

Image economies

- 100,000 BCE Stones painted animal figures in Namibia, Africa
- 30,000 BCE First cave paintings created in Chauvet, France
- 18,000–15,000 BCE Cave paintings created in Lascaux, France
- 18,000–10,000 BCE The Magdalenian culture flourishes in the wide area from Portugal in the west to Poland in the east, and produces the Magdalenian art system
- 14,800–14,400 BCE Cave paintings created in Altamira, Spain
- 8200 BCE Stones engraved with geometric line designs and representations of animals in the Wonderwerk Cave in South Africa
- 4000 BCE First cosmetics used in Egypt
- 3000 BCE The Egyptians, Babylonians, Chinese, and Japanese use light and shadow for shadow plays
- 3000 BCE The Chaldeans in Mesopotamia use magnifying lenses in studies of light
- 3000 BCE The Japanese create mirrors
- 3000 BCE Art studios, where works are fabricated and apprentices are trained, present in Egypt
- 400 BCE Chinese philosopher Mo Ti and the Mohists realize that light travels in straight lines as did the Greeks
- 400 BCE Democritus attempts to explain perception and color claiming that color was due to such properties as the roughness of the constituent atoms
- 390 BCE Plato explains the allegory of the cave in *The Republic* and says that vision is caused by discrete rays that emanate from the eye
- 350 BCE Aristotle in *On the Form of the Eclipse* writes that objects emit light, which the eye sees, and he observes during an eclipse that light is always circular

The image of the sun at the time of the eclipse, unless it is total, demonstrates that when its light passes through a narrow, round hole and is cast on a plane opposite to the hole, it takes on the form of a moon-sickle. The image of the sun shows this peculiarity only when the hole is very small. When the hole is enlarged, the picture changes — Aristotle, *On the Form of the Eclipse*

- 300 BCE Euclid's *Optics* relates the apparent size and shape of an object to its distance from the eye and describes the law of reflection
- 290–212 BCE In several treatises on catoptrics, Archimedes studies reflections from surfaces and refraction; according to legend, he uses the reflection of the sun's rays on glasses to burn Roman ships
- 230 BCE Aristarchus of Samos proposes a heliocentric model of the solar system, placing the sun, not the Earth, at the center of the known universe
- 140 BCE Crates of Mallus devises a globe to represent the Earth
- 130 BCE Astronomer Hipparchus compiles a star catalogue specifying the positions and the brightness of 850 stars
- 50 Seneca describes the magnification of objects in water

Letters, however small and indistinct, are seen enlarged and more clearly through a globe of glass filled with water — Seneca

- 54 Roman Emperor Claudius Caesar Augustus Germanicus (Nero) watches the gladiator games

using an emerald as a corrective lens

62 Hero of Alexandria writes in *Catoptrica* about concave, convex, and plane mirrors, and explains the law of reflection

79 Trompe l'oeil (French for “trick the eye”), an art technique employed in murals at Pompeii, creates the optical illusion of the existence of real objects

140 Ptolemy in *Almagest* explains refraction, reflection, the persistence of vision, and stereoscopic projection

151 Ptolemy draws 26 maps of various countries

180 Ting Huan invents the Pipe Which Makes Fantasies Appear, a device hung over a lamp that unifies illumination and movement through the convection of hot air from the lamp

730 Byzantine Emperor Leo III issues an iconoclastic edict forbidding the use of religious images in Byzantine churches

776 Beatus of Liébana's *Commentary on the Apocalypse* contains illuminated manuscripts and one of the oldest maps of the world

900 Vikings in Sweden use Visby lenses, elliptical lens-shaped rock crystals for magnification and starting fires

1015 Hassan Ibn-al-Haytham's *Book of Optics* explains a camera obscura (Latin for “dark room”), a darkened room or box with a small hole through one wall, magnification using mirrors, and the process of vision, showing that light is reflected from an object into the eye

