures include strong traditions of solo and performance, such as in Indian classical music, and in the Western art-music tradition. Other cultures, such as in Bali, include strong traditions of group performance. All cultures include a mixture of both, and performance may range from improvised solo playing for one's enjoyment to highly planned and organised performance rituals such as the modern classical concert, religious processions, music festivals or music competitions. Chamber music, which is music for a small ensemble with only a few of each type of instrument, is often seen as more intimate than symphonic works.

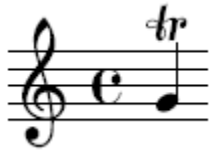
Chapter 7

Traditions in Music

Aural tradition

Many types of music, such as traditional blues and folk music were originally preserved in the memory of performers, and the songs were handed down orally, or aurally (by ear). When the composer of music is no longer known, this music is often classified as "traditional." Different musical traditions have different attitudes towards how and where to make changes to the original source material, from quite strict, to those that demand improvisation or modification to the music. A culture's history may also be passed by ear through song.

Ornamentation



The detail included explicitly in the music notation varies between genres and historical periods. In general, art music notation from the 17th through the 19th century required performers to have a great deal of contextual knowledge about performing styles. For example, in the 17th and 18th century, music notated for solo performers typically indicated a simple, unadorned melody. However, performers were expected to know how to add stylistically appropriate ornaments, such as trills and turns. In the 19th century, art music for solo performers may give a general instruction such as to perform the music expressively, without describing in detail how the performer should do this. The performer was expected to know how to use tempo changes, accentuation, and pauses (among other devices) to obtain this "expressive" performance style. In the 20th century, art music notation often became more explicit and used a range of markings and annotations to indicate to performers how they should play or sing the piece.

In popular music and jazz, music notation almost always indicates only the basic framework of the melody, harmony, or performance approach; musicians and singers are expected to know the performance conventions and styles associated with specific genres and pieces. For example, the

"lead sheet" for a jazz tune may only indicate the melody and the chord changes. The performers in the jazz ensemble are expected to know how to "flesh out" this basic structure by adding ornaments, improvised music, and chordal accompaniment.

Production

Music is composed and performed for many purposes, ranging from aesthetic pleasure, religious or ceremonial purposes, or as an entertainment product for the marketplace. Amateur musicians compose and perform music for their own pleasure, and they do not derive their income from music. Professional musicians are employed by a range of institutions and organisations, including armed forces, churches and synagogues, symphony orchestras, broadcasting or film production companies, and music schools. Professional musicians sometimes work as freelancers, seeking contracts and engagements in a variety of settings.

There are often many links between amateur and professional musicians. Beginning amateur musicians take lessons with professional musicians. In community settings, advanced amateur musicians perform with professional musicians in a variety of ensembles and orchestras. In some cases, amateur musicians attain a professional level of competence, and they are able to perform in professional performance settings. A distinction is often made between music performed for the benefit of a live audience and music that is performed for the purpose of being recorded and distributed through the music retail system or the broadcasting system. However, there are also many cases where a live performance in front of an audience is recorded and distributed (or broadcast).

Composition

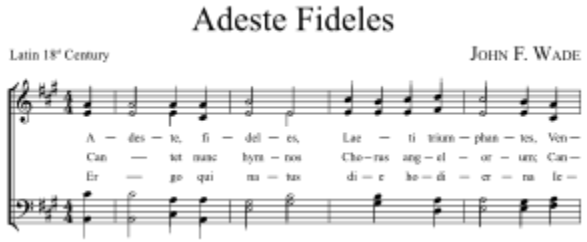
"Composition" is often classed as the creation and recording of music via a medium by which others can interpret it (i.e., paper or sound). Many cultures use at least part of the concept of preconceiving musical material, or composition, as held in western classical music. Even when music is notated precisely, there are still many decisions that a performer has to make. The process of a performer deciding how to perform music that has been previously composed and notated is termed interpretation. Different performers' interpretations of the same music can vary widely. Composers and song writers who present their own music are interpreting, just as much as those who perform the music of others or folk music. The standard body of choices and

techniques present at a given time and a given place is referred to as performance practice, whereas interpretation is generally used to mean either individual choices of a performer, or an aspect of music that is not clear, and therefore has a "standard" interpretation.

In some musical genres, such as jazz and blues, even more freedom is given to the performer to engage in improvisation on a basic melodic, harmonic, or rhythmic framework. The greatest latitude is given to the performer in a style of performing called free improvisation, which is material that is spontaneously "thought of" (imagined) while being performed, not preconceived. Improvised music usually follows stylistic or genre conventions and even "fully composed" includes some freely chosen material. Composition does not always mean the use of notation, or the known sole authorship of one individual. Music can also be determined by describing a "process" that creates musical sounds. Examples of this range from wind chimes, through computer programs that select sounds. Music from random elements is called Aleatoric music, and is associated with such composers as John Cage, Morton Feldman, and Witold Lutosławski.

Music can be composed for repeated performance or it can be improvised: composed on the spot. The music can be performed entirely from memory, from a written system of musical notation, or some combination of both. Study of composition has traditionally been dominated by examination of methods and practice of Western classical music, but the definition of composition is broad enough to include spontaneously improvised works like those of free jazz performers and African drummers such as the Ewe drummers.

Notation



Notation is the written expression of music notes and rhythms on paper using symbols. When music is written down, the pitches and rhythm of the music is notated, along with instructions on how to perform the music. The study of how to read notation involves music theory, harmony, the study of performance practice, and in some cases an understanding of historical performance

methods. Written notation varies with style and period of music. In Western Art music, the most common types of written notation are scores, which include all the music parts of an ensemble piece, and parts, which are the music notation for the individual performers or singers. In popular music, jazz, and blues, the standard musical notation is the lead sheet, which notates the melody, chords, lyrics (if it is a vocal piece), and structure of the music. Scores and parts are also used in popular music and jazz, particularly in large ensembles such as jazz "big bands."

In popular music, guitarists and electric bass players often read music notated in tablature (often abbreviated as "tab"), which indicates the location of the notes to be played on the instrument using a diagram of the guitar or bass fingerboard. Tabulature was also used in the Baroque era to notate music for the lute, a stringed, fretted instrument. Notated music is produced as sheet music. To perform music from notation requires an understanding of both the rhythmic and pitch elements embodied in the symbols and the performance practice that is associated with a piece of music or a genre. In improvisation, the performer often plays from music where only the chord changes are written, requiring a great understanding of the music's structure and chord progressions.

Improvisation

Musical improvisation is the creation of spontaneous music. Improvisation is often considered an act of instantaneous composition by performers, where compositional techniques are employed with or without preparation. Improvisation is a major part of some types of music, such as blues, jazz, and jazz fusion, in which instrumental performers improvise solos and melody lines. In the Western art music tradition, improvisation was an important skill during the Baroque era and during the Classical era; solo performers and singers improvised virtuoso cadenzas during concerts. However, in the 20th and 21st century, improvisation played a smaller role in Western Art music. In Indian classical music, spontaneous improvisation is a core component and an essential criteria of any performance.

Theory

Music theory encompasses the nature and mechanics of music. It often involves identifying patterns that govern composers' techniques and examining the language and notation of music. In a grand sense, music theory distills and analyzes the parameters or elements of music – rhythm,

harmony (harmonic function),melody, structure, form, and texture. Broadly, music theory may include any statement, belief, or conception of or about music. People who study these properties are known as music theorists. Some have applied acoustics, human physiology, and psychology to the explanation of how and why music is perceived. Music has many different fundamentals or elements. These are, but are not limited to: pitch, beat or pulse, rhythm, melody, harmony, texture, allocation of voices, timbre or color, expressive qualities (dynamics and articulation), and form or structure.

Pitch is a subjective sensation, reflecting generally the lowness or highness of a sound. Rhythm is the arrangement of sounds and silences in time. Meter animates time in regular pulse groupings, called measures or bars. A melody is a series of notes sounding in succession. The notes of a melody are typically created with respect to pitch systems such as scales or modes. Harmony is the study of vertical sonorities in music. Vertical sonority refers to considering the relationships between pitches that occur together; usually this means at the same time, although harmony can also be implied by a melody that outlines a harmonic structure. Notes can be arranged into different scales and modes. Western music theory generally divides the octave into a series of 12 notes that might be included in a piece of music. In music written using the system of major-minor tonality, the key of a piece determines the scale used. Musical texture is the overall sound of a piece of music commonly described according to the number of and relationship between parts or lines of music: monophony, heterophony, polyphony, homophony, or monody.

Timbre, sometimes called "Color" or "Tone Color" is the quality or sound of a voice or instrument.[27]Expressive Qualities are those elements in music that create change in music that are not related to pitch, rhythm or timbre. They include Dynamics and Articulation. Form is a facet of music theory that explores the concept of musical syntax, on a local and global level. Examples of common forms of Western music include the fugue, the invention, sonata-allegro, canon, strophic, theme and variations, and rondo. Popular Music often makes use of strophic form often in conjunction with Twelve bar blues. Analysis is the effort to describe and explain music.

Philosophy and aesthetics

Philosophy of music is the study of fundamental questions regarding music. The philosophical study of music has many connections with philosophical questions in metaphysics and aesthetics. Some basic questions in the philosophy of music are:

- What is the definition of music? (What are the necessary and sufficient conditions for classifying something as music?)
- What is the relationship between music and mind?
- What does musical history reveal to us about the world?
- What is the connection between music and emotions?
- What is meaning in relation to music?

Traditionally, the aesthetics of music explored the mathematical and cosmological dimensions of rhythmic and harmonic organization. In the eighteenth century, focus shifted to the experience of hearing music, and thus to questions about its beauty and human enjoyment (plaisir and jouissance) of music. The origin of this philosophic shift is sometimes attributed to Baumgarten in the 18th century, followed by Kant. Through their writing, the ancient term 'aesthetics', meaning sensory perception, received its present day connotation. In recent decades philosophers have tended to emphasize issues besides beauty and enjoyment. For example, music's capacity to express emotion has been a central issue.

In the 20th century, important contributions were made by Peter Kivy, Jerrold Levinson, Roger Scruton, and Stephen Davies. However, many musicians, music critics, and other non-philosophers have contributed to the aesthetics of music. In the 19th century, a significant debate arose between Eduard Hanslick, a music critic and musicologist, and composer Richard Wagner. Harry Partch and some other musicologists, such as Kyle Gann, have studied and tried to popularize microtonal music and the usage of alternate musical scales. Also many modern composers like Lamonte Young, Rhys Chatham and Glenn Branca paid much attention to a scale called just intonation.

It is often thought that music has the ability to affect our emotions, intellect, and psychology; it can assuage our loneliness or incite our passions. The philosopher Plato suggests in the Republic

that music has a direct effect on the soul. Therefore, he proposes that in the ideal regime music would be closely regulated by the state. (Book VII)

There has been a strong tendency in the aesthetics of music to emphasize the paramount importance of compositional structure; however, other issues concerning the aesthetics of music include lyricism, harmony, hypnotism, emotiveness, temporal dynamics, resonance, playfulness, and color.

Cognition and psychology

Music cognition

The field of music cognition involves the study of many aspects of music, including how it is processed by listeners. Rather than accepting the standard practices of analyzing, composing, and performing music as a given, much research in music cognition seeks instead to uncover the mental processes that underlie these practices. Also, research in the field seeks to uncover commonalities between the musical traditions of disparate cultures and possible cognitive "constraints" that limit these musical systems. Questions regarding musical innateness and emotional responses to music are also major areas of research in the field.

Deaf people can experience music by feeling the vibrations in their body, a process that can be enhanced if the individual holds a resonant, hollow object. A well-known deaf musician is the composer Ludwig van Beethoven, who composed many famous works even after he had completely lost his hearing. Recent examples of deaf musicians include Evelyn Glennie, a highly acclaimed percussionist who has been deaf since age twelve, and Chris Buck, a virtuoso violinist who has lost his hearing. This is relevant because it indicates that music is a deeper cognitive process than unexamined phrases such as, "pleasing to the ear" suggests. Much research in music cognition seeks to uncover these complex mental processes involved in listening to music, which may seem intuitively simple, yet are vastly intricate and complex.

Montreal Neurological Institute researcher Valorie Salimpoor and her colleagues have now shown that the pleasurable feelings associated with emotional music are the result of dopamine release in the striatum—the same anatomical areas that underpin the anticipatory and rewarding aspects of drug addiction.

Cognitive neuroscience of music

Cognitive neuroscience of music is the scientific study of brain-based mechanisms involved in the cognitive processes underlying music. These behaviors include music listening, performing, composing, reading, writing, and ancillary activities. It also is increasingly concerned with the brain basis for musical aesthetics and musical emotion. Scientists working in this field may have training in cognitive neuroscience, neurology, neuroanatomy, psychology, music theory, computer science, and other allied fields.

Cognitive neuroscience of music is distinguished from related fields such as music psychology, music cognitionand cognitive musicology in its reliance on direct observations of the brain, using such techniques as functional magnetic resonance imaging (fMRI),transcranial magnetic stimulation (TMS), magnetoencephalography (MEG), electroencephalography (EEG), and positron emission tomography (PET).

Music psychology

Music psychology, or the psychology of music, may be regarded as a branch of psychology or a branch of musicology. It aims to explain and understand musical behavior and musical experience. Modern music psychology is mainly empirical: music-psychological knowledge tends to advance primarily on the basis of interpretations of data about musical behavior and experience, which are collected by systematic observation of and interaction with human participants. Music psychology is a field of research with practical relevance for music performance, music composition, music education, music medicine, and music therapy.

Cognitive musicology

Cognitive musicology is a branch of cognitive science concerned with computationally modeling musical knowledge with the goal of understanding both music and cognition. Cognitive musicology can be differentiated from the fields of music cognition, music psychology and cognitive neuroscience of music by a difference in methodological emphasis. Cognitive musicology uses computer modeling to study music-related knowledge representation and has roots in artificial intelligence and cognitive science. The use of computer models provides an

exacting, interactive medium in which to formulate and test theories. This interdisciplinary field investigates topics such as the parallels between language and music in the brain. Biologically inspired models of computation are often included in research, such as neural networks and evolutionary programs. This field seeks to model how musical knowledge is represented, stored, perceived, performed, and generated. By using a well-structured computer environment, the systematic structures of these cognitive phenomena can be investigated.

Psychoacoustics

Psychoacoustics is the scientific study of sound perception. More specifically, it is the branch of science studying the psychological and physiological responses associated with sound (including speech and music). It can be further categorized as a branch of psychophysics.

Biomusicology

Biomusicology is the study of music from a biological point of view. The term was coined by Nils L. Wallin in 1991. Music is an aspect of the behaviour of the human and possibly other species. As humans are living organisms, the scientific study of music is therefore part of biology, thus the "bio" in "biomusicology."

Biomusicologists are expected to have completed formal studies in both biology or other experimental sciences and musicology including music theory. The three main branches of biomusicology areevolutionary musicology, neuromusicology, and comparative musicology. Evolutionary musicology studies the "origins of music, the question of animal song, selection pressures underlying music evolution", and "music evolution and human evolution". Neuromusicology studies the "brain areas involved in music processing, neural and cognitive processes of musical processing," and "ontogeny of musical capacity and musical skill". Comparative musicology studies the "functions and uses of music, advantages and costs of music making", and "universal features of musical systems and musical behavior."

Sociology

Music is experienced by individuals in a range of social settings ranging from being alone to attending a large concert. Musical performances take different forms in different cultures and socioeconomic milieus. In Europe and North America, there is often a divide between what types of music are viewed as a "high culture" and "low culture." "High culture" types of music typically include Western art music such as Baroque, Classical, Romantic, and modern-era symphonies, concertos, and solo works, and are typically heard in formal concerts in concert halls and churches, with the audience sitting quietly in seats.

Other types of music—including, but not limited to, jazz, blues, soul, and country—are often performed in bars, nightclubs, and theatres, where the audience may be able to drink, dance, and express themselves by cheering. Until the later 20th century, the division between "high" and "low" musical forms was widely accepted as a valid distinction that separated out better quality, more advanced "art music" from the popular styles of music heard in bars and dance halls.

However, in the 1980s and 1990s, musicologists studying this perceived divide between "high" and "low" musical genres argued that this distinction is not based on the musical value or quality of the different types of music. Rather, they argued that this distinction was based largely on the socioeconomics standing or social class of the performers or audience of the different types of music. For example, whereas the audience for Classical symphony concerts typically have above-average incomes, the audience for a rap concert in an inner-city area may have below-average incomes. Even though the performers, audience, or venue where non-"art" music is performed may have a lower socioeconomic status, the music that is performed, such as blues, rap, punk, funk, or ska may be very complex and sophisticated.

When composers introduce styles of music that break with convention, there can be a strong resistance from academic music experts and popular culture. Late-period Beethoven string quartets, Stravinsky balletscores, serialism, bebop-era jazz, hip hop, punk rock, and electronica

have all been considered non-music by some critics when they were first introduced. Such themes are examined in the sociology of music. The sociological study of music, sometimes called socio musicology, is often pursued in departments of sociology, media studies, or music, and is closely related to the field of ethnomusicology.

