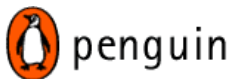




## Case study of <Reference/>



read more at [www.penguin.co.uk](http://www.penguin.co.uk)

Penguin is one of the best-known names in reference publishing with an astonishingly rich list that extends from Roget's Thesaurus and Pears Cyclopaedia to dictionaries on subjects as diverse as psychology, science, symbols and saints.



Data Standards provides Penguin with typesetting solutions built around the latest XML technologies, converting Word files to XML and delivering traditional services for their publishing programs.

*Sample pages overleaf →*

# Encyclopedia

*Edited by David Crystal*



PENGUIN BOOKS

## e

**eagle** A large-bodied bird of prey that kills its own food (smaller birds of prey – buzzards, falcons, hawks, harriers, or kites). **True** or **booted eagles** have fully feathered, not partly bare, legs. (Family: Accipitridae, 30 species.)

**eagle owl** An owl native to the Old World; the genus includes the largest of all owls (0.7 m/2.3 ft). It has eyelashes, which are an unusual feature in owls. (Genus: *Bubo*, 11 species. Family: Strigidae.)

**Eakins, Thomas** [eekinz] (1844–1916) Painter, born in Philadelphia, PA. He studied in Paris under Jean Léon Gérôme (1824–1904). His best known work is his realistic depiction of a surgical operation, 'The Gross Clinic' (1875, Philadelphia), which was controversially received on account of its detail. He became an influential teacher at the Pennsylvania Academy of Fine Arts in 1879, but his insistence on the use of nude models was controversial, and forced his resignation in 1886.

**Ealing Studios**, popular name of **Associated Talking Pictures, Ltd** An English motion-picture studio based at Ealing, Greater London, UK. Founded in 1929 by the film producers Basil Dean and Reginald Baker with the financial support of the Courtauld family, the company produced musical comedies and feature films during the 1930s. In World War 2 it created propaganda films for the British Ministry of Information. In the decade after the war, the studio became internationally renowned for a series of satirical 'Ealing Comedies', including *Kind Hearts and Coronets* (1949) and *The Ladykillers* (1955). In 1944 the major portion of stock in the company was sold to the Rank Organization, Ltd, and the studio ceased production in 1955 when it was sold to the British Broadcasting Corporation.

**ear** *p.428*

**ear candles** Hollow candles lined with silver foil which are inserted into the external auditory canal and, when lit, produce local heat which stimulates the circulation and local energy points. Herbal extracts in the candle release vapours which circulate in the outer ear, and there is also a mild suction from the rising heat. This is an effective way of softening and extracting ear wax, but there is no evidence for the other beneficial effects claimed.

**Earhart, Amelia** [ay(r)hah(r)t] (1897–1937) Aviator, born in Atchison, KS. She was the first woman to fly the Atlantic, as a passenger, and followed this by a solo flight in 1932. In 1937 she set out to fly round the world, but her plane was lost over the Pacific.

**earl** In the UK, a member of the third most senior order of noblemen, and the most ancient title, dating from before the Norman Conquest (Old Norse *jarl*). The wife of an earl is a **countess**.

**Earl Marshal** In the UK, the hereditary post held by the Howard Dukes of Norfolk. One of the great officers of state, the Earl Marshal is head of the College of Arms and is also responsible for organizing state ceremonies.

**Early Christian art** *Christian art*

**Early English Style** The form of English Gothic architecture prevalent during the 13th-c, characterized by pointed arches, rib vaults, and a greater stress on the horizontals than is found in French Gothic architecture. Good examples are the chancel of Lincoln cathedral (c.1192) and Salisbury cathedral (c.1220–70).

**EAROM** [eayrom] Acronym for **Electrically Alterable Read-**

**Only Memory**, a type of integrated circuit read-only memory, where the data can be altered electronically while the EAROM remains in circuit. It generally requires rather complicated circuitry, and is not widely used.

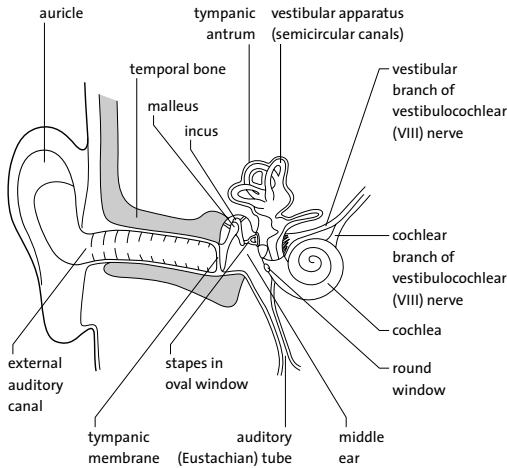
**Earp, Wyatt (Berry Stapp)** [erp] (1848–1929) Gambler, gunfighter, and lawman, born in Monmouth, IL. During his stay in Tombstone, AZ, he befriended Doc Holliday, who joined with the Earp brothers against the Clanton gang in the famous gunfight at the OK Corral (1881). Earp collaborated in the writing of his biography *Wyatt Earp, Frontier Marshal* (1931), published after his death, which portrayed him as a heroic frontiersman of the Wild West.

**Earth** The third planet from the Sun, having the following characteristics: mass  $5.97 \times 10^{24}$  kg; orbital period 365.26 days; radius (equatorial) 6378 km/3963 mi; obliquity  $23^{\circ}27'$ ; mean density  $5.52 \text{ g/cm}^3$ ; orbital eccentricity 0.017; equatorial gravity  $978 \text{ cm/s}^2$ ; mean distance from the Sun  $149.6 \times 10^6 \text{ km}/93 \times 10^6 \text{ mi}$ ; rotational period 23 h 56 min 4s. It has one large natural satellite, the Moon. There is an oxygen/nitrogen-rich atmosphere, liquid water oceans filling lowland regions between continents, and permanent water ice caps at each pole. It is unique in the Solar System in being able to support life, for which there is fossil evidence in rocks dating from 3.5 thousand million years ago; human population over 6500 million (2006). The interior of the planet is differentiated into zones: an iron/nickel-rich molten *core* (radius 3500 km/2175 mi) an iron-magnesium silicate *mantle* (c.85% by volume of the Earth); and a *crust* of lighter metal silicates (relatively thin, c.6 km/3½ mi thick under the oceans to c.50 km/30 mi under the continents). The boundary between core and mantle is called the *Gutenberg discontinuity*; that between mantle and crust is the *Mohorovicic* (or *Moho*) *discontinuity*. The interior is hot as a result of energy released through the continuing decay of a small proportion of long-lived radioactive isotopes of potassium, thorium, and uranium. Temperatures in the upper mantle cause partial melting at depths of c.100 km/60 mi. Large sections (*plates*) of the uppermost mantle and crust (the *lithosphere*) move slowly and horizontally relative to one another over the more fluid and partially molten zone (the *asthenosphere*), which extends to a depth of c.250 km/155 mi. The evolution of the Earth's crust is dominated by such motions (*plate tectonics*): the spreading, subduction, and collision of lithospheric plates creates most of the major planetary scale features that have shaped Earth as a planet – volcanism, rifting, mountain building, and continental wandering. The effects of asteroidal impacts are erased/disguised by the rapid rate at which the Earth's surface is reshaped and eroded. Such impacts would have been a dominant process in the earliest evolution of the Earth, and still occur periodically. A complex atmospheric circulation is driven primarily by the non-uniform solar heating of the planet and by its rapid rotation; and there is evidence of repeated climatic changes throughout the geological record.