1020 Avicenna (Ibn Sina) suggests that light is emitted from the eyes and united with the air

1154 Muhammad al-Idrisi's *Geography* includes the Tabula Rogeriana, a southern-oriented world map later used by Christopher Columbus

1225 The word *image* first appears in the English language

1230 Robert Grosseteste in *De luce* (On the Metaphysics of Light) states that light is the “first form” of all things and that it can be reduced to lines and points

1267 In *Opus Majus*, a treatise on mathematics, optics, alchemy, and astronomy, Roger Bacon asserts that light travels through a medium as sound does

He who knows not mathematics cannot know the other sciences or the things of this world. . . . Those who have no knowledge of mathematics do not perceive their own ignorance. Conversely, knowledge of this science prepares the mind and raises it up to a well-authenticated knowledge of all things — Roger Bacon

1280 Alessandro di Spina introduces spectacles in Florence, Italy

1310 Theodoric of Freiberg explains the optics of the rainbow in *De iride* (On the Rainbow)

1415 Italian architect Filippo Brunelleschi applies the principles of linear perspective to painting

1435 Leone Alberti studies the representation of three-dimensional objects and writes the first general treatise on the laws of perspective

1447 In *I Commentarii*, Lorenzo Ghiberti shows the relevance of al-Haytham's, Bacon's, and other earlier ideas on optics (then called perspective) to art

1470 Painter Piero della Francesca explains the mathematics of perspective, a technique for creating the appearance of three dimensions in two-dimensional works such as paintings or reliefs

First is sight, that is to say the eye; second is the form of the thing seen; third is the distance from the eye to the thing seen; fourth are the lines which leave the boundaries of the object and come

to the eye; fifth is the intersection, which comes between the eye and the thing seen, and on which it is intended to record the object — Piero della Francesca, *On Perspective for Painting*

1480 Leonardo da Vinci compares the reflection of light to the reflection of sound waves

1503 da Vinci paints the *La Gioconda* (also known as the *Mona Lisa*)

1510 Siennese artist Baldassarre Peruzzi in Villa Farnesina, Rome, along with Andrea Pozzo, Pietro da Cortona, Gianbattista Tiepolo and other artists of the period, introduces *quadratura*, a technique of painting illusionary architecture in perspective on a ceiling

1519 Raphael paints *Pope Leo X with Two Cardinals* in which the pope holds a concave lens

1530 Nicolaus Copernicus in *De Revolutionibus caelestibus* asserts that the Earth rotates on its axis once daily and travels around the sun once yearly

1536 Michelangelo Buonarroti paints *The Last Judgement* in the Sistine Chapel in Rome; the images of nude saints painted in a house of prayer prompt violent reactions

A man paints with his brains and not with his hands — Michelangelo Buonarroti

1563 The Council of Trent of the Catholic Church launches the Counter Reformation campaign using sculpture and painted religious images as means of propaganda

1564 Commissioned by the Catholic Church, Daniele da Volterra supplies draperies, the so-called *braghe* (pants), to several nude figures in Michelangelo's *The Last Judgement*

1572 Tycho Brahe builds numerous giant instruments that measure astronomical phenomena with unprecedented accuracy and witnesses a supernova

1590 Zacharias Janssen builds a compound microscope

1596 David Fabricius discovers the first known variable star, a star with changing luminosity

1604 Johannes Kepler publishes *Astronomia pars Optica* (The Optical Part of Astronomy) and explains the workings of the eye, lenses, and atmospheric refraction, suggesting that the intensity of light varies inversely with distance

1608 Telescope patented by spectacle-maker Hans Lipperhey in the Netherlands

1609 Galileo Galilei creates a telescope that magnifies objects twenty times and reveals sunspots, the four satellites of Jupiter, the phases of Venus, and the existence of Earth-like valleys and mountains on the moon