Chapter 8

Music education

Non-professional

The incorporation of music training from preschool to post secondary education is common in North America and Europe. Involvement in music is thought to teach basic skills such as concentration, counting, listening, and cooperation while also promoting understanding of language, improving the ability to recall information, and creating an environment more conducive to learning in other areas.[40] In elementary schools, children often learn to play instruments such as the recorder, sing in small choirs, and learn about the history of Western art music. In secondary schools students may have the opportunity to perform some type of musical ensembles, such as choirs, marching bands, concert bands, jazz bands, or orchestras, and in some school systems, music classes may be available. Some students also take private music lessons with a teacher. Amateur musicians typically take lessons to learn musical rudiments and beginner- to intermediate-level musical techniques.

At the university level, students in most arts and humanities programs can receive credit for taking music courses, which typically take the form of an overview course on the history of music, or a music appreciation course that focuses on listening to music and learning about different musical styles. In addition, most North American and European universities have some type of musical ensembles that non-music students are able to participate in, such as choirs, marching bands, concert bands, or orchestras. The study of Western art music is increasingly common outside of North America and Europe, such as the Indonesian Institute of the Arts in Yogyakarta, Indonesia, or the classical music programs that are available in Asian countries such as South Korea, Japan, and China. At the same time, Western universities and colleges are widening their curriculum to include music of non-Western cultures, such as the music of Africa or Bali (e.g. Game lan music).

Academia

Musicology is the study of the subject of music. The earliest definitions defined three sub-disciplines: systematic musicology, historical musicology, and comparative musicology or

ethnomusicology. In contemporary scholarship, one is more likely to encounter a division of the discipline into music theory, music history, and ethnomusicology. Research in musicology has often been enriched by cross-disciplinary work, for example in the field of psychoacoustics. The study of music of non-western cultures, and the cultural study of music, is called ethnomusicology. Students can pursue the undergraduate study of musicology, ethnomusicology, music history, and music theory through several different types of degrees, including aB. Mus, a B.A. with concentration in music, a B.A. with Honors in Music, or a B.A. in Music History and Literature. Graduates of undergraduate music programs can go on to further study in music graduate programs.

Graduate degrees include the Master of Music, the Master of Arts, the Doctor of Philosophy (PhD) (e.g., in musicology or music theory), and more recently, the Doctor of Musical Arts, or DMA. The Master of Music degree, which takes one to two years to complete, is typically awarded to students studying the performance of an instrument, education, voice or composition. The Master of Arts degree, which takes one to two years to complete and often requires a thesis, is typically awarded to students studying musicology, music history, or music theory. Undergraduate university degrees in music, including the Bachelor of Music, the Bachelor of Music Education, and the Bachelor of Arts (with a major in music) typically take three to five years to complete. These degrees provide students with a grounding in music theory and music history, and many students also study an instrument or learn singing technique as part of their program.

The PhD, which is required for students who want to work as university professors in musicology, music history, or music theory, takes three to five years of study after the Master's degree, during which time the student will complete advanced courses and undertake research for a dissertation. The DMA is a relatively new degree that was created to provide a credential for professional performers or composers that want to work as university professors in musical performance or composition. The DMA takes three to five years after a Master's degree, and includes advanced courses, projects, and performances. In Medieval times, the study of music was one of the Quadrivium of the seven Liberal Arts and considered vital to higher learning. Within the quantitative Quadrivium, music, or more accurately harmonics, was the study of rational proportions.

Zoo musicology is the study of the music of non-human animals, or the musical aspects of sounds produced by non-human animals. As George Herzog (1941) asked, "do animals have music?" François-Bernard Mâche's Musique, mythe, nature, ou les Dauphins d'Arion (1983), a study of "ornitho-musicology" using a technique of Nicolas Ruwet's Langage, musique, poésie (1972) paradigmatic segmentation analysis, shows that bird songs are organised according to a repetition-transformation principle. Jean-Jacques Nattiez (1990), argues that "in the last analysis, it is a human being who decides what is and is not musical, even when the sound is not of human origin. If we acknowledge that sound is not organised and conceptualised (that is, made to form music) merely by its producer, but by the mind that perceives it, then music is uniquely human."

Music theory is the study of music, generally in a highly technical manner outside of other disciplines. More broadly it refers to any study of music, usually related in some form with compositional concerns, and may include mathematics, physics, and anthropology. What is most commonly taught in beginning music theory classes are guidelines to write in the style of the common practice period, or tonal music. Theory, even of music of the common practice period, may take many other forms. Musical set theory is the application of mathematical set theory to music, first applied to atonal music. Speculative music theory, contrasted withanalytic music theory, is devoted to the analysis and synthesis of music materials, for example tuning systems, generally as preparation for composition.

Ethnomusicology

In the West, much of the history of music that is taught deals with the Western civilization's art music. The history of music in other cultures ("world music" or the field of "ethnomusicology") is also taught in Western universities. This includes the documented classical traditions of Asian countries outside the influence of Western Europe, as well as the folk or indigenous music of various other cultures. Popular styles of music varied widely from culture to culture, and from period to period. Different cultures emphasized different instruments, or techniques, or uses for music. Music has been used not only for entertainment, for ceremonies, and for practical and artistic communication, but also for propaganda.

There is a host of music classifications, many of which are caught up in the argument over the definition of music. Among the largest of these is the division between classical music (or "art"

music), and popular music (or commercial music – including rock music, country music, and pop music). Some genres do not fit neatly into one of these "big two" classifications, (such as folk music, world music, or jazz music).

As world cultures have come into greater contact, their indigenous musical styles have often merged into new styles. For example, the United States bluegrass style contains elements from Anglo-Irish, Scottish, Irish, German and African instrumental and vocal traditions, which were able to fuse in the United States' multi-ethnic society. Genres of music are determined as much by tradition and presentation as by the actual music. Some works, like George Gershwin's Rhapsody in Blue, are claimed by both jazz and classical music, while Gershwin's Porgy and Bess and Leonard Bernstein's West Side Story are claimed by both opera and the Broadway musical tradition. Many current music festivals celebrate a particular musical genre.

Indian music, for example, is one of the oldest and longest living types of music, and is still widely heard and performed in South Asia, as well as internationally (especially since the 1960s). Indian music has mainly three forms of classical music, Hindustani, Carnatic, and Dhrupad styles. It has also a large repertoire of styles, which involve only percussion music such as the tala vadya performances famous in South India.

Music therapy

Music therapy is an interpersonal process in which the therapist uses music and all of its facets—physical, emotional, mental, social, aesthetic, and spiritual—to help clients to improve or maintain their health. In some instances, the client's needs are addressed directly through music; in others they are addressed through the relationships that develop between the client and therapist. Music therapy is used with individuals of all ages and with a variety of conditions, including: psychiatric disorders, medical problems, physical handicaps, sensory impairments, developmental disabilities, substance abuse, communication disorders, interpersonal problems, and aging. It is also used to: improve learning, build self-esteem, reduce stress, support physical exercise, and facilitate a host of other health-related activities.

One of the earliest mentions of music therapy was in Al-Farabi's (c. 872 – 950) treatise Meanings of the Intellect, which described the therapeutic effects of music on the soul. Music has long been used to help people deal with their emotions. In the 17th century, the scholar Robert

Burton's The Anatomy of Melancholy argued that music and dance were critical in treating mental illness, especially melancholia. He noted that music has an "excellent power ...to expel many other diseases" and he called it "a sovereign remedy against despair and melancholy." He pointed out that in Antiquity, Canus, a Rhodian fiddler, used music to "make a melancholy man merry, a lover more enamoured, a religious man more devout." In November 2006, Dr. Michael J. Crawfordand his colleagues also found that music therapy helped schizophrenic patients. In the Ottoman Empire, mental illnesses were treated with music

Media and technology

The music that composers make can be heard through several media; the most traditional way is to hear it live, in the presence of the musicians (or as one of the musicians), in an outdoor or indoor space such as an amphitheatre, concert hall, cabaret room or theatre. Live music can also be broadcast over the radio, television or the Internet. Some musical styles focus on producing a sound for a performance, while others focus on producing a recording that mixes together sounds that were never played "live." Recording, even of essentially live styles, often uses the ability to edit and splice to produce recordings considered better than the actual performance.

As talking pictures emerged in the early 20th century, with their prerecorded musical tracks, an increasing number of movie house orchestra musicians found themselves out of work. During the 1920s live musical performances by orchestras, pianists, and theater organists were common at first-run theaters. With the coming of the talking motion pictures, those featured performances were largely eliminated. The American Federation of Musicians (AFM) took out newspaper advertisements protesting the replacement of live musicians with mechanical playing devices. One 1929 ad that appeared in the Pittsburgh Press features an image of a can labeled "Canned Music / Big Noise Brand / Guaranteed to Produce No Intellectual or Emotional Reaction Whatever"

Since legislation introduced to help protect performers, composers, publishers and producers, including the Audio Home Recording Act of 1992 in the United States, and the 1979 revised Berne Convention for the Protection of Literary and Artistic Works in the United Kingdom, recordings and live performances have also become more accessible through computers, devices and Internet in a form that is commonly known as Music-On-Demand.

In many cultures, there is less distinction between performing and listening to music, since virtually everyone is involved in some sort of musical activity, often communal. In industrialized countries, listening to music through a recorded form, such as sound recording or watching a music video, became more common than experiencing live performance, roughly in the middle of the 20th century.

Sometimes, live performances incorporate prerecorded sounds. For example, a disc jockey uses disc records for scratching, and some 20th-century works have a solo for an instrument or voice that is performed along with music that is prerecorded onto a tape. Computers and many keyboards can be programmed to produce and play Musical Instrument Digital Interface (MIDI) music. Audiences can also become performers by participating in karaoke, an activity of Japanese origin centered on a device that plays voice-eliminated versions of well-known songs. Most karaoke machines also have video screens that show lyrics to songs being performed; performers can follow the lyrics as they sing over the instrumental tracks.

Internet

The advent of the Internet has transformed the experience of music, partly through the increased ease of access to music and the increased choice. Chris Anderson, in his book The Long Tail: Why the Future of Business is Selling Less of More, suggests that while the economic model of supply and demand describes scarcity, the Internet retail model is based on abundance. Digital storage costs are low, so a company can afford to make its whole inventory available online, giving customers as much choice as possible. It has thus become economically viable to offer products that very few people are interested in. Consumers' growing awareness of their increased choice results in a closer association between listening tastes and social identity, and the creation of thousands of niche markets.

Another effect of the Internet arises with online communities like YouTube and Facebook, a social networking service. Such sites simplify connecting with other musicians, and greatly facilitate the distribution of music. Professional musicians also use YouTube as a free publisher of promotional material. YouTube users, for example, no longer only download and listen to MP3s, but also actively create their own. According to Don Tapscott and Anthony D. Williams, in their book Wikinomics, there has been a shift from a traditional consumer role to what they

call a "prosumer" role, a consumer who both creates and consumes. Manifestations of this in music include the production of mashes, remixes, and music videos by fans.

Business

The music industry refers to the business industry connected with the creation and sale of music. It consists of record companies, labels and publishers that distribute recorded music products internationally and that often control the rights to those products. Some music labels are "independent," while others are subsidiaries of larger corporate entities or international media groups. In the 2000s, the increasing popularity of listening to music as digital music files on MP3 players, iPods, or computers, and of trading music on file sharing sites or buying it online in the form of digital files had a major impact on the traditional music business. Many smaller independent CD stores went out of business as music buyers decreased their purchases of CDs, and many labels had lower CD sales. Some companies did well with the change to a digital format, though, such as Apple's iTunes, an online store that sells digital files of songs over the Internet.

Chapter 9

Printmaking

Printmaking is the process of making artworks by printing, normally on paper. Printmaking normally covers only the process of creating prints with an element of originality, rather than just being a photographic reproduction of a painting. Except in the case of mono typing, the process is capable of producing multiples of the same piece, which is called a print. Each print produced is not considered a "copy" but rather is considered an "original". This is because typically each print varies to an extent due to variables intrinsic to the printmaking process, and also because the imagery of a print is typically not simply a reproduction of another work but rather is often a unique image designed from the start to be expressed in a particular printmaking technique. A print may be known as an impression. Printmaking (other than monotyping) is not chosen only for its ability to produce multiple impressions, but rather for the unique qualities that each of the printmaking processes lends itself to.

Prints are created by transferring ink from a matrix or through a prepared screen to a sheet of paper or other material. Common types of matrices include: metal plates, usually copper or zinc, or polymer plates for engraving or etching; stone, aluminum, or polymer for lithography; blocks of wood for woodcuts and wood engravings; and linoleum for linocuts. Screens made of silk or

synthetic fabrics are used for the screen printing process. Other types of matrix substrates and related processes are discussed below.

Multiple impressions printed from the same matrix form an edition. Since the late 19th century, artists have generally signed individual impressions from an edition and often number the impressions to form a limited edition; the matrix is then destroyed so that no more prints can be produced. Prints may also be printed in book form, such as illustrated books or artist's books.

Techniques

Overview

Printmaking techniques are generally divided into the following basic categories:

- Relief, where ink is applied to the original surface of the matrix. Relief techniques include woodcut or woodblock as the Asian forms are usually known, wood engraving, linocutand metal cut.

- Intaglio, where ink is applied beneath the original surface of the matrix. Intaglio techniques include engraving, etching, mezzotint, aquatint.

- Planographic, where the matrix retains its original surface, but is specially prepared and/or inked to allow for the transfer of the image. Planographic techniques include lithography, monotyping, and digital techniques.

- Stencil, where ink or paint is pressed through a prepared screen, including screen printing and pochoir.

Other types of printmaking techniques outside these groups include collagraphy, viscosity printing, and foil imaging. Collagraphy is a printmaking technique in which textured material is adhered to the printing matrix. This texture is transferred to the paper during the printing process. Contemporary printmaking may include digital printing, photographic mediums, or a combination of digital, photographic, and traditional processes.

Many of these techniques can also be combined, especially within the same family. For example Rembrandt's prints are usually referred to as "etchings" for convenience, but very often include work in engraving and drypoint as well, and sometimes have no etching at all.

Wood cut

Woodcut, a type of relief print, is the earliest printmaking technique, and the only one traditionally used in the Far East. It was probably first developed as a means of printing patterns on cloth, and by the 5th century was used in China for printing text and images on paper. Woodcuts of images on paper developed around 1400 in Europe, and slightly later in Japan. These are the two areas where woodcut has been most extensively used purely as a process for making images without text.

The artist draws a design on a plank of wood, or on paper which is transferred to the wood. Traditionally the artist then handed the work to a specialist cutter, who then uses sharp tools to carve away the parts of the block that will not receive ink. The surface of the block is then inked with the use of a brayer, and then a sheet of paper, perhaps slightly damp, is placed over the block. The block is then rubbed with a baren or spoon, or is run through a printing press. If in color, separate blocks can be used for each color, or a technique called reduction printing can be used.

Reduction printing is a name used to describe the process of using one block to print several layers of color on one print. This usually involves cutting a small amount of the block away, and then printing the block many times over on different sheets before washing the block, cutting more away and printing the next color on top. This allows the previous color to show through. This process can be repeated many times over. The advantages of this process is that only one block is needed, and that different components of an intricate design will line up perfectly. The disadvantage is that once the artist moves on to the next layer, no more prints can be made.

Another variation of woodcut printmaking is the cukil technique, made famous by the Taring Padi underground community in Java, Indonesia. Taring Padi Posters usually resemble intricately printed cartoon posters embedded with political messages. Images—usually resembling a visually complex scenario—are carved unto a wooden surface called cukilan, then smothered with printer's ink before pressing it unto media such as paper or canvas.

Engraving

The process was developed in Germany in the 1430s from the engraving used by goldsmiths to decorate metalwork. Engravers use a hardened steel tool called a burin to cut the design into the surface of a metal plate, traditionally made of copper. Engraving using a burin is generally a difficult skill to learn.

Gravers come in a variety of shapes and sizes that yield different line types. The burin produces a unique and recognizable quality of line that is characterized by its steady, deliberate appearance and clean edges. Other tools such as mezzotint rockers, roulettes (a tool with a fine-toothed wheel) and burnishers (a tool used for making an object smooth or shiny by rubbing) are used for texturing effects.

To make a print, the engraved plate is inked all over, then the ink is wiped off the surface, leaving only ink in the engraved lines. The plate is then put through a high-pressure printing press together with a sheet of paper (often moistened to soften it). The paper picks up the ink from the engraved lines, making a print. The process can be repeated many times; typically several hundred impressions (copies) could be printed before the printing plate shows much sign of wear, except when drypoint, which gives much shallower lines, is used.

In the 20th century, true engraving was revived as a serious art form by artists including Stanley William Hayter whose Studio 17 in Paris and New York City became the magnet for such artists as Pablo Picasso, Alberto Giacometti, Mauricio Lasansky and Joan Miró.

Etching

Etching is part of the intaglio family (along with engraving, drypoint, mezzotint, and aquatint.) The process is believed to have been invented by Daniel Hopfer (circa 1470-1536) of Augsburg, Germany, who decorated armour in this way, and applied the method to printmaking. Etching soon came to challenge engraving as the most popular printmaking medium. Its great advantage was that, unlike engraving which requires special skill in metalworking, etching is relatively easy to learn for an artist trained in drawing.