**Earth art** *Earthworks*

**earthnut** A slender perennial (*Conopodium majus*) growing to 60 cm/2 ft, native to Europe; irregular-shaped tubers up to 3.5 cm/1½ in across, which supposedly resemble nuts; leaves deeply divided into narrow linear segments, soon withering;

## ear



A compound organ concerned with hearing and balance, situated on the side or (in some animals) the top of the head. The **external ear** consists of the *pinna* (commonly referred to as 'the ear') and the *external acoustic meatus* (or *auditory canal*), a tube leading to the eardrum (*tympanic membrane*). In many animals (eg dogs, horses), the pinna can be moved to scan the environment to locate sounds. The **middle ear** (*tympanic cavity*) is an air-filled space, separated from the external ear by the tympanic membrane, and from the internal ear by the oval and round windows. It is continuous with the nasopharynx via the auditory (Eustachian) tube, and contains the auditory *ossicles* (the *malleus*, *incus*, and *stapes*) and two small muscles which act to damp down their vibrations. The **internal ear** consists of a number of parts, but can be divided into that concerned with hearing (the *cochlea*) and that concerned with assessing head position and its movements (the *vestibular apparatus*). The round window is filled with a fibrous membrane which allows movement of the fluid (*perilymph*) within the cochlea, when compressed by the stapes. Sound waves directed down the external auditory canal cause the tympanic membrane to vibrate; movements of the malleus are conveyed to the oval window (via the incus and stapes), where the vibrations are transmitted to the basilar membrane of the cochlea. The *vestibulocochlear nerve* (the VIIIth cranial nerve) conveys information from both parts of the internal ear to the brain. Blockage of the auditory tube leads to the loss of pressure in the middle ear (due to the absorption of air), increased concavity of the tympanic membrane, and progressive deafness. When the blockage is associated with infection of the middle ear, the accumulation of fluid causes the tympanic membrane to bulge towards the external auditory canal, again leading to increasing deafness.

flowers white or pinkish, in flat-topped umbels 3–6 cm/1¼–2½ in across; also called **pinnut**. The dark brown tubers are edible, cooked or raw. (Family: Umbelliferae.)

**earth pig** *aardvark*

**earthquake** *p.429*

**earth sciences** A general term for the study of the Earth and its atmosphere, encompassing geology and its subdisciplines as well as oceanography, glaciology, meteorology, and the origin of the Earth and the Solar System.

**earthshine** A phenomenon observable close to new Moon, when the entire disc of the Moon is often bathed in a faint light. The cause is sunlight reflected from the Earth.

**earthstar** A ground-living fungus with a globular fruiting body;

when ripe, outer layer splits into rays, and peels back into a star-shaped structure. (Order: Lycoperales. Genus: *Geastrum*.)

**Earth Summit** The name given to the **United Nations Conference on Environment and Development (UNCED)** held in Rio de Janeiro in June 1992. 178 governments were represented at the conference, which brought together more heads of state (114) than had any previous conference on any topic. In addition to government representatives, over 500 interest groups also attended the conference, which attracted a total of 30 000 people to the city. The objective of the conference was to find ways of minimizing the damage done to the environment by the processes associated with economic development. Five agreements were signed, each by most of the governmental participants. The *Framework Convention on Climate Change* introduced measures designed to reduce the threat of global warming. The *Convention on Biological Diversity* put forward proposals aimed at preserving the Earth's biological diversity through the protection of species and ecosystems. *Agenda 21* was an action plan, aimed at introducing sustainable development, which it is hoped would guide government policies throughout the world over the forthcoming decades. The *Rio Declaration* included 27 principles which it was believed should guide action on development and the environment. Finally, the *Forest Principles* emphasized the right of states to exploit their own forest resources while advocating general principles of sustainable forest management. The outcomes of the conference constituted a compromise between the demands of those promoting environmental protection and those advocating continued economic development. It is generally believed that those outcomes favoured development over environment, and the success or otherwise of the conference regarding environmental protection remains to be judged. In particular, the non-governmental organizations meeting in Rio expressed their scepticism about the likelihood of positive international government action. Follow up conferences were held in New York in 1997 (Rio + 5), attended by 185 countries, and in Johannesburg in 2002 (**UN World Summit on Sustainable Development**, Rio + 10).

**Earthworks or Land Art** A modern art movement which started in the late 1960s, in which holes are dug, stones arranged in patterns, etc.; the results are often photographed. Thus in 1968 the US artist Walter de Maria (1935–) chalked two parallel white lines in the Nevada desert and exhibited photographs of them, entitled 'Mile Long Drawing'.

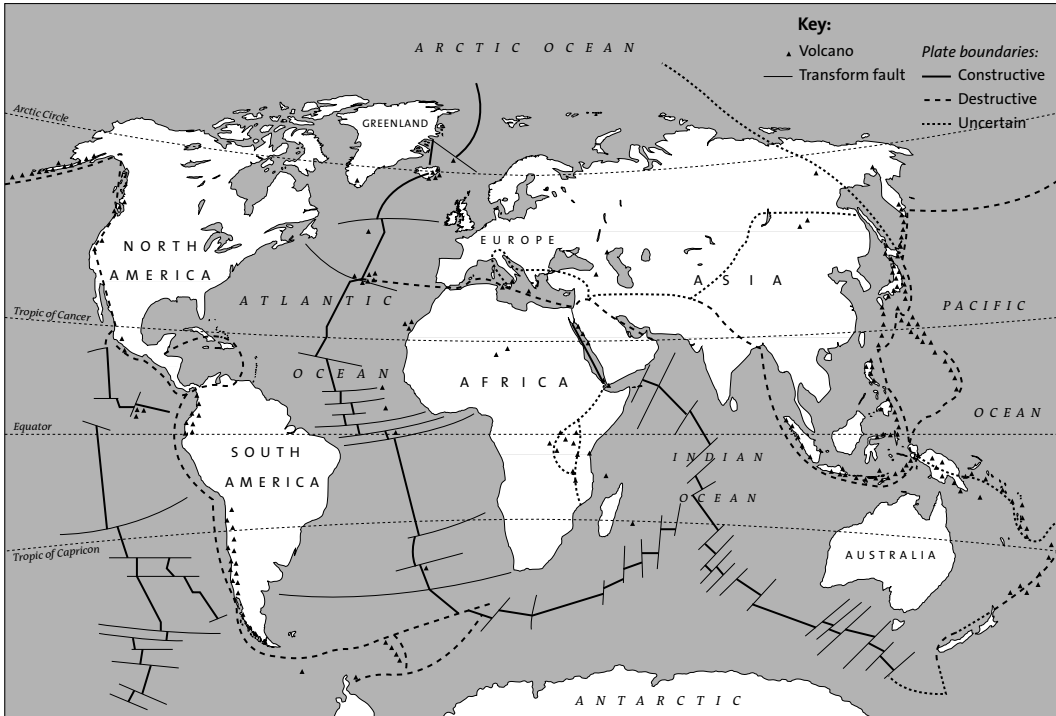
**earthworm** A terrestrial segmented worm found in soil, feeding mainly on decomposing organic matter; head simple, without sensory appendages; body cylindrical, length up to 4 m/13 ft; hermaphrodite; when breeding, develops a saddle (*clitellum*) which secretes material for use during mating and in production of egg cocoon. (Phylum: Annelida. Class: Oligochaeta.)