1609 Kepler's telescope shows the advantage of amplified projection, the biconvex (ocular) lens, and inverting the image

1610 Galileo in *Sidereus Nuncius* (Starry Messenger) proves the Copernican heliocentric system

1621 Willebrord Snell discovers the law of refraction, a basis of modern geometric optics

1637 René Descartes in *La Dioptrique* compares the eye to the camera obscura, with the retina as the screen of the camera

1640 Athanasius Kircher presents a slideshow, which was projected onto a screen with illumination from behind by a candle

1660 Dutch painter Jan Vermeer Van Delft uses the camera obscura in his works such as *View of Delft*

1665 Robert Hooke uses a compound microscope

1668 Isaac Newton designs reflecting telescope

1671 Newton introduces the spectrum and divides it into seven colors, which corresponds to the numerology of the number seven

1672 Newton discovers that a curved lens can divide white light into the colors of the spectrum

If I have ever made any valuable discoveries, it has been owing more to patient attention than to any other talent — Isaac Newton

1750 Jean-Baptiste Le Prince invents the aquatint process, which François Janinet first employs for color prints

1784 Benjamin Franklin invents bifocals with divided lenses for seeing near and far

1789 William Herschel constructs the reflecting telescope

1798 Alois Senefelder invents lithography in Bohemia

1800 Herschel discovers infrared radiation using a prism to refract light from the sun

1810 Johann Wolfgang von Goethe writes *Theory of Colours*, describing colored shadows, refraction, and hyperchromatism, stating that color arises from the interplay between light and dark

A single color excites, by a specific sensation, the tendency to universality. In this resides the fundamental law of all harmony of colors — Johann Wolfgang von Goethe, *Theory of Colors*

1817 Scottish scientist David Brewster updates the kaleidoscope (Greek for “beautiful form to see”), an optical tube-like instrument containing mirrors and translucent disks, used as a scientific tool, toy, and art object

1826 Nicéphore Niépce invents heliography, a process of producing permanent photographs

1834 George Horner invents the zoetrope, a device that produces an illusion of action from a rapid succession of static pictures, in the U.K.

1838 Charles Wheatstone invents the stereoscope, a single camera with two lenses that produces a double-image of illusionary three-dimensional quality

1839 Louis Daguerre invents the daguerreotype, a photographic process that permanently fixes an image

1839 John Herschel coins the term *photography* and first uses the words *negative* and *positive* to refer to photos

1840 Alexander Wolcott patents his camera in the U.S.

1841 William H. Talbot patents the calotype process, a negative-positive process that produces multiple copies

1843 An advertisement in Philadelphia uses a photograph

1850 William Bond records the first photographic image of a star (Vega)

1850 Working-class daguerreotype portrait studios in the U.S. charge 50 cents per image, the equivalent of a half day’s labor

1851 Frederick Scott Archer in the U.K. invents the collodion process: images require only two to three seconds of light exposure