Etching prints are generally linear and often contain fine detail and contours. Lines can vary from smooth to sketchy. An etching is opposite of a woodcut in that the raised portions of an etching remain blank while the crevices hold ink. In pure etching, a metal (usually copper, zinc or steel) plate is covered with a waxy or acrylic ground. The artist then draws through the ground with a pointed etching needle. The exposed metal lines are then etched by dipping the plate in a bath of etchant (e.g. nitric acid or ferric chloride). The etchant "bites" into the exposed metal,

leaving behind lines in the plate. The remaining ground is then cleaned off the plate, and the printing process is then just the same as for engraving.

Artists using this technique include Albrecht Dürer, Rembrandt, Francisco Goya, Whistler, Otto Dix, James Ensor, Edward Hopper, Käthe Kollwitz, Pablo Picasso, Cy Twombly, Lucas van Leyden, Carlos Alvarado Lang.

Mezzotint

An intaglio variant of engraving in which the image is formed from subtle gradations of light and shade. Mezzotint—from the Italian mezzo ("half") and tinta ("tone")—is a "dark manner" form of printmaking, which requires artists to work from dark to light. To create a mezzotint, the surface of a copper printing plate is roughened evenly all over with the aid of a tool known as a rocker; the image is then formed by smoothing the surface with a tool known as a burnisher. When inked, the roughened areas of the plate will hold more ink and print more darkly, while smoother areas of the plate hold less or no ink, and will print more lightly or not at all. It is, however, possible to create the image by only roughening the plate selectively, so working from light to dark.

Mezzotint is known for the luxurious quality of its tones: first, because an evenly, finely roughened surface holds a lot of ink, allowing deep solid colors to be printed; secondly because the process of smoothing the texture with burin, burnisher and scraper allows fine gradations in tone to be developed.

The mezzotint printmaking method was invented by Ludwig von Siegen (1609–1680). The process was used widely in England from the mid-eighteenth century, to reproduce oil paintings and portraits.

Aquatint

A technique used in Intaglio etchings. Like etching, aquatint technique involves the application of acid to make marks in a metal plate. Where the etching technique uses a needle to make lines that retain ink, aquatint relies on powdered rosin which is acid resistant in the ground to create a tonal effect. The rosin is applied in a light dusting by a fan booth, the rosin is then cooked until set on the plate. At this time the rosin can be burnished or scratched out to affect its tonal

qualities. The tonal variation is controlled by the level of acid exposure over large areas, and thus the image is shaped by large sections at a time. Goya used aquatint for most of his prints.

Drypoint

A variant of engraving, done with a sharp point, rather than a v-shaped burin. While engraved lines are very smooth and hard-edged, drypoint scratching leaves a rough burr at the edges of each line. This burr gives drypoint prints a characteristically soft, and sometimes blurry, line quality. Because the pressure of printing quickly destroys the burr, drypoint is useful only for very small editions; as few as ten or twenty impressions. To counter this, and allow for longer print runs, electro-plating (here called steelfacing) has been used since the nineteenth century to harden the surface of a plate.

The technique appears to have been invented by the Housebook Master, a south German fifteenth-century artist, all of whose prints are in drypoint only. Among the most famous artists of the old master print: Albrecht Dürer produced 3 drypoints before abandoning the technique; Rembrandt used it frequently, but usually in conjunction with etching and engraving.

Lithography

Lithography is a technique invented in 1798 by Alois Senefelder and based on the chemical repulsion of oil and water. A porous surface, normally limestone, is used; the image is drawn on the limestone with a greasy medium. Acid is applied, transferring the grease to the limestone, leaving the image 'burned' into the surface. Gum arabic, a water soluble substance, is then applied, sealing the surface of the stone not covered with the drawing medium. The stone is wetted, with water staying only on the surface not covered in grease-based residue of the drawing; the stone is then 'rolled up', meaning oil ink is applied with a roller covering the entire surface; since water repels the oil in the ink, the ink adheres only to the greasy parts, perfectly inking the image. A sheet of dry paper is placed on the surface, and the image is transferred to the paper by the pressure of the printing press. Lithography is known for its ability to capture fine gradations in shading and very small detail.

A variant is photo-lithography, in which the image is captured by photographic processes on metal plates; printing is carried out in the same way.

Screenprinting

Screen printing (occasionally known as "silkscreen", or "serigraphy") creates prints by using a fabric stencil technique; ink is simply pushed through the stencil against the surface of the paper, most often with the aid of a squeegee. Generally, the technique uses a natural or synthetic 'mesh' fabric stretched tightly across a rectangular 'frame,' much like a stretched canvas. The fabric can be silk, nylon monofilament, multifilament polyester, or even stainless steel. While commercial screen printing often requires high-tech, mechanical apparatuses and calibrated materials, printmakers value it for the "Do It Yourself" approach, and the low technical requirements, high quality results. The essential tools required are a squeegee, a mesh fabric, a frame, and a stencil. Unlike many other printmaking processes, a printing press is not required, as screen printing is essentially stencil printing.

Screen printing may be adapted to printing on a variety of materials, from paper, cloth, and canvas to rubber, glass, and metal. Artists have used the technique to print on bottles, on slabs of granite, directly onto walls, and to reproduce images on textiles which would distort under pressure from printing presses.

Monotype

Monotyping is a type of printmaking made by drawing or painting on a smooth, non-absorbent surface. The surface, or matrix, was historically a copper etching plate, but in contemporary work it can vary from zinc or glass to acrylic glass. The image is then transferred onto a sheet of paper by pressing the two together, usually using a printing-press. Monotypes can also be created by inking an entire surface and then, using brushes or rags, removing ink to create a subtractive image, e.g. creating lights from a field of opaque color. The inks used may be oil based or water based. With oil based inks, the paper may be dry, in which case the image has more contrast, or the paper may be damp, in which case the image has a 10 percent greater range of tones.

Unlike monoprinting, monotyping produces a unique print, or monotype, because most of the ink is removed during the initial pressing. Although subsequent reprintings are sometimes possible, they differ greatly from the first print and are generally considered inferior. A second print from the original plate is called a "ghost print" or "cognate". Stencils, watercolor, solvents, brushes,

and other tools are often used to embellish a monotype print. Monotypes are often spontaneously executed and with no preliminary sketch.

Monotypes are the most painterly method among the printmaking techniques, a unique print that is essentially a printed painting. The principal characteristic of this medium is found in its spontaneity and its combination of printmaking, painting, and drawing media.

Monoprint

Monoprinting is a form of printmaking that uses a matrix such as a woodblock, litho stone, or copper plate, but produces impressions that are unique. Multiple unique impressions printed from a single matrix are sometimes known as a variable edition. There are many techniques used in monoprinting, including collagraph, collage, hand-painted additions, and a form of tracing by which thick ink is laid down on a table, paper is placed on the ink, and the back of the paper is drawn on, transferring the ink to the paper. Monoprints can also be made by altering the type, color, and viscosity of the ink used to create different prints. Traditional printmaking techniques, such as lithography, woodcut, and intaglio, can be used to make monoprints.

Digital prints

Digital prints refers to images printed using a digital printer instead of a traditional printing press. These images can be printed to a variety of substrates including paper, cloth, or plastic canvas. Accurate color reproduction and the type of ink used (see below) are key to distinguishing high quality from low quality digital prints. Metallics (silvers, golds) are particularly difficult to reproduce accurately because they reflect light back to digital scanners. High quality digital prints typically are reproduced with very high-resolution data files with very high-precision printers. The substrate used has an effect on the final colors and cannot be ignored when selecting a color palette.

Pigment-based vs dye-based inks

Unlike pigment, dyes dissolve when mixed into a liquid. Dyes are organic (not mineral). Although most are synthetic, derived from petroleum, they can be made from vegetable or animal sources. Dyes are well suited for textiles where the liquid dye penetrates and chemically bonds to the fiber. Because of the deep penetration, more layers of material must lose their color

before the fading is apparent. Dyes, however, are not suitable for the relatively thin layers of ink laid out on the surface of a print.

Pigment is a finely ground, particulate substance which, when mixed or ground into a liquid to make ink or paint, does not dissolve, but remains dispersed or suspended in the liquid. Pigments are categorized as either inorganic (mineral) or organic (synthetic).

A pigment, such as red iron oxide (rust) is simply an oxidized form of iron. One could leave iron, lead, or gold in the sun for a million years and they would never change color or change into another substance In contrast, man-made synthetic and vegetable water-soluble dyes can fade rapidly, often within one to six months.

Giclée

Giclée (pron.: /ʒi□ □ klɐ/ zhee-KLAY or /dʒi□ □ klɐ/), is a neologism coined in 1991 by printmaker Jack Duganne for digital prints made on inkjet printers. It is based on the French word gicleur, which means "nozzle". Today fine art prints produced on ink-jet machines using the CcMmYK color model are generally called "Giclée".

Foil imaging

In art, foil imaging is a printmaking technique made using the Iowa Foil Printer, developed by Virginia A. Myers from the commercial foil stamping process. This uses gold leaf and acrylic foil in the printmaking process.

Color

Printmakers apply color to their prints in many different ways. Often color in printmaking that involves etching, screen printing, woodcut, or linocut is applied by either using separate plates,

blocks or screens or by using a reductionist approach. In multiple plate color techniques, a number of plates, screens or blocks are produced, each providing a different color. Each separate plate, screen, or block will be inked up in a different color and applied in a particular sequence to produce the entire picture. On average about 3 to 4 plates are produced, but there are occasions where a printmaker may use up to seven plates. Every application of another plate of color will interact with the color already applied to the paper, and this must be kept in mind when producing the separation of colors. The lightest colors are often applied first, and then darker colors successively until the darkest.

The reductionist approach to producing color is to start with a lino or wood block that is either blank or with a simple etching. Upon each printing of color the printmaker will then further cut into the lino or woodblock removing more material and then apply another color and reprint. Each successive removal of lino or wood from the block will expose the already printed color to the viewer of the print. Picasso is often cited as the inventor of reduction printmaking, although there is evidence of this method in use 25 years before Picasso's linocuts.

The subtractive color concept is also used in offset or digital print and is present in bitmap or vectorial software in CMYK or other color spaces.

Registration

In printmaking processes requiring more than one application of ink or other medium, the problem exists as to how to line up properly areas of an image to receive ink in each application. The most obvious example of this would be a multi-color image in which each color is applied in a separate step. The lining up of the results of each step in a multistep printmaking process is called "registration." Proper registration results in the various components of an image being in their proper place. But, for artistic reasons, improper registration is not necessarily the ruination of an image.

This can vary considerably from process to process. It generally involves placing the substrate, generally paper, in correct alignment with the printmaking element that will be supplying it with coloration.

Protective printmaking equipment

Protective clothing is very important for printmakers who engage in etching and lithography (closed toed shoes and long pants). In the past, many printmakers did not live far past 35 to 40 years of age because of their exposure to various acids, solvents, particles, and vapors inherent in the printmaking process.

Whereas in the past printmakers put their plates in and out of acid baths with their bare hands, today printmakers use rubber gloves. They also wear industrial respirators for protection from caustic vapors. Most acid baths are built with ventilation hoods above them.

Often, an emergency cold shower or eye wash station is nearby in case of acid spillages, as well as soda ash—which neutralizes most acids. Some printmakers wear goggles when dealing with acid.

Protective respirators and masks should have particle filters, particularly for aquatinting. As a part of the aquatinting process, a printmaker is often exposed to rosin powder. Rosin is a serious health hazard, especially to printmakers who, in the past, simply used to hold their breath using an aquatinting booth.

Barrier cream is often used upon a printmaker's hands both when putting them inside the protective gloves and if using their hands to wipe plates (wipe ink into the grooves of the plate and remove excess).

Sterile plasters and bandages should always be available to treat cuts and scrapes. For example, zinc plates can be extremely sharp when their edges are not beveled.

Chapter 10

Calligraphy

Calligraphy (from Ancient Greek: κάλλος kallos "beauty" and γραφή graphẽ"writing") is a visual art related to writing. It is the design and execution of lettering with a broad tip instrument or brush in one stroke (as opposed to built up lettering, in which the letters are drawn). A contemporary definition of calligraphic practice is "the art of giving form to signs in an expressive, harmonious, and skillful manner".

Modern calligraphy ranges from functional inscriptions and designs to fine-art pieces where the letters may or may not be legible. Classical calligraphy differs from typography and non-classical hand-lettering, though a calligrapher may practice both.

Calligraphy continues to flourish in the forms of wedding and event invitations, font design and typography, original hand-lettered logo design, religious art, announcements, graphic design and commissioned calligraphic art, cut stone inscriptions, and memorial documents. It is also used for props and moving images for film and television, testimonials, birth and death certificates, maps, and other works involving writing. Some of the finest works of modern calligraphy are charters and letters patent issued by monarchs and officers of state in various countries.

Western

Modern Western calligraphy

Tools

A calligraphic pen head, with parts names.

The principal tools for a calligrapher are the pen, which may be flat-balled or round-nibbed, and the brush. For some decorative purposes, multi-nibbed pens—steel brushes—can be used. However, works have also been made with felt-tip and ballpoint pens, although these works do not employ angled lines.

Ink for writing is usually water-based and much less viscous than the oil-based inks used in printing. High quality paper, which has good consistency of porosity, will enable cleaner lines, although parchment or vellum is often used, as a knife can be used to erase work and a light box is not needed to allow lines to pass through it. Normally, light boxes and templates are used to achieve straight lines without pencil markings detracting from the work. Ruled paper, either for a light box or direct use, is most often ruled every quarter or half inch, although inch spaces are occasionally used, such as with litterea unciales (hence the name), and college-ruled paper often acts as a guideline well.

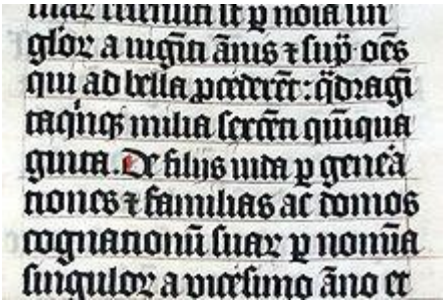
Style

Sacred Western calligraphy has some special features, such as the illumination of the first letter of each book or chapter in medieval times. A decorative "carpet page" may precede the literature, filled with ornate, geometrical depictions of bold-hued animals. The Lindisfarne Gospels (715–720 AD) are an early example.

As with Chinese or Arabic calligraphy, Western calligraphic script had strict rules and shapes. Quality writing had a rhythm and regularity to the letters, with a "geometrical" order of the lines on the page. Each character had, and often still has, a precise stroke order.

Unlike a typeface, irregularity in the characters' size, style, and colors increases aesthetic value, though the content may be illegible. Many of the themes and variations of today's contemporary Western calligraphy are found in the pages of The Saint John's Bible. A particularly modern example is Timothy Botts' illustrated edition of the Bible, with 360 calligraphic images as well as a calligraphy typeface.

History



Calligraphy in a Latin Bible of 1407 on display in Malmesbury Abbey, Wiltshire, England. This bible was hand written in Belgium, by Gerard Brils, for reading aloud in a monastery.

The Georgian calligraphy is centuries-old tradition of an artistic writing of the Georgian language with its three alphabets.

Western calligraphy is recognizable by the use of the Latin script. The Latin alphabet appeared about 600 BC, in Rome, and by the first century developed into Roman imperial capitals carved on stones, Rustic capitals painted on walls, and Roman cursive for daily use. In the second and third centuries the uncial lettering style developed. As writing withdrew to monasteries, uncial script was found more suitable for copying the Bible and other religious texts. It was the monasteries which preserved calligraphic traditions during the fourth and fifth centuries, when the Roman Empire fell and Europe entered the Dark Ages.

At the height of the Roman Empire, its power reached as far as Great Britain; when the empire fell, its literary influence remained. The Semi-uncial generated the Irish Semi-uncial, the small

Anglo-Saxon. Each region developed its own standards following the main monastery of the region (i.e. Merovingian script, Laon script, Luxeuil script, Visigothic script, Beneventan script), which are mostly cursive and hardly readable.

The rising Carolingian Dynasty Empire encouraged a new standardized script, which was developed by several famous monasteries (including Corbie Abbey and Beauvais) around the eighth century. The script from Saint Martin of Tours was ultimately set as the Imperial standard, named the Carolingian script (or "the Caroline"). From the powerful Carolingian Empire, this standard also became used in neighboring kingdoms.

In the eleventh century, the Caroline evolved into the Gothic script, which was more compact and made it possible to fit more text on a page. The Gothic calligraphy styles became dominant throughout Europe; and in 1454, when Johannes Gutenberg developed the first printing press in Mainz, Germany, he adopted the Gothic style, making it the first typeface.

In the 15th century, the rediscovery of old Carolingian texts encouraged the creation of the humanist minuscule or littera antiqua. The 17th century saw the Batarde script from France, and the 18th century saw the English script spread across Europe and world through their books.

Contemporary typefaces used by computers, from word processors like Microsoft Word or Apple Pages to professional designers' software like Adobe In Design, owe a considerable debt to the past and to a small number of professional typeface designers today.

Influences

Several other Western styles use the same tools and practices, but differ by character set and stylistic preferences. For Slavonic lettering, the history of the Slavonic and consequently Russian writing systemsdiffers fundamentally from the one of the Latin language. It evolved from the 10th century to today.