**earwig** A slender insect with large pincers at rear end of body, used for courtship, defence, grooming, or predation; forewings small and hard; hindwings membranous; c.1500 species, most abundant in tropics. (Order: Dermaptera.)

**easement** In English law, a right of use over the land of another. The easement must normally benefit the adjoining land, no matter who is the owner; and will be extinguished if both properties (the *dominant* and *servient tenements*) are subsequently owned and occupied by one person. A private right of way may exist as an easement, though a person may instead have permission to cross land by virtue of a licence. Easements may be expressly or impliedly granted. They may also be acquired through long use (*prescription*). Further examples include easement of light, the support of buildings, and the taking of water. An **easement of necessity** is implied when access to land acquired by someone is impossible without a right of way over adjoining land retained by a vendor or lessor. Certain matters may not be the subject of an easement, such as an unspoilt view, though in this particular case a restrictive covenant against building may achieve the desired effect.

**East Asian dance** The classical dance forms of China, Korea, and Japan, historically linked for more than 2000 years. Tradition-

## earthquake



A series of shock waves generated at a point (*focus*) within the Earth, and caused by the movement of rocks on a fault plane releasing stored strain energy. The point on the surface of the Earth above the focus is the *epicentre*. Major earthquakes are associated with the edges of plates that make up the Earth's crust, and along mid-oceanic ridges where new crust is forming. The greatest concentration of earthquakes is in a belt

around the Pacific Ocean (the 'ring of fire'), and along a zone from the Mediterranean E to the Himalayas and China. The magnitude of an earthquake is measured on the Richter scale. Major earthquakes, such as in San Francisco in 1906 and Japan in 1923, can cause much damage to property and loss of life. Further dangers arise from associated effects, especially tsunamis.

ally, dance was intermingled with music and drama to create a stylized and symbolic artform, and performances lasted from eight to ten hours. The music that accompanies the dance may be instrumental or vocal; melodies appropriate to the scene, mood, action, or character are selected from a standard musical repertoire. Musical accompaniment is traditionally provided by varying types of *samisen* or three-stringed lutes, and flutes. The dancers themselves may play a musical instrument to express their feelings. East Asian dancers, imbued with the Confucian philosophy of moderation that is conducive to harmony, move in slow, stylized, and often geometric patterns, scarcely raising their feet in the air. Arm and hand movements are important. Dancers portray human or mythological archetypes, especially in masked dances. Among the major traditional dance forms in East Asia today are unmasked dances (the folk and art dances in each country), masked dances (eg Korean *kiak* masked dances), masked dance theatre (eg *Noh* in Japan), danced processions (eg *gyodo* in Japan), dance opera (Peking and other forms of Chinese opera), puppet theatre (eg *bunraku* in Japan), shadow theatre, and dialogue plays with dance (eg *Kabuki* and *Kyogen* in Japan).

**East Bank** Region in Jordan, E of the R Jordan; comprises the governorates of Amman, al-Balqa, Irbid, al-Karak, and Maan; corresponds roughly to the former Amirate of Transjordan.

**East Berlin** *Berlin*

**Eastbourne** 50°46N 0°17E, pop (2001E) 89 700. Coastal town in East Sussex, SE England, UK; on the English Channel, 30 km/19 mi E of Brighton; fashionable 18th-c resort; railway; Lamb

Inn (13th-c), Pilgrims Inn (14th-c); Saxon parish church of St Mary; art gallery; tourism; international tennis tournament (Jun).

**East End** An area of London, UK, situated N of the R Thames and E of Shoreditch and Tower Bridge. With the increasing importance of London as a port in the 19th-c it became a densely populated industrial area. Although it was heavily bombed during World War 2 and has since been hit by recession, the Dockland Development scheme has recently sought to bring industry and finance into the area.

**Easter** The chief festival of the Christian Church, commemorating the resurrection of Christ after his crucifixion. It is observed in the Western Churches on a Sunday between 22 March and 25 April inclusive, depending on the date of the first full moon after the vernal equinox; the Orthodox Church has a different method of calculating the date. The name Easter perhaps derives from Eostre, the name of an Anglo-Saxon goddess. Easter customs such as egg-rolling are probably of pagan origin.

**Easter Island** [paskwa], Span *Isla de Pascua* 27°05S 109°20W; pop (2000E) 2800; area 166 km<sup>2</sup>/64 sq mi; maximum length 24 km/15 mi; maximum width 12 km/7 mi. Chilean island just S of the Tropic of Capricorn and 3790 km/2355 mi W of Chile; triangular, with an extinct volcano at each corner; rises to 652 m/2139 ft at Terevaka; undulating grass and tree-covered hills with numerous caves and rocky outcrops; a third covered by Rapa-Nui National Park, established in 1968; rainy season (Feb–Aug); first European discovery by Dutch admiral Jacob Roggeveen on Easter Sunday, 1722; islanders largely of Polyn-

sian origin; capital, Hanga Roa; airport; famous for its *moai* stone statues depicting the human head and trunk of local ancestors; nearly 1000 carved from the slopes of Rano Raraku, where the largest (19 m/62 ft) still lies; remains of the ceremonial city of Orongo on Rano Kau.

**Eastern Cape** One of the nine new provinces established by the South African constitution of 1994, in SE South Africa, incorporating the former Transkei and Ciskei homelands, and formerly part of Cape Provinces; capital, Bisho; pop (2000e) 6 170 000; area 170 616 km<sup>2</sup>/65 858 sq mi; chief languages, Xhosa (85%), Afrikaans, English; second poorest province; automotive industry at Port Elizabeth; agriculture, forestry, tourism (coastal amenities and nature reserves).

