

Entries 1001 to 1500

Reference Material of the Quatrains, Sixains, Presages of Michel de Nostredame

1001 Book of the Dead, Tibetan.



The Bardo Thodol, Liberation Through Hearing During the Intermediate State, revealed by Karma Lingpa (1326–1386).



The Tibetan text describes, and is intended to guide one through, the experiences that the consciousness has after death, in the bardo, the interval between death and the next rebirth. The text also includes chapters on the signs of death

and rituals to undertake when death is closing in or has taken place.

1002 Bikini Atoll, an atoll in the central Pacific Ocean in the Marshall Islands. It was the site of US atomic and hydrogen bomb tests (some underwater) from 1946 to 1958. (Atoll: a ring-shaped reef, island, or chain of islands formed of coral.)

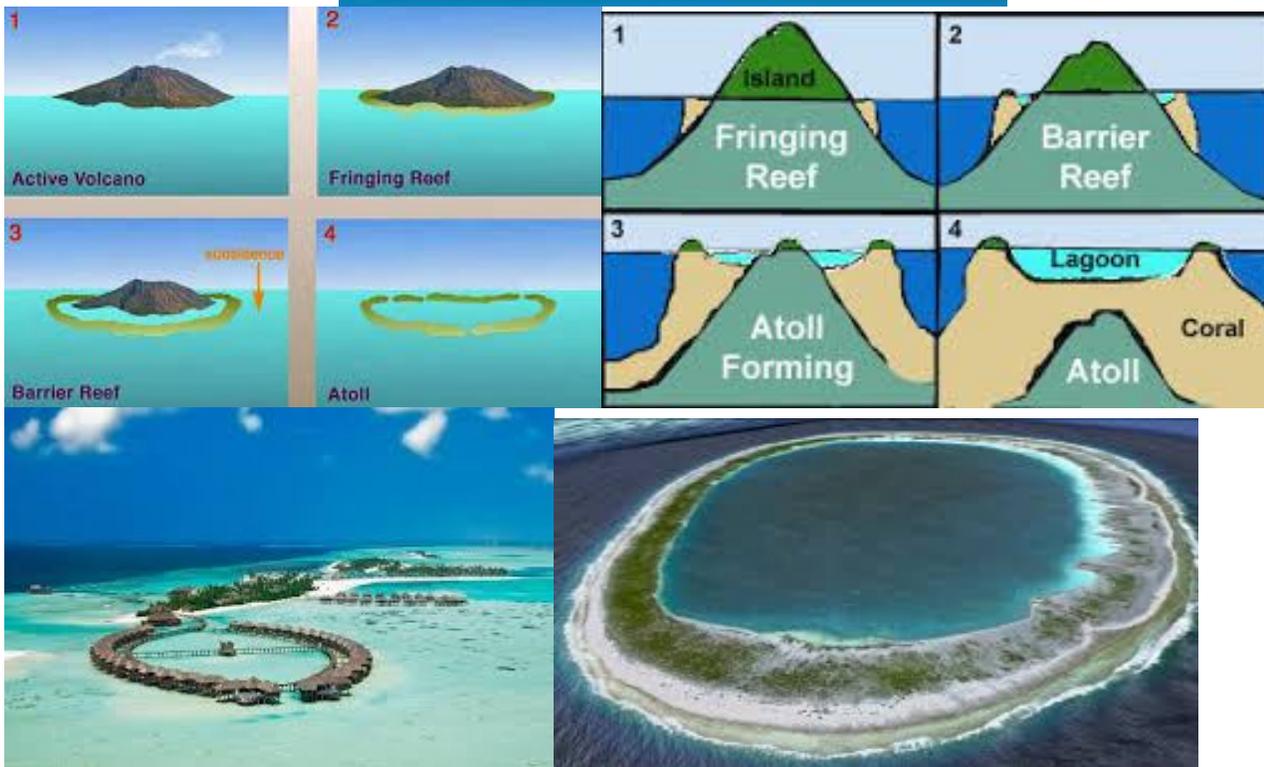
NOSTREDAME: Edgar Leoni and mine other student, students of mine, Dolores Cannon,

This is Quatrain IX-9.

The markets to fall means that they are careful of public opinion.
Pertaining to the US nuclear bomb testings 1946 to 1958.

When the lamp burning with inextinguishable fire
Will be found in the temple of the Vestals:
Child found fire, water passing through the sieve:
To perish in water Nimes, Toulouse, the markets to fall.

NOSTREDAME: They chose an atoll for the reason that it would appear as a volcano had erupted and then it became an atoll. It was to hide what they were doing. Thus in the first picture, there is the assumption of what is being pictured, and as people do not go into these areas to photograph, this was how they would hide the testings.



1003 beryllium, an alkaline-earth metal. Salts are highly toxic and require careful handling. It occurs in nature in such minerals as beryl and phenacite. It is transparent to X-rays and is used as windows on X-ray tubes. Alloys with copper are extensively used and the oxide, having a high melting point, is used as a ceramic.

1004 Benelius, Jöns Jakob (1779-1848), Swedish chemist, whose main work was the discovery of atomic compositions of chemical compounds. he discovered the elements selenium (1817), silicon (1824), and thorium (1828) and determined the atomic and molecular weights of more than 2000 elements and compounds. He introduced the current notation for

chemical formulae and the use of oxygen as a reference standard for atomic weights Following the invention of electric cells. Berzelius experimented on electrolysis and developed a theory of electrostatic bonding in compounds. He published a standard textbook of chemistry in 1830.

- 1005 Bes, the Egyptian god of recreation, also associated with children and childbirth. Images of the god, represented as a grotesque dwarf with a tail, were kept in homes as protection against evil.
- 1006 Ukraine, Bessarabia. Part of the Soviet Union. Bessarabia is very fertile, the main crops are wine grapes, fruit, wheat, and tobacco; cattle and sheep are raised. The chief industry is agricultural processing. The region was colonized by the Greeks and later fell successively to the Romans, Huns, Magyars, Mongols, and Turks, passing to Russia in 1812. In 1918, Bessarabia declared its independence, later voting for union with Romania. In 1940 Romania gave up Bessarabia to the Soviet Union.
- 1007 Bessarion, John (c. 1400-72), Greek scholar and cardinal. As Archbishop of Nicaea, he attempted to unite the Byzantine and Western Churches, eventually joining the latter and settling in Italy, where he became a cardinal in 1439. He was an outstanding scholar and exercised an important influence in introducing the study of Greek in the Renaissance. His large library of Greek manuscripts is preserved in Venice.
- 1008 Bessemer, Sir Henry (1813-98), British engineer and inventor, process for manufacturing cheap steel or Bessemer process.
- 1009 Best, Charles Herbert (1899-1978), US physiologist. Best discovered choline, a B vitamin. The Banting and Best department of medical research was created at Toronto University in 1923, to discover the technique for isolating the hormone insulin from pancreatic tissue.
- 1010 bestiary, a medieval treatise containing short accounts of different species of animal, both real and imaginary.
- 1011 Bestuzhev-Riumin, Aleksei Petrovich, (1693-1766), allied Russia with Austria and Britain against France and Prussia, a policy made obsolete by the realignment of European alliances on the eve of the Seven Years' War. He was dismissed in 1758.
- 1012 Betelgeuse, an immense remote yet conspicuous red supergiant, over 500 light years distant, that is the second brightest star in the constellation Orion. It is a variable star with its magnitude ranging, usually, from 0.3 to 0.9 over a period of about 5.8 year.

- 1013 Bethany, a village on the West Bank of the Jordan River, near Jerusalem. Christ resurrected Lazarus here (John 11. 1-44).
- 1014 Bethe, Hans Albrecht (1906-2005), US physicist. After studying under Rutherford he returned to Germany but left when Hitler came to power. After two years in England he finally settled in the US, working on the atom bomb during World War II. His earlier researches in quantum electrodynamics proved valuable in working out the details of the nuclear fusion process that occurs in stars.
- 1015 Bihari, an Indo-Aryan language spoken in Bihar India.
- 1016 Bijapur, a city in India, the Karnataka. The ancient capital of a powerful Islamic kingdom (1489-1686), it has many fine Islamic buildings.
- 1017 Bilbao, a port in N Spain, the largest city in the Basque Provinces of the Nervión River. Ship building.
- 1018 bilberry,
- 1019 Bilbo, Theodore Gilmore (1877-1947), US politician, senator from Mississippi (1935-47).
- 1020 Bilderdijk, Willem 1756-1831), Dutch poet and dramatist. He was a precursor of Romanticism in Dutch literature. Of his many poetic works, the most memorable is an unfinished epic poem on biblical themes entitled *De ondergang der eerste wereld* (The Destruction of the First World; 1810).
- 1021 bile, a yellow, green, or brown fluid secreted by the liver and stored in the gall bladder. Contraction of the gall bladder, causes the bile to be expelled through the common bile duct into the intestine.
- 1022 Billroth, Christian Albert Theodor (1829-94), surgeon. Pioneered surgical operations on the stomach and intestine.
- 1023 Billy the Kid (William H. Bonney/Henry McCarty; 1859-81), US outlaw, raised in the West, 21 deaths had been attributed to him.
- 1024 bimetallism, a monetary system in which currency was convertible into either of two metals (usually gold and silver) in a fixed ratio. When adopted by many countries at the beginning of the 19th century it proved unstable, as one metal was always undervalued and one overvalued. Compare gold standard.
- 1025 binding energy, the energy released when protons and neutrons bind together to form an atomic nucleus.
- 1026 Binet, Alfred (1857-1911), French psychologist, using simple objects and pictures in tests to assess their character and intelligence.

- 1027 Bing, Sir Rudolf (1902-1997) British opera administrator, born in Austria. He was a founder (1933) and general manager of the Glyndebourne Festival Opera for more than a decade. He helped found the Edinburgh Festival and was its artistic manager (1947-49).
- 1028 bingo (former names: tombola: housy-housy), a gambling game that developed in the 1880s from the children's game of lotto.
- 1029 binoculars, a portable optical instrument used for magnifying distant objects.
- 1030 binomial nomenclature, a system devised by Linnaeus in the 18th century for the scientific naming of plants and animals, each species being identified by two internationally recognized Latin names—the name of the genus (written with an initial capital letter) followed by the name of the species.
- 1031 bioassay, a test of the strength or quantity of a biologically active substance by a comparison of its effect upon animals, isolated tissues, or microorganisms with that of a standard preparation.
- 1032 Bío-Bío River, a river in Chile. Rising in the Andes, it flows generally NW to enter the Pacific Ocean and forms the S boundary of middle Chile. Length: about 240 mi (390 km).
- 1033 biochemistry, the scientific study of the chemical composition and reactions of living organisms. Development of the appropriate analytical technique has enabled great advances in modern biochemistry, dating from the 1900s.
- 1034 biochemistry, metabolism and the determination of the complex sequence of reactions involved in the digestion of food, the utilization of energy, the manufacture of new tissues, the breakdown of old tissues, and the formation of excretion products. Biochemists are also concerned with the role of genes, hormones, and enzymes in initiating and controlling metabolic reactions. This understanding is necessary to determine the requirements of a balanced diet as well as the causes and possible treatment of many diseases.
- 1035 biodegradable substances, materials that can be broken down by biological processes—such as decomposition by fungi and bacteria—and can therefore be reused by living organisms. Substances that are non-biodegradable, such as plastics, can persist in the environment, causing pollution.
- 1036 bioengineering (or biomechanics), the application of biological and engineering principles to the design and manufacture of equipment for use in conjunction with biological systems. Examples include artificial

- limbs, bean pace-makers, heart-lung machines, and life-support systems for astronauts and deep-sea divers.
- 1037 biofeedback, type of alternative medicine in which the patient attempts to treat chronic problems such as pain and headaches by focusing on the desired goal. Through watching the data output by sensors connected to the body, the patient learns to alter such functions as heart rate and muscle tension to lessen discomfort.
- 1038 biogenetic law (or recapitulation theory), a theory of Ernst Haeckel in 1866 stating that the development of an animal in its lifetime (or ontogeny) tends to recapitulate the evolutionary development of its ancestors (or phylogeny).
- 1039 biological control, the control of pests by the use of living organisms. The controlling agent is usually a predator, parasite, or disease of the pest organism. For example, the virus disease myxomatosis was introduced to Australia and Britain to control the rabbit population.
- 1040 biological sciences, the scientific disciplines concerned with the study of life. The earliest recorded biological observations come from ancient Egypt but it was Greek and Roman scholars, such as Aristotle Hippocrates, and Galen who made the first detailed anatomical descriptions of living things.
- 1041 biological sciences, in the 16th the 17th centuries, anatomists as Vesalius and William Harvey in the introduction of the microscope in the 17th century enabled microorganisms, tissues, and individual cells (or cytology).
- 1042 biological sciences, Gregor Mendel reported his findings on the principles of inheritance, which are fundamental to genetics, not until 1953 that James Watson and Francis Crick determined the molecular structure of DNA—the genetic material.
- 1043 biological sciences, in the 20th century progress in biochemistry, physiology, cell biology, and biophysics has been made possible by innovations in microscopical and analytical techniques, such as electron microscopy, chromatography, and the use of radioactive tracers. Biological discoveries revolutionized both medicine and agriculture. (or botany; ecology; ethology; zoology).
- 1044 biological warfare, the use of disease-causing microorganisms as weapons in World War I.
- 1045 biological warfare, deployed probably in an aerosol package dropped by bombers or delivered in the warhead of a missile. Alternatively, they could be added to water or food supplies in a covert operation.

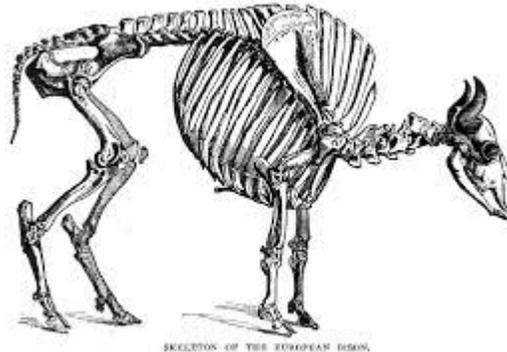
- 1046 biopsy, the removal of a sample of living tissue from the body for microscopic examination.
- 1047 biosphere, the zone of the earth and its atmosphere that is occupied by living organisms. The most heavily populated regions of the biosphere are the surfaces of land and sea.
- 1048 birch, a deciduous tree or shrub, of the N hemisphere. Birches grow to a height of up to 80 ft (25 m) and have thin smooth bark, pale gray or yellowish-brown, that peels off in strips.
- 1049 psittacosis disease are transmitted to man by birds.
- 1050 bird cherry, a small tree, of upland Europe, up to 50 ft (15 m) high with dark bark and pale-green oval leaves, finely serrated around the margins.
- 1051 bird cherry, the sweet-scented white flowers are grouped in loose clusters. The small black bitter-tasting fruits are fermented to make alcoholic drinks. Family: Rosaceae.
- 1052 bird of paradise, a bird, 12-25 in (30-65 cm) long, occurring in New Guinea and neighboring islands. Brightly colored, with long tail feathers and ornamental plumes, and performs an acrobatic display. Their feathers are much prized and were formerly exported for use in ladies' hats.
- 1053 Birdseye, Clarence 1886-1956), US inventor and industrialist. He worked on a method of fast-freezing food and packaging it and, by 1924, had founded a company that eventually became General Foods, Continuing to work on better methods of freezing, he accumulated over 300 patents and greatly reduced the amount of time needed for freezing.
- 1054 bird's nest fern, an Old World tropical fern, that has a dense rosette of upward-pointing leaves, 24-48 in (60-120 cm) long, with a central hollow forming a nest in which humus collects. The roots branch into this to obtain water and nutrients. The plant is grown for ornament. Family: Aspleniaceae.
- 1055 bird spider, any of the large tarantula spiders that may catch and eat small birds.
- 1056 Birkhoff, George David (1864-1944), US mathematician, who gave the Maxwell-Boltzmann theory of gases a rigorous mathematical basis. Theory of aesthetics and of gravitation. (or statistical mechanics.)
- 1057 Birmingham, city in central England, in the West Midlands. Britain's second largest city, it is a center of the motor-vehicles industry.
- 1058 Birô, Laszlo (1900-85) Hungarian inventor of ball-point pen containing quick drying ink

quick-drying ink.