East Asian

On Calligraphy by Mi Fu, Song Dynasty

The Chinese name for calligraphy is shūfǎ (書法 in Taiwanese, literally "the method or law of writing"); the Japanese nameshodō (書道, literally "the way or principle of writing"); the Korean is seoye (Korean: 서예, literally "the art of writing"); and the Vietnamese is Thư pháp (書法, literally "the way of letters or words"). The calligraphy of East Asian characters is an important and appreciated aspect of East Asian culture.

Technique

Traditional East Asian writing uses the Four Treasures of the Study (文房四寶 in Taiwanese and 文房四宝 in Cantonese): the ink brushes to write Chinese characters, Chinese ink, paper, and inkstone, known as the Four Friends of the Study (Korean: 문방사우) in Korea. In addition to these four tools, desk pads and paperweights are also used.

The shape, size, stretch, and hair type of the ink brush, the color, color density and water density of the ink, as well as the paper's water absorption speed and surface texture are the main physical parameters influencing the final result. The calligrapher also influences the result by the quantity of ink and water he lets the brush take, then by the pressure, inclination, and direction he gives to the brush, producing thinner or bolder strokes, and smooth or toothed borders. Eventually, the speed, accelerations, decelerations of the writer's moves, turns, and crochets, and the stroke order give the "spirit" to the characters, by influencing greatly their final shapes.

History

A Vietnamese calligrapher writing inHán-Nôm in preparation for Tết, at theTemple of Literature, Hanoi (2011)

China

In ancient China, the oldest Chinese characters existing are Jiǎgǔwén characters carved on ox scapulae and tortoise plastrons, because the dominators in Shang Dynasty carved pits on such animalss' bones and then baked them to gain auspice of military affairs, agricultural harvest, or even procreating and weather. During the divination ceremony, after the cracks were made, the characters were written with a brush on the shell or bone to be later carved.(Keightley, 1978). With the development of Jīnwén (Bronzeware script) and Dàzhuàn (Large Seal Script) "cursive" signs continued. Moreover, each archaic kingdom of current China had its own set of characters.

In Imperial China, the graphs on old steles — some dating from 200 BC, and in Xiaozhuan style — are still accessible.

About 220 BC, the emperor Qin Shi Huang, the first to conquer the entire Chinese basin, imposed several reforms, among them Li Si's character unification, which created a set of 3300 standardized Xiǎozhuàn characters. Despite the fact that the main writing implement of the time

was already the brush, few papers survive from this period, and the main examples of this style are on steles.

The Lìshū style (clerical script) which is more regularized, and in some ways similar to modern text, have been also authorised under Qin Shi Huangdi.

Kǎishū style (traditional regular script) — still in use today — and attributed to Wang Xizhi (王羲之, 303–361) and his followers, is even more regularized. Its spread was encouraged by Emperor Mingzong of Later Tang (926–933), who ordered the printing of the classics using new wooden blocks in Kaishu. Printing technologies here allowed a shape stabilization. The Kaishu shape of characters 1000 years ago was mostly similar to that at the end of Imperial China. But small changes have be made, for example in the shape of 广 which is not absolutely the same in the Kangxi Dictionary of 1716 as in modern books. The Kangxi and current shapes have tiny differences, while stroke order is still the same, according to old style.

Styles which did not survive include Bāfēnshū, a mix made of Xiaozhuan style at 80%, and Lishu at 20%. Some variant Chinese characters were unorthodox or locally used for centuries. They were generally understood but always rejected in official texts. Some of these unorthodox variants, in addition to some newly created characters, compose the Simplified Chinese character set.

Styles

Cursive styles such as xíngshū (semi-cursive or running script) and cǎoshū (cursive or grass script) are less constrained and faster, where more movements made by the writing implement are visible. These styles' stroke orders vary more, sometimes creating radically different forms. They are descended from Clerical script, in the same time as Regular script (Han Dynasty), but xíngshū and cǎoshū were used for personal notes only, and never used as a standard. The cǎoshū style was highly appreciated in Emperor Wu of Hanreign (140–187 AD).

Examples of modern printed styles are Song from the Song Dynasty's printing press, and sans-serif. These are not considered traditional styles, and are normally not written.

Influences

Japanese calligraphy, the word "peace" and the signature of the Meiji period calligrapher Ōura Kanetake, 1910

Japanese and Korean people developed specific sensibilities and styles of calligraphy. For example, Japanese calligraphygo out of the set of CJK strokes to also include local alphabets such as hiragana and katakana, with specific problematics such as new curves and moves, and specific materials (Japanese paper, washi 和紙, and Japanese ink). In the case of Korean calligraphy, the Hangeul and the existence of the circle required the creation of a new technique which usually confuses Chinese calligraphers.

Temporary calligraphy is a practice of water-only calligraphy on the floor, which dries out within minutes. This practice is especially appreciated by the new generation of retired Chinese in public parks of China. These will often open studio-shops in tourist towns offering traditional Chinese calligraphy to tourists. Other than writing the clients name, they also sell fine brushes as souvenirs and lime stone carved stamps.

Since late 1980s, a few Chinese artists have branched out traditional Chinese calligraphy to a new territory by mingling Chinese characters with English letters; notable new forms of calligraphy are Xu Bing's square calligraphy and DanNie's coolligraphy or cooligrapgy.

Mongolian calligraphy is also influenced by Chinese calligraphy, from tools to style.

Calligraphy has influenced ink and wash painting, which is accomplished using similar tools and techniques. Calligraphy has influenced most major art styles in East Asia, including ink and wash painting, a style of Chinese, Korean, Taiwanese, Japanese painting, and Vietnamese painting based entirely on calligraphy.

South Asian

Indian

A Calligraphic design in Oriya script

Aśoka's edicts (c. 265–238 BC) were committed to stone. These inscriptions are stiff and angular in form. Following the Aśoka style of Indic writing, two new calligraphic types appear: Kharoṣṭī and Brāhmī. Kharoṣṭī was used in the northwestern regions of India from the 3rd century BC to the 4th century of the Christian Era, and it was used in Central Asia until the 8th century.

In many parts of ancient India, the inscriptions were carried out in smoke-treated palm leaves. This tradition dates back to over two thousand years. Even after the Indian languages were put on paper in the 13th century, palm leaves where considered a preferred medium of writing owing to its longevity (nearly 400 years) compared to paper. Both sides of the leaves were used for writing. Long rectangular strips were gathered on top of one another, holes were drilled through all the leaves, and the book was held together by string. Books of this manufacture were common to Southeast Asia. The palm leaf was an excellent surface for pen writing, making possible the delicate lettering used in many of the scripts of southern Asia.

Burnt clay and copper were a favoured material for Indic inscriptions. In the north of India, birch bark was used as a writing surface as early as the 2nd century AD.

Nepalese

Ranjana script is the primary form of Nepalese calligraphy. The script itself, along with its derivatives (like Lantsa, Phagpa, Kutila) are used in Nepal, Tibet, Bhutan, Leh, Mongolia, coastal China, Japan, and Korea to write "Om mani padme hum" and other sacred Buddhist texts, mainly those derived from Sanskrit and Pali.

Thai

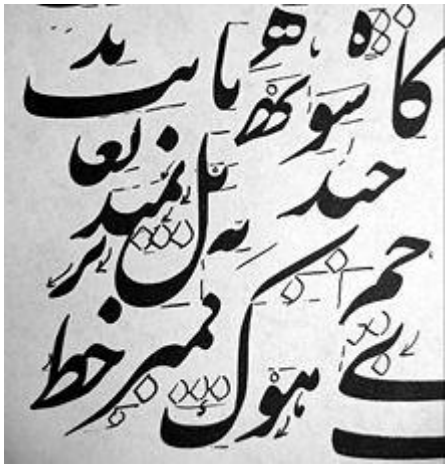
Sanskrit is the primary form of Thai calligraphy. Historically Thai calligraphy has been limited to sacred texts of the Pali Canon with few wider artistic applications where graphic calligraphy representing figures and objects is produced. Calligraphy appears on the personal flag of each member of the Thai royal family bearing its owner's initials in calligraphy. The most obvious place in the country where calligraphy is present in graffiti. A few books have been published with calligraphic compositions.

Tibetan calligraphy

A Bön text

Calligraphy is central in Tibetan culture. The script is derived from Indic scripts. The nobles of Tibet, such as the High Lamas and inhabitants of the Potala Palace, were usually capable calligraphers. Tibet has been a center of Buddhism for several centuries, and that religion places a great deal of significance on written word. This does not provide for a large body of secular pieces, although they do exist (but are usually related in some way to Tibetan Buddhism). Almost all high religious writing involved calligraphy, including letters sent by the Dalai Lama and other religious and secular authority. Calligraphy is particularly evident on their prayer wheels, although this calligraphy was forged rather than scribed, much like Arab and Roman calligraphy is often found on buildings. Although originally done with a reed, Tibetan calligraphers now use chisel tipped pens and markers as well.

Islamic



A page of a 12th-century Qur'anwritten in the al-Andalus script

Islamic calligraphy (calligraphy in Arabic is khatt ul-yad خط يد الـ) has evolved alongside Islam and the Arabic language. As it is based on Arabic letters, some call it "Arabic calligraphy". However the term "Islamic calligraphy" is a more appropriate term as it comprises all works of calligraphy by the Muslim calligraphers from Andalusia in modern Spain to China.

Islamic calligraphy is associated with geometric Islamic art (arabesque) on the walls and ceilings of mosques as well as on the page. Contemporary artists in the Islamic world draw on the heritage of calligraphy to use calligraphic inscriptions or abstractions.

Instead of recalling something related to the spoken word, calligraphy for Muslims is a visible expression of the highest art of all, the art of the spiritual world. Calligraphy has arguably become the most venerated form of Islamic art because it provides a link between the languages of the Muslims with the religion of Islam. The Qur'an has played an important role in the development and evolution of the Arabic language, and by extension, calligraphy in the Arabic alphabet. Proverbs and passages from the Qur'an are still sources for Islamic calligraphy.

It is generally accepted that Islamic calligraphy excelled during the Ottoman era. Turkish calligraphers still present the most refined and creative works. Istanbul is an open exhibition hall for all kinds and varieties of calligraphy, from inscriptions in mosques to fountains, schools, houses, etc.

Persian

Example showing Nastaliq's proportional rules

The history of calligraphy in Persia dates back to the pre-Islam era. In Zoroastrianism beautiful and clear writings were always praised.

It is believed that ancient Persian script was invented by about 600–500 BC to provide monument inscriptions for theAchaemenid kings. These scripts consisted of horizontal, vertical, and diagonal nail-shape letters, which is why it is called "script of nails/cuneiform script" (khat-e-mikhi) inPersian. Centuries later, other scripts such as "Pahlavi" and "Avestan" scripts were used in ancient Persia.

After the Arab conquest in the 7th century, Persians adapted the Arabic alphabet to fit the Persian language, which developed into the modern Persian alphabet. The Arabic alphabet has 28 characters, to which Iranians added another four letters to account for sounds and letters in Persian that do not exist in Arabic.

Contemporary scripts

Nasta'liq is the most popular contemporary style among classical Persian calligraphy scripts; Persian calligraphers call it the "bride of calligraphy scripts". This calligraphy style has been based on such a strong structure that it has changed very little since. Mir Ali Tabrizi had found the optimum composition of the letters and graphical rules so it has just been fine-tuned during

the past seven centuries. It has very strict rules for graphical shape of the letters and for combination of the letters, words, and composition of the whole calligraphy piece.

Mayan

Mayan calligraphy was expressed via Mayan hieroglyphs; modern Mayan calligraphy is mainly used on seals and monuments in the Yucatán Peninsula in Mexico. Mayan hieroglyphs are rarely used in government offices; however in Campeche, Yucatán and Quintana Roo, Mayan calligraphy is written in Latin letters. Some commercial companies in southern Mexico use Mayan hieroglyphs as symbols of their business. Some community associations and modern Mayan brotherhoods use Mayan hieroglyphs as symbols of their groups.

Most of the archaeological sites in Mexico such as Chichen Itza, Labna, Uxmal, Edzna, Calakmul, etc. have glyphs in their structures. Stone carved monuments also known as stele are a common sources of ancient Mayan calligraphy.

Chapter 11

Sculpture

Michelangelo's Moses, (c. 1513–1515), housed in the church of San Pietro in Vincoli in Rome. The sculpture was commissioned in 1505 by Pope Julius II for his tomb.

The Angel of the North by Antony Gormley, 1998

Sculpture is the branch of the visual arts that operates in three dimensions and one of the plastic arts. Durable sculptural processes originally used carving (the removal of material) and modelling (the addition of material, as clay), in stone, metal, ceramics, wood and other materials but, since modernism, shifts in sculptural process led to an almost complete freedom of materials

and process. A wide variety of materials may be worked by removal such as carving, assembled by welding or modelling, or molded, or cast.

Sculpture in stone survives far better than works of art in perishable materials, and often represents the majority of the surviving works (other than pottery) from ancient cultures, though conversely traditions of sculpture in wood may have vanished almost entirely. However, most ancient sculpture was brightly painted, and this has been lost.

Sculpture has been central in religious devotion in many cultures, and until recent centuries large sculptures, too expensive for private individuals to create, were usually an expression of religion or politics. Those cultures whose sculptures have survived in quantities include the cultures of the Ancient Mediterranean, India and China, as well as many in South America and Africa.

The Western tradition of sculpture began in Ancient Greece, and Greece is widely seen as producing great masterpieces in the classical period. During the Middle Ages, Gothic sculpture represented the agonies and passions of the Christian faith. The revival of classical models in the Renaissance produced famous sculptures such as Michelangelo's David. Modernist sculpture moved away from traditional processes and the emphasis on the depiction of the human body, with the making of constructed sculpture, and the presentation of found objects as finished art works.

Types of sculpture

A basic distinction is between sculpture in the round, free-standing sculpture, such as statues, not attached (except possibly at the base) to any other surface, and the various types of relief, which are at least partly attached to a background surface. Relief is often classified by the degree of projection from the wall into low or bas-relief, high relief, and sometimes an intermediate mid-relief. Sunk-relief is a technique restricted to Ancient Egypt. Relief is the usual sculptural medium for large figure groups and narrative subjects, which are difficult to accomplish in the round, and is the typical technique used both for architectural sculpture, which is attached to buildings, and for small-scale sculpture decorating other objects, as in much pottery, metalwork and jewellery. Reliefs may also decorate steles, upright slabs, usually of stone, which contain sculpture or sometimes just inscriptions.

Another basic distinction is between subtractive carving techniques, which remove material from an existing block or lump, for example of stone, and modelling techniques which shape or build up the work from the material. Techniques such as casting, stamping and moulding use an intermediate matrix containing the design to produce the work; many of these allow the production of several copies.

Sculpture is often used mainly to describe large works, which are sometimes called monumental sculpture, meaning either or both of sculpture that is large, or that is attached to a building. But the term properly covers many types of small works in three dimensions using the same techniques, including coins and medals, hardstone carvings, a term for small carvings in stone that can take detailed work.

The very large or "colossal" statue has had an enduring appeal since antiquity; the largest on record at 128 m (420 ft) is the 2002 Chinese Spring Temple Buddha. Another grand form of portrait sculpture is the equestrian statue of a rider on horse, which has become rare in recent decades. The smallest forms of life-size portrait sculpture are the "head", showing just that, or the bust, a representation of a person from the chest up. Small forms of sculpture include the figurine, normally a statue that is no more than 18 inches tall, and for reliefs the plaquette, medal or coin.

Modern and contemporary art have added a number of non-traditional forms of sculpture, including: Sound sculpture, Light sculpture, Environmental art, Environmental sculpture, Kinetic sculpture, involving aspects of physical motion, Land art and Site-specific art. Sculpture is an important form of public art. A collection of sculpture in a garden setting can be called a sculpture garden.

Purposes and subjects

Moai from Easter Island, where the concentration of resources on large sculpture may have had serious political effects.

One of the most common purposes of sculpture is in some form of association with religion. Cult images are common in many cultures, though they are often not the colossal statues of the deity that characterized Ancient Greek art, like the Statue of Zeus at Olympia; the actual cult images in the innermost sanctuaries of Egyptian temples, of which none have survived, were evidently rather small, even in the largest temples. The same is often true in Hinduism where the very simple and ancient form of the lingam is the most common. Buddhism brought the sculpture of religious figures to East Asia, where there seems to have been no earlier equivalent tradition, though again simple shapes like the bi and cong probably had religious significance.

Small sculptures as personal possessions go back to the earliest prehistoric art, and the use of very large sculpture as public art, especially to impress the viewer with the power of a ruler, goes back at least to the Great Sphinx of some 4,500 years ago. In archaeology and art history the appearance, and sometimes disappearance, of large or monumental sculpture in a culture is regarded as of great significance, though tracing the emergence is often complicated by the presumed existence of sculpture in wood and other perishable materials of which no record remains; the totem pole is an example of a tradition of monumental sculpture in wood that would leave no traces for archaeology. The ability to summon the resources to create monumental

sculpture, by transporting usually very heavy materials and arranging for the payment of what are usually regarded as full-time sculptors, is considered a mark of a relatively advanced culture in terms of social organization. Recent unexpected discoveries of Ancient Chinese bronze age figures at Sanxingdui, some more than twice human size, have disturbed many ideas held about early Chinese civilization, since only much smaller bronzes were previously known. Some undoubtedly advanced cultures, such as the Indus Valley civilization, appear to have had no monumental sculpture at all, though producing very sophisticated figurines and seals. The Mississippian culture seems to have been progressing towards its use, with small stone figures, when it collapsed. Other cultures, such as Ancient Egypt and the Easter Island culture, seem to have devoted enormous resources to very large-scale monumental sculpture from a very early stage.