**Eastern Orthodox Church** *Orthodox Church*

**Eastern Woodlands Indians** A North American Indian group living in the forested region along the Atlantic seaboard from Canada to below S Carolina, and stretching W just beyond the Mississippi R. Algonkin-, Iroquoian-, and Siouan-speaking, they lived by hunting, fishing, and gathering, with some farming of maize, squash, and beans in those areas with a long-enough growing-season (towards the S). They were gradually pushed W and N towards the Great Plains and Canada; others were placed on reservations, some of which still exist in upstate New York and New England.

**Easter Rising**, also **Easter Rebellion** (24–29 Apr 1916) A rebellion in Dublin of Irish nationalists, whose aims were to establish an Irish Republic. It was organized by two revolutionary groups: the Irish Republican Brotherhood led by Patrick Pearse, and the socialist 'citizen armies' organized by James Connolly. It was preceded by centuries of discontent under British rule, marked by a number of unsuccessful, sporadic revolts. Immediately preceding it was the suspension by the British government of the Home Rule Bill (1914), which had promised some political autonomy. The focal point of the rebellion was the seizing of the General Post Office. The rising was put down and several leaders, including Pearse, Connolly, and Thomas MacDonagh (1878–1916), were executed. De Valera, who later became prime minister and president of Ireland, was sentenced to death, but he was jailed until his release in 1920. The extent of the reprisals, rather than the uprising itself, increased support for the nationalist cause in Ireland. Events following the uprising led to the establishment of dominion status for the Free State in 1921. On Easter Monday, 1949, the Irish Republic was established.

**East Germany** *Germany*

**East India Company, British** A British trading monopoly, established in India in 1600, which later became involved in politics, eventually wielding supreme power through a Board of Control responsible to the British parliament. Its first 'factory' (trading station) was at Surat (1612), with others at Madras (1639), Bombay (1688), and Calcutta (1690). A rival company was chartered in 1698, but the two companies merged in 1708. During the 18th-c it received competition from other European countries, in particular France. The company benefited territorially from local Indian disputes and Mughal weakness, gaining control of Bengal (1757), and receiving the right to collect revenue from the Mughal emperor (1765). Financial indiscipline among company servants led to the 1773 Regulating Act and Pitt's 1784 India Act, which established a Board of Control responsible to parliament. Thereafter it gradually lost independence. Its monopoly was broken in 1813, and its powers handed over to the British Crown in 1858 following the Indian Mutiny. It ceased to exist as a legal entity in 1873.

**East India Company, Dutch** The *Vereenigde Oostindische Compagnie*, a trading company founded in 1602 to protect trade in the Indian Ocean, Indonesia, Japan, and other parts of the East, and to assist in the war against Spain. It established 'factories' (trading stations) on the Indian peninsula, but made little political/cultural contact there, though it did exercise political control in Ceylon. Much larger than the British East India Company, it was at the height of its prosperity during the 17th-c and was dissolved in 1799.

**East India Company, French** The *Compagnie des Indes Orientales*, a commercial/political organization founded in 1664 which directed French colonial activities in India. It established major trading stations at Chandernagore, Pondicherry, and Mahé, and competed for power with the British during the 18th-c. Its governor, Dupleix, captured Madras (1746), but was defeated during the Seven Years' War (1756–63). The Company lost government support and ceased to exist during the French Revolution.

**Eastman, George** (1854–1932) Inventor and philanthropist, born in Waterville, NY. In 1889 he manufactured the transparent celluloid film used by Edison and others in experiments which made possible the moving-picture industry.

**East Sea**, also known as **Sea of Japan** area 978 000 km<sup>2</sup>/378 000 sq mi. Arm of the Pacific Ocean, bounded by S and N Korea (SW), Russia (N and W), and the islands of Japan (E and S); NE-flowing warm current keeps coastal conditions ice-free as far N as Vladivostok (Russia).

**East Sussex** *Sussex, East*

**East Timor** *p.431*

**Eastwood, Clint** (1930–) Film actor and director, born in San Francisco, CA. He began acting in television Westerns, especially the *Rawhide* series (1959–65), and became an international star with three Italian-made 'spaghetti Westerns', beginning with *A Fistful of Dollars* (1964). Later films include *Unforgiven* (1992, two Oscars), *Bridges of Madison County* (1995), *Absolute Power* (1997), and *Million Dollar Baby* (2004, Golden Globe Best Director; Oscar Best Director and Best Film). In 2003 he directed the Oscar nominated *Mystic River*. He was elected Mayor of Carmel-by-the-Sea, CA (1986–8).

**eau de Cologne** *mint mint*

**Ebadi, Shirin** [*ebahdee*] (1947–) Lawyer and human rights activist, born in Hamadan, Iran. She studied at Tehran University and became the first female judge in Iran, serving as president of the Tehran City Court from 1975. Forced to resign in 1979 with the advent of the Islamic republic, she went on to set up her own law practice. Her campaigns for greater rights for Iranian women and children and for the reform of family laws have made her a key figure in the reformist movement. In 2003 she was awarded the Nobel Peace Prize for her efforts for democracy and human rights.

**Ebbinghaus, Hermann** [*aybinghows*] (1850–1909) Experimental psychologist, born in Barmen, Germany. He taught at Berlin, and became professor at Wrocław, Poland (formerly Breslau, Prussia) (1894–1905), then at Halle. He is best remembered for *Über das Gedächtnis* (1885, On Memory), which first applied experimental methods to memory research, and which introduced the nonsense syllable as a standard stimulus for such work.

**EBCDIC code** [*ebseedik*] Acronym for **Extended Binary Coded Decimal Interchange Code**, a binary code used by IBM for information exchange: 256 different characters are defined using an 8-bit code. The characters include all the alphanumeric, punctuation, and non-printing control characters, as well as a considerable number of special characters.

**Ebionites** [*ebioniyts*] Literally, 'poor men'; a Judaeo-Christian sect of the early Christian era, opposed by Irenaeus in the late 2nd-c AD. They were apparently ascetic, and continued to observe rigorously the Jewish Law. They also believed that Jesus was the Messiah, a virtuous man anointed by the Spirit, but not truly 'divine'.

**Ebla** An important Syrian city-state of the third millennium BC, lying S of Carchemish. It traded with Anatolia, Assyria, and Sumeria, and exacted tribute from such places as Mari.

**Ebola** A virus, first isolated in 1976 in Africa, belonging to the *Filoviridae* family, which causes severe and often fatal haemorrhagic fevers in humans and non-human primates. It is classified as a biosafety level 4 agent because of its extreme pathogenicity and the lack of a protective vaccine or antiviral drug. Little is known of its natural history and its host is still unidentified.