- 1059 birthmark, a blemish that is present on the skin at birth, caused by a defect in the skin cells or by an abnormality of the underlying blood vessels.
- 1060 birthstone, in astrology, a gemstone associated with a particular date of birth. June is the pearl.
- 1061 Biscay, Bay of (French name: Golfe de Gascogne: Spanish name: Golfo de Vizcaya). An inlet of the Atlantic Ocean. off the coast of W France and N Spain. It is comparatively deep and subject to gales and rough seas.
- 1062 bisexuality, also homosexuality.
- 1063 Bismarck, von Otto Eduard Leopold, (1815-98) Prussian statesman: first chancellor of the German Empire (1871-90). A conservative, known as the Iron Chancellor. Bismarck came to prominence after the collapse of the Revolution of 1848. As Prussian foreign minister (1862-71) he is determined to establish Prussian hegemony in Germany and to undermine Austrian dominance there. He embroiled Austria in war over Schleswig-Holstein and following its defeat in the Austro-Prussian War of 1866 William I of Prussia became president of the North German Confederation. After victory in the Franco-Prussian War (1870-71), William accepted the imperial crown and Bismarck became chancellor of the German Empire. Bismarck's domestic policy in succeeding years was concerned chiefly with keeping liberalism at bay. He also came into conflict with the Roman Catholic Church and, abroad, presided over the Congress of Berlin (1878) and formed the Triple Alliance with Austria and Italy. Losing the support of William II, Bismarck resigned in 1890 er the abolition of antisocialist laws.
- 1064 Bismarck Archipelago, a group of volcanic islands in the SW Pacific Ocean, in Papua New Guinea. It includes New Britain, New Ireland, and the Admiralty Islands. Area: 19,173 sq mi (49,658 sq km).
- 1065 bismuth, a dense white brittle metal, by-product of lead, copper, tin, silver, and gold refining and also occurs naturally as the pure metal, the sulfide, and the oxide. Has unusual properties for a metal, having low thermal and electrical conductivity, and decreasing in volume on melting. With tin and cadmium it is used to make low-melting alloys in fire prevention systems.
- 1066 bison, a massive hoofed mammal. The North American bison, once abundant on the plains, weighing up to 2200 lb (1000 kg). It has a

shaggy mane and low-slung head with incurved horns. **NOSTREDAME:** In these pictures of the European bison, you can see that the head is there in a menacing position, that is no different than the Asian and other-worlds' attacks upon America. The United States of America is historically a nation that is not the common nation, for its Christianity, and for its sponsorship by the Christed and Buddhic beings of the Great White Brotherhood.

Thus it was hoped by Hierarchy that the Christ teachings would grow into the highest morality, and from the United States' isolationism and protection, it would then be expanding out throughout the world from these United States.



SKELTON OF THE EUROPEAN BISON.

- 1067 wisent, the smaller European bison.
- 1068 bit, a binary digit. The basic unit of information in information theory and computer memory stores.
- 1069 bittern, a bird, found throughout the world in swamps and reedbeds, The European bittern is a solitary bird, about 28 in (70 cm) long, with a yellow-brown dark-streaked plumage that provides excellent camouflage. The male produces a "booming" call. The little bittern is only 14 in (34 cm) long with bullish-white wing patches.
- 1070 bittersweet, a perennial plant, the woody nightshade.
- 1071 bitumen, the tarry residue left after distillation of oil, lignite, or coal, consisting almost entirely of a mixture of carbon with large hydrocarbon molecules. Its principal uses are in roadmaking, waterproofing

- buildings, and binding cement. Bitumen sometimes occurs naturally in asphalt lakes.
- 1072 bivalve, a mollusk, having two hinged shell plates (valves) and include clams, mussels, oysters, and scallops. Some hermaphrodite bivalves, including *Ostrea* oysters, incubate the fertilized eggs.
- 1073 Bizet, Georges (1838-75), French composer.
- 1074 Bjerknes, Vilhelm Friman (1862-1951), Norwegian meteorologist and physicist. A pioneer of weather forecasting, his 1897 mathematical models of atmospheric and oceanic motions led to his full-scale meteorological predictions (1904). His son Jakob Bjerknes, also a meteorologist, initiated the use of high-altitude photography in weather surveys and forecasting (1952).
- 1075 Black and Tans, the soldiers recruited by the British Government to fight the IRA in Ireland in 1920-21. Their name derives from their uniform, khaki with black caps and belts. They acted with great severity and were hated by the Irish.
- 1076 black bear, the native bear of North American forests. The name is also used for the Himalayan black, or moon, bear, which inhabits forests of central and E Asia and has a white V-shaped mark on its chest.
- 1077 blackberry (or bramble), a prickly scrambling shrub, eaten raw or made into pies, jellies, preserves. Family: Rosaceae,
- 1078 blackbird, a songbird, that is one of the commonest European birds, particularly in urban areas, 10 in (25 cm) long, is black with a bright-yellow bill and eye ring; or dark brown with a dark bill. Blackbirds feed chiefly on worms and other invertebrates but will also eat scraps.
- 1079 black body, a theoretical body that absorbs all the electromagnetic radiation falling upon it. When heated it emits radiation (black-body radiation) having a continuous distribution of wavelengths with a maximum at a particular wavelength, which depends only on the temperature of the body.
- 1080 blackbirding, the kidnapping of Polynesians to provide slave labor for the sugar and cotton plantations of Australia and the South Pacific islands. Legislation against it was passed in Australia (1868) but was not effective, and it was not until the beginning of the 20th century that the practice died out.
- 1081 Black Codes (1865-66), laws enacted by Southern states regarding the rights of the free blacks. Interracial marriages were prohibited, public facilities were segregated, and work and court rights were restricted.

- The Civil Rights Act (1866) and the Fourteenth Amendment to the Constitution (1868) forced the states to repeal these laws.
- 1082 blackbuck, a common antelope, *Antilope cervicapra*, of Indian grasslands. Blackbucks are about 31 in (80 cm) high; females are yellowish brown and males darker, both with white underparts. Males have ridged spiral horns up to 26 in (65 cm) long. They live in herds of 10-30 animals, grazing at dawn and dusk.
- 1083 blackcap, a European warbler. About 6 in (14 cm) long, it has an olive-brown plumage with paler underparts and a darker or a reddish-brown cap. Blackcaps feed chiefly on insects but-before migrating, they eat fruit to build up energy reserves.
- 1084 blackcurrant, a shrub.
- 1085 Black Death, the worst outbreak of plague, principally bubonic but also pneumonic and septicemic, of the medieval period. Originating in the Far East, it spread through Europe and England in May 1348. Estimates of mortality rates vary from 20% to more than 50%. The outbreak had a profound effect not only on demographic trends but also upon rural society and the economy as a whole. Further outbreaks followed in the 1350s and 1370s.
- 1086 black earth or chernozem.
- 1087 Blackett, Patrick (1897-1974), British physicist. He made the first cloud-chamber photographs showing nuclear disintegrations as a result of bombardment (1925) and identified the disintegration products. He improved the Wilson cloud-chamber detector and used it in the study of cosmic radiation (1948).
- 1088 Black Forest, an extensively forested mountainous area in SW Germany, in Baden-Württemberg E of the Rhine Valley. Covered chiefly with coniferous forests, the timber industry is important with associated cuckoo-clock making and woodcrafts; tourist area.
- 1089 black grouse, a Eurasian grouse, of moorlands.
- 1090 Black Hand, a Serbian secret society pledged to the liberation of Serbs from Habsburg and Ottoman rule. On June 28, 1914, they were responsible for the assassination of the Austrian archduke, Francis Ferdinand, an event contributing to the outbreak of World War I.
- 1091 Black Hawk War (1832), a conflict between the US and the Sauk and Fox Indians.
- 1092 black hole, a celestial "object" that has undergone such total gravitational collapse that no light can escape from it; its escape velocity

gravitational collapse that no light can escape from it: its escape velocity exceeds the speed of light (or velocity of light). Once a collapsing object's radius has shrunk below a critical value (the Schwarzschild radius) it becomes a black hole; for a star, this radius is about 6 mi (10 km) or less. The surface having this radius is called the event horizon of the black hole. The object will continue to contract until compressed to an infinite density at a single central point--a singularity. A black hole is thus a region of greatly distorted space (and time) the size of which increases with the mass of the contracting material. No black hole has as yet been unambiguously detected. The collapsed core remaining from the supernova explosions of massive stars are, however, promising candidates, especially if they are components of a binary star and thus more easy to detect. The X-ray binary Cygnus X- I has a probable black-hole component. It has been suggested that blackholes of immense size and mass (10^6 to 10^9 solar masses) may exist at the centers of certain galaxies and be powerful sources of energy.

- 1093 blackmail, in law, the criminal offense of making any unreasonable demand with a view to gain, backed up by a threat of violence or injury to the person involved or to his property or by a threat of exposing his immorality or misconduct.
- 1094 black mass, an obscene and blasphemous celebration by satanists of the devil.
- 1095 Blackmore, Richard Doddridge (1825-1900), British historical novelist, *Lorna Doone*.
- 1096 Blackmun, Harry Andrew (1908-1999), US Supreme Court in 1970, *Roe v. Wade* (1973).
- 1097 Black Muslims, members of the Nation of Islam movement movement led by Elijah Muhammad (1897-1975) and won support among blacks in northern industrial cities.
- 1098 Blackpool, a resort in NW England, entertainment center famous for its Tower modeled on the Eiffel Tower.
- 1099 Edward, the Black Prince
- 1100 Black Sea, an inland sea bounded by Bulgaria, Romania, Moldova, Ukraine, Russia, Georgia, and Turkey; it is connected to the Mediterranean Sea via the Bosphorus in the SW and to the sea of Azov in the N. The principal towns on its coast are Burgas and Varna in Bulgaria, Constanta in Romania, Odessa and Sevastopol in Ukraine, and Trabzon in Turkey. Its salinity is kept low principally by the influx of fresh water from the Danube and Dnepr Rivers.

- 1101 Blackstone, Sir William (1723-80) British jurist, His fame rests largely on his Commentaries on the Laws of England (1765-69), a series of lectures delivered at Oxford. Highly influential in legal education, they presented the first comprehensive account of English law. Blackstone became a member of Parliament in 1791 and a judge in 1770.
- 1102 black swan, the only Australian swan. Almost 40 in (1 m) in length, both sexes have a pure black plumage, red bill, and a trumpeting call.
- 1103 blackthorn (or sloe), a thorny shrub.
- 1104 blackwater fever, a serious complication of malaria. The patient has a high fever and jaundice and requires careful nursing, with blood transfusions.
- 1105 Blackwell, Elizabeth (1821-1910), US physician, first woman doctor in the US.
- 1106 black widow, a venomous spider, also called button or redback spider, (*Lactrodectus*), found in tropical and subtropical regions. *L. mactans*, the most common North American species, has a shiny black body, 1 in (25 mm) long, with red markings on the abdomen. (The male is about 0.24 in [6 mm] long and usually killed and eaten by the female after mating). The bite of this spider—although—serious—is rarely fatal. Family: Theridiidae.
- 1107 bladderworts are submerged aquatic plants with finely divided leaves bearing small bladders, which trap tiny aquatic animals by a trapdoor mechanism triggered by sensitive hairs. The two-lipped tubular flowers protrude above the water, Some bladderworts are troublesome weeds of ricefields.
- 1108 Blanc, Louis (1811-82), French socialist. A utopian and revolutionary, from 1839 Blanc propagated his doctrines of economic equality in his journal *Revue du progrès*; the axiom “from each according to his ability, to each according to his needs” formed the basis of his thought. Although a member of the provisional government in the Revolution of 1848, he found little support for his views among his colleagues and fled to England. Returning to Paris in 1870, he remained active in left-wing causes until his death. His books include *Organisation du travail* (1840).
- 1109 Blanche of Castile (c. 1188-1252), the daughter of Alfonso VIII of Castile, she married (1200) Louis VIII of France. As regent of France for her husband (1223-26) and her son Louis IX (1226-36, 1248-52), she ruled firmly, suppressing a revolt of the nobility and effecting peace with England.

- 1110 Bland-Allison Act (1878) US law that regulated the federal purchase and coinage of silver. Congressman Richard P. Bland (1835-99) campaigned for unlimited coinage of silver, which was unacceptable to Congress. When modified by Senator William R. Allison (1829-1908), the bill, which put limits on but provided for consistent coinage, passed.
- 1111 blast furnace, a furnace heated by solid fuel, usually coke, through which a blast of air is blown to aid combustion. Blast furnaces are used in the smelting of ore, In steel making, iron ore, coke, and limestone are poured in at the top of a vertical furnace and hot air is blown in at the bottom to burn the coke, Molten iron is drawn off at the bottom. A glassy waste, called slag, is also produced.
- 1112 Blavatsky, Helen Petrovna (1831-91), Russian theosophist, who founded the Theosophical Society in New York in 1875.
- 1113 bleaching powder (or chloride of lime), a whitish powder containing calcium hypochlorite , calcium chloride, calcium hydroxide, and water. It reacts with dilute acids to produce chlorine, which acts as a bleaching agent.
- 1114 bleak, a fish, related to the carp. with a slender silvery green body, about 8 in (20 cm) long. It lives in schools near the surface of fresh waters in N Europe and feeds on invertebrates. The scales are used in the manufacture of artificial pearls.
- 1115 bleeding.
- 1116 hemorrhage.
- 1117 bleeding heart, an ornamental plant especially from Siberia and Japan and from North America. They are perennials with arching stems, up to 35 in (90 cm) long, bearing strings of large rose-red heart-shaped flowers with whitish tips, which glisten when the blooms are fresh.
- 1118 Bleeding Kansas (1854-56) Kansas during conflicts between pro-slavery and abolitionist settlers. Bloody skirmishes among the territory's settlers were common before President Pierce established a fragile peace in 1856.
- 1119 Blenheim, Battle of (August 13, 1704), the battle won by the Duke of Marlborough and Eugene of Savoy against the French army in the War of the Spanish Succession.
- 1120 Blenkinsop, John (1783-1831) British engineer, who built the first practical steam locomotive (1812), a twin-cylinder engine driving cogs that engaged with rack rails.