Medal of John VIII Palaeologus, c. 1435, by Pisanello, the first portrait medal, a medium essentially made for collecting.

The collecting of sculpture, including that of earlier periods, goes back some 2,000 years in Greece, China and Mesoamerica, and many collections were available on semi-public display long before the modern museum was invented. From the 20th century the relatively restricted range of subjects found in large sculpture expanded greatly, with abstract subjects and the use or

representation of any type of subject now common. Today much sculpture is made for intermittent display in galleries and museums, and the ability to transport and store the increasingly large works is a factor in their construction. Small decorative figurines, most often in ceramics, are as popular today (though strangely neglected by modern and Contemporary art) as they were in the Rococo, or in Ancient Greece when Tanagra figurines were a major industry, or in East Asian and Pre-Columbian art. Small sculpted fittings for furniture and other objects go well back into antiquity, as in the Nimrud ivories, Begram ivories and finds from the tomb of Tutankhamun.

Portrait sculpture began in Egypt, where the Narmer Palette shows a ruler of the 32nd century BCE, and Mespotamia, where we have 27 surviving statues of Gudea, who ruled Lagash c. 2144 – 2124 BCE. In Ancient Greece and Rome the erection of a portrait statue in a public place was almost the highest mark of honour, and the ambition of the elite, who might also be depicted on a coin,[4] In other cultures such as Egypt and the Near East public statues were almost exclusively the preserve of the ruler, with other wealthy people only being portrayed in their tombs. Rulers are typically the only people given portraits in Pre-Columbian cultures, beginning with the Olmec colossal heads of about 3,000 years ago. East Asian portrait sculpture was entirely religious, with leading clergy being commemorated with statues, especially the founders of monasteries, but not rulers, or ancestors. The Mediterranean tradition revived, initially only for tomb effigies and coins, in the Middle Ages, but expanded greatly in the Renaissance, which invented new forms such as the personal portrait medal.

Animals are, with the human figure, the earliest subject for sculpture, and have always been popular, sometimes realistic, but often imaginary monsters; in China animals and monsters are almost the only traditional subjects for stone sculpture outside tombs and temples. The kingdom of plants is important only in jewellery and decorative reliefs, but these form almost all the large sculpture of Byzantine art and Islamic art, and are very important in most Eurasian traditions, where motifs such as the palmette and vine scroll have passed east and west for over two millennia.

One form of sculpture found in many prehistoric cultures around the world is specially enlarged versions of ordinary tools, weapons or vessels created in impractical precious materials, for either some form of ceremonial use or display or as offerings. Jade or other types of greenstone

were used in China, Olmec Mexico, and Neolithic Europe, and in early Mesopotamia large pottery shapes were produced in stone. Bronze was used in Europe and China for large axes and blades, like the Oxborough Dirk.

Materials and techniques

Sumerian male worshiper, Alabaster with shell eyes, 2750−2600 B.C.

The materials used in sculpture are diverse, changing throughout history. The classic materials, with outstanding durability, are metal, especially bronze, stone and pottery, with wood, bone and antler less durable but cheaper options. Precious materials such as gold, silver, jade, and ivory are often used for small luxury works, and sometimes in larger ones, as in chryselephantine statues. More common and less expensive materials were used for sculpture for wider consumption, including hardwoods (such as oak, box/boxwood, and lime/linden); terracotta and other ceramics, wax (a very common material for models for casting, and receiving the impressions of cylinder seals and engraved gems), and cast metals such as pewter and zinc (spelter). But a vast number of other materials have been used as part of sculptures, in ethnographic and ancient works as much as modern ones.

Sculptures are often painted, but commonly lose their paint to time, or restorers. Many different painting techniques have been used in making sculpture, including tempera, oil painting, gilding, house paint, aerosol, enamel and sandblasting.

Many sculptors seek new ways and materials to make art. One of Pablo Picasso's most famous sculptures included bicycle parts. Alexander Calder and other modernists made spectacular use of painted steel. Since the 1960s, acrylics and other plastics have been used as well. Andy Goldsworthy makes his unusually ephemeral sculptures from almost entirely natural materials in natural settings. Some sculpture, such as ice sculpture, sand sculpture, and gas sculpture, is deliberately short-lived. Recent sculptors have used stained glass, tools, machine parts, hardware and consumer packaging to fashion their works. Sculptors sometimes use found objects, and Chinese scholars' rocks have been appreciated for many centuries.

Stone

Stone sculpture is an ancient activity where pieces of rough natural stone are shaped by the controlled removal of stone. Owing to the permanence of the material, evidence can be found that even the earliest societies indulged in some form of stone work, though not all areas of the world have such abundance of good stone for carving as Egypt, Greece, India and most of Europe. Petroglyphs (also called rock engravings) are perhaps the earliest form: images created by removing part of a rock surface which remains in situ, by incising, pecking, carving, and abrading. Monumental sculpture covers large works, and architectural sculpture, which is attached to buildings. Hardstone carving is the carving for artistic purposes of semi-precious stones such as jade, agate, onyx, rock crystal, sard or carnelian, and a general term for an object made in this way. Alabaster or mineral gypsum is a soft mineral that is easy to carve for smaller works and still relatively durable. Engraved gems are small carved gems, including cameos, originally used as seal rings.

The copying of an original statue in stone, which was very important for Ancient Greek statues, which are nearly all known from copies, was traditionally achieved by "pointing", along with more freehand methods. Pointing involved setting up a grid of string squares on a wooden frame surrounding the original, and then measuring the position on the grid and the distance between

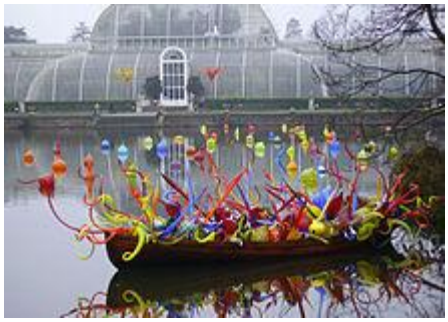
grid and statue of a series of individual points, and then using this information to carve into the block from which the copy is made.

Metal

Bronze and related copper alloys are the oldest and still the most popular metals for cast metal sculptures; a cast bronze sculpture is often called simply a "bronze". Common bronze alloys have the unusual and desirable property of expanding slightly just before they set, thus filling the finest details of a mold. Their strength and lack of brittleness (ductility) is an advantage when figures in action are to be created, especially when compared to various ceramic or stone materials (see marble sculpture for several examples). Gold is the softest and most precious metal, and very important in jewellery; with silver it is soft enough to be worked with hammers and other tools as well as cast; repoussé and chasing are among the techniques used in gold and silversmithing.

Casting is a group of manufacturing processes by which a liquid material (bronze, copper, glass, aluminum, iron) is (usually) poured into a mold, which contains a hollow cavity of the desired shape, and then allowed to solidify. The solid casting is then ejected or broken out to complete the process, although a final stage of "cold work" may follow on the finished cast. Casting may be used to form hot liquid metals or various materials that cold set after mixing of components (such as epoxies, concrete, plaster and clay). Casting is most often used for making complex shapes that would be otherwise difficult or uneconomical to make by other methods. The oldest surviving casting is a copper Mesopotamian frog from 3200 BC. Specific techniques include lost-wax casting, plaster mold casting and sand casting.

Glass



Dale Chihuly, 2006, (Blown glass)

Glass may be used for sculpture through a wide range of working techniques, though the use of it for large works is a recent development. It can be carved, with considerable difficulty; the Roman Lycurgus Cup is all but unique. Hot casting can be done by ladling molten glass into molds that have been created by pressing shapes into sand, carved graphite or detailed plaster/silica molds. Kiln casting glass involves heating chunks of glass in a kiln until they are liquid and flow into a waiting mold below it in the kiln. Glass can also be blown and/or hot sculpted with hand tools either as a solid mass or as part of a blown object.

A carved wooden Bodhisattva from theSong Dynasty 960–1279, Shanghai Museum

Pottery

Pottery is one of the oldest materials for sculpture, as well as clay being the medium in which many sculptures cast in metal are originally modelled for casting. Sculptors often build small preliminary works called maquettes of ephemeral materials such as plaster of Paris, wax, unfired clay, or plasticine. Many cultures have produced pottery which combines a function as a vessel with a sculptural form, and small figurines have often been as popular as they are in modern Western culture. Stamps and moulds were used by most ancient civilizations, from Ancient Rome and Mesopotamia to China.

Wood carving

Wood carving has been extremely widely practiced, but survives much less well than the other main materials, being vulnerable to decay, insect damage, and fire. It therefore forms an important hidden element in the art history of many cultures. Outdoor wood sculpture does not last long in most parts of the world, so that we have little idea how the totem pole tradition developed. Many of the most important sculptures of China and Japan in particular are in wood, and the great majority of African sculpture and that of Oceania and other regions. Wood is light, so suitable for masks and other sculpture intended to be carried, and can take very fine detail. It is also much easier to work than stone.

Social status of sculptors

Nuremberg sculptor Adam Kraft, self-portrait from St Lorenz Church, 1490s.

Worldwide, sculptors have usually been tradesmen whose work is unsigned; in some traditions, for example China, where sculpture did not share the prestige of literati painting, this has affected the status of sculpture itself. Even in Ancient Greece, where sculptors such as Phidias became famous, they appear to have retained much the same social status as other artisans, and perhaps not much greater financial rewards, although some signed their works. In the Middle Agesartists such as the 12th century Gislebertus sometimes signed their work, and were sought after by different cities, especially from theTrecento onwards in Italy, with figures such as Arnolfo di Cambio, and Nicola Pisano and his son Giovanni. Goldsmiths and jewellers, dealing

with precious materials and often doubling as bankers, belonged to powerful guilds and had considerable status, often holding civic office. Many sculptors also practised in other arts; Andrea del Verrocchio also painted, and Giovanni Pisano, Michelangelo, and Jacopo Sansovinowere architects. Some sculptors maintained large workshops. Even in the Renaissance the physical nature of the work was perceived by Leonardo da Vinci and others as pulling down the status of sculpture in the arts, though the reputation of Michelangelo perhaps put this long-held idea to rest.

From the High Renaissance artists such as Michelangelo, Leone Leoni and Giambologna could become wealthy, and ennobled, and enter the circle of princes, after a period of sharp argument over the relative status of sculpture and painting. Much decorative sculpture on buildings remained a trade, but sculptors producing individual pieces were recognised on a level with painters. From the 18th century or earlier sculpture also attracted middle-class students, although it was slower to do so than painting. Women sculptors took longer to appear than women painters, and were less prominent until the 20th century.

Anti-sculpture movements

Aniconism remained restricted to Judaism, which did not accept figurative sculpture until the 19th century, Zoroastrian and some other religions, before expanding to Early Buddhism and Early Christianity, neither of which initially accepted large sculptures. In both Christianity and Buddhism these early views were later reversed, and sculpture became very significant, especially in Buddhism. Christian Eastern Orthodoxy has never accepted monumental sculpture, and Islam has consistently rejected nearly all figurative sculpture, except for very small figures in reliefs and some animal figures that fulfill a useful function, like the famous lions supporting a fountain in the Alhambra. Many forms of Protestantism also do not approve of religious sculpture. There has been much iconoclasm of sculpture from religious motives, from the Early Christians, the Beeldenstorm of the Protestant Reformation to the 2001 destruction of the Buddhas of Bamyan by the Taliban.

History of sculpture

Prehistoric periods

Venus of Hohle Fels (also known as the Venus of Schelklingen; is an Upper Paleolithic Venus figurine hewn from ivory of a mammoth tusk found in 2008 near Schelklingen, Germany. It is dated to between 35,000 and 40,000 years ago, belonging to the early Aurignacian, at the very beginning of the Upper Paleolithic, which is associated with the assumed earliest presence of Homo sapiens in Europe (Cro-Magnon). It is the oldest undisputed example of Upper Paleolithic art and figurativeprehistoric art in general.

Much surviving prehistoric art is small portable sculptures, with a small group of female Venus figurines such as the Venus of Willendorf (24,000–22,000 BC) found across central Europe; the 30 cm tall Löwenmensch of the Hohlenstein Stadel area of Germany of about 30,000 BCE, an anthropomorphic figure that may be a lioness-woman, has hardly any pieces that can be related to it until the Guennol Lioness of 3000–2800 B.C. The Swimming Reindeerof about 11,000 BCE is one of the finest of a number of Magdalenian carvings in bone or antler of animals in the art of the Upper Paleolithic, although they are outnumbered by engraved pieces, which are sometimes classified as sculpture. With the beginning of the Mesolithic in Europe figurative sculpture greatly reduced, and remained a less common element in art than relief decoration of practical

objects until the Roman period, despite some works such as the Gundestrup cauldron from the European Iron Age and the Bronze Age Trundholm sun chariot.

Löwenmensch, from Hohlenstein-Stadel, now in Ulmer Museum, Ulm, Germany, the oldest known anthropomorphic animal-human statuette, Aurignacian era, 30,000 BC-26,000 BC

Venus of Willendorf, c. 24,000−22,000 BC.

Magdalenian Horse, c. 15,000 BCE Musée d'Archéologie Nationale, France

Creeping Hyena, c. 12,000 to 17,000 years ago, mammoth ivory, found in La Madeleine, France

Swimming Reindeer c. 11,000 BCE, female and male swimming reindeer – late Magdalenian period, approximately 12,500 years old found at Montastruc, Tarn et Garonne, France

The Trundholm sun chariot, perhaps 1800–1500 BCE; this side is gilded, the other is "dark".

Venus of Laussel c. 25,000 BCE, an Upper Palaeolithic carving, Bordeaux museum, France

A Jōmon statue, Japan

Ancient Near East

The Protoliterate period in Mesopotamia, dominated by Uruk, saw the production of sophisticated works like the Warka Vase and cylinder seals. The Guennol Lioness is an outstanding small limestone figure fromElam of about 3000–2800 BC, part human and part lioness. A little later there are a number of figures of large-eyed priests and worshippers, mostly in alabaster and up to a foot high, who attended temple cult images of the deity, but very few of these have survived. Sculptures from the Sumerian and Akkadianperiod generally had large, staring eyes, and long beards on the men. Many masterpieces have also been found at the Royal

Cemetery at Ur (c. 2650 BC), including the two figures of a Ram in a Thicket, the Copper Bull and a bull's head on one of the Lyres of Ur.

From the many subsequent periods before the ascendency of the Neo-Assyrian Empire in the 10th century BCE Mesopotamian art survives in a number of forms: cylinder seals, relatively small figures in the round, and reliefs of various sizes, including cheap plaques of moulded pottery for the home, some religious and some apparently not. The Burney Relief is an unusual elaborate and relatively large (20 x 15 inches) terracotta plaque of a naked winged goddess with the feet of a bird of prey, and attendant owls and lions. It comes from the 18th or 19th centuries BCE, and may also be moulded. Stone stelae, votive offerings, or ones probably commemorating victories and showing feasts, are also found from temples, which unlike more official ones lack inscriptions that would explain them; the fragmentary Stele of the Vultures is an early example of the inscribed type, and the Assyrian Black Obelisk of Shalmaneser III a large and solid late one.

The conquest of the whole of Mesopotamia and much surrounding territory by the Assyrians created a larger and wealthier state than the region had known before, and very grandiose art in palaces and public places, no doubt partly intended to match the splendour of the art of the neighbouring Egyptian empire. The Assyrians developed a style of extremely large schemes of very finely detailed narrative low reliefs in stone for palaces, with scenes of war or hunting; the British Museum has an outstanding collection. They produced very little sculpture in the round, except for colossal guardian figures, often the human-headed lamassu, which are sculpted in high relief on two sides of a rectangular block, with the heads effectively in the round (and also five legs, so that both views seem complete). Even before dominating the region they had continued the cylinder seal tradition with designs which are often exceptionally energetic and refined.

Ancient Egypt

The monumental sculpture of Ancient Egypt is world-famous, but refined and delicate small works exist in much greater numbers. The Egyptians used the distinctive technique of sunk relief, which is well suited to very bright sunlight. The main figures in reliefs adhere to the same figure convention as in painting, with parted legs (where not seated) and head shown from the side, but the torso from the front, and a standard set of proportions making up the figure, using

18 "fists" to go from the ground to the hair-line on the forehead. This appears as early as the Narmer Palette from Dynasty I, but there as elsewhere the convention is not used for minor figures shown engaged in some activity, such as the captives and corpses. Other conventions make statues of males darker than females ones. Very conventionalized portrait statues appear from as early as Dynasty II, before 2,780 BCE, and with the exception of the art of the Amarna period of Ahkenaten, and some other periods such as Dynasty XII, the idealized features of rulers, like other Egyptian artistic conventions, changed little until after the Greek conquest.