**ebonite** *vulcanite*

## East Timor, Democratic Republic of

**Local name** Port Timor Leste, Tetum **Timor Loro Sae**

**Timezone** GMT + 8

**Area** 14 874 km<sup>2</sup>/5743 sq mi

**Population total** (2002e) 738 000

**Status** Republic

**Date of independence** 2002

**Capital** Dili

**Languages** Tetum and Portuguese (official), Indonesian and English widely spoken

**Ethnic groups** Tetum

**Religion** Roman Catholic (91.4%), traditional animist beliefs

**Physical features** Occupies E half of the mountainous island of Timor and the enclave of Ocussi (Ambeno) in West Timor, SE Asia, in the Sunda Group, NW of Australia; W half of the island belongs to Indonesia (part of East Nusa Tenggara province); highest peak, Tata Mailau (2950 m/9679 ft); many rivers flowing from the mountains through the coastal plains.

**Climate** Hot with monsoon rains falling between December and March; average daily temperatures 32°C (Oct–Dec), 21°C (Jan–Sep)

**Currency** 1 US Dollar (USD) = 100 cents

**Economy** 90% of the population live off the land, with one in three households living below the poverty line; coffee is the main export crop, also coconuts, cloves, cacao, and marble; offshore gas and oil to be exploited from 2004.

**GDP** (2001e) \$440 mn, per capita \$500

**History** Former Portuguese colony of East Timor declared itself independent as the Democratic Republic of East Timor, 1975; invaded by Indonesian forces and annexed, the claim not recognized by the UN; administered by Indonesia as the province of Timor Timur; considerable local unrest (1989–90), and mounting international concern over civilian deaths; independence movement (Fretilin) largely suppressed by 1993; UN-sponsored talks, 1993; ongoing conflict, mid-1990s; President Habibe grants referendum, 1999, resulting in 78.5% vote in favour of independence, immediately followed by widespread violence and destruction of property by pro-Jakarta militia groups, and major refugee movements; growing threat to the UN presence in Dili led to arrival of UN-sponsored, Australian-led intervention force; administered by the UN since 1999, with a transitional administration, 2000; elections for an 88-member Constituent Assembly, 2001; Council of Ministers of the Second Transitional Government, 2001; presidential elections (Apr), followed by full independence, May 2002; UN Mission of Support in East Timor (Unmiset) to remain in place until 2004; parliamentary system of government with a largely ceremonial president.

**Head of State**

2002– Xanana Gusmao

**Head of Government**

2001– Mari Alkatiri

**ebony** An evergreen or deciduous tree, native to tropical and subtropical regions, but mainly concentrated in lowland rainforest; leaves alternate, entire, often forming flattened sprays; flowers unisexual, solitary or in small clusters in leaf axils, urn-shaped with 3–5 spreading lobes, white, yellow, or reddish; fruit a berry seated on a persistent calyx. In most species the white outer wood is soft, but the black heartwood, the ebony of commerce, is very hard. Several species are cultivated, both for their superior timber and for the edible fruits (*persimmons*). (Genus: *Diospyros*, 500 species. Family: Ebenaceae.)

**Ebro, River** [ebroh], ancient **Iberius** Longest river flowing entirely in Spain; rises in the Cordillera Cantabrica and flows SE to enter the Mediterranean at Cape Tortosa; three major reservoirs on its course; used for hydroelectricity and irrigation; length, 910 km/565 mi.

**Eccles, Sir John** (Carew) (1903–97) Physiologist, born in Mel-

bourne, Victoria, Australia. A specialist in neurophysiology, he shared the 1963 Nobel Prize for Physiology or Medicine for his work on the functioning of nervous impulses.

**Ecclesiastes, Book of** [ekleeziasteez] A Biblical work, specifically attributed to 'The Preacher, the son of David, King of Jerusalem', who has traditionally been identified as Solomon, although the work is usually now dated in the post-exilic period of Israel's history. It is largely philosophical in its reflections on the meaning of life, declaring that 'all is vanity'. The title is derived from the Greek rendering of the Hebrew Koheleth: 'the preacher, one who speaks or teaches in an assembly'.

**Ecclesiasticus, Book of** [ekleeziastikus] (Lat 'the Church (Book)') Part of the Old Testament Apocrypha or Catholic deuterocanonical writings, originally attributed to a Jewish scribe c.180 BC, but later translated into Greek by his grandson; also called **The Wisdom of Jesus, the Son of Sirach**, or just **Sirach** or **Ben Sir**. It consists largely of collections of proverbs and exhortations; praises wisdom, attempting to link it with a Torah-centred way of life; and ends with a historical survey in praise of Israel's famous leaders.

**ecclesiology** [ekleeziolojee] The theological study of the nature of the Christian Church. The term can also signify the science of church construction and decoration.

**ECCG** *electrocardiography*

**echidna** [ekidna] An Australasian mammal; coat with spines; minute tail; long claws used for digging; long narrow snout and sticky tongue; eats ants and termites, or larger insects and earthworms; young develop in pouch. (Family: Tachyglossidae, 2 species.)

**Echidna** [ekidna] In Greek mythology, a fabulous creature, half-woman and half-snake, who was the mother of various monsters.

**echinoderm** [ekiynoderm] A spiny-skinned marine invertebrate characterized by its typically 5-radial (*pentamerous*) symmetry; body enclosed by a variety of calcareous plates, ossicles, and spines; water vascular system operates numerous tubular feet used in feeding, locomotion, and respiration; includes starfishes, brittle stars, sea lilies, sea urchins, and sea cucumbers, as well as a diverse range of fossils. (Phylum: Echinodermata.)

**Echinoidea** [ekinoydia] *sea urchin*

**Echiura** [ekiyoora] *spoonworm*

**Echo** In Greek mythology, a nymph of whom several stories are told. Either she was beloved by Pan, and was torn to pieces, only her voice surviving; or she was punished by Hera so that she could only repeat the last words of another speaker. She loved Narcissus, who rejected her, so that she wasted away to a voice.

**echolalia** The automatic repetition of the last words or phrases uttered by someone else. The effect is most commonly seen in dementia, but is also found in childhood psychiatric disorders and in schizophrenia.

**echolocation** The perception of objects by means of reflected sound waves, typically high-frequency sounds. The process is used by some animals, such as bats and whales, for orientation and prey location.

**echo-sounding** Bouncing sound waves off the sea-floor to determine the depth of water in the oceans. Echo-sounding is based on the simple principle of measuring the time an acoustic signal takes to travel to the sea floor, be reflected as an echo, and travel back to the sea surface. If the speed of sound in sea water is known, the depth to the sea floor can be calculated. In practice, a device known as a *precision depth recorder* (PDR) is used to print a visual trace of the water depth and provide a picture of the sea-floor topography.