- 1121 blewits, an edible mushroom. *Tricholoma* (or *Lepista*) *saevum*, occurring mainly in open pastures. It has a bluish-gray stalk and a flat clay-colored cap, 2-5 in (6-12 cm) in diameter, producing pale-pink spores. The wood blewits (*T. nudum*) has a lilac or purple cap and is usually found beneath trees. It also is edible. Family: *Tricholomataceae*.
- 1122 Bligh, William (1754-1817) British admiral. He accompanied Cook on his second voyage around the world and in 1787 was sent to Tahiti on the *Bounty* to collect specimens of the breadfruit tree. Setting sail for home, his crew mutinied and deserted, leaving Bligh and 18 officers aboard a small boat without maps. He eventually reached safety. He was made governor of New South Wales (1805-08) where another mutiny took place (or Rum Rebellion.)
- 1123 blight, a severe disease of plants caused by pests, fungi. or other agents or by a mineral deficiency. Symptoms commonly include spotting followed by wilting, and the plant eventually withers and dies. The notorious potato blight that devastated Ireland in the mid-19th century was caused by the fungus *Phytophthora infestans*. Control measures against blights vary according to the cause of the disease.
- 1124 blindness, sudden blindness may be caused by direct injury to the eye or to the part of the brain that receives the visual signals.
- 1125 Blindness that develops gradually is caused by a wide variety of diseases, including trachoma, glaucoma, cataracts, diabetes mellitus, and tumors (especially of the pituitary gland), that compress the optic nerve.
- 1126 blister, an accumulation of fluid (usually colorless serum) within the skin.
- 1127 blister beetle, a colored beetle, about 0.4-0.6 in (10-15 mm) long.
- 1128 blister beetle, the larvae are parasitic upon other insects.
- 1129 Blitzkrieg (German: lightning war), a military tactic aiming to shock and disorganize enemy forces by swift surprise attacks using tanks and aerial bombardment. It was extensively used by the Germans in World War II in Poland, Belgium, the Netherlands, France, and Africa. It was also used by the US general Patton, in Europe in 1944. The Blitz refers to the intensive German air raids on London during the battle of Britain in World War II. Between July and December 1940, 23,000 civilians died.
- 1130 Bloch, Ernest (1880-1959), Swiss-born composer of Jewish descent.
- 1131 Bloch, Felix (1905-83), US physicist, born in Zurich. After working in Germany he left Europe when Hitler came to power and emigrated to

- Ger many he left Europe when Hitler came to power and emigrated to the US, be coming a citizen in 1939. He developed the nuclear magnetic resonance technique for magnetic field measurements in atomic nuclei. Bloch's concept of magnetic neutron polarization (1934) enabled him to measure the neutron's magnetic moment. During World War II he worked on the development of the atomic bomb.
- 1132 Orange Free State in South Africa.
- 1133 Blois, city in France, the capital of the Loir-et-Cher department on the Loire River. It has a famous chateau, begun in the 13th century, and trades in wine, brandy, and grain.
- 1134 Blondel, Maurice (1861-1949), French philosopher. He invented a philosophy of action, seeking a compromise between intellectualism and pragmatism. His chief works are *Action*, *The Process of Intelligence*, and *Being and Beings*.
- 1135 Blood, Council of (or Council of Troubles; 1567-74), a court established in the Low Countries during the Revolt of the Netherlands by the Spanish governor, the Duke of Alba, to suppress Protestantism and particularism. Thousands were imprisoned or executed without proper trial and, following the arrest of two prominent magnates, Egmont and Horn, many others fled abroad. Alba used the threat of the council to impose the tenth penny, an unpopular tax that united Catholics and Calvinists against Spain. After Alba's departure (1573). the council was abolished.
- 1136 blood fluke, a parasitic flatworm, which causes the disease schistosomiasis in many parts of the world. The flukes inhabit blood vessels, feeding on blood and causing severe debilitation.
- 1137 fluke, also see blood fluke.
- 1138 blood groups, consists of four groups A, B, AB, and O. Group A cells carry the A antigen and the plasma contains antibodies against B antigen (anti-B antibodies); the converse applies to group B blood. Transfusion of blood between these groups will cause destruction of the donor blood cells (see blood transfusion). Group O blood contains neither antigen and can therefore be used in transfusions to people of groups A and B. Group AB blood contains neither anti-A nor anti-B antibody: people of this blood group can accept both A and B blood during transfusion.
- 1139 rhesus factor, blood-group systems, the rhesus system.

- 1140 bloodhound, an ancient breed of dog with a keen sense of smell, widely used for tracking purposes.
- 1141 blood poisoning or septicemia.
- 1142 blood transfusion
- 1143 bloodworm, the larva of nonbiting midges. It lives in stagnant water and is red owing to the pigment hemoglobin, which it uses to help increase its supply of oxygen.
- 1144 Bloomfield, Leonard (1887-1949), US linguist, whose book *Language* (1933) outlines a strictly scientific behaviorist framework for the description of language, on which modern American structural linguistics is based.
- 1145 bluefish, a food fish, also called tailor or snapper, up to 4 ft (1.2 m) long, with a whitish belly, a large mouth, and two dorsal fins. It lives in large schools and preys voraciously on other fish.
- 1146 blue-green algae, microscopic algae, 1500 species, which contain a blue pigment (phycocyanin), in addition to the green chlorophyll. They are single cells or filaments and resemble bacteria in their primitive structure (e.g. the genetic material is not organized into a distinct nucleus). Reproduction is asexual. Blue-green algae are widely distributed on land and in water. They occur on moist surfaces of rocks and trees, and in the soil, where they contribute to nitrogen fixation. Aquatic blue-green algae are a constituent of plankton, sometimes forming dense concentrations (blooms), which color the water.
- 1147 Blue Rider, s group of artists formed in Munich in 1911 by Marc and Kandinsky: primitive and naive art, children's pictures, and religious paintings on glass. Their aim was to unite in an expressionist style.
- 1148 Blue Sky Law, a term referring to any law that protects those who buy stocks and bonds from unscrupulous schemes that promise "the blue sky."
- 1149 Bluestockings, a group of intellectual society hostesses in 18th-century England. They included Lady Mary Wortley Montagu and the novelist Fanny Burney.
- 1150 blue whale, the largest living whale, *Balaenoptera musculus*, large animal, over 98 ft (30 m) and weighs over 150 tons. Widely distributed in world oceans.
- 1151 boa, a snake of the constrictor with a camouflaging pattern of blotches and diamonds. They kill their prey by biting and then constricting. The boa constrictor, occurring from Mexico to Argentina, is about 12 ft (3.5

m) long.

- 1152 The boa constrictor hunts birds and small mammals at night, and bears live young.
- 1153 Boadicea (Latin name: Boudicca; d. 60 AD), Queen of the Iceni. Her husband Prasutagus ruled in what is now Norfolk (England). At his death in 60, Roman officials attempted to seize his wealth and maltreated Boadicea and her daughters. Boadicea committed suicide.
- 1154 Boas, Franz (1858-1942) German-born US anthropologist. He strongly opposed the racial theories propounded by the Nazis.
- 1155 boatbill, a nocturnal heron. occurring in tropical American swamps. It is about 20 in (50 cm) tall and has a gray plumage with black markings on the head and neck. It closely resembles the night heron but has a characteristic broad flattened hook-tipped bill.
- 1156 bobolink, an American oriole, that nests in Canada and the northern states of the US and migrates to South America in winter.
- 1157 Bobruisk, a port in Belarus on the Berezina River. It has an 18th-century fortress.
- 1158 Boccaccio, Giovanni (1313-75), Italian writer and poet.
- 1159 Bochum, city in NW Germany, in North Rhine-Westphalia. It is the site of the Ruhr University (1965). The manufacture of cars, textiles, and chemicals has replaced coal mining and iron and steel production.
- 1160 Bodawpaya (d. 1819), King of Burma (1789-1819). His aggressive policies ensured considerable expansion of Burmese territory during his reign. He annexed Arakan (1785), Manipur (1813), and Assam (1816) and almost precipitated an Anglo-Burmese war by demanding the surrender of Chittagong, Dacca, and Murshidabad from the British Indian government. His sudden death averted a confrontation.
- 1161 Bode's law or Titius-Bode law, a relationship between the distances of the planets from the sun. Take the number sequence 0, 3, 6, 12, 24, add 4 to each number, and divide each sum by 10. The resulting sequence is in good agreement with observed planetary distances (in astronomical units) out to Uranus, provided the belt of minor planets is considered a single entity. Formulated by Johann Titius (1729-96) and popularized in 1772 by Johann Bode (1747-1826), it is still unexplained by theory.
- 1162 Bodhidharma (6th century AD), Indian Buddhist patriarch from Conjeeveram, near Madras. He entered China about 520. Teaching a form of meditation called dhyana (Chinese ch'an, Japanese zen), he is credited with founding Zen Buddhism.

- 1163 Bodhisattva, in Mahayana Buddhism, the title of a person who is to become a Buddha. The term is also used to describe the Buddha (Gautama) before his enlightenment. The Bodhisattva ideal is that of the individual who seeks enlightenment not for himself alone but for all beings. In Indian art the Bodhisattvas are depicted as youthful and represent various aspects of the nature of Buddha.
- 1164 Bodin, Jean (1530-96) French philosopher and jurist. Although a Protestant, he was a successful lawyer and became parliamentary representative of Vermandois (1576). He visited Britain in 1581 where his belief in witchcraft, propounded in *Démonmanie des sorciers* (1580), later influenced James I.
- 1165 Bodleian Library, the major library of Oxford University, first established in 1409 and restored and enlarged by Sir Thomas Bodley from 1598 to 1602. Since 1610 it has been entitled to receive a free copy of every book published in Britain; it contains well over 2.5 million volumes.
- 1166 Bodoni, Giambattista (1740-1813), Italian printer. In 1768 he became the Duke of Parma's printer and, influenced by François-Ambroise Didot (1730-1804), began to design his own typefaces. The best known, designed in 1790 and named for him, is still in use.
- 1167 Boeotia, a region of central Greece, N and W of Attica.
- 1168 Boer. See Afrikaner.
- 1169 Boar Wars (or South African Wars), the wars fought against the British by the Boers or Afrikaners of South Africa. In the first (1880-81) the Boers of the Transvaal under Kruger rebelled against British rule. After inflicting a massive defeat on the British garrison at Majuba Hill, the Transvaal regained its independence under the Pretoria Convention. In the second Boer War (1899-1902) the Boer forces of the South African Republic, previously the Transvaal. They suffered reverses during 1900 but, using guerrilla tactics, were able to hold off the British. The British devastated the countryside, rounded up Boer women and children, of whom some 20,000 died in concentration camps, and finally defeated the Boers, who lost their independence in the Peace of Vereeniging (1902).
- 1170 Boethius, Anicius Manlius Severinus (c. 480-524 AD), Roman statesman and philosopher. A patrician by birth, Boethius was consul in 510 during the Gothic occupation of Rome under Theoderic, to whom he became chief minister. His championing of Roman traditions and

institutions earned Theoderic's displeasure, and Boethius was imprisoned, tortured, and eventually executed. A dialogue between the author and the personification of philosophy, the *Consolation* seeking to prove that virtue alone remains constant and the knowledge of God is the only true wisdom.

- 1171 Bogart, Humphrey (1899-1957) US film actor. *Casablanca*.
- 1172 Bogor (former name: Buitenzorg), city in Indonesia, on W Java. It is famed for its botanical garden (1817) and former Dutch governor general's residence (1745). It is an agricultural center with an agricultural university (founded 1963) and an important research institute.
- 1173 Bogota, Santa Fe, the capital of Colombia, on a fertile central plateau of the E Andes at an altitude of 8600 ft (2640 cm). Founded by the Spanish in the early 16th century on the site of the conquered Indian settlement of Bacatá, it became capital of the viceroyalty of New Grenada and an important cultural center.
- 1174 Bohemia, an area and former province (1918-49) of W Czechoslovakia. It consists chiefly of a plateau enclosed by mountains. John of Luxemborg elected king (1310). The golden age of Bohemia was established by his son Charles I (Emperor Charles IV), who founded the university at Prague in 1348. The reigns of his successors were marked by religious upheavals inspired by Jan Hus (see Hussites). The accession (1526) of Archduke Ferdinand began the long Habsburg domination of Bohemia. It was laid waste during the Thirty Years' War and after the Peace of Westphalia (1648) forcible Germanization and oppressive taxation reduced most Czechs to misery. There was a rebirth of Czech nationalism during the 19th century but full independence was only attained at the end of World War 1, when Bohemia became part of the Republic of Czechoslovakia.
- 1175 Bohemond I (c. 1056-1111), Prince of Antioch (1099-1111). He fought (1080-85) with his father Robert Guiscard against Alexius I Comnenus and was a leader of the first Crusade, during which he took Antioch (1098). He was captured by the Turks (1100-03) and after renewed warfare with Alexius became his vassal (1108).
- 1176 Böhm, Karl (1894-1981) Austrian conductor, who was noted particularly for his performances of operas by Mozart and Richard Strauss.
- 1177 Böhme, Jakob (1575-1624) German Lutheran theosophist, who lived most of his life as a shoemaker in Silesia. *Aurora* condemned by the local authorities. Although forbidden to write, he later published such works

- as *Der Weg zu Christo* and *Mysterium magnum* (both 1623). He was influenced by Paracelsus, alchemy, and astrology but also claimed divine inspiration for his writings. His central belief is diabolical and is his alone, that God is the source of everything including evil, since he had two wills, one good and the other evil. He has influenced many thinkers, notably Hegel and Schelling.
- 1178 Bohr, Niels Henrik David (1885-1962), Danish physicist. He made an immense contribution to atomic theory by combining Rutherford's nuclear model with Planck's quantum theory. The model of the atom he proposed (the Bohr atom) was modified by Sommerfeld, is essentially the basis for modern atomic theory. Bohr also invented the concept of complementarity to combine the particle and wave aspects of subatomic particles. During the 1930s his Institute of Theoretical Physics in Copenhagen became a haven for many Jewish and other physicists expelled by Hitler. In 1939 he took news of Meitner's and Hahn's uranium fission work to the US and started the process that culminated in the manufacture of the atomic bomb. Bohr himself later worked at Los Alamos on the bomb, after escaping from German-occupied Denmark. A fervent advocate of atomic energy for peaceful uses, he organized the first Atoms for Peace Conference in 1955. His son Aage Bohr (1922-2009) also in work on atomic theory.
- 1179 Bolardo, Matteo Maria, (1441-93), Italian poet. Chief work was the unfinished *Orlando innamorato*, a chivalrous epic about Roland (Charlemagne) and the precursor of the more famous *Orlando furioso* by Ariosto.
- 1180 boil, an inflamed pus-filled swelling on the skin. A carbuncle is a collection of boils situated close together.
- 1181 Bolleau-Despréaux, Nicolas (1636-1711), French poet and critic, translated Longinus' treatise *On the Sublime*.
- 1182 Bois de Boulogne, a park in W Paris, France. bordering on the Seine River, presented to the city in 1852 by Napoleon III and contains the Auteuil and Longchamp racecourses. Area: 2125 acres (860 ha).
- 1183 boiling point, the temperature at which the vapor pressure of a liquid is equal to the atmospheric pressure. The boiling point of a liquid is usually given at standard atmospheric pressure (101,325 pascals).
- 1184 Boise, city of Idaho.
- 1185 Bokhara, or Bukhara.