Egyptian pharaohs were always regarded as deities, but other deities are much less common in large statues, except when they represent the pharaoh as another deity; however the other deities are frequently shown in paintings and reliefs. The famous row of four colossal statues outside the main temple at Abu Simbel each show Rameses II, a typical scheme, though here exceptionally large. Small figures of deities, or their animal personifications, are very common, and found in popular materials such as pottery. Most larger sculpture survives from Egyptian temples or tombs; by Dynasty IV (2680–2565 BCE) at the latest the idea of the Ka statue was firmly established. These were put in tombs as a resting place for the kaportion of the soul, and so we have a good number of less conventionalized statues of well-off administrators and their wives, many in wood as Egypt is one of the few places in the world where the climate allows wood to survive over millennia. The so-called reserve heads, plain hairless heads, are especially naturalistic. Early tombs also contained small models of the slaves, animals, buildings and objects such as boats necessary for the deceased to continue his lifestyle in the afterworld, and later Ushabti figures.

Facsimile of the Narmer Palette, c. 3100 BC, which already shows the canonical Egyptian profile view and proportions of the figure.

Ancient Greece

Charioteer of Delphi, ancient Greek bronze statue, 5th century BCE, close up head detail

The first distinctive style of Ancient Greek sculpture developed in the Early Bronze Age Cycladic period (3rd millennium BCE), where marble figures, usually female and small, are represented in an elegantly simplified geometrical style. Most typical is a standing pose with arms crossed in front, but other figures are shown in different poses, including a complicated figure of a harpist seated on a chair.

The subsequent Minoan and Mycenaean cultures developed sculpture further, under influence from Syria and elsewhere, but it is in the later Archaic period from around 650 BCE that the kouros developed. These are large standing statues of naked youths, found in temples and tombs, with the kore as the clothed female equivalent, with elaborately dressed hair; both have the "archaic smile". They seem to have served a number of functions, perhaps sometimes representing deities and sometimes the person buried in a grave, as with the Kroisos Kouros. They are clearly influenced by Egyptian and Syrian styles, but the Greek artists were much more ready to experiment within the style.

During the 6th century Greek sculpture developed rapidly, becoming more naturalistic, and with much more active and varied figure poses in narrative scenes, though still within idealized conventions. Sculptured pediments were added to temples, including the Parthenon in Athens, where the remains of the pediment of around 520 using figures in the round were fortunately used as infill for new buildings after the Persian sack in 480 BCE, and recovered from the 1880s on in fresh unweathered condition. Other significant remains of architectural sculpture come from Paestum in Italy, Corfu, Delphi and the Temple of Aphaea in Aegina (much now in Munich).

Mycenae, 1600−1500 BC. Silver rhyton with gold horns and rosette on the forehead

Bull's head, Mycenaean rhyton Terra cotta, 1300–1200 BC. Found in a tomb on Karpathos, British Museum

The Amathus sarcophagus, from Amathus, Cyprus, 2nd quarter of the 5th century BC Archaic period, Metropolitan Museum of Art

Classical

We have fewer original remains from the first phase of the Classical period, often called theSevere style; free-standing statues were now mostly made in bronze, which always had value as scrap. The Severe style lasted from around 500 in reliefs, and soon after 480 in statues, to about 450. The relatively rigid poses of figures relaxed, and asymmetrical turning positions and oblique views became common, and deliberately sought. This was combined with a better understanding of anatomy and the harmonious structure of sculpted figures, and the pursuit of naturalistic representation as an aim, which had not been present before. Excavations at the Temple of Zeus, Olympia since 1829 have revealed the largest group of remains, from about 460, of which many are in the Louvre.

The "High Classical" period lasted only a few decades from about 450 to 400, but has had a momentous influence on art, and retains a special prestige, despite a very restricted number of original survivals. The best known works are the Parthenon Marbles, traditionally (since Plutarch) executed by a team led by the most famous Ancient Greek sculptor Phidias, active from about 465-425, who was in his own day more famous for his colossal chryselephantine Statue of Zeus at Olympia (c. 432), one of the Seven Wonders of the Ancient World, his Athena Parthenos (438), the cult image of the Parthenon, and Athena Promachos, a colossal bronze figure that stood next to the Parthenon; all of these are lost but are known from many representations. He is also credited as the creator of some life-size bronze statues known only from later copies whose identification is controversial, including the Ludovisi Hermes.

The High Classical style continued to develop realism and sophistication in the human figure, and improved the depiction of drapery (clothes), using it to add to the impact of active poses. Facial expressions were usually very restrained, even in combat scenes. The composition of groups of figures in reliefs and on pediments combined complexity and harmony in a way that had a permanent influence on Western art. Relief could be very high indeed, as in the Parthenon illustration below, where most of the leg of the warrior is completely detached from the background, as were the missing parts; relief this high made sculptures more subject to damage. The Late Classical style developed the free-standing female nude statue, supposedly an innovation of Praxiteles, and developed increasingly complex and subtle poses that were interesting when viewed from an number of angles, as well as more expressive faces; both trends were to be taken much further in the Hellenistic period.

The Pergamene style of the Hellenistic period, from thePergamon Altar, early 2nd century.

Hellenistic

The Hellenistic period is conventionally dated from the death of Alexander the Great in 323 BC, and ending either with the final conquest of the Greek heartlands by Rome in 146 BC or with the final defeat of the last remaining successor-state to Alexander's empire after the Battle of Actium in 31 BC, which also marks the end of Republican Rome. It is thus much longer than the previous periods, and includes at least two major phases: a "Pergamene" style of experimentation, exuberance and some sentimentality and vulgarity, and in the 2nd century BC a classicising return to a more austere simplicity and elegance; beyond such generalizations dating is typically very uncertain, especially when only later copies are known, as is usually the case. The initial Pergamene style was not especially associated with Pergamon, from which it takes its name, but the very wealthy kings of that state were among the first to collect and also copy Classical sculpture, and also commissioned much new work, including the famous Pergamon Altar whose sculpture is now mostly in Berlin and which exemplifies the new style, as do the Mausoleum at Halicarnassus (another of the Seven Wonders), the famous Laocoön and his Sons in the Vatican Museums, a late example, and the bronze original of The Dying Gaul (illustrated at top), which we know was part of a group actually commissioned for Pergamon in about 228 BC, from which the Ludovisi Gaul was also a copy. The group called the Farnese Bull, possibly a 2nd-century marble original, is still larger and more complex,

Hellenistic sculpture greatly expanded the range of subjects represented, partly as a result of greater general prosperity, and the emergence of a very wealthy class who had large houses decorated with sculpture, although we know that some examples of subjects that seem best suited to the home, such as children with animals, were in fact placed in temples or other public places. For a much more popular home decoration market there were Tanagra figurines, and those from other centres where small pottery figures were produced on an industrial scale, some religious but others showing animals and elegantly dressed ladies. Sculptors became more technically skilled in representing facial expressions conveying a wide variety of emotions and the portraiture of individuals, as well representing different ages and races. The reliefs from the

Mausoleum are rather atypical in that respect; most work was free-standing, and group compositions with several figures to be seen in the round, like the Laocoon and the Pergamon group celebrating victory over the Gauls became popular, having been rare before. The Barberini Faun, showing a satyr sprawled asleep, presumably after drink, is an example of the moral relaxation of the period, and the readiness to create large and expensive sculptures of subjects that fall short of the heroic.

After the conquests of Alexander Hellenistic culture was dominant in the courts of most of the Near East, and some of Central Asia, and increasingly being adopted by European elites, especially in Italy, where Greek colonies initially controlled most of the South. Hellenistic art, and artists, spread very widely, and was especially influential in the expanding Roman Republic and when it encountered Buddhism in the easternmost extensions of the Hellenistic area. The massive so-called Alexander Sarcophagus found inSidon in modern Lebanon, was probably made there at the start of the period by expatriate Greek artists for a Hellenized Persian governor. The wealth of the period led to a greatly increased production of luxury forms of small sculpture, including engraved gems and cameos, jewellery, and gold and silverware.

The Riace Bronzes, very rare bronze figures recovered from the sea, c. 460–430

Two elegant ladies, pottery figurines, 350–300

Bronze Statuette of a Horse, late 2nd – 1st century B.C. Metropolitan Museum of Art

The Winged Victory of Samothrace, c. 190 BC, Louvre

Laocoön and his Sons, Greek, (LateHellenistic), perhaps a copy, between 200 BC and 20 AD, White marble, Vatican Museum

Europe after the Greeks

Roman sculpture

Section of Trajan's Column, CE 113, with scenes from the Dacian Wars

Early Roman art was influenced by the art of Greece and that of the neighbouring Etruscans, themselves greatly influenced by their Greek trading partners. An Etruscan speciality was near life size tomb effigies interracotta, usually lying on top of a sarcophagus lid propped up on one elbow in the pose of a diner in that period. As the expanding Roman Republic began to conquer Greek territory, at first in Southern Italy and then the entire Hellenistic world except for the Parthian far east, official and patrician sculpture became largely an extension of the Hellenistic style, from which specifically Roman elements are hard to disentangle, especially as so much Greek sculpture survives only in copies of the Roman period. By the 2nd century BCE, "most of the sculptors working at Rome" were Greek, often enslaved in conquests such as that of Corinth (146 BCE), and sculptors continued to be mostly Greeks, often slaves, whose names are very rarely recorded. Vast numbers of Greek statues were imported to Rome, whether as booty or the result of extortion or commerce, and temples were often decorated with re-used Greek works.

A native Italian style can be seen in the tomb monuments, which very often featured portrait busts, of prosperous middle-class Romans, and portraiture is arguably the main strength of Roman sculpture. There are no survivals from the tradition of masks of ancestors that were worn in processions at the funerals of the great families and otherwise displayed in the home, but many of the busts that survive must represent ancestral figures, perhaps from the large family tombs like the Tomb of the Scipios or the later mausolea outside the city. The famous bronze head supposedly of Lucius Junius Brutus is very variously dated, but taken as a very rare survival of Italic style under the Republic, in the preferred medium of bronze. Similarly stern and forceful heads are seen on coins of the Late Republic, and in the Imperial period coins as well as busts sent around the Empire to be placed in the basilicas of provincial cities were the main visual form of imperial propaganda; even Londinium had a near-colossal statue of Nero, though far smaller than the 30 metre high Colossus of Nero in Rome, now lost.

Augustan state Greco-Roman style on the Ara Pacis, 13 BCE

The Romans did not generally attempt to compete with free-standing Greek works of heroic exploits from history or mythology, but from early on produced historical works in relief, culminating in the great Roman triumphal columns with continuous narrative reliefs winding around them, of which those commemorating Trajan (CE 113) and Marcus Aurelius(by 193) survive in Rome, where the Ara Pacis ("Altar of Peace", 13 BCE) represents the official Greco-Roman style at its most classical and refined. Among other major examples are the earlier re-used reliefs on the Arch of Constantine and the base of the Column of Antoninus Pius (161), Campana reliefs were cheaper pottery versions of marble reliefs and the taste for relief was from the imperial period expanded to the sarcophagus. All forms of luxury small sculpture continued to be patronized, and quality could be extremely high, as in the silver Warren Cup, glass Lycurgus Cup, and large cameos like the Gemma Augustea, Gonzaga Cameo and the "Great Cameo of France". For a much wider section of the population, moulded relief decoration of pottery vessels and small figurines were produced in great quantity and often considerable quality.

After moving through a late 2nd-century "baroque" phase, in the 3rd century, Roman art largely abandoned, or simply became unable to produce, sculpture in the classical tradition, a change whose causes remain much discussed. Even the most important imperial monuments now showed stumpy, large-eyed figures in a harsh frontal style, in simple compositions emphasizing power at the expense of grace. The contrast is famously illustrated in the Arch of Constantine of 315 in Rome, which combines sections in the new style with roundels in the earlier full Greco-Roman style taken from elsewhere, and the Four Tetrarchs (c. 305) from the new capital of

Constantinople, now in Venice. Ernst Kitzinger found in both monuments the same "stubby proportions, angular movements, an ordering of parts through symmetry and repetition and a rendering of features and drapery folds through incisions rather than modelling... The hallmark of the style wherever it appears consists of an emphatic hardness, heaviness and angularity — in short, an almost complete rejection of the classical tradition".

This revolution in style shortly preceded the period in which Christianity was adopted by the Roman state and the great majority of the people, leading to the end of large religious sculpture, with large statues now only used for emperors. However rich Christians continued to commission reliefs for sarcophagi, as in the Sarcophagus of Junius Bassus, and very small sculpture, especially in ivory, was continued by Christians, building on the style of the consular diptych.

Early Medieval and Byzantine

Silver monster on a chape, Scottish or Anglo-Saxon, St. Ninian's Isle Treasure, c. 800?

The Gero Cross, c. 965–970, Cologne, Germany

The Early Christians were opposed to monumental religious sculpture, though continuing Roman traditions in portrait busts andsarcophagus reliefs, as well as smaller objects such as the consular diptych. Such objects, often in valuable materials, were also the main sculptural traditions (as far as is known) of the barbaric civilizations of the Migration period, as seen in the objects found in the 6th-century burial treasure at Sutton Hoo, and the jewellery of Scythian art and the hybrid Christian and animal style productions of Insular art. Following the continuing Byzantine tradition, Carolingian art revived ivory carving, often in panels for the treasure bindings of grand illuminated manuscripts, as well as crozier heads and other small fittings.

Byzantine art, though producing superb ivory reliefs and architectural decorative carving, never returned to monumental sculpture, or even much small sculpture in the round. However in the West during the Carolingian and Ottonian periods there were the beginnings of a production of monumental statues, in courts and major churches. This gradually spread; by the late 10th and 11th century there are records of several apparently life-size sculptures in Anglo-Saxon churches, probably of precious metal around a wooden frame, like the Golden Madonna of

Essen. No Anglo-Saxon example has survived, and survivals of large non-architectural sculpture from before 1,000 are exceptionally rare. Much the finest is the Gero Cross, of 965–70, which is acrucifix, which was evidently the commonest type of sculpture; Charlemagne had set one up in the Palatine Chapel in Aachen around 800. These continued to grow in popularity, especially in Germany and Italy. The rune stones of the Nordic world, the Pictish stones of Scotland and possibly the high cross reliefs of Christian Great Britain, were northern sculptural traditions that bridged the period of Christianization.

Romanesque

The Brunswick Lion, 1166, the first large hollow casting of a figure since antiquity, 1.78 metres tall and 2.79 metres long

From about 1000 there was a general rebirth of artistic production in all Europe, led by general economic growth in production and commerce, and the new style of Romanesque art was the first medieval style to be used in the whole of Western Europe. The new cathedrals and pilgrim's churches were increasingly decorated with architectural stone reliefs, and new focuses for sculpture developed, such as the tympanum over church doors in the 12th century, and the inhabited capital with figures and often narrative scenes. Outstanding abbey churches with sculpture include in France Vézelay and Moissac and in Spain Silos.

Romanesque art was characterised by a very vigorous style in both sculpture and painting. The capitals of columns were never more exciting than in this period, when they were often carved

with complete scenes with several figures. The large wooden crucifix was a German innovation right at the start of the period, as were free-standing statues of the enthroned Madonna, but the high relief was above all the sculptural mode of the period. Compositions usually had little depth, and needed to be flexible to squeeze themselves into the shapes of capitals, and church typanums; the tension between a tightly enclosing frame, from which the composition sometimes escapes, is a recurrent theme in Romanesque art. Figures still often varied in size in relation to their importance portraiture hardly existed.

Objects in precious materials such as ivory and metal had a very high status in the period, much more so than monumental sculpture — we know the names of more makers of these than painters, illuminators or architect-masons. Metalwork, including decoration in enamel, became very sophisticated, and many spectacular shrines made to hold relics have survived, of which the best known is the Shrine of the Three Kings at Cologne Cathedral by Nicholas of Verdun. The bronze Gloucester candlestick and the brass font of 1108–17 now in Liège are superb examples, very different in style, of metal casting, the former highly intricate and energetic, drawing on manuscript painting, while the font shows the Mosan style at its most classical and majestic. The bronze doors, a triumphal column and other fittings at Hildesheim Cathedral, the Gniezno Doors, and the doors of the Basilica di San Zeno in Verona are other substantial survivals. The aquamanile, a container for water to wash with, appears to have been introduced to Europe in the 11th century, and often took fantastic zoomorphic forms; surviving examples are mostly in brass. Many wax impressions from impressive seals survive on charters and documents, although Romanesque coins are generally not of great aesthetic interest.

The Cloisters Cross is an unusually large ivory crucifix, with complex carving including many figures of prophets and others, which has been attributed to one of the relatively few artists whose name is known, Master Hugo, who also illuminated manuscripts. Like many pieces it was originally partly coloured. The Lewis chessmen are well-preserved examples of small ivories, of which many pieces or fragments remain from croziers, plaques, pectoral crosses and similar objects.