**Eck, Johann Mayer von** (1486–1543) Roman Catholic theologian, born in Egg, Switzerland. He became professor of theology at Ingolstadt (1510), and was the ruling spirit of that university until his death. After his Leipzig disputation with Luther, he wrote on papal authority, and went to Rome (1520), returning with the bull which declared Luther a heretic.

**Eckhart, Johannes** [ekhah(r)t], also spelled **Eckart** or **Eckehart**, known as **Meister Eckhart** ('Master Eckhart') (c.1260–c.1327) Dominican theologian and mystic, born in Hochheim, Ger-

many. In 1325 he was arraigned for heresy, and two years after his death his writings were condemned by Pope John XXII.

**eclampsia** [eklampsiə] Convulsions arising during pregnancy in association with pre-eclampsia. It is a rare disorder, but is dangerous to both the mother and fetus.

**eclipse** The total or partial disappearance from view of an astronomical object when it passes directly behind, or into the shadow of, another object. In the case of our Sun, a **solar eclipse** can occur only at new Moon, when the Moon is directly between the Earth and the Sun. Although the Moon is much nearer the Earth than the Sun, a coincidence of nature makes both appear nearly the same size in our sky. A **total eclipse**, when the whole disc is obscured, lasts a maximum of 7.5 min, often less; during such an eclipse, the chromosphere and corona are seen. A **partial eclipse** of much longer duration occurs before, after, and to each side of the path of totality. Sometimes the apparent size of the lunar disc is just too small for a total eclipse, and an **annular eclipse** results, in which a bright ring of sunlight surrounds the Moon. A **lunar eclipse** occurs when the Moon passes into the shadow of the Earth, which can happen only at full moon. Then the Moon is a dim coppery hue. Moons and satellites of other bodies in the Solar System are eclipsed when they pass through the shadow of their primary bodies. In binary star systems it is also possible for one star to eclipse another (an *eclipsing binary star*).

**ecliptic** That great circle which is the projection of the Earth's orbit onto the celestial sphere, and therefore is the apparent path of the Sun across our sky. Positions of the planets as viewed from Earth are generally very close to the ecliptic.

**eclogue** [eklog] A short dramatic poem, originally with a pastoral setting and theme. Of classical derivation (notably in Theocritus and Virgil), the form was popular in the 16th–17th-c (as Spenser's *Shepherd's Calendar*, 1579), satirized in the 18th-c (eg Gay, Swift), and was adapted to more general purposes by some 20th-c poets (eg Auden, MacNeice).

**Eco, Umberto** [ajkoh] (1932–) Semiotician, novelist, and critic, born in Allessandra, Italy. His novel *Il nome della rosa* (1981, *The Name of the Rose*), an intellectual detective story, achieved instant fame, and attracted much critical attention; it was filmed in 1986. Later novels are *Foucault's Pendulum* (trans, 1988) and *Baudolino* (2002). A critical work, *On Literature*, appeared in 2004.

**ecomanarchy** *Greens*

**ecology** The study of the interaction of living organisms with their physical, biological, and chemical environment. Because of the complexity of ecosystems, ecological studies of individual ecosystems or parts of ecosystems are often made, from which links between different systems can be established. In this way, ecologists attempt to explain the workings of larger ecosystems. Important ecological concepts have had considerable influence in conservation; an example is *carrying capacity*, which relates the available resources of an area to the number of users that can be sustained by these resources. Some ecologists question the role of people in the environment: is humanity dependent on, or independent of, nature? The ecological movement of the 1960s onwards has argued that people must live within the limitations of the Earth's finite supply of resources, and that humanity is very much dependent on its environment. Ecology is therefore seen as a social as well as a scientific subject, providing a link between physical and human environments.

**e-commerce** The trend, by business and administration, to use data communications to link their computer systems directly to those of their suppliers and customers, also called **electronic commerce**. This allows many transactions to take place without any human involvement, particularly the ordering of materials from suppliers on a just-in-time basis. The term is increasingly used for the marketing of goods and services directly to individual customers through the Internet. Because of the value of the commercial transactions taking place, data communications need to be highly secure, using sophisticated techniques for encryption and authentication.

**econometrics** A branch of economics which seeks to test and measure economic relationships through mathematical and statistical methods for the purposes of assessing and choosing among alternative policies. It is widely used in economic forecasting. Econometrics now provides the standard of proof across the full range of applied microeconomics, which studies everything from household spending and investment by firms to the organization of industries, labour markets, and the effects of public policy. In 2000 the economists James Heckman and Daniel McFadden were jointly awarded the Nobel Prize for Economics for their contribution to the field of econometrics.

**Economic and Social Council** *United Nations*

**Economic Community of West African States (ECOWAS)** An organization formed in 1975 by 15 W African signatories to the Treaty of Lagos: Benin, Gambia, Ghana, Guinea, Guinea-Bissau, Côte d'Ivoire (Ivory Coast), Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo, and Upper Volta (now Burkina Faso); Cape Verde joined in 1977; Mauritania left in 2002. Its principal objectives are the ending of restrictions on trade, the establishment of a common customs tariff, the harmonization of economic and industrial policies, and the elimination of differences in the level of development of member states.

**economic history** The study of the economies and forms of wealth-creation in past societies. Such work tended to appear as subordinate parts of predominantly political accounts, especially in Britain, until the early 20th-c, but departments of economic history began to appear in universities in the inter-war period. Most of the subject was empirically based, but after c.1950 more attention was paid to prevalent economic theory, especially in the wake of Keynesian analyses, as a means of directing historical enquiry. Sub-specialisms include agricultural history and business history.

**economics** The study of the allocation of scarce resources among competing ends, the creation and distribution of wealth, and national income. The first major economist was Adam Smith, and the economic theory of the classical school (*equilibrium*) dominated thinking until the 1930s. The main change in thinking at that time was the result of work by J M Keynes, whose economic theories attempted to solve the problems of depression and economic stagnation. After 1945, the main aim of economic policy was to maintain high employment levels. Inflationary pressures were a test of Keynesian economics: monetarist theories were popular in the 1970s as an attempt to reduce inflation, but these are now believed to have contributed to the high levels of unemployment seen in the early 1980s. Two main aspects are often recognized. **Microeconomics** is the study of the economic problems of firms and individuals, and the way individual elements in an economy behave (such as specific products, commodities, or consumers). **Macroeconomics** is the study of the country as a whole, including such matters as trade, monetary policy, prices, national income, output, exchange rates, growth, and forecasting (*econometrics*). Particular concerns are how to manage an economy to achieve high growth, low inflation, and high employment; and, for individual firms, to predict those economic factors which will affect them in the future, thus enabling them to improve their own planning.

**economies of scale** The economic theory that, the larger the enterprise, the more profitable will be its operations because there will be lower unit cost, higher productivity, stronger buying power (therefore materials will be bought cheaper), and better plant utilization. However, there are also *dis-economies of scale*: control becomes more difficult, and bureaucratic systems increase costs. The theory is often used to support an argument for merging two companies; but it does not always work out in practice.