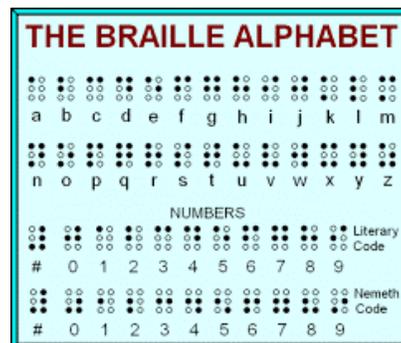
- 1186 Boleslaw (I) the Brave (c. 966-1025), the first King of Poland, who extended the territory of the Polish principality, which he inherited in 992, and was crowned king (1000) by Emperor Otto III. He reorganized the Polish church, making it responsible directly to the pope and independent of the German church.
- 1187 Boletus, a genus of mushrooms. It has a short stalk and a gray or grayish-green cap 4-8 in (10-20 cm) in diameter. Family: Boletaceae.
- 1188 Boleyn, Anne (c. 1507-36), the second wife (from 1533) of Henry VIII of England and the mother of Elizabeth I. Henry soon tired of Anne, who was accused of adultery and executed.
- 1189 Bolger, James Brendan (1935~), New Zealand political leader; prime minister. A fanner, he became involved with National Party politics on the local level before winning election to Parliament in 1972. Although elected prime minister, Bolger faced diminishing public support as the country's economy slumped.
- 1190 Bolingbroke, Henry St John, 1st Viscount (1678-1751) English statesman and philosopher. A Tory, he became a member of parliament in 1701 and was secretary of war (1704-08) before becoming secretary of state for the North in 1710. A supporter of the Jacobites, he fled to France (1715-25) after their failed rebellion. There, he encountered the major thinkers of the "Enlightenment (including Voltaire) and wrote *Reflections upon Exile* and *Reflections Concerning Innate Moral Principles*. He became the bitter opponent of Robert Walpole and wanted to create a Country Party of Whigs and Tories united by their opposition to Walpole. In 1735 he returned to France. He also wrote *The Idea of a Patriot King* (1749).
- 1191 Bolivar, Simon (1783-1830), South American soldier and statesman, known as the Liberator. The son of a wealthy Venezuelan creole family, his childhood tutor and subsequent travels in Europe instilled in Bolivar a lasting admiration for the ideas of the Enlightenment. He returned to Latin America in 1807 and devoted the rest of his life to its liberation from Spain. In 1813 he seized Caracas but after defeat in 1814 went into exile until 1817. His victory at the battle of Boyacá (1819) achieved the liberation of New Granada, which was renamed Colombia. Bolívar became its president after liberating Venezuela and Quito (Ecuador) in 1821, and organized a federation of the three newly independent states. Latin America was finally freed of the Spanish by campaigns in Peru, and Upper Peru took the name Bolivia in honor of Bolívar who became its president. His dream of a united Andean republic was never realized.

- and he died disillusioned by the political bickering that thwarted this goal.
- 1192 Bolivia, an inland country in central South America. The discovery of tin and silver at Potosi soon after the Spanish conquest led to great prosperity.
- 1193 Böll, Heinrich (1917-85), German novelist.
- 1194 boll weevil, a stout brownish weevil, also called cotton boll weevil. Originally a native of the New World tropics, it is now a major insect pest of cotton crops in the W hemisphere. The female lays a single egg within each cotton boll, which thus fails to develop.
- 1195 Bologna, city in N Italy, the capital of Emilia-Romagna. The history of the site of Bologna dates from Etruscan times. It became a free city in the Middle Ages and the Emperor Charles V was crowned here in 1530. It has an ancient university (1088) and a 14th-century gothic church. Industries engineering and food processing.
- 1196 Bolsheviks, one of the two factions into which the Russian Social Democratic Workers' Party split in 1903 in London (the other was the Mensheviks). The Bolsheviks, which means those in the majority, were led by Lenin, who believed that the revolution must be guided by a single centralized party of professional revolutionaries (or Leninism). The Bolsheviks came to power in the Russian Revolution (1917) and from 1918 until 1952 the Soviet Communist Party was termed Communist Party (Bolsheviks).
- 1197 Bolton, a city in NW England, in Greater Manchester. Traditionally a cotton-spinning town, with Samuel Crompton, inventor of the spinning mule
- 1198 Boltzmann, Ludwig Eduard (1844-1906), Austrian physicist, who developed statistical mechanics with J. C. Maxwell and J. W. Gibbs, notably the Maxwell-Boltzmann statistics of particle systems obeying classical laws. He also linked thermodynamics with molecular physics by showing that increasing entropy is related to increasing disorder among particles. Working with his teacher Josef Stefan (1835-93), he showed that Stefan's law could be derived thermodynamically.
- 1199 Boltzmann constant (k), a constant, obtained by dividing the gas constant by Avogadro's number, equal to 1.3806×10^{-23} joule per kelvin. Named for Ludwig Boltzmann.
- 1200 Bolyai, János (1802-60), Hungarian mathematician, who (with Lobachevski) was the first to study the properties of spaces with non-

Euclidean geometry.

1201 Bolzano, city in Italy, trades in fruit and wine.

1202 Braille, Louis (1809-52), French teacher, who, blinded by an accident at the age of three, published a system of writing that allows the blind to read by touch. He later applied the Braille system to the reading of music. Modern Braille consists of 63 characters, each of which is made up of one to six embossed dots.



1203 Boma, capital of the Belgian Congo (1886-1926). Forest products.

1204 bombardier beetle, a blue-gray and orange beetle, about 0.35 in (9 mm) long, of ground beetles. It has an efficient means of chemical defense, emitting puffs of an irritant secretion from the anal glands.

1205 Bombay, city in India. The site of the country's first nuclear reactor. The University of Bombay (1857) and numerous government buildings are situated in the center of the city and the many temples (dating from the 8th century AD. The population is mainly Hindu but there are large Muslim. History: ceded to the Portuguese in 1534, it passed to Charles II of England in 1661 and to the British East India Company in 1668.

1206 Bombay duck, a fish, found in the estuaries of N India, where it is widely used for food. It has a gray or brown body, about 16 in (40 cm) long, with small dark speckles and large pectoral and pelvic fins.

1207 Bon, the pre-Buddhist religion of Tibet, characterized by the belief in a supreme sky god and a hierarchy of good and evil spirits, gods, demons, and ghosts. Elaborate ritual, including animal or even human sacrifice, abounded; religious practice was presided over by a class of shamans (see shamanism), priest-magicians who could influence the spirits by means of white or black magic, even being able to open the gate between earth and heaven. It was absorbed into Tibetan Buddhism, to which it lent a very individual character.

- 1208 Bon, Cape, a peninsula in NE Tunisia, extending into the Mediterranean Sea.
- 1209 Bonaparte, a Corsican family that included the French emperors. Napoleon I, II, III. Carla Bonaparte (1746-85), a lawyer, had four sons. Joseph Bonaparte (1768-1844) was a diplomat of indifferent qualities who rose to high office by virtue of the position of his brother Napoleon I, from whom he received the thrones of Naples (1806) and Spain (1808). After Napoleon's defeat at Waterloo (1815) Joseph lived in exile. Louis Bonaparte (1778-1846) was created King of Holland by Napoleon in 1806 but, exasperated by Louis's inability to enforce the Continental System, Napoleon obliged him to relinquish the crown in 1810. He too died in exile. His son by Hortense de Beauharnais became Napoleon III. Jérôme Bonaparte (1784-1860) was created King of Westphalia in 1807 and was a commander in Napoleon's Russian invasion and at Waterloo. Second Empire (1852-70), established by his nephew Napoleon III. These exploits of the Bonaparte family formed the iconography of Bonapartism. a movement that sought to recreate the Napoleonic empire and to establish the dynasty in France. Louis Napoleon's *Des idées napoléoniennes* (1839) typified the romantic and conservative nature of Bonapartism.
- 1210 Bonaventure, St (c. 1221-74), Italian Franciscan theologian, supported the traditional teachings of St Augustine, as opposed to the new Aristotelian thought.
- 1211 bond, a security issued by a government, local authority, or public company as a means of raising capital. Most bonds pay a fixed rate of interest and are redeemable on a stated day.
- 1212 osteology, the treatment of diseases of bones.
- 1213 boneset or comfrey, a plant also called thoroughwort, found in tropical South America, Mexico, and the West Indies but grown elsewhere as greenhouse or border plants. Boneset is a perennial herb, shrub, or small tree. Family: Compositae.
- 1214 bongo, an antelope, of dense tropical central African forests, About 48 in (120 cm) high at the shoulder, bongos are red-brown with vertical white body stripes and white markings on the head and legs.
- 1215 Bonhoeffer, Dietrich (1906-45), German pastor and theologian. As a young theological lecturer and pastor. Bonhoeffer identified himself with the German Confessing Church. which opposed the pro-Nazi part of the Lutheran church, and during the war became involved with anti-Hitler conspirators. He was arrested in 1943, sent to Buchenwald

- concentration camp, and finally hanged. His posthumous Letters and Papers from Prison (1953), radical theological writings.
- 1216 Boniface, St (c. 680-754 AD) English missionary, known as the Apostle of Germany, established Christianity in several German states and instituted church reforms elsewhere, culminating in his appointment as Archbishop of Mainz in 751. He was martyred with 53 companions in Frisia.
- 1217 Boniface VIII (c. 1234-1303) Pope (1294-1303). He was elected after a long career in papal administration. An expert in canon law, he repeatedly clashed with Philip IV of France concerning papal supremacy and the royal claim to judge and tax the clergy (which he also disputed with Edward I of England). In 1304 he was captured in Italy by Philip's forces and although soon released died shortly afterward.
- 1218 Bonin Islands, a Japanese group of about 30 forested volcanic islands in the central Pacific Ocean, the most important being Chichi-jima. Strategically important during World War II, they were captured by the US in 1945.
- 1219 bonito, a swift marine food and game fish.
- 1220 Bonn, the capital of the Federal Republic of Germany in North Rhine-Westphalia on the Rhine River. The old part of the town contains the cathedral (12th-13th centuries) and Beethoven's birthplace. The university was founded in 1786. History: originally settled by the Romans, it was destroyed by the Normans in the 9th century AD, and was the seat of the Electors of Cologne from the 13th to the 16th centuries. It passed from France to Prussia in 1815 and was made the federal capital in 1949. Berlin was proclaimed capital of the reunited Germany in 1990, many government Functions remained in Bonn.
- 1221 Bonnard, Pierre (1867-1947) French painter. Lithographs, *Aspects of the Life of Paris*, and illustrations for Verlaine's book *Parallèlement*. His paintings were treated increasingly with dazzling color and light.
- 1222 Bonnet, Charles (1720-93), Swiss naturalist, speculations about evolution.
- 1223 Bonneville Salt Flats, a barren salt plain in the US, in NW Utah. The flats form part of the Great Salt Lake Desert and are a relict feature of an ancient lake.
- 1224 bonsai, an ordinary shrub or tree, developed as a miniature (up to about 24 in [60 cm] high). The technique was first practiced as an art form in

- China over 700 years ago, probably using weather-beaten trees, which were considered aesthetically pleasing. It was later perfected by the Japanese and spread to the W hemisphere. Bonsais grow from seeds or cuttings planted usually in earthenware pots with one or more drainage holes and containing a compost with a limited nutrient and water supply. Both branches and roots are trained and pruned. The trees may take ten years or more to acquire an aged appearance, and some live 300-400 years. Good hardy species kept outdoors for most of the year.
- 1225 Bonus Army (1932), unemployed veterans who marched on Washington, DC to demand payment of adjusted compensation certificates voted them in 1924, hut deferred until 1945. After much rioting and violence, the veterans were given travel money and persuaded to leave the city, and by 1936 had received their compensation.
- 1226 bony fish, which in eludes the majority of food and game fishes (or teleost). They have bony skeletons and their gills are covered by a structure called an operculum. Many species use a swim bladder for buoyancy control and even for breathing air (or lungfish). Fertilization of the eggs occurs outside the body.
- 1227 booby, a large tropical seabird (gannets,) characterized by a large head, a long stout tapering bill, large webbed feet, and a wedge-shaped tail. Boobies are 26-33 in (65-85 cm) long and typically have a white plumage with brown markings. Boobies soar high over the sea, diving to catch fish and squids.
- 1228 boogie-woogie, a piano blues in which the left hand establishes a driving repetitive pattern with eight beats to the bar, while the right provides a variety of syncopation. Originating in the SW US, popular in the 1930s.
- 1229 Book of the Dead, a collection of ancient Egyptian texts dating from the 16th century BC. They consist of charms, formulas, and spells written on papyrus and placed inside mummy cases for use by the dead in the afterlife.
- 1230 Boole, George (1815-64), British mathematician, who applied the methods of algebra to logic. Replacing logical operations with symbols, Boole showed that the operations could be manipulated to give logically consistent results. His method, known as Boolean algebra or symbolic logic, led to mathematics being given a logically consistent foundation, The subject was further developed by G. Frege. B. A. W. Russell. and A. N. Whitehead.

- 1231 boom, the phase in the trade cycle in which output reaches a peak. Booms are characterized by full employment, rising prices, high profits, and high investment that goes with business confidence. Compare depression; recession.
- 1232 boomerang, a curved hand-thrown wooden missile used by Australian Aborigines to kill game, as a weapon of war, or in play. The angled shape and the spin given to the missile when thrown enables the light types to return to the thrower if they miss their target. Up to 30 in (75 cm) long, they can be effective to a distance of 50 yd (45 m).
- 1233 boomslang, a venomous green snake, *Dispholidus typus*, occurring in African savanna and reaching 6 ft (1.8 m) in length. Small amounts of its venom can cause fatal hemorrhaging in man. Family: Colubridae.
- 1234 Boone, Daniel (1734-1820), American pioneer. Born in Pennsylvania, he left home at an early age and became a hunter in North Carolina and later served in the French and Indian War, In 1767 he led a group of settlers along the Wilder ness Road through the Cumberland Gap into Kentucky. After several years of exploration there, he guided another group of settlers into Kentucky in 1775 to found a colony for the Transylvania Company. Boone was taken prisoner by the Shawnees, hut he was adopted by the tribe and set free. After the war, he was appointed to several public offices in Kentucky but lost all his land holdings, due to a failure to register them properly.
- 1235 Boonesboro (or Boonesborough), a former fort in central Kentucky, SE of Lexington, on the Kentucky River. Settled by frontiersman Daniel Boone in 1775, it was the end of a branch of the Wilderness Road.
- 1236 Boothia Peninsula, a peninsula of N Canada projecting into the Arctic Ocean. in Franklin district. The northernmost pan of the North American main land, it is sparsely populated, with a police post and trading post.
- 1237 Bootle, city in NW England, on the River Mersey adjacent to N Liverpool. Bootle's docks are extensive and modern and its industries include engineering, tanning. tin smelting, and flour milling.
- 1238 bootstrap theory, the theory In which no elementary particle is regarded as being more fundamental than any other. Each particle exists by virtue of the existence of all the others. Its name derives from the phrase "to pull oneself up by the bootstraps." The theory avoids the problem of a series of classes of particles, each more fundamental than the last, also particle physics.
- 1239 bop or bebop, jazz in the US in the 1940s, Dizzy Gillespie and Charlie Bird Parker

Bird Parker.