1856 William Thompson takes underwater pictures using a camera mounted on a pole

1858 Aerial photography originates in France when Gaspard Nadar, aloft in balloon, records views of Paris

1859 Panoramic camera, the Sutton, patented

1861 Oliver W. Holmes popularizes stereoscopic viewer

1861 James Clerk Maxwell takes the first permanent color photo

1863 Mathew Brady documents the U.S. Civil War by taking photographs on the battlefield

1865 Photographs and photographic negatives added to protected works under copyright law

1870 Henry R. Heyl patents Laterna Magica (magic lantern), the ancestor of the modern slide projector, in Philadelphia
1872 Eadweard Muybridge takes 24 separate photographs of a running horse by placing an equal number of cameras in a row, which lays the foundation for future motion pictures
1874 Exhibition of paintings by Paul Cézanne, Edgar Degas, Claude Monet, Auguste Renoir, and other painters of the period in Paris leads to the birth of impressionism, a style characterized by working outdoors and short brush strokes of bright colors used to recreate the impression of light on objects
1878 Samuel Pierpoint Langley develops the bolometer, an electrical detector of radiant heat, used in studying the intensity of the sun's infrared radiation
1879 Muybridge develops zoopraxiscope, an early film camera capable of projecting a series of images in successive phases of movement
1881 David Houston patents the roll film for cameras
1882 Étienne-Jules Marey builds the Fusil Photographique, a portable motion-picture camera used to take 12 frames of birds in flight
1884 Paul Nipkow invents a scanning disk and patents the first electromechanical television system
1884 The first flashbulb photograph taken
1887 Heinrich Hertz accidentally discovers the photoelectric effect
1887 Serbian inventor Nikola Tesla investigates X-rays and develops a single-electrode X-ray tube in the U.S.

Science is but a perversion of itself unless it has as its ultimate goal the betterment of humanity
— Nikola Tesla

1888 Heinrich Hertz discovers that radio waves can be bounced off objects
1888 George Eastman invents the easy-to-use, lightweight Kodak camera that is marketed under the slogan: "You press the button, we do the rest"
1889 The Eastman Kodak Company puts transparent roll film on the market in the U.S
1889 A mechanically scanned color system patented in Russia
1891 Thomas Edison develops the Kinetograph, the first motion picture camera, and the Kinetoscope, the viewing device
1892 William Dickson and Edison introduce 35mm film, a basic film format in still photography and motion pictures

Many of life's failures are people who did not realize how close they were to success when they gave up.— Thomas Edison

1893 Louis Boutan takes underwater pictures while diving using surface-supplied hard hat diving gear
1895 Auguste and Louis Lumière invent the cinematograph and launch their first movie
1895 Wilhelm Röntgen isolates and names X-rays
1898 Hannibal Goodwin patents celluloid photographic film
1899 John W. Strutt (Lord Rayleigh) explains why the sky is blue and sunsets are red
1900 The Brownie camera is mass-marketed
1900 Paul Ulrich Villard discovers gamma rays, the most energetic form of radiation in existence

1900 Infrared radiation detected from Jupiter and Saturn and from some bright stars (Vega and Arcturus)

| 1902 French filmmaker Georges Méliès shoots the pioneering science-fiction film *Le Voyage Dans La Lune* (A Trip on the Moon) by using trick photography with superimposed images, dissolves, and cuts

1902 The first moving-picture theater opens in Los Angeles, charging 10 cents for a one-hour show

1903 The narrative film *The Great Train Robbery* uses innovative techniques such as the jump-cut, the close-up, and camera movement

1905 Albert Einstein explains the photo-emissive photoelectric effect (the emission of an electron strain when light is shone upon metal), creating the foundation for the discovery of photons

1908 Georges Braque and Pablo Picasso in Paris develop cubism, an art style in which geometrically modeled, near-monochrome forms constantly play against one another, creating abstract vibrations of light

| When we discovered cubism, we did not have the aim of discovering cubism. We only wanted to express what was in us — Pablo Picasso

1910 Georges Claude creates a neon (from the Greek word *neos*, or gas) lamp in France

1913 Edison designs motion pictures with sound

1914 John Ernest Williamson shoots an underwater motion picture

1914 Edward Steichen pioneers the use of photography for military purposes

1915 William Coblentz develops thermopile detectors to measure the infrared radiation from 110 stars

1916 Einstein proposes that space and time form a structure that can be curved by a body's presence

1919 Felix the Cat by Pat Sullivan's studio, the first cartoon designed for the screen, becomes a licensed and mass-merchandised character

| 1922 *The Power of Love*, the 3-D movie viewed with spectacles with red and green lenses

1923 Vladimir Zworykin invents the iconoscope, the first practical television camera

1923 W. H. Longley and Charles Martin shoot underwater color photos

1923 Packard car dealership in Los Angeles purchases neon gas signs, dubbed "liquid fire," from France for outdoor advertising

1924 Zworykin invents the first all-electronic television system, which produces images about one-inch square

I hate what they've done to my child. . . . I would never let my own children watch it

| — Vladimir Zworykin on television

1924 Louis de Broglie discovers the wave nature of electrons

1925 John Logie Baird invents mechanical television, a precursor to the modern television

1926 Warner Brothers Pictures develops and uses sound synchronization in movies

1927 Technicolor invented

1927 Philo Taylor Farnsworth demonstrates a working television system

1927 "Talking" film *The Jazz Singer*, starring Al Jolson, debuts in the U.S.