**ecosocialism** A branch of socialism of relatively recent origin which wishes to see socialist practice linked with concern for environmental and ecological matters. In particular, it represents the view that resources other than labour should also be used in a socially useful manner, and reacts against increases in



## Ecuador



□ International Airport

[ekwadaw(r)], official name **Republic of Ecuador**, Span **República del Ecuador**

**Local name** Ecuador

**Timezone** GMT -5

**Area** 270 699 km<sup>2</sup>/104 490 sq mi (including the Galápagos Islands, 7812 km<sup>2</sup>/3015 sq mi)

**Population total** (2005e) 13 363 000

**Status** Republic

**Date of independence** 1830

**Capital** Quito

**Languages** Spanish (official), with Quechua also spoken

**Ethnic groups** Quechua (50%), Mestizo (40%), white (8.5%), other Amerindian (5%)

**Religions** Roman Catholic (94%), other (6%)

**Physical features** Located in NW South America; includes the Galápagos Is, Ecuadorian island group on the equator 970 km/600 mi W of South American mainland; coastal plain in the W, descending from rolling hills (N) to broad lowland basin; Andean uplands in C rising to snow-capped peaks which include Cotopaxi, 5896 m/19 343 ft; forested alluvial plains in the E, dissected by rivers flowing from the Andes towards the Amazon (source of the Amazon located in Peru).

**Climate** Hot and humid, wet equatorial climate on coast; rain throughout year (especially Dec–Apr); average annual rainfall 1115 mm/44 in; average annual temperatures in Quito, 15°C (Jan), 14°C (Jul).

**Currency** 1 US Dollar (USD) = 100 cents (before 2000, the Sucre (ECS))

**Economy** Agriculture (employs c.35% of population); beans, cereals, livestock; bananas, coffee, fishing (especially shrimps); petrochemicals, steel, cement, pharmaceuticals; oil piped from the Oriente basin in E to refineries at Esmeraldas.

**GDP** (2004e) \$49.51 bn, per capita \$3700

**Human Development Index** (2002) 0.732

**History** Formerly part of Inca Empire; taken by Spanish, 1534; within Viceroyalty of New Granada; independent, 1822; joined with Panama, Colombia, and Venezuela to form Gran Colombia; left union, to become independent republic, 1830; highly unstable political history; constitution, 1978; comprises 21 provinces, including the Galápagos Is, each administered by a governor; governed by a President and a unicameral National Congress.

#### Head of State/Government

1966 Clemente Yerovi Indaburu

1966–8 Otto Arosemena Gómez

1968–72 José María Velasco Ibarra

1972–6 Guillermo Rodríguez Lara

1976–9 *Military junta*

1979–81 Jaime Roldós Aguilera

1981–4 Oswaldo Hurtado Larrea

1984–8 León Febres Cordero Rivadeneira

1988–92 Rodrigo Borja Cevallos

1992–6 Sixto Durán Ballén

1996–7 Abdala Bucaram

1997 Rosalia Arteaga *Acting*

1997–8 Fabián Alarcón Rivera

1998–2000 Jamil Mahuad Witt

2000–2 Gustavo Noboa Bejarano

2002–5 Lucio Gutiérrez

2005– Alfredo Palacio

economic growth and high technology production for their own sake.

**ecosystem** An ecological concept which helps to explain the relationships and interactions between one or more living organisms and their physical, biological, and chemical environment (eg a pond and its associated plants, fish, insects, birds, and mammals). The concept is helpful in describing interactions at any level, from the individual plant in its community to planet Earth. The study of ecosystems is commonly based on transfers of energy along a food chain by examining four elements: *abiotic* or inorganic and dead organic substances (eg inorganic compounds in soil and water); green plants or *producers*, which fix energy from the Sun by photosynthesis and use inorganic material from the soil or atmosphere to manufacture complex organic substances; *consumers* (eg birds, insects, mammals) which use the energy fixed by plants; and *decomposers* (eg bacteria, fungi), which break down dead organisms, releasing nutrients back to the environment for use by the producers. In most natural ecosystems, several food chains interact to form complex food or energy webs. An ecosystem is a convenient model which does not, however, convey the complexity of the interactions which actually take place.

#### ecotourism *tourist industry*

**ecstasy** A designer drug which is supposedly mildly hallucinogenic; also called **MDMA** (methylenedioxyamphetamine), 'E' or 'Adam'. It is reported to heighten the tactile senses of touch and skin sensations, and thereby act as an aphrodisiac. It has been responsible for several deaths because it causes the body to overheat.

**ectopic pregnancy** [ektópik] The implantation of a fertilized ovum in a site other than within the uterus. The most common abnormal site is within the uterine tube. The main predisposing factor is pelvic inflammatory disease due to *chlamydia trachomatis*. There are two possible outcomes. Either the embryo dies and is reabsorbed, or alternatively the pregnancy ruptures into the abdominal cavity. This presents as a surgical emergency with severe pain and vaginal bleeding, and requires an urgent operation to remove the embryo.

**ectoplasm** A viscous substance said to exude from the body of a medium during a seance, and from which materializations sometimes supposedly form. This alleged phenomenon was primarily produced by mediums in the late Victorian era. It is the subject of much controversy, as some mediums were discovered to simulate such effects fraudulently, by such

means as regurgitation of a previously swallowed substance (such as a piece of cloth).

**ECU** *European Monetary System*

**Ecuador** *p.433*

**ecumenism** [ekyooemenizm] (Gr *oikoumene*, 'the inhabited world') A movement seeking visible unity of divided churches and denominations within Christianity. The 4th-c and 5th-c 'Ecumenical Councils' had claimed to represent the Church in the whole world. A dramatic increase of interest in ecumenism and the reuniting of Churches followed the Edinburgh Missionary Conference (1910), and led to the formation in 1948 of the World Council of Churches. Assemblies are held every seven years, the decisions of which guide but do not bind member Churches. The movement encourages dialogue between Churches of different denominations, unions where possible (as in the Churches of N and S India), joint acts of worship, and joint service in the community.

**eczema** *dermatitis*

**edaphology** [eedafolojee] The study of soil as a medium for growth of living organisms. The word is from Greek *edaphos* 'ground, soil'.

**Edda** (Old Norse 'great-grandmother') The name of two separate collections of Old Norse literature. The **Elder Edda**, long handed down by oral tradition, dating from the 9th-c to the 12th-c, consists of heroic and mythological poems. It comprises mythological poems featuring Germanic gods and goddesses and heroic lays based on early Germanic history. The **Younger** or **Prose Edda** was written (mainly in prose) in the early 13th-c by the Icelandic poet Snorri Sturluson. It contains a discussion of skaldic poetry, giving rules and examples, and a poem in honour of the king and earl of Norway.