- 1240 borage, a widely grown annual Mediterranean herb, *Borago officinalis*. Borage is a stiff hairy plant, up to 24 in (60cm) high, with terminal clusters of small blue flowers with backward-pointing petals. It is used in herbal remedies, potpourri, beverages, and salads and the flowers may be candied. Family Boraginaceae.
- 1241 Borah, William Edgar (1865-1940) US politician and lawyer, headed the Senate Foreign Relations Committee (1925--33). While in office he was responsible for the creation of the Department of Labor (1913), Washington Disarmament Conference (1921-22), an isolationist.
- 1242 boranes, compounds of boron and hydrogen.
- 1243 borax, a natural substance, usually occurring in hydrated crystalline form. It is found in some salt lakes and in alkaline soils and is used in the manufacture of glass and enamel.
- 1244 Borden, Sir Robert Laird (1854-1937), Canadian statesman: Conservative prime minister (1911-20). An advocate of economic independence, he opposed a reciprocal trade agreement with the US and came to power after defeating the Liberals on this issue. He formed a coalition government to introduce conscription in 1917 and gave women the vote in 1918.
- 1245 bore, in oceanography, a tidal flood wave with a steep front occurring in certain estuaries and traveling upstream at great speed, sometimes to a distance of several kilometers. It occurs when the spring flood tide brings sea water into an estuary more quickly than it can travel up the river, so that a ridge of water builds up.
- 1246 Borelli, Giovanni Alfonso (1608-79), Italian. A friend of Galileo, on the attractive forces between planets, their orbits, and the path taken by comets through space.
- 1247 Boris III (1894-1943), King of Bulgaria (1918-1943). Boris ruled as a dictator from 1938 and supported the Axis Powers in World War II. He was assassinated.
- 1248 Borlaug, Norman (1914- ____), US plant breeder, who developed new strains of wheat and rice for underdeveloped countries. Working in Mexico since 1944, role in green revolution. His miraculous grains with their greatest impact in Mexico and India.
- 1249 Bormann, Martin (1900-45) German Nazi leader. Prominent in the Nazi Party from 1925, he became Hitler's personal secretary in 1942. He was sentenced to death in absentia at Nuremberg. In 1973 it was established

that he had committed suicide in May 1945.

- 1250 Born, Max (1882-1970) British physicist, born in Germany. Statistical mechanics, matrix mechanics. Contributed as professor in engineering capital in Belarus at Edinburgh University from 1936 to 1953.
- 1251 boron, a nonmetallic element isolated by Sir Humphry Davy, two forms: an impure brownish amorphous powder and pure brown crystals.
- 1252 Boron fibers are used in lightweight composite materials. Borax is used in glass manufacture, and boric acid used in ceramics and fireproofing.
- 1253 Boron is used in semiconductors and in hardened steel.
- 1254 Bosphorus, a strait separating Europe and Asia and connecting the Black Sea with the Sea of Marmara. One of the world's longest suspension bridges. Length: about 19 mi (30 km).
- 1255 boss, in architecture, a small projection in a roof vault, covering the crossing of the supporting ribs.
- 1256 Bosworth Field, Battle of (Aug 22, 1485), the battle fought near Market Bosworth, Leicestershire, in which Henry Tudor defeated Richard III, ending the Wars of the Roses.
- 1257 Botany Bay, an inlet of the Tasman Sea, in SE Australia. It was the site of Capt Cook's first landing in Australia (1770).
- 1258 Bothe, Walther Wilhelm (1891-1957), German experimental physicist, technique in cosmic radiation research, who (with H. Geiger) developed the coincidence method for particle counting. During World War II he built Germany's first cyclotron.
- 1259 Bottrop, city in western Germany, coal mining.
- 1260 Bouaké, a city in the central Ivory Coast, important trade center, linked by rail and road to Abidjan, with a trade in coffee, cocoa, and rice.
- 1261 Boulanger, Nadia (Juliette) (1887-1979), French composer, teacher, and conductor. Lennox Berkeley and Aaron Copland have been among her pupils. Her works include the cantata *La Sirène* (1908; awarded the Prix tie Rome), the opera *La Ville morte* (1911), choral works, and instrumental pieces.
- 1262 Boulder, city in N central Colorado, on the E edge of the Rocky Mountains.
- 1263 Boveri, Theodor Heinrich (1862-1915) German cell biologist, noted for his studies of chromosomes. His findings led Sutton to propose his chromosome theory of inheritance in 1903.

- 1264 Bovidae, a family of hooved ruminant mammals (about 128 species), comprising antelopes, cattle, sheep, and goats. Most live in herds and graze on the plains, although some inhabit mountainous regions. Several species have been domesticated by man for meat, milk, jades, and wool.
- 1265 Bowdoin, James (1726-90), US politician, founded the American Academy of Arts and Sciences.
- 1266 bowfin, a bony fish, *Amia calva*, also called grundle or mudfish, found in fresh waters of E North America. It has a mottled green body, up to 24 in (60 cm) long.
- 1267 bowling (or tenpin howling). A game in which two players or teams compete by attempting to knock down standing pins with rolling balls. The ten pins, 15 in (38.1 cm) high and each weighing about 3.5 lb (1.5 kg), are placed in a triangle 20 yd (18.29 m) distant at the end of a wooden lane.
- 1268 bowls, a game in which biased bowls (or woods) are rolled toward a smaller one (or the jack).
- 1269 Boyacá, Battle of (August 7, 1819) the victory, after a heroic crossing of the Andes, of Simón Bolívar's army of 3000 men over a Spanish force. It assured the liberation of Venezuela and Colombia.
- 1270 Boyd-Orr, John, (1880-1971), Scottish scientist and expert on nutrition. In the 1930s he identified nutritional problems among the British and helped formulate adequate nutritional standards.
- 1271 Dietrich, Marlene.
- 1272 Boyle, Robert (1627-91), British chemist, showed that air possesses weight.
- 1273 Boyne, Battle of the (July 1, 1690), the victory of William III of England over the former King James II in Ireland. The battle was fought at the River Boyne, N of Dublin, where James hoped to halt the Williamites' advance southward. It was not an overwhelming victory, losses being comparatively slight on both sides, but the sensation of two kings fighting in Ireland for an English throne ensured its fame. The battles of the Boyne and of Aughrim are still celebrated by Ulster Unionists on the latter's anniversary, July 12.
- 1274 Boyoma Falls (or Stanley Falls), a series of seven cataracts in NE central Zaïre, on a 62 mi (100 km) stretch of the Lualaba River, where it becomes the Zaire River, close to Kisangani.
- 1275 Brabant 1. A former duchy in the low Countries, between the Meuse and Scheldt Rivers. On Belgian independence (1830) it was divided

and Scheldt Rivers. On Belgian independence (1830) it was divided, forming the Belgian provinces of Antwerp and Brabant and the Dutch province of North Brabant. 2. A province in central Belgium, densely populated with large industrial areas, including Brussels. Agriculture is highly developed, with dairy farming and the production of cereals, fruit, and vegetables. Capital: Brussels.

- 1276 Bradford, city in N England. in West Yorkshire near Leeds.
- 1277 Brady, Mathew B. (1823-96), US photographer. he was one of the first to learn daguerreotype methods from Samuel F. B. Morse. By 1854 he had two studios in New York City and one in Washington. D.C. where he photographed most of the famous people of his time, including Abraham Lincoln. Throughout the Civil War (1861-65) he and his team of photographers were active on the battlefields, recording war in pictures for the first time.
- 1278 Bragança (or Braganza), the ruling dynasty of Portugal from 1630 to 1910 and of Brazil from 1822 to 1889. The family was descended from Alfonso, illegitimate son of John I and 1st Duke of Braganca. The first Braganca king was John IV (1640-56) and the last was Manuel II, after whose deposition Portugal became a republic.
- 1279 Bragg, Braxton (1817-76), US Confederate general, command of the Confederate Army of Tennessee and fought an indecisive battle at Murfreesboro (1862-63). He was victorious at Chickamauga (1863), but his defeat at Chattanooga (1863) forced the Confederate Army to leave Tennessee. Military advisor to Confederate Pres. Jefferson Davis and then commanded troops in North Carolina until the end of the war.
- 1280 Bragg, Sir William Henry (1862-1942), British physicist. Bragg diffractometer for measurement of X-ray wavelengths. X-ray diffraction. Wrote *X-rays and Crystal Structure*.
- 1281 Brahe, Tycho (1546-1601), Danish astronomer.
- 1282 Brahma, the creator god of later Vedic religion. Arising from the cosmic Golden Egg, he brings into existence the cyclical process of the creation and destruction of the world. Yugas or ages of the world. Brahma represents the creative aspect of supreme deity in the trimurti triad but since the 7th century his worship has been superseded by that of Siva and Vishnu, the other members of the triad.
- 1283 Brahman (Hinduism) In the Upanishads, the absolute unmanifest changeless source of the phenomenal universe, seen as self-existent, extra-temporal being, all-pervading and infinite. Brahman is both the

basis of existence and the state of one who has achieved release (see atman). Brahman originally meant the sacred Word, and as such was the exclusive domain of the literate priestly caste. In its extended significance it therefore came to be considered the proper spiritual object of that class alone. See Brahmanism.

- 1284 Brahmanas, Commentaries on the Vedas, written in Sanskrit between about 1000 and 600 BC. They systematically explore Aryan legends and folklore in order to account for traditional rituals and are major sources of Indian philosophy, theology, and myth.
- 1285 Brahmanism, an early speculative rather than devotional form of Hinduism, derived from the Vedas and characterized by the veneration of an elite priestly caste, who, as the privileged keepers of religious knowledge, were seen as actually embodying the sacred word.
- 1286 Brahmin class, of the warrior, merchant or peasant classes, brahmins recite the scripture.
- 1287 brahmin (or brahman), the first of the four major Hindu castes, that of the priests. Of the warrior, merchant, or peasant classes, brahmins alone are able to perform the most important religious tasks to study and recite the scriptures. Since in India spiritual and secular knowledge are virtually inseparable, brahmins frequently hold considerable intellectual and political power. After India achieved independence in 1947, opposition to brahminical elitism strengthened, but this has not yet significantly weakened their sacerdotal role.
- 1288 Brahms, Johannes (1833-97) German composer, wrote a large quantity of chamber music, composed much piano music and songs.
- 1289 brake, a device used to slow down or stop the rotation of a shaft.
- 1290 brambling, a finch that breeds in Asia and N Europe and migrates south in winter. It has a brown-speckled plumage with white wing bars and orange underparts.
- 1291 Bran, a legendary Celtic god-king of Britain. whose story is told in the medieval Welsh collection of tales. Of giant stature, he once waded across the sea between Britain and Ireland. His severed head lived on the some 80 years, renowned for the good advice and entertainment it gave his followers. In accordance with his wish, Bran's head was finally buried at a spot in London in order to protect Britain from invasion. It gave this protection until it was dug up by King Arthur, who believed that the protection of the country was better served by the valor of individuals.

- 1292 Branchiopoda, a subclass of small crustaceans (over 800 species) that, except for the brine shrimp, occur in fresh water. They include the fairy shrimps, tadpole shrimps, water fleas, and clam shrimps, all bearing flat fringed appendages used for locomotion, respiration, and filter feeding.
- 1293 Brandt, Willy (1913-92), West German statesman; chancellor (1969-74). In Norway from 1933, he was a leader of the resistance movement against the Nazis throughout World War II, after which he was Norwegian press attaché in Berlin. He resigned chancellorship when it was revealed that one of his aides was an East German spy.
- 1294 Brant, Sebastian (c. 1458-1521), German poet, studied and taught law at Basle, and was made an imperial councillor by Maximilian I. *The Ship of Fools*.
- 1295 Branting, Karl Hjalmar (1860-1925), Swedish statesman; prime minister. Norwegian pacifist.
- 1296 Brantôme, Pierre, Abbé and Seigneur de Bourdeille (c. 1540-1614), French chronicler. Only nominally a priest, he was a courtier under Marguerite de Valois and Henry II and traveled throughout Europe as a soldier. He began writing when crippled in a riding accident. His *Mémoires* chronicle the lives of illustrious men and women of his time.
- 1297 brass, an alloy of copper and zinc. Brasses containing less than 36% zinc are ductile when cold and can be easily worked into complex shapes.
- 1298 Brassica, annual or biennial herbs about 40 species, especially in the Mediterranean region, includes many important vegetables, mostly cultivated varieties of native species; the leaves, buds, stems, or roots may be eaten. Broccoli, brussel sprout; cabbage, cauliflower, kale, rutabaga, turnip.
- 1299 brass instruments, wind instruments made of brass. The French horn, trumpet, trombone, tuba, bugles and cornets.
- 1300 Bratislava, the capital of Slovakia, on the Danube River.
- 1301 Brattain, Walter Houser (1902-87), US physicist, invention of the transistor.
- 1302 Braun, Eva (1910-45), the mistress and finally the wife of Adolf Hitler. Their relationship began about 1933, and they were married shortly before her suicide in 1945.
- 1303 Brazil, chief crops being sugar cane, manioc, maize, rice, and beans. Deposits of phosphates, uranium, manganese, and copper. During the Napoleonic Wars, the Portuguese court was transferred to Brazil and in 1815 it was made a kingdom. In 1822 independence was declared by

Pedro I, with a constitution that proclaimed him emperor. In 1889 his son Pedro II was deposed and Brazil became a republic. From 1930 to 1945 it was ruled under the benevolent dictatorship of Getúlio Vargas. Less stable governments followed.

In 1966 Marshal Artur da Costa e Silva was elected president and in 1968 he assumed absolute power. He resigned in 1969 and the government was taken over by a junta comprising the three heads of the armed forces. Democratic rule in the early 1980s. Severe economic measures imposed on the country to satisfy Brazil's foreign creditors, The demand for stringent economic cutbacks by the International Monetary Fund, Brazil's chief lending agent, led to riots and looting. In an attempt to avoid default by Brazil and the chaos it would create in international banking, the IMF softened its demands.