1928 The *New York Times* mounts the first moving electric sign in Times Square

1928 Zworykin patents a color television system

1929 The Eastman Kodak Company introduces motion-picture film designed specifically for movies with sound

1929 *On With the Show*, first “talking” movie filmed entirely in color, released

1930 Harold Edgerton credited with transforming stroboscopes from an obscure laboratory instrument into a pedestrian device in every camera

1932 Edwin Herbert Land invents Polaroid photography

1933 Ub Iwerks invents the multiplane camera

1933 Max Knott and Ernst Ruska coinvent the electron microscope, capable of magnifying objects 400 times, in Germany

1937 Picasso paints *Guernica*

1938 Albert Prebus and James Hillier build the Transmission Electron Microscope in Toronto

1938 More than 80 million movie tickets sold per week in the U.S., equal to one ticket per week for 65% of the population

1939 Russians Semyon and Valentina Kirlian invent the Kirlian photography, a tool that provides images of energy flow in the patient’s body

1940 Lawrence Bragg produces usable X-ray images

1940 Peter Goldmark invents modern color television

1940 Robert Watson-Watt invents radar in the U.K.

1942 John Atanasoff and Clifford Berry build the first electronic digital computer

1945 Vannevar Bush describes the first wearable computer imaging systems in his essay “As We May Think” in the *Atlantic Monthly*

1946 Rene Alphonse Higonnet and Louis Marius Moyroud develop the Lumitype, the first practical phototypesetting machine

1947 Land invents the Polaroid camera

1947 The earliest computer game, a missile simulation, created in the U.S.

1948 Infrared studies of the moon reveal that its surface is covered with a fine powder

1950 X-rays used to produce an X-ray microscope

1950 Infrared cameras or thermal imagers developed for military use during the Korean War

1951 Erwin Müller pioneers field ion microscopy

1951 Charles Ginsburg invents the first videotape recorder (VTR)

1954 RCA TK-40, a color television camera, commercialized widely

1957 *Sputnik*, a Russian artificial satellite, enters orbit

1957 Jean De Wouters and Jacques-Yves Cousteau design the Calypsophot camera

1958 Ultrasound invented

1958 Arthur Schawlow and Charles Townes propose that the maser, a device that produces microwave radiation, could be used to create the laser

1958 German scientist Julius Hagemann patents side-scan sonar for mapping the seabed for nautical charts, detection and identification of underwater objects, and conducting archaeological surveys

1959 Harold Johnson builds near-infrared photometers to measure the radiation from cool stars

1960 Robert Rauschenberg and Andy Warhol call attention to silk-screening, a technique reserved for commercial printing that allows for accurate reproduction

1960 Extreme depth underwater camera developed for the U.S. Navy

1960 Using unmanned spacecrafts, Europe, Japan, the U.S., and the U.S.S.R. begin exploring

Mars

1961 Claude Shannon and Edward Thorp construct a wearable computer, designed to predict roulette wheels

1963 Inexpensive Kodak Instamatic cameras feature easy-load film cartridge

1966 Ed Thorp and Claude Shannon publish their work on the first wearable computers

1966 The first view of the Earth taken by a spacecraft near the moon

1967 The Hi Star project, which surveys the cosmos up to a 20 millionth of a meter, produces an infrared all-sky map from infrared telescopes placed on rockets