Baptismal font at St Bartholomew's Church, Liège, Baptism of Christ, 1107–1118

Gothic

French ivory Virgin and Child, end of 13th century, 25 cm high, curving to fit the shape of the ivory tusk

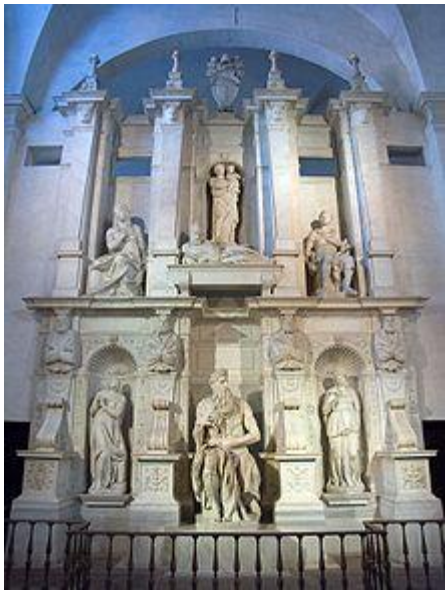
The Gothic period is essentially defined by Gothic architecture, and does not entirely fit with the development of style in sculpture in either its start or finish. The facades of large churches, especially around doors, continued to have large typanums, but also rows of sculpted figures spreading around them. The statues on the Western (Royal) Portal at Chartres Cathedral (c. 1145) show an elegant but exaggerated columnar elongation, but those on the south transept portal, from 1215 to 1220, show a more naturalistic style and increasing detachment from the wall behind, and some awareness of the classical tradition. These trends were continued in the west portal at Rheims Cathedral of a few years later, where the figures are almost in the round, as became usual as Gothic spread across Europe.

In Italy Nicola Pisano (1258–78) and his son Giovanni developed a style that is often called Proto-Renaissance, with unmistakable influence from Roman sarcophagi and sophisticated and crowded compositions, including a sympathetic handling of nudity, in relief panels on their pulpit of Siena Cathedral (1265–68), the Fontana Maggiore in Perugia, and Giovanni's pulpit in Pistoia of 1301. Another revival of classical style is seen in the International Gothic work of Claus Sluter and his followers in Burgundy and Flanders around 1400. Late Gothic sculpture continued in the North, with a fashion for very large wooden sculpted altarpieces with increasingly virtuoso carving and large numbers agitated expressive figures; most surviving examples are in Germany, after much iconoclasm elsewhere. Tilman Riemenschneider, Veit Stoss and others continued the style well into the 16th century, gradually absorbing Italian Renaissance influences.

Life-size tomb effigies in stone or alabaster became popular for the wealthy, and grand multi-level tombs evolved, with the Scaliger Tombs of Verona so large they had to be moved outside the church. By the 15th century there was an industry exporting Nottingham alabaster altar reliefs in groups of panels over much of Europe for economical parishes who could not afford stone retables. Small carvings, for a mainly lay and often female market, became a considerable industry in Paris and some other centres. Types of ivories included small devotional polyptychs, single figures, especially of the Virgin, mirror-cases, combs, and elaborate caskets with scenes from Romances, used as engagement presents. The very wealthy collected extravagantly elaborate jewelled and enamelled metalwork, both secular and religious, like the Duc de Berry's Holy Thorn Reliquary, until they ran short of money, when they were melted down again for cash.

Renaissance

Michelangelo, "Pietà", 1499.



Michelangelo, The Tomb of Pope Julius II, c. 1545, with statues of Racheland Leah on the left and the right of his Moses.

Renaissance sculpture proper is often taken to begin with the famous competition for the doors of the Florence Baptistry in 1403, from which the trial models submitted by the winner, Lorenzo Ghiberti, and Filippo Brunelleschi survive. Ghiberti's doors are still in place, but were undoubtedly eclipsed by his second pair for the other entrance, the so-called "Gates of Paradise", which took him from 1425 to 1452, and are dazzlingly confident classicizing compositions with varied depths of relief allowing extensive backgrounds. The intervening years had seen

Ghiberti's early assistant Donatello develop with seminal statues including his Davids in marble (1408–09) and bronze (1440s), and his Equestrian statue of Gattamelata, as well as reliefs. A leading figure in the later period was Andrea del Verrocchio, best known for his equestrian statue of Bartolomeo Colleoni in Venice; his pupil Leonardo da Vinci designed an equine sculpture in 1482The Horse for Milan-but only succeeded in making a 24-foot (7.3 m) clay model which was destroyed by French archers in 1499, and his other ambitious sculptural plans were never completed.

The period was marked by a great increase in patronage of sculpture by the state for public art and by the wealthy for their homes; especially in Italy, public sculpture remains a crucial element in the appearance of historic city centres. Church sculpture mostly moved inside just as outside public monuments became common. Portrait sculpture, usually in busts, became popular in Italy around 1450, with the Neapolitan Francesco Laurana specializing in young women in meditative poses, while Antonio Rossellino and others more often depicted knobbly-faced men of affairs, but also young children. The portrait medal invented by Pisanello also often depicted women.

Michelangelo was an active sculptor from about 1500 to 1520, and his great masterpieces including his David, Pietà, Moses, and pieces for the Tomb of Pope Julius II and Medici Chapel could not be ignored by subsequent sculptors. His iconic David (1504) has a contrapposto pose, borrowed from classical sculpture. It differs from previous representations of the subject in that David is depicted before his battle with Goliath and not after the giant's defeat. Instead of being shown victorious, as Donatello and Verocchio had done, David looks tense and battle ready.

Mannerist

Adriaen de Vries, Mercury and Psyche Northern Manneristlife-size bronze, made in 1593 for Rudolf II, Holy Roman Emperor

As in painting, early Italian Mannerist sculpture was very largely an attempt to find an original style that would top the achievement of theHigh Renaissance, which in sculpture essentially meant Michelangelo, and much of the struggle to achieve this was played out in commissions to fill other places in the Piazza della Signoria in Florence, next to Michelangelo's David. Baccio Bandinelli took over the project ofHercules and Cacus from the master himself, but it was little more popular then than it is now, and maliciously compared by Benvenuto Cellini to "a sack of melons", though it had a long-lasting effect in apparently introducing relief panels on the pedestal of statues. Like other works of his and other Mannerists it removes far more of the original block than Michelangelo would have done. Cellini's bronzePerseus with the head of Medusa is certainly a masterpiece, designed with eight angles of view, another Mannerist characteristic, but is indeed mannered compared to the Davids of Michelangelo and Donatello. Originally a goldsmith, his famous gold and enamel Salt Cellar (1543) was his first sculpture, and shows his talent at its best. As these examples show, the period extended the range of secular subjects for large works beyond portraits, with mythological figures especially favoured; previously these had mostly been found in small works.

Small bronze figures for collector's cabinets, often mythological subjects with nudes, were a popular Renaissance form at which Giambologna, originally Flemish but based in Florence, excelled in the later part of the century, also creating life-size sculptures, of which two joined the collection in the Piazza della Signoria. He and his followers devised elegant elongated examples of the figura serpentinata, often of two intertwined figures, that were interesting from all angles.

Baroque and Rococo

In Baroque sculpture, groups of figures assumed new importance, and there was a dynamic movement and energy of human forms— they spiralled around an empty central vortex, or reached outwards into the surrounding space. Baroque sculpture often had multiple ideal viewing angles, and reflected a general continuation of the Renaissance move away from the relief to sculpture created in the round, and designed to be placed in the middle of a large space – elaborate fountains such as Bernini's Fontana dei Quattro Fiumi (Rome, 1651), or those in the Gardens of Versailles were a Baroque speciality. The Baroque style was perfectly suited to sculpture, with Gian Lorenzo Bernini the dominating figure of the age in works such as The Ecstasy of St Theresa (1647–1652). Much Baroque sculpture added extra-sculptural elements, for example, concealed lighting, or water fountains, or fused sculpture and architecture to create a transformative experience for the viewer. Artists saw themselves as in the classical tradition, but admired Hellenistic and later Roman sculpture, rather than that of the more "Classical" periods as they are seen today.

The Protestant Reformation brought an almost total stop to religious sculpture in much of Northern Europe, and though secular sculpture, especially for portrait busts and tomb monuments, continued, the Dutch Golden Age has no significant sculptural component outside goldsmithing. Partly in direct reaction, sculpture was as prominent in Catholicism as in the late Middle Ages. Statues of rulers and the nobility became increasingly popular. In the 18th century much sculpture continued on Baroque lines – the Trevi Fountain was only completed in 1762. Rococo style was better suited to smaller works, and arguably found its ideal sculptural form in early European porcelain, and interior decorative schemes in wood or plaster such as those in French domestic interiors and Austrian and Bavarian pilgrimage churches.

Neo-Classical

Antonio Canova: Psyche Revived by Love's Kiss, 1787

The Neoclassical style that arrived in the late 18th century gave great emphasis to sculpture. Jean-Antoine Houdon exemplifies the penetrating portrait sculpture the style could produce, andAntonio Canova's nudes the idealist aspect of the movement. The Neoclassical period was one of the great ages of public sculpture, though its "classical" prototypes were more likely to be Roman copies of Hellenistic sculptures. In sculpture, the most familiar representatives are the Italian Antonio Canova, the Englishman John Flaxman and the Dane Bertel Thorvaldsen. The European neoclassical manner also took hold in the United States, where its pinnacle occurred somewhat later and is exemplified in the sculptures of Hiram Powers.

Asia

Greco-Buddhist sculpture and Asia

One of the first representations of theBuddha, 1st–2nd century CE, Gandhara

Greco-Buddhist art is the artistic manifestation of Greco-Buddhism, a cultural syncretism between the Classical Greek culture and Buddhism, which developed over a period of close to 1000 years in Central Asia, between the conquests of Alexander the Great in the 4th century BCE, and the Islamic conquests of the 7th century CE. Greco-Buddhist art is characterized by the strong idealistic realism of Hellenistic art and the first representations of the Buddha in human form, which have helped define the artistic (and particularly, sculptural) canon for Buddhist art throughout the Asian continent up to the present. Though dating is uncertain, it appears that strongly Hellenistic styles lingered in the East for several centuries after they had declined around the Mediterranean, as late as the 5th century CE. Some aspects of Greek art were adopted while others did not spread beyond the Greco-Buddhist area; in particular the standing figure, often with a relaxed pose and one leg flexed, and the flying cupids or victories, who became popular across Asia as apsaras. Greek foliage decoration was also influential, with Indian versions of the Corinthian capital appearing.

The origins of Greco-Buddhist art are to be found in the Hellenistic Greco-Bactrian kingdom (250 BCE – 130 BCE), located in today's Afghanistan, from which Hellenistic culture radiated into the Indian subcontinent with the establishment of the small Indo-Greek kingdom (180 BCE-10 BCE). Under the Indo-Greeks and then the Kushans, the interaction of Greek and Buddhist culture flourished in the area of Gandhara, in today's northern Pakistan, before spreading further into India, influencing the art of Mathura, and then the Hindu art of the Gupta empire, which was to extend to the rest of South-East Asia. The influence of Greco-Buddhist art also spread northward towards Central Asia, strongly affecting the art of the Tarim Basin and the Dunhuang Caves, and ultimately the sculpted figure in China, Korea, and Japan.

Buddha head from Hadda, Afghanistan, 3rd–4th centuries

China

A Liao Dynasty polychrome wood-carved statue of Guan Yin, Shanxi Province, China, (907–1125 AD)

Chinese ritual bronzes from the Shang and Western Zhou Dynasties come from a period of over a thousand years from c. 1500, and have exerted a continuing influence over Chinese art. They are cast with complex patterned and zoomorphic decoration, but avoid the human figure, unlike the huge figures only recently discovered at Sanxingdui. The spectacular Terracotta Army was assembled for the tomb of Qin Shi Huang, the first emperor of a unified China from 221–210 BCE, as a grand imperial version of the figures long placed in tombs to enable the deceased to enjoy the same lifestyle in the afterlife as when alive, replacing actual sacrifices of very early periods. Smaller figures in pottery or wood were placed in tombs for many centuries afterwards, reaching a peak of quality in the Tang Dynasty.

Native Chinese religions do not usually use cult images of deities, or even represent them, and large religious sculpture is nearly all Buddhist, dating mostly from the 4th to the 14th century, and initially using Greco-Buddhist models arriving via the Silk Road. Buddhism is also the context of all large portrait sculpture; in total contrast to some other areas in medieval China even painted images of the emperor were regarded as private. Imperial tombs have spectacular avenues of approach lined with real and mythological animals on a scale matching Egypt, and

smaller versions decorate temples and palaces. Small Buddhist figures and groups were produced to a very high quality in a range of media, as was relief decoration of all sorts of objects, especially in metalwork and jade. Sculptors of all sorts were regarded as artisans and very few names are recorded.

Japan

Towards the end of the long Neolithic Jōmon period, some pottery vessels were "flame-rimmed" with extravagant extensions to the rim that can only be called sculptural, and very stylized pottery dogū figures were produced, many with the characteristic "snow-goggle" eyes. During the Kofun period of the 3rd to 6th century CE, haniwa terracotta figures of humans and animals in a simplistic style were erected outside important tombs. The arrival of Buddhism in the 6th century brought with it sophisticated traditions in sculpture, Chinese styles mediated via Korea. The 7th century Hōryū-ji and its contents have survived more intact than any East Asian Buddhist temple of its date, with works including a Shaka Trinity of 623 in bronze, showing the historical Buddha flanked by two bodhisattvas and also the Guardian Kings of the Four Directions.

The wooden image (9th century) of Shakyamuni, the "historic" Buddha, enshrined in a secondary building at the Murō-ji, is typical of the early Heian sculpture, with its ponderous body, covered by thick drapery folds carved in the hompa-shiki (rolling-wave) style, and its austere, withdrawn facial expression. The Kei school of sculptors, particularly Unkei, created a new, more realistic style of sculpture.

Almost all subsequent significant large sculpture in Japan was Buddhist, with some Shinto equivalents, and after Buddhism declined in Japan in the 15th century, monumental sculpture became largely architectural decoration and less significant. However sculptural work in the decorative arts was developed to a remarkable level of technical achievement and refinement in small objects such as inro and netsuke in many materials, and metal tosogu or Japanese sword mountings. In the 19th century there were export industries of small bronze sculptures of extreme virtuosity, ivory and porcelain figurines, and other types of small sculpture, increasingly emphasizing technical accomplishment.

The first known sculpture in the Indian subcontinent is from the Indus Valley civilization (3300–1700 BC), found in sites at Mohenjo-daro and Harappa in modern-day Pakistan. These include the famous small bronze female dancer. However such figures in bronze and stone are rare and greatly outnumbered by pottery figurines and stone seals, often of animals or deities very finely depicted. After the collapse of the Indus Valley civilization there is little record of sculpture until the Buddhist era, apart from a hoard of copper figures of (somewhat controversially) c. 1500 BCE from Daimabad. Thus the great tradition of Indian monumental sculpture in stone appears to begin relatively late, with the reign of Asoka from 270 to 232 BCE, and the Pillars of Ashoka he erected around India, carrying his edicts and topped by famous sculptures of animals, mostly lions, of which six survive. Large amounts of figurative sculpture, mostly in relief, survive from Early Buddhist pilgrimage stupas, above all Sanchi; these probably developed out of a tradition using wood that also embraced Hinduism.

The pink sandstone Hindu, Jain and Buddhist sculptures of Mathura from the 1st to 3rd centuries CE reflected both native Indian traditions and the Western influences received through the Greco-Buddhist art of Gandhara, and effectively established the basis for subsequent Indian religious sculpture. The style was developed and diffused through most of India under the Gupta Empire (c. 320-550) which remains a "classical" period for Indian sculpture, covering the earlier Ellora Caves, though the Elephanta Caves are probably slightly later. Later large-scale sculpture remains almost exclusively religious, and generally rather conservative, often reverting to simple frontal standing poses for deities, though the attendant spirits such as apsaras and yakshi often have sensuously curving poses. Carving is often highly detailed, with an intricate backing behind the main figure in high relief. The celebrated bronzes of the Chola dynasty (c. 850–1250) from south India, many designed to be carried in processions, include the iconic form of Shiva asNataraja, with the massive granite carvings of Mahabalipuram dating from the previous Pallavadynasty.

Hindu, Chola period, 1000

South-East Asia

9th century Khmer lintel

The sculpture of the region tends to be characterised by a high degree of ornamentation, as seen in the great monuments of Hindu and Buddhist Khmer sculpture (9th to 13th centuries) atAnkor Wat and elsewhere, the enormous 9th-century Buddhist complex at Borobudur in Java, and the Hindu monuments ofBali. Both of these include many reliefs as well as figures in the round; Borobudur has 2,672 relief panels, 504 Buddha statues, many semi-concealed in openwork stupas, and many large guardian figures.

In Thailand and Laos, sculpture was mainly of Buddha images, often gilded, both large for temples and monasteries, and small figurines for private homes. Traditional sculpture in Myanmar emerged before theBagan period. As elsewhere in the region, most of the wood sculptures of the Bagan and Ava periods have been lost. In later periods Chinese influence

predominated in Vietnam, Laos and Cambodia, and more wooden sculpture survives from across the region.