- 1304 Brazil ruling group, 1969, Augusto Rademaker
- 1305 Brazil President, Ranieri Mazzilli (1910–1975). Social Democratic Party in office one month in 1961, for 15 days in 1964.
- 1306 Brazil President, Washington Luís (1869–1957), São Paulo Republican Party, 1926-1930.
- 1307 Brazza, Pierre Paul François (1852-1905) French explorer, explored, claimed, and colonized French Equatorial Africa, founding Brazzaville, first governor of the French Congo.
- 1308 Brazzaville, the capital of the Republic of Congo. situated in the S on the Zaire River opposite Zaire. During World War II it was the center of the Free French forces in Africa. It became capital of the newly independent Republic of Congo in 1960. The Marien-Ngouabi University was founded in 1972.
- 1309 bread, a staple food. The dough is kneaded and left to rise twice, a process that can take several hours, before being baked.
- 1310 breadfruit, the starchy fruit of a tropical tree. The tree grows to a height of 98 ft (30 m) and has thick shiny divided leaves. The large round fruits, as much as 12 in (30 cm) across, have a thick warty rind and develop from long female catkins.
- 1311 bread mold, a fungus that grows on bread. Black bread mold (*R. stolonifer*) forms a filamentous branching structure from which arise erect stalks bearing black spore cases resembling pinheads. It also grows on fruit, manure, and other decaying organic matter.
- 1312 bream, one of several teleost fishes, a food and game fish related to carp, that occurs in European lakes and slow-moving rivers. Its deep body,

- 12-28 in (30-70 cm) long, is bluish gray or brown above and silvery below. It lives in schools in deep water and feeds on invertebrates or small fish.
- 1313 Brébeuf, St Jean de (1593-1649) French Jesuit missionary and patron saint of Canada. Evangelized the Huron Indians in New France in several expeditions.
- 1314 Brecht, Bertolt (1898-1956), German dramatist. In 1933 he lived in Scandinavia, wrote plays. *Galileo, Mother Courage, The Caucasian Chalk Circle.*
- 1315 Breckinridge, John Cabell (1821-75), US politician, vice president, and Confederate general. Before becoming vice president in Pres. James Buchanan's administration he was a congressman. He worked to fend off secession by the South prior to the outbreak of the Civil War, favored slavery in the territories. A senator for a short time in 1861, he was expelled when he accepted a commission of general in the Confederate Army. Later in the war he served as the Confederate secretary of war.
- 1316 Bren gun, a gas-operated light machine gun widely used in World War II, it was accurate, reliable, easily maintained.
- 1317 Brennan, William Joseph, Jr. (1906-1997), US jurist and lawyer. US Supreme Court in 1956.
- 1318 Brest. The Treaties of Brest-Litovsk were negotiated here in World War I.
- 1319 Brest, a port and naval base in NW France in World War II, it was almost entirely destroyed by Allied bombing.
- 1320 Brest-Litovsk, Treaties of (1918). The peace treaties between the Central Powers and, respectively, the Ukraine and Soviet Russia toward the end of World War I. An independent Ukraine was recognized by the first treaty. By the second. Russia acknowledged Ukrainian independence and also lost its Polish and Baltic possessions. The treaties were annulled following the ultimate defeat of the Central Powers.
- 1321 Brétigny, Treaty of (1360). The treaty that concluded the first phase of the Hundred Years' War. Never fully effective, it promised a large ransom by France for John II of France (captured at Poitiers in 1356) and granted territories. including Aquitaine, to Edward III of England. In return. Edward was to renounce his claim to the French throne.
- 1322 Breton, a Celtic language with four distinct dialects spoken in Brittany by about one million people. It was originally introduced to this area by immigrants from SW England, who had been displaced by invading

Anglo-Saxon tribes. It is related to Cornish and Welsh but has been strongly influenced by French. It has a literature that dates from the 15th century. Official encouragement of French has tended to decrease the number of Breton speakers.

- 1323 Bretton Woods Conference (1944), a conference held at Bretton Woods, N.H., at which the US, Britain, and Canada established a system of international financial roles, which led to the setting up of the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development (World Bank). The chief features of the system were, first, an obligation for each country to maintain the exchange value of its currency within 1% of a value fixed in terms of gold; and, secondly, the provision by the IMF of finance to bridge temporary payments imbalances. In the face of increasing strain, the system eventually collapsed in 1971, following the US government's suspension of convertibility from dollars to gold.
- 1324 Breuer, Marcel Lajos (1902-81), furniture designer, taught at the Bauhaus, practiced in the US as an architect. Built UNESCO headquarters in Paris (1958).
- 1325 Brewster, Sir David (1781-1868), Scottish physicist, who studied the polarization of light, double refraction in crystals, and relations between crystalline forms and optical properties (see Brewster's law). He also invented and patented the kaleidoscope.
- 1326 Brewster, William (1567-1644), US Pilgrim leader, he broke from the Anglican Church in 1606 and formed the Separatists, a group that went to Holland to avoid persecution in 1608 and finally to America in 1620 aboard the *Mayflower*. He was a signer of the *Mayflower Compact* (1620) and served as Plymouth Colony's spiritual leader.
- 1327 Brewster's law, light reflected from a solid surface is plane polarized, with maximum polarization occurring when the tangent of the angle of incidence is equal to the refractive index. Named for Sir David Brewster.
- 1328 Brezhnev, Leonid Ilich (1906-82), Soviet secretary of the Soviet Communist Party (1964-82) and president of the Soviet Union (1977-82). He forced Khrushchev to resign in 1964 and Brezhnev became first secretary of the Communist Party. By the late 1960s he had become the most powerful Soviet leader and in 1977 became president.
- 1329 briar, a shrubby rambling rose with arching prickly stems, for making briar pipes.
- 1330 bribery and corruption, the giving of a gift to a person in a position of trust, particularly a public official, to induce him to act contrary to his

duty. The federal statute defines an official to include "any officer or employee or person acting for or on behalf of the United States, or any department or agency or branch of government thereof..."

1331

Bridger, Jim (James B; 1804-81), US fur trapper, explorer, and scout. In his travels looking for furs, he discovered Great Salt Lake (1624) and Yellowstone Park. He led many expeditions through unexplored territory and established Fort Bridger, a trading post, in Wyoming in 1843. He also acted as a scout for the US Army.

1332

bridges, suspension bridges use cables under tension to pull inward against anchorages in the ground.

1333

Bridges, bascule bridges are cantilever-type bridges with a counterweight and hinge to rotate the bridge vertically.

1334

Bridges, drawbridges and vertical lift bridges have towers that lift the whole of one section of the bridge upward.

1335

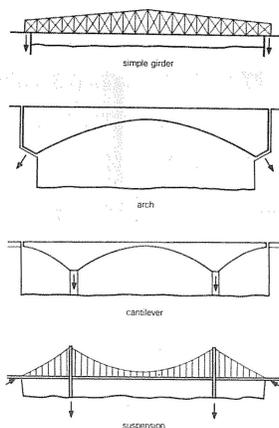
Bridges, Robert Seymour (1844-1930), British poet. Educated at Oxford, he worked as a doctor until 1882. He published several volumes of lyrics and a long philosophical poem, *The Testament of Beauty*, but an even greater contribution to literature was his edition of the poems of his friend Gerard Manley Hopkins.

1336

Bridgman, Percy Williams (1882-1961), US physicist, whose experiments with high pressures led to the invention of a seal the efficiency of which increased with pressure, enabling him to attain pressures of up to 20,000 atmospheres. Bridgman studied the effects of such pressures on solids and, in 1955, his methods were used by the General Electric Company to synthesize diamonds. Contribution to the (operational) concept of scientific meaning.

1337

Bridge Construction



BRIDGES The arrows show how forces are exerted onto or away from the foundations in each of the basic structural types.

- 1338 Bright, Richard (1789-1858), British physician who described many disorders, edema due to kidney disease. Or Bright's disease or nephritis.
- 1339 Brighton, a resort in S England. on the East Sussex coast. Originally a fishing village, its growth began with the development of sea bathing in the 1750s. The Prince Regent (later George IV) had the Royal Pavilion re designed by John Nash in oriental style.
- 1340 Brigit, a Celtic goddess of fire, fertility, learning, culture, and crafts. Elements of her cult were passed into the traditions surrounding St Bridget, notably the burning of a sacred fire by her shrine.
- 1341 brill, an edible flatfish, related to turbot, that occurs in European coastal waters, down to depths of 230 ft (70 m). Its smooth body, up to 28 in (70 cm) long, is sandy to gray or dark-brown with light and dark spots above and white with darker blotches below.
- 1342 Brillat-Savarin, Anthelme (1755-1826), French lawyer and writer. After the Revolution he became a judge of the French supreme court.
- 1343 brilliant cut, a method of cutting diamonds and other gems to impart maximum brilliance.
- 1344 Brindisi, a seaport in SE Italy, in Apulia. It was an important Roman naval base and a center of the Crusades in the Middle Ages.
- 1345 Brisbane, large city in Australia, the capital and chief port of Queensland on the Brisbane River. Queensland was formed in 1859.
- 1346 Brissot, Jacques-Pierre (1754-93), French journalist and revolutionary. A legal reformer and humanitarian before the French Revolution, he became leader of the Brissotins, later called the Girrondins, in 1789.
- 1347 bristlecone pine, a pine tree, *Pinus aristata*, native to mountainous regions of Colorado, Arizona, and New Mexico. Up to 49 ft (15 m) tall, it has needles grouped in clusters of five, and cones about 3 in (7.5 cm) long with distinctive bristles on each scale. Bristlecone pines are among the longest-lived trees: it has been estimated that some trees have reached an age of 5,000 years and they have been used to date archeological sites.
- 1348 bristletail, a slender wingless insect, feeds on books and papers or anything containing starch (or silver fish; firebrat).
- 1349 Bristol, a pod and industrial city in SW England, the administrative center of Avon on the Avon River. 7 mi (11 km) from the Bristol Channel. The Bristol Channel handles much of British import and export trade. Bristol's industries include engineering (particularly aircraft manufacture), chemicals, tobacco, soap, paper manufacture, printing.

- 1350 Bristol Channel, an inlet of the Atlantic Ocean in the UK, between South Wales and SW England. It forms an extension of the Severn Estuary and has the greatest tidal range in England. Length: about 85 mi (137 km).
- 1351 Britannia metal, an alloy of tin (80-90%) with variable amounts of antimony and copper. It resembles silver and was formerly used for tableware instead of pewter.
- 1352 British Academy, a learned society formed in 1901 and incorporated in 1902. The Academy aims to promote the study of languages and literatures, history, archaeology, philosophy, religion, law, economics, and the visual arts, from which academic fields its Fellows are elected.
- 1353 British Antarctic Territory, a British colony established in 1962 that consists of the South Orkney and South Shetland islands and a part of the Antarctic. It is used as a base for the British Antarctic Survey stations.
- 1354 British Blue, a breed of short-haired cat originating in the UK.
- 1355 British Broadcasting Corporation (BBC). A radio and television broadcasting network in Britain.
- 1356 British Columbia, the westernmost province of Canada, on the Pacific Ocean. A British colony established on Vancouver Island (1849) spread to the mainland when gold was discovered (1858).
- 1357 British Columbia. An entry into Canada (1871) and the transcontinental railroad (1885) provided the basis for economic development.
- 1358 British Empire, Britain's overseas possessions from the 16th to early 20th centuries. The Empire's origins lay in the discovery by John Cabot of Cape Breton Island (1497) permanent settlements in North America were not established until the early 17th century, when colonists, some escaping religious persecution, were granted royal charters to settle Virginia, Maryland, and New England. The loss of the American colonies in 1783 in the American Revolution was a major blow. In Canada the English came into conflict with the French and only established control in the Seven Years' War (1756-63) from which they also emerged victorious in India. The East India Company had received its charter in 1600, its interests in India had remained commercial until the decline of the Mogul Empire provided the chance for territorial expansion. Robert Clive's victory at Plassey (1757) assured British, rather than French, dominance there and the East India Company continued to govern until 1857, when its authority was replaced by the crown's.

The Napoleonic Wars in the early 19th century brought possessions in the West Indies (Trinidad, Tobago, St Lucia) as well as Mauritius, Sri Lanka, and in South Africa. Britain's first settlement in Africa had been on James Island in the Gambia River (1661), substantial possessions were not obtained until the late 18th century with the acquisition of what are now Sierra Leone, Ghana, and Nigeria. The 19th-century colonial expansion in Africa, was fired by missionary zeal, which motivated such explorers as Livingstone, as well as by commercial activities. The late 19th century saw the establishment of British dominance in Egypt and the Sudan but in South Africa it was undermined by Afrikaner hostility.

Colonies in Australia were initially (18th century; penal settlements. During the 19th century, New Zealand was controlled by the British from 1840, and Hong Kong (1841) and Burma (now Myanmar; 1886) were acquired. In the mid-19th century, following the 1839 Report on the Affairs of British North America by Lord Durham, the self-governing colonies in Canada, Australia, New Zealand, and South Africa received responsible government, whereby governors were advised by local ministers. In 1907 Canada, Australia, and New Zealand (and in 1910 South Africa), by now federated, were termed dominions and regular Imperial Conferences were instituted. In 1931 the Commonwealth of Nations was established, giving the dominions autonomy, and in the following decades Britain's other colonies gradually achieved full independence.

1359 British Expeditionary Force (BEF) Army formations that helped France counter German invasions in World War I and II. Divisions increased to 65 by 1918 and it suffered almost 3 million casualties, of which 900,000 were fatal. In World War II it consisted of 10 divisions until its evacuation from Dunkirk (1940).

1360 British Museum, the national museum containing one of the finest collections of antiquities in the world. Founded in 1753, its Egyptian, Assyrian, Greek, Roman, Chinese, and Cambodian collections are unique and include a number of Egyptian mummies, the Elgin Marbles, and the Rosetta Stone. The natural history exhibits were transferred to a separate building (built 1873-80) known as the Natural History Museum.

1361 British Virgin Islands

1362 Britons, the indigenous inhabitants of Britain before the Anglo-Saxon settlements. They spoke languages of the Brythonic branch of the Celtic

language family. At the Roman conquest (1st century AD) Britain was divided into a number of tribal kingdoms with a common Celtic culture or La Tène. Religious affairs were conducted by priests known as Druids.

- 1363 Brittan, Leon (1939-____), British Conservative politician. As a commissioner of the European Community, he directed its competition policy.
- 1364 Brittany, a planning region and former province in NW France. It consists of a peninsula between the Bay of Biscay and English Channel. It was part of ancient Armorica and in 56 BC was conquered by Julius Caesar. During the 5th-6th centuries AD Celts from Britain migrated here to escape the Anglo-Saxon invasion. Finally incorporated into France in 1532, it has retained its own distinctive culture.
- 1365 Brittany suffered from oil pollution on many beaches following the Amoco Cadiz oil tanker disaster in March 1978.
- 1366 brittle star, a marine invertebrate animal, also called sand star or serpent star. Brittle stars sometimes occur in large numbers on soft muddy sea beds and are active at night, feeding on small crustaceans, mollusks, and bottom debris.
- 1367 Brno, large city in the Czech Republic, in S Moravia, formerly the capital of the province of Moravia. A fortified town in the Middle Ages, it contains the Spilberk fortress, an Austrian political prison (1621-1857).
- 1368 broad bean, a stiff upright annual plant, with a ribbed stem and compound gray-green leaves composed of a few large leaflets. The flowers have white petals and dark-purple blotches on the wings, the large pod has a woolly lining surrounding large flat edible beans, for which the plant is cultivated throughout Europe, both as a vegetable and as an animal feed.
- 1369 broadbill, a brightly colored passerine bird.
- 1370 Broadway, a major street in New York City, along and near which are sited most of the leading commercial theaters. The word is used to refer to commercial theater in the US in general or Off-Broadway theaters.
- 1371 broccoli, a cultivated variety of wild cabbage.
- 1372 Broch, Hermann (1886-1951) Austrian novelist, *The Sleepwalkers* is a historical study of Europe in a variety of literary forms. Innovative literary techniques in *The Death of Virgil*.