1967 Godfrey Hounsfield in England invents the computed tomography (CT) scanner used in diagnostic medical imaging

1968 Bob Sproull and Ivan Sutherland create the first virtual reality (VR) and head mounted display (HMD) system

1968 *2001: A Space Odyssey* sets the standards for space design in film

1969 Willard Boyle and George Smith invent the CCD (charge-coupled device), an image sensor that receives charges via the photoelectric effect to create electronic images in digital photography

1970 Magicube flashbulb with pyrotechnic detonator invented

1970 First IMAX film is demonstrated at Expo '70 in Osaka, Japan

1970 Earth-observing satellites use radar to measure the Earth's topography

1970 Liquid crystal display (LCD) invented by Hoffmann-LaRoche in Switzerland

1971 Speckle interferometry, a technique for astronomical imaging, invented

1971 Toshiba produces the color video phone

1971 Xerox researcher Gary Starkweather produces the laser printer

1972 Profits from the Beatles' record sales enable EMI Laboratory to develop CT scanners in diagnostic medical imaging for commercial use

1972 Philips Company in the Netherlands develops the video disk

1973 Fairchild Semiconductor releases first large image-forming CCD chip

1973 *Pioneer 10* takes close-up images of Jupiter

1974 The full-body X-ray scanner first used on medical patients

1975 Sony develops Beta VCR system, and Matsushita develops the VH system, both in Japan

1976 First electron laser invented

1976 Ted Turner develops first nationwide programming via satellite

1977 First full-body Positron Emission Tomography (PET) scanner used in medical research

1977 *Star Wars* released in movie theaters and later becomes a hit in a variety of media, including film, television, books, comics, and games

1978 Konica introduces point-and-shoot autofocus camera

1979 *Voyagers 1* and *2* photograph Jupiter

1980 Sony demonstrates the first consumer camcorder

1980 Very Large Array radio telescope completed

1980 First commercial use of the magnetic resonance imaging (MRI) scanner

1980 Fujifilm and Eastman Kodak coinvent the disposable camera, popular with tourists and amateur underwater photographers

1980 Turner launches CNN, the first 24-hour news channel

1980 *Voyagers 1* and *2* photograph Saturn

1981 Gerd Karl Binnig and Heinrich Rohrer discover atomic resolution in Scanning Tunneling Microscopy in Switzerland

1984 Canon demonstrates first electronic still camera

1985 PCR-I PET scanner produces 3-D images of the patient's body by detecting injected drugs

1985 Exhibition of kaleidoscopes in Strathmore, Maryland, fuels interest in kaleidoscopes as art form

1985 Pixar introduces the digital imaging processor

1986 Fuji introduces the disposable camera

1986 Atomic Force Microscope creates 3-D surface profile of scanned objects

1987 First 3-D video game invented

1989 *Voyager 2* transmits a close-up of Neptune

1990 Virtual endoscopy, which produces 3-D images of inside the human body, developed

1990 Adobe Photoshop, a program for editing digital images, entrenched as the industry standard

1990 Videophone consoles sold

1990 Eastman Kodak announces the photo CD as a digital-image storage medium

1990 *Voyager 1*, 4 billion miles away, takes the most distant image of the Earth

1990 *Magellan* spacecraft maps most of Venus

1990 Hubble Space Telescope launched into orbit to collect astronomical data and images

1990 Philips, Sony, and Toshiba develop the DVD

1992 WITNESS, an international human rights organization, uses video to advocate for change in human rights campaigns on a global scale

1992 A videotaped incident of Los Angeles police officers beating Rodney King and the acquittal of the officers incites the Los Angeles riots