Islam

Ivory with traces of paint, 11th–12th century, Egypt

Islam is famously aniconic, so the vast majority of sculpture isarabesque decoration in relief or openwork, based on vegetable motifs, but tending to geometrical abstract forms. In the very early Mshatta Facade (740s), now mostly in Berlin, there are animals within the dense arabesques in high relief, and figures of animals and men in mostly low relief are found in conjunction with decoration on many later pieces in various materials, including metalwork, ivory and ceramics.

Figures of animals in the round were often acceptable for works used in private contexts if the object was clearly practical, so medieval Islamic art contains many metal animals that are aqua maniles, incense burners or supporters for fountains, as in the stone lions supporting the famous one in the Alhambra, culminating in the largest medieval Islamic animal figure known, the Pisa Griffin. In the same way, luxury hardstone carvings such as dagger hilts and cups may be formed as animals, especially in Mughal art. The degree of acceptability of such relaxations of strict Islamic rules varies between periods and regions, with Islamic Spain, Persia and India often leading relaxation, and is typically highest in courtly contexts.

Historically, with the exception of some monumental Egyptian sculpture, most African sculpture was created in wood and other organic materials that have not survived from earlier than a few centuries ago; older pottery figures are found from a number of areas. Masks are important elements in the art of many peoples, along with human figures, often highly stylized. There is a vast variety of styles, often varying within the same context of origin depending on the use of the object, but wide regional trends are apparent; sculpture is most common among "groups of

settled cultivators in the areas drained by the Niger and Congo rivers" in West Africa. Direct images of deities are relatively infrequent, but masks in particular are or were often made for religious ceremonies; today many are made for tourists as "airport art". African masks were an influence on European Modernist art, which was inspired by their lack of concern for naturalistic depiction.

The Nubian Kingdom of Kush in modern Sudan was in close and often hostile contact with Egypt, and produced monumental sculpture mostly derivative of styles to the north. In West Africa, the earliest known sculptures are from the Nok culture which thrived between 500 BC and 500 AD in modern Nigeria, with clay figures typically with elongated bodies and angular shapes. Later West African cultures developed bronze casting for reliefs to decorate palaces like the famous Benin Bronzes, and very fine naturalistic royal heads from around the Yoruba town of Ife in terracotta and metal from the 12th–14th centuries. Akan gold weights are a form of small metal sculptures produced over the period 1400–1900, some apparently representing proverbs and so with a narrative element rare in African sculpture, and royal regalia included impressive gold sculptured elements.

Many West African figures are used in religious rituals and are often coated with materials placed on them for ceremonial offerings. The Mande-speaking peoples of the same region make pieces of wood with broad, flat surfaces and arms and legs are shaped like cylinders. In Central Africa, however, the main distinguishing characteristics include heart-shaped faces that are curved inward and display patterns of circles and dots.

Eastern Africans are not known for their sculpture, but one style from the region is pole sculptures, carved in human shapes and decorated with geometric forms, while the tops are carved with figures of animals, people, and various objects. These poles are, then, placed next to graves and are associated with death and the ancestral world. The culture known from Great Zimbabwe left more impressive buildings than sculpture but the eight soapstone Zimbabwe Birds appear to have had a special significance and were mounted on monoliths. Modern Zimbabwean sculptors in soapstone have achieved considerable international success. Southern Africa’s oldest known clay figures date from 400 to 600 AD and have cylindrical heads with a mixture of human and animal features.

The Americas

Sculpture in what is now Latin America developed in two separate and distinct areas, Mesoamerica in the north and Peru in the south. In both areas, sculpture was initially of stone, and later of terracotta and metal as the civilizations in these areas became more technologically proficient.[107] The Mesoamerican region produced more monumental sculpture, from the massive block-like works of the Olmec and Toltec cultures, to the superb low reliefs that characterize the Mayan and Aztec cultures. In the Andean region, sculptures were typically small, but often show superb skill.

Pre-Columbian

Olmec Baby Figure 1200-900 BCE

Chapter 12

Modernism

Modernism is a philosophical movement in the arts, that along with cultural trends and changes, arose from wide-scale and far-reaching transformations in Western society in the late 19th and early 20th centuries. Among the factors that shaped Modernism was the development of modern industrial societies and the rapid growth of cities, followed then by the horror of World War I. Modernism also rejected the certainty of Enlightenment thinking, and many modernists rejected religious belief.

Modernism, in general, includes the activities and creations of those who felt the traditional forms of art, architecture, literature, religious faith, social organization and activities of daily life were becoming outdated in the new economic, social, and political environment of an emerging fully industrialized world. The poet Ezra Pound's 1934 injunction to "Make it new!" was the touchstone of the movement's approach towards what it saw as the now obsolete culture of the past. All the same innovations, like the stream-of-consciousness novel, twelve-note music and abstract art, all had precursors in the 19th century.

A notable characteristic of Modernism is self-consciousness, which often led to experiments with form, along with the use of techniques that drew attention to the processes and materials used in creating a painting, poem, building, etc. Modernism explicitly rejected the ideology of realism and makes use of the works of the past by the employment of reprise, incorporation, rewriting, recapitulation, revision and parody.

Some commentators define Modernism as a socially progressive trend of thought that affirms the power of human beings to create, improve and reshape their environment with the aid of practical experimentation, scientific knowledge, or technology. From this perspective, Modernism encouraged the re-examination of every aspect of existence, from commerce to philosophy, with the goal of finding that which was 'holding back' progress, and replacing it with new ways of reaching the same end. Others focus on Modernism as an aesthetic introspection. This facilitates consideration of specific reactions to the use of technology in the First World War, and anti-technological and nihilistic aspects of the works of diverse thinkers and artists spanning the period from Friedrich Nietzsche (1844–1900) to Samuel Beckett (1906–1989).

Modern art

North America

In North America, wood was sculpted for totem poles, masks, utensils, War canoes and a variety of other uses, with distinct variation between different cultures and regions. The most developed styles are those of the Pacific Northwest Coast, where a group of elaborate and highly stylized formal styles developed forming the basis of a tradition that continues today. In addition to the famous totem poles, painted and carved house fronts were complemented by carved posts inside and out, as well as mortuary figures and other items. Among the Inuit of the far north, traditional carving styles in ivory and soapstone are still continued.

St. James panel, from reredos in Cristo Rey Church, Santa Fe, New Mexico, c. 1760

The arrival of European Catholic culture readily adapted local skills to the prevailing Baroque style, producing enormously elaborate retablos and other mostly church sculptures in a variety of hybrid styles. The most famous of such examples in Canada is the altar area of the Notre Dame Basilica in Montreal, Quebec, which was carved by peasant *habitant* labourers. Later, artists trained in the Western academic tradition followed European styles until in the late 19th century they began to draw again on indigenous influences, notably in the Mexican baroque grotesque style known as Churrigueresque. Aboriginal peoples also adapted church sculpture in variations on Carpenter Gothic; one famous example is the *Church of the Holy Cross* in Skookumchuck Hot Springs, British Columbia.

The history of sculpture in the United States after Europeans' arrival reflects the country's 18th-century foundation in Roman republican civic values and Protestant Christianity. Compared to areas colonized by the Spanish, sculpture got off to an extremely slow start in the British colonies, with next to no place in churches, and was only given impetus by the need to assert nationality after independence. American sculpture of the mid- to late-19th century was often classical, often romantic, but showed a bent for a dramatic, narrative, almost journalistic realism.

Public buildings during the last quarter of the 19th century and the first half of the 20th century often provided an architectural setting for sculpture, especially in relief. By the 1930s the International Style of architecture and design and art deco characterized by the work of Paul Manship and Lee Lawrie and others became popular. By the 1950s, traditional sculpture education would almost be completely replaced by a Bauhaus-influenced concern for abstract design. Minimalist sculpture replaced the figure in public settings and architects almost completely stopped using sculpture in or on their designs. Modern sculptors (21st century) use both classical and abstract inspired designs. Beginning in the 1980s, there was a swing back toward figurative public sculpture; by 2000, many of the new public pieces in the United States were figurative in design.

19th–early 20th century, and continuing realism

Auguste Rodin, *The Thinker*, 1902,Musée Rodin, Paris

Modern classicism contrasted in many ways with the classical sculpture of the 19th century which was characterized by commitments to naturalism (Antoine-Louis Barye)—the melodramatic (François Rude) sentimentality (Jean-Baptiste Carpeaux)-- or a kind of stately grandiosity (Lord Leighton). Several different directions in the classical tradition were taken as the century turned, but the study of the live model and the post-Renaissance tradition was still fundamental to them. Auguste Rodin was the most renowned European sculptor of the early 20th century.He is often considered a sculptural Impressionist, as are his students including Camille Claudel, and Hugo Rheinhold, attempting to model of a fleeting moment of ordinary life. Modern classicism showed a lesser interest in naturalism and a greater interest in formal stylization. Greater attention was paid to the rhythms of volumes and spaces—as well as greater attention to the contrasting qualities of surface (open, closed, planar, broken etc.) while less attention was paid to story-telling and convincing details of anatomy or costume. Greater

attention was given to psychological effect than to physical realism, and influences from earlier styles worldwide were used.

Early masters of modern classicism included: Aristide Maillol, Alexander Matveyev, Joseph Bernard,Antoine Bourdelle, Georg Kolbe, Libero Andreotti, Gustav Vigeland, Jan Stursa, Constantin Brâncuși. As the century progressed, modern classicism was adopted as the national style of the two great European totalitarian empires: Nazi Germany and Soviet Russia, who co-opted the work of earlier artists such as Kolbe and Wilhelm Lehmbruck in Germany and Matveyev in Russia. Over the 70 years of the USSR, new generations of sculptors were trained and chosen within their system, and a distinct style, socialist realism, developed, that returned to the 19th century's emphasis on melodrama and naturalism.

Classical training was rooted out of art education in Western Europe (and the Americas) by 1970 and the classical variants of the 20th century were marginalized in the history of modernism. But classicism continued as the foundation of art education in the Soviet academies until 1990, providing a foundation for expressive figurative art throughout eastern Europe and parts of the Middle East. By the year 2000, the European classical tradition retains a wide appeal to the public but awaits an educational tradition to revive its contemporary development.

Some of the modern classical became either more decorative/art deco (Paul Manship, Jose de Creeft, Carl Milles) or more abstractly stylized or more expressive (and Gothic) (Anton Hanak, Wilhelm Lehmbruck, Ernst Barlach, Arturo Martini)—or turned more to the Renaissance (Giacomo Manzù, Venanzo Crocetti) or stayed the same (Charles Despiau, Marcel Gimond).

Modernism

In the early days of the 20th century, Pablo Picasso revolutionized the art of sculpture when he began creating his *constructions* fashioned by combining disparate objects and materials into one constructed piece of sculpture; the sculptural equivalent of the collage in two dimensional art. The advent of Surrealism led to things occasionally being described as "sculpture" that would not have been so previously, such as "involuntary sculpture" in several senses, including coulage. In later years Picasso became a prolific potter, leading, with interest in historic pottery from around the world, to a revival of ceramic art, with figures such as George E. Ohr and subsequently Peter

Voulkos, Kenneth Price, and Robert Arneson. Marcel Duchamp originated the use of the "found object" (French: objet trouvé) or *readymade* with pieces such as Fountain (1917).

Similarly, the work of Constantin Brâncuși at the beginning of the century paved the way for later abstract sculpture. In revolt against the naturalism of Rodin and his late-19th-century contemporaries, Brâncuși distilled subjects down to their essences as illustrated by the elegantly refined forms of his *Bird in Space* series (1924).

Brâncuși's impact, with his vocabulary of reduction and abstraction, is seen throughout the 1930s and 1940s, and exemplified by artists such as Gaston Lachaise, Sir Jacob Epstein, Henry Moore, Alberto Giacometti, Joan Miró, Julio González, Pablo Serrano, Jacques Lipchitz and by the 1940s abstract sculpture was impacted and expanded by Alexander Calder, Len Lye, Jean Tinguely, and Frederick Kiesler who were pioneers of Kinetic art.

Modernist sculptors largely missed out on the huge boom in public art resulting from the demand for war memorials for the two World Wars, but from the 1950s the public and commissioning bodies became more comfortable with Modernist sculpture and large public commissions both abstract and figurative became common. Picasso was commissioned to make a maquette for a huge 50-foot (15 m)-high public sculpture, the so-called *Chicago Picasso* (1967). His design was ambiguous and somewhat controversial, and what the figure represents is not clear; it could be a bird, a horse, a woman or a totally abstract shape.

During the late 1950s and the 1960s abstract sculptors began experimenting with a wide array of new materials and different approaches to creating their work. Surrealist imagery, anthropomorphic abstraction, new materials and combinations of new energy sources and varied surfaces and objects became characteristic of much new modernist sculpture. Collaborative projects with landscape designers, architects, and landscape architects expanded the outdoor site and contextual integration. Artists such as Isamu Noguchi, David Smith, Alexander Calder, Jean Tinguely, Richard Lippold, George Rickey, Louise Bourgeois, and Louise Nevelson came to characterize the look of modern sculpture.

By the 1960s Abstract expressionism, Geometric abstraction and Minimalism, which reduces sculpture to its most essential and fundamental features, predominated. Some works of the period are: the Cubi works of David Smith, and the welded steel works of Sir Anthony Caro, as well as welded sculpture by a large variety of sculptors, the large-scale work of John Chamberlain,

and environmental installation scale works byMark di Suvero. Other Minimalists include Tony Smith, Donald Judd, Robert Morris, Anne Truitt, Giacomo Benevelli, Arnaldo Pomodoro, Richard Serra, Dan Flavin, Carl Andre, and John Safer who added motion and monumentality to the theme of purity of line.

During the 1960s and 1970s figurative sculpture by modernist artists in stylized forms was made by artists such as Leonard Baskin, Ernest Trova, George Segal, Marisol Escobar, Paul Thek, Robert Graham in a classic articulated style, and Fernando Botero bringing his painting's 'oversized figures' into monumental sculptures.

Gallery of modernist sculpture

Contemporary movements

Site specific and environmental art works are represented by artists: Andy Goldsworthy,Walter De Maria, Richard Long, Richard Serra, Robert Irwin, George Rickey, and Christo and Jeanne-Claude led contemporary abstract sculpture in new directions. Artists created environmental sculpture on expansive sites in the 'land art in the American West' group of projects. These land art or 'earth art' environmental scale sculpture works exemplified by artists such as Robert Smithson, Michael Heizer, James Turrell (Roden Crater). Eva Hesse, Sol LeWitt, Jackie Winsor, Keith Sonnier, and Bruce Nauman, among others were pioneers of Postminimalist sculpture.

Also during the 1960s and 1970s artists as diverse as Eduardo Paolozzi, Chryssa, Claes Oldenburg, George Segal, Edward Kienholz, Nam June Paik, Wolf Vostell, Duane Hanson, and John De Andrea explored abstraction, imagery and figuration through video art, environment, light sculpture, and installation art in new ways.

Conceptual art is art in which the concept(s) or idea(s) involved in the work take precedence over traditional aesthetic and material concerns. Works include One and Three Chairs, 1965, is by Joseph Kosuth, and An Oak Tree by Michael Craig-Martin, and those of Joseph Beuys and James Turrell.

Minimalism

Tony Smith, *Free Ride*, 1962, 6'8 x 6'8 x 6'8 (the height of a standard US door opening),Museum of Modern Art, New York

Donald Judd, *Untitled*, 1991, Israel MuseumArt Garden, Jerusalem

Postminimalism

Robert Morris, *Untitled*, 1967/1986, steel and steel mesh, National Gallery of Art

Bruce Nauman, *Human/Need/Desire*, 1983, Neon sculpture

Richard Long, *South Bank Circle*, 1991
Tate Liverpool, England

Contemporary genres

Some modern sculpture forms are now practiced outdoors, as environmental art and environmental sculpture, often in full view of spectators. Light sculpture and site-specific art also often make use of the environment. Ice sculpture is a form of ephemeral sculpture that uses ice as the raw material. It is popular in China, Japan, Canada, Sweden, and Russia. Ice sculptures feature decoratively in some cuisines, especially in Asia. Kinetic sculptures are sculptures that are designed to move, which include mobiles. Snow sculptures are usually carved out of a single block of snow about 6 to 15 feet (4.6 m) on each side and weighing about 20–30 tons. The snow is densely packed into a form after having been produced by artificial means or collected from the ground after a snowfall. Sound sculptures take the form of indoor sound installations, outdoor installations such as aeolian harps, automatons, or be more or less near conventional musical instruments. Sound sculpture is often site-specific. Art toys have become another format for contemporary artists since the late 1990s, such as those produced by Takashi Murakami and Kid Robot, designed by Michael Lau, or hand-made by Michael Leavitt (artist).

Conservation

Visible damage due to acid rain on a sculpture

Sculptures are sensitive to environmental conditions such as temperature, humidity and exposure to light and ultraviolet light. Acid rain can also cause damage to certain building materials and historical monuments. This results when sulfuric acid in the rain chemically reacts with the calcium compounds in the stones (limestone, sandstone, marble and granite) to create gypsum, which then flakes off.

At any time many contemporary sculptures have usually been on display in public places; theft was not a problem as pieces were instantly recognisable. In the early twenty first century the value of metal rose to such an extent that theft of massive bronze sculpture for the value of the metal became a problem; sculpture worth millions being stolen and melted down for the relatively low value of the metal, a tiny fraction of the value of the artwork.

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