- 1373 Bromfield, Louis (1896-1956) US writer, wrote about rural-life, *The Green Bay Tree*, *Possession*, *Early Autumn*, *The Rains Came*, *Wild is the River*, and *Malabar Farm*.
- 1374 bromine, a dense reddish-brown liquid element, discovered by A. Balard in 1826. It is extracted from sea water and other natural brines by electrolysis or by displacement with chlorine. The liquid element is volatile and its vapor has a pungent smell reminiscent of chlorine with severe irritating effects on the eyes and throat. Compounds include silver bromide, used in photography, and ethylene dibromide, used to scavenge lead in making additives for motor fuel. Other compounds are used as fumigants, dyes, flameproofing agents, and in medicine.
- 1375 bronchitis, inflammation of the bronchi, the tubes conducting air to the lungs. Acute bronchitis is often due to a virus infection, particularly a cold or influenza, Chronic bronchitis is common in middle-aged and elderly men.
- 1376 Bronowski, Jacob (1908-74) British mathematician, science writer, and broadcaster, born in Poland. He became widely known for his highly successful television series *The Ascent of Man*, a history of the development of science and technology, and the importance of the scientific method, *The Commonsense of Science* (1951).
- 1377 Brontë sisters, three British novelists, Charlotte Brontë (1816-55), Emily Brontë (1818-48), Anne Brontë (1820-49). The sisters published Poems by Currer, Ellis, and Acton Bell and in 1847, under the same pseudonyms, the novels Jane Eyre (by Charlotte), Wuthering Heights (by Emily), and Agnes Gray.
- 1378 Brontosaurus, a huge herbivorous dinosaur.
- 1379 Brontotherium, a genus of extinct North American hoofed mammals—titanotheres—that lived during the Oligocene epoch (between 38 and 26 million years ago). Standing 8 ft (2.5 m) at the shoulder, Brontotherium had a large skull with a pair of bony horns.
- 1380 Bronx, one of the five boroughs of New York City. Problems of overcrowding and poor housing conditions.
- 1381 Brookeborough, Basil (1888-1973), committed to union with Great Britain.
- 1382 Brook Farm (1841-47), US utopian community in W Roxbury, Mass, established by George Ripley, an Unitarian minister who had become a transcendentalist, to experiment with the intellectual and the worker living a simple life together, earning equal pay. Poor farming land, lack

of water, natural disasters, and failing finances forced its closing in 1847.

- 1383 Brooklyn, one of the five boroughs of New York City. Three bridges including the famous Brooklyn Bridge (1869-83) span the East River connecting Brooklyn with Manhattan. A major port it handles a vast amount of shipping and its waterfront is 33 mi (53 km) long.
- 1384 broomrape, a parasitic plant. The flowering shoots rise 2-28 in (5—70 cm) above ground on scaly stems topped by spikes of tubular two-lipped flowers, which may be white, yellow, or purple. The fruit is a capsule.
- 1385 brotulid, a fish, also called brotula.
- 1386 brougham, a compact four-wheeled carriage light enough to be drawn by one horse in 1838.
- 1387 Brouwer, Luien Egbertus (1881-1966), Dutch mathematician in its modern form, known as intuitionist mathematics, which holds that mathematics is a mental construction in which laws should be self-evident and derived by intuition.
- 1388 Brown, John (1800-59), US abolitionist. Believing that the slaves of the US should be encouraged to rise up against their masters, Brown established an antislavery colony in Kansas and carried out the massacre of five local slave owners in 1856. In 1859, supplied with funds by northern abolitionists, Brown and his followers raided the federal arsenal at Harper's Ferry in order to acquire arms for an expected slave rebellion throughout the South. Brown and his men were quickly captured by US Army troops under the command of Lt. Col. Robert F. Lee. Brown was later tried and convicted of insurrection, treason, and murder. He was hanged on Dec 2, 1859, and was considered by many to be a martyr to the abolitionist cause.
- 1389 Brown, Robert (1773-1858), Scottish botanist, who in 1831 first recognized the nucleus as a fundamental constituent of cells. Four years earlier, while observing a solution of pollen grains in water under a microscope, he discovered, but was unable to explain, the effect now known as the Brownian movement.
- 1390 brown algae, the larger seaweeds, such as wracks and kelps. They are mainly marine and are abundant along coasts in colder regions. Many show an alternation of generations.
- 1391 brown bear, a large bear.
- 1392 Brownian movement, the continuous random movement of small particles (less than about 0.001 mm in diameter) when suspended in a

particles (less than about 0.001 mm in diameter) when suspended in a fluid. It is caused by collisions between the particles and the atoms or molecules of the fluid. Brownian movement can be observed in smoke suspended in air and in a suspension of pollen grains in a liquid. Named for Robert Brown.

- 1393 Browning, Robert (1812-89) British poet. After the failure of his autobiographical poem *Pauline* (1833) he wrote several verse dramas and dramatic monologues, including *My Last Duchess* (1842), *The Ring and the Book*. His wife Elizabeth Barrett Browning (1806-61) was also a poet. A spinal injury when she was 15 made her a lifelong semi-invalid. She met Robert Browning in 1845 and in 1846 she defied her domineering father and eloped with Browning. *Sonnets from the Portuguese* (1850). In later years she became involved in Italian politics, the abolition of slavery, and spiritualism.
- 1394 Brownshirts, the colloquial name for the Nazi.
- 1395 Brownsville, city and port on the S tip of Texas at the Mexican border, on the Rio Grande, just E of the Gulf of Mexico. Originally a fort, it was important during the Mexican War and to the Confederacy during the Civil War.
- 1396 *Brown v. Board of Education (of Topeka)* (1954), US Supreme Court case that held that segregation in public schools on the basis of race is unlawful.
- 1397 brucellosis, an infectious disease of cattle and other farm animals that is caused by the bacterium *Brucella abortus* and can be contracted by man through drinking unpasteurized contaminated milk. Symptoms include fever (which may be intermittent), sweating, weakness, cough, joint pain, and sometimes swelling of the lymph nodes. The slaughter of infected animals has reduced the incidence of brucellosis.
- 1398 Stanley Melbourne, (1883-1967), Australian statesman: prime minister. He fought with the British Army in World War I and entered politics as a member of the National Party in 1918. His coalition government of National and Country Parties implemented social and welfare legislation. He represented Australia in the British war cabinet (1942-45).
- 1399 Bruckner, Anton (1824-96), Austrian composer and organist. In 1891 he was granted a pension and apartments in the Belvedere palace in Vienna, influence of Wagner and Schubert.
- 1400 Bruegel the Elder, Pieter (1525-69) Flemish painter, noted for his often satirical scenes of peasant life and his landscapes.

- 1401 Bruges, city in NW Belgium. It was the capital of Flanders in the 12th century and during the 13th and 14th centuries it became the center of the Hanseatic League in N Europe. It has many fine gothic buildings, including the 14th-century cathedral, the Church of Notre Dame (containing Michelangelo's marble statue, the Virgin and Child), and the Market Hall. It is linked by canal to many European ports. The traditional industry is lace; the manufacture of ships and electronic equipment.
- 1402 Brunel, a small sultanate state in NW Borneo, on the South China Sea. A powerful state in the 16th century controlling the whole of Borneo, as well as parts of the Philippines. It became a British protected state in 1888.
- 1403 Brunel, Isambard Kingdom (1806-59) British engineer, original, the Clifton suspension bridge, large ships.
- 1404 Brüning, Heinrich (1885-1970), German statesman. As chancellor without a majority in the Reichstag, he governed by decree from 1930 to 1932. His deflationary policies brought him unpopularity and he resigned.
- 1405 Brunner, Emil (1889-1965), Swiss Protestant theologian and professor. He became a supporter of the theological views of Barth, saying God's image in mankind is in despite of man's fundamental sinfulness.
- 1406 Bruno, Giordano (1548-1600) Italian philosopher. He became a Dominican (1563) but in 1576 his heretical opinions forced him to flee, first to Geneva, then to France, England, and Germany. Returning to Italy (1592) he was tried by the Inquisition refused to recant and was burned. His pantheistic philosophy, viewing all creation as one life, animated by God as world-soul, influenced Spinoza, Descartes and Leibniz.
- 1407 Brussels (French name; Bruxelles), the capital of Belgium, situated in the center of the country on the Senne River, settled by the French in the 7th century AD. It developed into a center of the wool industry in the 13th century. It became the capital of the Spanish Netherlands in the 15th century and later of the Austrian S Netherlands. In 1530 it was chosen as capital of the new kingdom of Belgium. It was occupied by the Germans in both World Wars.
- 1408 Bryan, William Jennings (1860-1925), US politician, orator, and lawyer. A Democrat from Illinois, he served as a congressman (1891-95), ran for president three times but was defeated each time, and served as secretary of state under Pres. Woodrow Wilson. He was a strong

- proponent of Free Silver; "Cross of Gold" speech (1896). Called the "Great Commoner," he championed liberal causes; advocated an income tax, prohibition of alcohol, and women's rights; and worked for the creation of a federal department of labor. In 1925, just before his death, he was the prosecutor in the anti-evolution Scopes trial, which was won by defense attorney Clarence Darrow.
- 1409 Bryansk, city in W Russia. It dates from at least the 12th century and is a communications center.
- 1410 Bryant, William Cullen (1794-1878), US journalist and literary critic. Editor of *Evening Post*, advocate of many contemporary causes.
- 1411 Bryce Canyon National Park, a national park in SW Utah. just N of Arizona. Established as a national park in 1928, limestone cliffs, horseshoe-shaped amphitheater-like eroded rock structures, and glowing colored rocks.
- 1412 bryony, is an herbaceous climber with heart-shaped leaves that turn yellow in autumn, bell-shaped yellow flowers, the fruits are scarlet berries, and the plant overwinters as a tuber. Or the white bryony is of poisonous scarlet berries.
- 1413 Bryozoa, a phylum of aquatic colonial invertebrate animals, called moss animals, found chiefly in seas. A colony consists of individuals, each with a chitinous or gelatinous case and a dug of ciliated tentacles around the mouth. These are extended, creating a feeding current that brings food particles into the U-shaped digestive tract. Ciliated larvae establish new colonies by budding off more individuals.
- 1414 Tall Bastah, a ruined temple city in Lower Egypt. Tall Bastah was the capital of the 18th nome (province) and attained importance when the pharaohs of the 19th dynasty (1320-1200 BC) moved their capital to the Nile Delta.
- 1415 Bucaramanga, city in N Colombia. Situated in mountainous country, it is the commercial center for an area producing coffee and tobacco.
- 1416 buccaneers, bands of pirates who lived by plunder in the Caribbean in the second half of the 17th century. Most were English or French and they preyed primarily on Spanish shipping and settlements.
- 1417 Bucer, Martin (1491-1551), German Protestant reformer. A Dominican friar, Bucer abandoned his vows and married in 1522, settling in Strasbourg. He advised Henry VIII on his divorce from Catherine of Aragon and tried to mediate between Luther and Zwingli in their debate concerning the Eucharist. In 1549 he went to England and became professor of divinity at Cambridge.

- 1418 Buchanan, James_____
- 1419 Bucharest, the capital of Romania. in the SE on a tributary of the Danube. Badly damaged by German bombing in World War II.
- 1420 Bucharest, Treaties of 1. (1812), the treaty ending the Russo-Turkish war of 1806-12. It assigned Bessarabia to Russia and Walachia and Moldavia to Turkey; the Serbs were to receive autonomy.
2. (1886) The treaty ending the Serbian-Bulgarian war (1885-86) over Eastern Rumelia, which was kept by Bulgaria.
3. (1913) The treaty ending the second Balkan War, which partitioned Macedonia between Serbia, Greece, Romania, and the defeated Bulgaria.
4. (1918) The treaty in which Romania acknowledged its defeat by the Central Powers in World War I. It was annulled after their defeat by the Allies.
- 1421 Buchner, Georg (1813-37) German dramatist. A medical student, he fled to Zurich after publishing a revolutionary pamphlet in 1834. He wrote three plays, the tragedies *Danton's Death*, and *Woyzeck*, *Leonce and Lena*, . Innovative techniques.
- 1422 George Villiers, 1st Duke of Buckingham, (1592-1628), of James I of England regime who resisted Parliament's attempts to demote Buckingham, assassinated after his unsuccessful expedition to relieve the Huguenots at La Rochelle (1627).
- 1423 George Villiers, 2nd Duke of Buckingham (1628-87) was a member of the powerful political group the Cabal. under Charles II. After his father's death he was brought up in the royal family, with whom he went into exile after the final royalist defeat in the Civil War (1651). Becoming a privy councillor at the Restoration, he was overshadowed by Arlington when the Cabal came to power. Wrote satirical *The Rehearsal*.
- 1424 Buckingham Palace, the London residence of the British monarch. Built about 1705 for the Duke of Buckingham, becoming a royal residence in 1761. It was completely redesigned by Nash for George IV, although its main facade was not added until 1913.
- 1425 Buckley, William Frank (1925-____) 1 !S journalist and writer. Founded and edited *National Review* magazine. Syndicated newspaper column writer. *God and Men at Yale*, *The Unmaking of a Mayor*, *Saving the Queen*, *Overdrive*, *Right Reason*, and *High Jinx*.
- 1426 buckthorn, a small thorny deciduous tree or shrub. Family: Rhamnaceae.
- 1427 buckwheat, a herbaceous plant, cultivated for its seed, used as a cereal substitute, or as green fodder. Dock family

substitute, or as green fodder. Dock family.

- 1428 Budapest, the capital of Hungary, situated in the N of the country on the Danube River. Most of Hungary's industry is sited here and includes machinery, iron and steel, and chemicals. The university 'vas founded in 1635. History: from the 14th century the fortress of Buda, on the W bank of the Danube, was the seat of the Magyar kings. After occupation by the Turks, it came under Habsburg rule in the 17th century. In 1872 it united with Pest, on the E bank of the river, to form the modern city that became the capital of Hungary in 1918. In 1956 it was the scene of a popular uprising, suppressed by Soviet troops.
- 1429 Buddha, title of Gautama Siddhartha (c. 563-c. 483 BC) Indian prince, whose teachings formed the basis of Buddhism. He achieved enlightenment while seated beneath a banyan tree. Teaching the principles of this enlightenment, first moving to Benares. where he founded the Buddhist order of monks, and thereafter teaching in various places in N India. He died at Kusinagara in Utter Pradesh.
- 1430 Buddhaghosa (5th century BC) Buddhist scholar. A Brahman convert from Buddh Gaya, he wrote the *Visuddhi-magga* (Path of Purity), a collation of Sinhalese Buddhist commentaries that he collected in Ceylon and translated into Pali.
- 1431 Buddhism, the nontheistic religion and philosophical system founded in NE India in the 6th century BC by Gautama Buddha (Siddhartha). His followers seek to emulate his example of perfect morality, wisdom, and compassion, culminating in a transformation of consciousness known as enlightenment. Buddhism teaches that greed, hatred, and delusion separate the individual from the true perception of the nature of things, causing him to remain tied to the bhavachakra. The apparent substantiality of all objects, including the self, is illusion; everything mundane is impermanent and ultimately unsatisfying. The central beliefs of Buddhism are based on the Buddha's Four Noble Truths, the last of which is the Eightfold Path by which enlightenment may be attained and the individual self annihilated in Nirvana. Buddhism is not dogmatic, through its long history has developed into many schools (see Hinayana Mahayana; Theravada,). With more than 500 million followers in Sri Lanka, Nepal, Japan, and elsewhere in the Far East.
- 1432 Budé, Guillaume (1467-1540) French Renaissance scholar. Budé wrote man important Greek , commentaries and philological works. He founded he College de France (1530) and as royal librarian built the library that formed the nucleus of the Bibliothèque Nationale.