1993 The Web's support of JPEG (joint photographic experts group) format brings worldwide access to images

1993 The Grand Alliance consortium establishes U.S. standards for high-definition TV (HDTV)

1993 MRI scanners used for detecting damage to soft tissues such as cartilage, membranes, and brain tissues

1994 Worldwide media cover the collision of the comet Shoemaker-Levy 9 and Jupiter

1994 Adaptive optics applied to ground-based astronomical telescopes allows the detection of extremely faint objects

1996 The first DVD players and discs available in Japan

1996 Canon, Fujifilm, Kodak, Minolta, and Nikon introduce Advanced Photo System still film format

1996 Lawrence Livermore Laboratory develops 1.25 PW, the world's most powerful laser

1996 The comet Hale-Bopp passes the Earth close enough to be seen by the naked eye

1997 *Cassini* spacecraft with radar instruments launched to study Saturn

1997 *Sojourner* transmits images from Mars

1997 Philippe Kahn invents the mobile phone with built-in camera

1997 Antarctic Mapping Mission uses high-resolution imaging, in large part to provide insight into climate processes

1999 *Matrix*, the first film to sell more than one million DVDs, evolves the use of bullet time, a visual effect that allows the viewer to explore a moment progressing in slow motion while the camera appears to orbit around the scene at normal speed

1999 Chandra X-ray Observatory, the world's most powerful X-ray telescope, launched to study black holes, quasars, and novae by mapping the X-ray energy at the edge of the observable universe

2000 Mobile phone cameras play a significant role in crime prevention, journalism, and business

applications

2000 Hyperspectral Imaging Techniques applied to ecosystem health monitoring

2000 Cadillac introduces a far-infrared night vision as an option on its Deville model

2001 VLTI (Very Large Telescope Interferometer), the largest optical telescope in the world, begins operating

2001 Ground-based optical interferometers observe details 100 times finer than the Hubble Space Telescope

2001 Polaroid files for bankruptcy protection

2001 Given Imaging in Israel introduces pill-sized endoscopic capsule with a camera

2002 Two-megapixel digital cameras sell for less than \$100

2002 NASA produces the Blue Marble—the most detailed true-color images of the Earth's surface, coastal oceans, sea ice, and clouds—and makes it available online free of charge

2002 Circuit City and Best Buy stop selling VHS tapes

2003 Infrared Fever Screening System used in public buildings scan for people with a high temperature from SARS or a fever

2003 Terahertz camera produces a T-ray image of a human hand, taken through a 1/2-inch pad of paper

2003 The Spitzer Space Telescope launched with a goal to make images of the oldest objects in the universe

2003 Mars Global Surveyor transmits the first image of Earth taken from another planet

2004 Numerous images of U.S. military personnel abusing prisoners at Iraq's Abu Ghraib prison, taken by the abusers themselves, circulate on the Web, resulting in political scandal

2004 Approximately 100 billion photos now taken each year

2004 DVD sales and rentals total \$21.2 billion

2004 Digital imaging overtakes film as Kodak stops selling film cameras in the developed world

2004 Hubble Ultra Deep Field captures the deepest-ever portrait of the visible universe

2004 NASA's *Spirit Rover* lands on Mars in search of evidence of life and water activity

2004 *Cassini* arrives on Saturn; its images lead to the discovery of two new moons of Saturn

2004 Endoscopic capsules capturing 0.4 megapixel video at up to 30 frames per second, take tissue samples and deliver medications to patient's body

2005 The South African Large Telescope (SALT) observes stars and galaxies one billion times too faint to be seen by the naked eye

2005 Danish newspaper *Jyllands-Posten* publishes 12 editorial cartoons with blasphemous images of the Islamic prophet Muhammad, which causes political controversy

2006 4.2 million pornographic websites on 372 million pages occupy 12% of the Web, with 72 million visitors annually; 90% children ages 8–16 in the U.S. have watched online porn

2006 Edward Steichen's 1904 autochrome *The Pond-Moonlight* sells for more than \$2.9 million at Sotheby's in New York

2006 *Pioneer 10* becomes the first spacecraft to leave the solar system

2006 Hubble Space Telescope captures a look at the Orion Nebula and thousands of stars never seen before in visible light

2006 Gustav Klimt's 1907 portrait *Adele Bloch-Bauer One* sells for \$135 million to the Neue Galerie in New York