- 1433 budgerigar, a small parakeet.
- 1434 budget, a prediction of the financial behavior of a firm, government, etc., over a specified period. Careful budgeting enables any deviation from a plan to be noted early and the appropriate action to be taken.
- 1435 Buenos Aires, the capital of Argentina, large city in South America and one of the world's largest ports, situated on the Rio de la Plata estuary. It is the financial, commercial, and industrial center of the country.
- 1436 Buffon, Georges Louis (1707-88) French naturalist, who formulated a crude theory of evolution and was the first to suggest that the earth might be considerably older than suggested by the Bible. He estimated the age of the earth to be 75,000 years, with life emerging some 40,000 years ago.
- 1437 bugloss, an Eurasian herb. Up to 35 in (90 cm) high, the plants are covered with bristly hairs and produce spikes of funnel-shaped flowers, about 0.8 in (2 cm) long, usually bluish with several protruding stamens. Family: Boraginaceae.
- 1438 Usumbura or Bujumbura, capital of Burundi, a port on the NE shore of Lake Tanganyika. Founded in the 19th century, it became the capital of Ruanda-Urundi after World War I. The university was founded in 1960.
- 1439 Bokhara or Bukhara, city in Uzbekistan. The Bokhara region (oblast) of which it is the capital was the center of a powerful kingdom, which was ceded to Russia in 1868. It grew rapidly in the 1950s after the discovery of natural gas. It has textile industries, and the traditional crafts of gold embroidery and metalworking are still practiced.
- 1440 Bukhari, al- (810-70 AD), Muslim scholar and historian. After extensive travels, he collected more than 600,000 traditional records (or hadith) of the words and deeds of the prophet Mohammed. He published a selection of these, arranged by subject, which he considered authentic teachings. The resulting collection to orthodox Muslims, second to the Koran as authoritative.
- 1441 Bukharin. Nikolai Ivanovich (1888-1938) Soviet politician and communist theoretician. Editor of the newspaper *Pravda*. Died in the Stalin's purges.
- 1442 Bucovina, an area in the NE Carpathian Mountains, becoming part of the Ukraine, remained a Romanian province until it was abolished in 1952.
- 1443 Bulawayo, the second largest city in Zimbabwe. It was founded on its present site in 1894 by the British.

- 1444 bulbul, a gregarious forest-dwelling songbird.
- 1445 Bulfinch, Charles (1763-1844), US architect. Strongly influenced by architecture in England and Italy, he introduced the Federal style in the US.
- 1446 Bulganin, Nikolai Aleksandrovich (1895-1975), a member of Stalin's war cabinet and, in 1947, is defense minister.
- 1447 Bulgaria, People's Republic of, a country in SE Europe, in the E Balkans on the Black Sea. The low-lying Danube basin in the N rises to the Balkan Mountains in the center of the country; further S, beyond the valley of the Marusa River, the Rhodope Mountains reach heights of almost 10,000 ft (3000 m).
- Coal, iron, and other minerals are mined and hydroelectricity and nuclear energy contribute in power supplies. Oil has been found onshore in the Black Sea and natural gas is also being produced
Agricultural production, the traditional mainstay of the economy prior to 1945, has been mechanized and organized on a cooperative basis, the main crops being wheat, maize, beet, and barley.
- Bulgaria aligned itself with Germany in both World Wars. In 1944 it was occupied by the Soviet Union and power was seized by the Fatherland Front, a left-wing alliance, which formed a pro-Soviet government that declared war on Germany. In 1946 a People's Republic was proclaimed and Bulgaria remained one of the most loyal of the Soviet Union's satellite states.
- 1448 Bulgarian, a language belonging to the South Slavonic group spoken by eight million people in Bulgaria, Greece, Romania, and other areas.
- 1449 bullace, a plum.
- 1450 bulldog, a breed of dog originating in England, where it was used in bull- and hear-baiting. It has a compact rounded body with short sturdy legs and a short tail.
- 1451 bulldozer, a powerful caterpillar tractor equipped with a blade or shovel for moving or digging earth and often used for preliminary clearing and leveling of building sites and roads.
- 1452 bullfighting, subduing and killing bulls. The national spectator sport of Spain. Matador performs a series of passes with his muleta (a small red cape folded over a stick) to weaken the bull further until he can reach over its head to thrust his sword in at the tight angle to sever its aorta.

- 1453 bullfinch, a plump woodland finch, about 6 in (14 cm) long and has a gray back, a pinkish breast, and black head, wings, and tail. Bullfinches have strong stout bills and strip buds and flowers from trees, for which they are often regarded as pests.
- 1454 bullfrog, a large frog, large enough to be used as food.
- 1455 bull terrier, a breed of dog originating in the UK from crosses between bull dogs and terriers. It is strongly built with a courageous temperament. The coat is either pure white (with darker head markings) or colored.
- 1456 Bülow, Bernhard Heinrich (1849-1929), German statesman and diplomat; chancellor (1900-09). He pursued aggressive foreign policies that contributed to German isolation in Europe. He alienated France over the Moroccan crisis in 1905 and Russia over the Bosnian crisis in 1908. He resigned after losing the confidence of Emperor William II and of the Reichstag and served from 1914 to 1915 as ambassador to Italy.
- 1457 bulrush, a widely distributed perennial herbaceous plant, growing in ponds, lakes, and rivers; 40 in-10 ft (1-3m) high. It has cylindrical leafless stems bearing branched clusters of small reddish-brown flowers. Family: Cyperaceae (sedans, etc.). The name is also applied to the reedmace, and the biblical bulrush is the papyrus.
- 1458 Bultmann, Rudolf (Karl) (1884-1976) German scholar, the anti-Nazi Confessing Church during the Third Reich. In his influential writings he argued that the New Testament message must be "demythologized" (or stripped of its no longer acceptable mythical concepts) if it was to have any relevance to contemporary man.
- 1459 bumblebee, a social bee, found mainly in temperate regions, usually black with yellow or orange bands. They live in colonies, on or below the ground, containing 100-400 workers in the summer. Their life cycle is like that of the honeybee, although only young fertilized queens survive the winter.
- 1460 Bunche, Ralph (1904-71) US political scientist and UN official. As a government official Bunche specialized in colonial areas during World War II and became the first African American to hold an important position in the State Department.
- 1461 Bundelkhand, a region in present-day Madhya Pradesh state, in N central India, taking its name from the Bundela Rajputs, a dynasty that ruled here from the 14th to the 18th centuries. The area is rich in architectural history; in the 10th and 11th centuries the Candella kings built many beautiful temples at Khajuraho and a fine fortress was

erected later at Jhansi.

- 1462 bunion, a deformity and swelling at the joint at the base of the big toe. It is usually caused by pressure from ill-fitting shoes:
- 1463 Bunker Hill, Battle of (June 17, 1775), a battle of the "American Revolution actually fought on Breed's Hill (next to Bunker Hill) in Charlestown, near Boston. The Americans defended the strategic hill from two British attacks but Sir William Howe displaced the Americans at the third attempt. The American defense helped raise support for the Revolutionary cause.
- 1464 Bunsen, Robert Wilhelm (1811-99) German chemist. Kirchhoff, Bunsen developed the technique of spectroscopy, using a Bunsen burner to heat the substance. In 1860 they used the technique to discover the elements rubidium and cesium. He also invented a carbon-zinc electric cell (1841).
- 1465 Bunsen burner, a gas burner for laboratory use.
- 1466 bunting, a sparrowlike bird of the finches.
- 1467 Bunyan, John (1628-88) British writer, fought in the parliamentary army during the Civil War. From 1650 to 1656 he underwent a spiritual crisis, finally resolved by his conversion to religion. He became the leader of a group of Baptists in Bedford and in 1660 he was imprisoned for preaching without a license. During his 12 years in prison he wrote his spiritual autobiography, *Grace Abounding*, and began, *The Pilgrim's Progress*. An imaginative allegory written in plain but majestic prose.
- 1468 Burbank, Luther (1849-1926), US plant breeder. Largely self-taught and using methods he devised himself, primarily the cross-breeding of different varieties, he developed many new varieties of agricultural importance. His first commercial success, the Burbank potato, enabled him to settle in California, where, by skillful selection and breeding techniques, he originated more than 800 new strains and varieties of fruit, vegetables, and flowers.
- 1469 burdock, a tall stiff biennial plant, 25-52 in (60-130 cm) high, found in Europe and Asia. They have broad heartshaped leaves and reddish-purple thistlelike flower heads, surrounded by many large stiff hooked bracts, which are retained by the fruits. Family: *Compositae*.
- 1470 Burgas, city in E Bulgaria. on the Black Sea. Bulgaria's second largest port (after Varna), its industries include fishing, mining, and oil refining.
- 1471 Bürge, Joost (1552-1632), Swiss mathematician, contributed to the exponential notation

exponential notation.

- 1472 Burgenland, a federal state in E Austria, bordering on Hungary. It was ceded to Austria by Hungary following World War I.
- 1473 Burger, Warren Earl (1907-___) US jurist and lawyer, Supreme Court chief justice.
- 1474 Burgess, Anthony (John Burgess Wilson; 1917-93j , British novelist and critic. A teacher and lecturer in English literature and phonetics, he became a full-time writer in 1959. His novels include the sinister tragicomedy *A Clockwork Orange*, *Inside Mr. Enderby*, *Nothing like the Sun*, *Napoleon Symphony (1974)*, *Earthly Powers*, *Enderby's Dark Lady*, *Any Old Iron*, and *A Dead Man in Deptford*.
- 1475 Burghley, William Cecil, Lord (1520-98) English statesman; close adviser to Elizabeth I.
- 1476 Burke, Edmund (1729-97) British political philosopher and politician. A member of Parliament from 1765, he attacked George III's exalted view of the monarch's political role. In the pamphlet *Thoughts on the Cause of the Present Discontents* and in two famous speeches, *On American Taxation* and *On Moving His Resolutions for Conciliation with the Colonies*, he blamed the unrest in the American colonies on British misgovernment. He also campaigned against the corrupt Indian administration of the East India Company. An opponent of democracy, he believed that the common good was best secured by responsible aristocratic government. He thus condemned the French Revolution *Reflections on the Revolution in France*. He has been regarded as the foremost Conservative philosopher. He also wrote a widely read work on aesthetics. *A Philosophical Enquire into the Origin of Our Ideas of the Sublime and Beautiful*.
- 1477 Burkina Faso (former name: Republic of Upper Volta; French: République de Haute-Volta) A landlocked country in West Africa. The area was occupied by powerful Mossi states from the 14th century. It became part of the French protectorate of Soudan in 1898 and in 1919 the separate protectorate of Upper Volta was formed. In 1932 it was divided between Niger, Ivory Coast, and Soudan but was reconstituted in 1947. In 1958 Upper Volta became an autonomous republic, gaining full independence outside the French Community in 1960.
- 1478 Burns, second- and third-degree burns cause fluid loss, which may be extensive enough to lead to shock.
- 1479 Burns, Robert (1759-96) Scottish poet. *The Scots Musical Museum (1787-1803)* and *Select Scottish Airs (1793-1818)*.

- 1480 Burnside, Ambrose Everett (1824-81) US military leader and politician, commander of the Union's Army of the Potomac in 1862.
- 1481 Burr, Aaron (1756-1836) US statesman; killing his political rival Alexander Hamilton in a duel, Burr fled to Philadelphia and plotted to establish an empire in the West. Arrested for treason but acquitted (1807), after further intrigues, including a scheme for Napoleon to conquer Florida, Burr gave up politics for law.
- 1482 Burroughs, Edgar Rice (1875-1950) US novelist, 70 works of western, crime, and science fiction adventures.
- 1483 burrowing owl, a long-legged ground-dwelling owl, of grassland from Florida and the western US to Argentina, 9 in (22 cm) long, it nests in colonies.
- 1484 Bursa, city in NW Turkey. It was the capital of the Ottoman Turks for most of the 14th century and contains notable mosques and sultans' tombs and a university.
- 1485 Burton, Sir Richard (1821-90), he published superb translation of oriental erotica, including Kama Sutra of Vatsyayana and the *Arabian Nights* (16 vols. After his death his wife burned almost all his diaries.
- 1486 Burton, Richard (1925-84) British actor, *Who's Afraid of Virginia Woolf?* His two marriages to Elizabeth Taylor were highly publicized.
- 1487 Burton, Robert (1577-1640) British scholar. He was educated at Oxford and spent his life there as a don. *The Anatomy of Melancholy*, Jacobean knowledge on what is now called depression; it includes folklore, superstitions, and the learning of the ancient Greeks and Arabs.
- 1488 Burundi, Republic of, a small inland country in central Africa, bordering on Lake Tanganyika in the SW.
- Michel Micombero (1940-83) set up a republic with himself as president. In 1972 he assumed absolute powers and fighting broke out in which thousands were killed, including the deposed king. Further intertribal killings took place in 1973. In 1976 Micombero was overthrown in a coup. Burundi held its first democratic elections in June 1993. An attempted military coup in October resulted in the death of the new president and severe inter-tribal warfare. Official languages: French and Kirundi.
- 1489 Buryatia, an administrative division in SE central Russian Federation. Over half its area is covered by forest. The Buryats, who comprise about 35% of the population, are traditionally nomads and speak a Mongolian language. The region is one of Siberia's most prosperous, having

- valuable mineral deposits, including coal, molybdenum, and gold. The main industries are mining, timber and food processing; spring wheat and fodder crops are grown and stock breeding is also important. Area: 135,650 sq mi (350,300 sq km.)
- 1490 burying beetle, a strong beetle, also called a sexton beetle, occurring in N temperate regions.
- 1491 Bury St Edmunds, city in E England, in Suffolk. Its mined abbey, which was built to house the shrine of St Edmund, last King of East Anglia, became a famous place of pilgrimage.
- 1492 Bush, George (Herbert Walker) (1924-), US politician and statesman, president. Middle East crisis followed Iraq's invasion of Kuwait greatly enhanced his status. In Operation Desert Storm, US-led UN coalition forces completely defeated the Iraqi troops of Saddam Hussein, as in 1992, the United States fought a stubborn recession.
- 1493 bushbaby, a small nocturnal prosimian primate, of African forests and bush. They are 11-31 in (27-80 cm) long including the tail (6-16 in [15-40 cm]). Common bushbabies have soft dense grayish fur and a long bushy tail. They live in small groups and climb acrobatically among the trees in search of large insects.
- 1494 bushmaster, a pit viper, *Lachesis muta*, occurring in scrub and forests of Central and South America. The longest venomous snake of the New World, it reaches a length of 6 ft (1.8 m) and is brownish pink with dark diamond-shaped blotches. Its venom can prove fatal to man.
- 1495 Bushnell, David (1742-1824) US inventor, who in 1776 built the first submarine, nicknamed the Turtle. It was intended to be a combat vessel, laying mines on the hulls of enemy ships, but it lacked the necessary maneuverability
- 1496 bushrangers, outlaws in the Australian outback in the late-18th and 19th centuries. They robbed farmsteads and stagecoaches, murdered, and plundered, but while some were ruthless and cruel, others shared their gains with the poor.
- 1497 bustard, a large omnivorous bird, occurring in grassland regions of the Old World and having long legs adapted for running. Bustards have a long stout neck, broad wings, and a gray or brown mottled plumage, often with ornamental plumes. The great bustard (*Otis tarda*), 48 in (120 cm) long and weighing 31 lb (14 kg), is the largest European land bird.
- 1498 butadiene, a colorless flammable gas made from butanes and butenes. It is used in making synthetic rubbers.

1499

butane, a colorless flammable gaseous alkane found in crude oil. It is used in the manufacture of synthetic rubber and, in its pressurized liquefied form, as a fuel.

1500

butcher's broom, a small evergreen European shrub. The fruit is a red berry.