**Eddington, Sir Arthur S(tanley)** (1882–1944) Astronomer, born in Kendal, Cumbria. In 1919 his observations of star positions during a total solar eclipse gave the first direct confirmation of Einstein's general theory of relativity. He became a renowned popularizer of science, notably in *The Expanding Universe* (1933).

**Eddy, Mary Baker**, married name **Glover** (1821–1910) Founder of the Christian Scientists (1876), born in Bow, NH. In 1866 she received severe injuries after a fall, but read about the palsied man in Matthew's Gospel, and claimed to have risen from her bed similarly healed. Thereafter she devoted herself to developing her spiritual discovery, and in 1879 organized at Boston the Church of Christ, Scientist.

**eddy currents** Circulating electrical currents induced in bulk conducting material, rather than circuits, by changing magnetic fields or by the motion of the material in a magnetic field. They are a consequence of electromagnetic induction. The heating effect due to eddy currents in the core material of transformers and motors is a source of power wastage.

**Ede, James Chuter, Baron Chuter-Ede of Epsom** [eed] (1882–1965) British statesman, born in Epsom, Surrey. He studied at Cambridge, and became a teacher (1905–14) and local councillor (1920–7), before entering parliament briefly in 1923. He became home secretary in the 1945 Labour government, and Leader of the House of Commons in 1951. A humanitarian reformer, he was responsible for the Criminal Justice Act of 1948. He became a life peer in 1964.

**Edelman, Gerald (Maurice)** [aydlman] (1929–) Biochemist, born in New York City. His research into the antibodies which form a major part of a vertebrate animal's defence against infection led to his sharing the Nobel Prize for Physiology or Medicine in 1972.

**edelweiss** [aydlviys] A perennial (*Leontopodium alpinum*) growing to 20 cm/8 in, native to the mountains of SE Europe; leaves narrowly lance- or spoon-shaped, with a dense covering of white woolly hairs pressed flat against the surface; flower-heads yellowish-white, arranged in a flat-topped cluster surrounded by pointed, spreading, star-like, woolly bracts. It is a well-known alpine plant with romantic associations, protected by law in many districts. (Family: Compositae.)

**edema** *oedema*

**Eden, Sir (Robert) Anthony, 1st Earl of Avon** [eedn] (1897–1977) British statesman and Conservative prime minister (1955–7), born in Windlestone, Durham. He became foreign secretary (1935), resigning in 1938 over differences with Chamberlain. Again foreign secretary (1940–5, 1951–5), he succeeded Churchill as prime minister. In 1956 he ordered British forces into the Suez Canal Zone – an action which led to his resignation.

**Eden, Garden of** Biblical place associated with **Paradise**, where Adam and Eve lived prior to their sin and expulsion (*Gen* 2, 3). 'Eden' may mean 'delight' (Heb) or simply and more probably 'a plain' (Sumerian). It is also used in Ezekiel as a symbol for the future restitution of Israel after the exile.

**Eden Project** A sustainable garden development created as a tourist attraction near St Austell, Cornwall, SW England, UK. Opened in 2001, the project's aim is to 'promote the understanding and responsible management of the vital relationship between plants, people and resources, leading towards a sustainable future for all'. Sited in the crater of a disused clay pit are two bubble-shaped geodesic domes known as *biomes*. One is designed to recreate a tropical rainforest climate, while the other controls a warm temperate climate. They house a spectacular and diverse collection of plants from around the world, as well as locally-grown specimens. Future planned developments include an education centre and a dry-tropics biome.

**Edentata** [eedntahta] (Lat 'with no teeth') An order of mammals characterized by having extra contacts between some of the bones in the spine, and by having no front teeth; comprises anteaters, sloths, and armadillos; anteaters have no teeth; sloths and armadillos have simple molar teeth.

**Ederle, Gertrude (Caroline)** [ayderlee] (1905–2003) The first woman to swim the English channel, born in New York City. She won a gold medal at the 1924 Olympic Games as a member of the US 400 m relay team. On 6 August 1926 she swam the Channel from Cap Gris Nez to Kingsdown in 14 h 31 min, very nearly two hours faster than the existing men's record.

**Edgar or Eadgar** (943–75) King of Mercia and Northumbria (957) and (from 959) King of all England, the younger son of Edmund I. In c.973 he introduced a uniform currency based on new silver pennies.

**Edgar, David (Burman)** (1948–) Playwright and teacher, born in Birmingham, West Midlands. He studied drama at Manchester University, and was a journalist before turning to the stage, writing numerous agitprop plays during 1971–4. His plays include *Saigon Rose* (1976), *The Shape of the Table* (1990), *Pentecost* (1995), and *Playing With Fire* (2005). He also writes for television and radio.

**Edgar the Ætheling** ('Prince') [athuhling] (c.1050–1125) Anglo-Saxon prince, the grandson of Edmund Ironside. Though chosen as king after the Battle of Hastings, he was never crowned. He submitted to William the Conqueror, then rebelled and fled to Scotland (1068). He was finally reconciled with King William in 1074.

**Edgar Awards** Annual awards given by the Mystery Writers of America for the best in mystery fiction and non-fiction published the previous year. The awards began in 1954 and are named in honour of Edgar Allan Poe. Categories include Best Novel, Best Fact Crime, Best Juvenile, and the Grand Master Award.

**Edgeworth, Maria** (1767–1849) Writer, born in Blackbourton, Oxfordshire. She is best known for her children's stories, and her novels of Irish life, such as *Castle Rackrent* (1800) and *The Absentee* (1812).

**ED glass** Special optical glass containing fluorite, used in photographic lenses with the property of anomalous or extra-low dispersion (ED) of light. Optical glass disperses white light into a spectrum, so colour photographs would be blurred unless the lens is designed to bring two colours (wavelengths) such as red and blue to a common focus (*achromatic* correction). A small residual spectrum is left uncorrected, but this can be reduced by ED glass. Lens performance is significantly improved and more compact designs are possible.

**Edinburgh** [edinbruh] 55°57'N 3°13'W, pop (2000e) 445 400. Cap-

ital of Scotland; in EC Scotland, UK, between Pentland Hills and S shore of Firth of Forth; port facilities at Leith; castle built by Malcolm Canmore (11th-c); charter granted by Robert Bruce, 1392; capital of Scotland, 1482; in the 1760s, New Town area designed by James Craig (1744–95), but the business centre remained in the Old Town; Nor' Loch separating old and new towns was drained and laid out as gardens (Princes Street Gardens); new local council status in 1996 (as City of Edinburgh); airport; railway; Edinburgh University (1583); Heriot-Watt University (1966); Napier University (1992, formerly Polytechnic); commercial, business, legal, and cultural centre; brewing, distilling, finance, tourism, printing, publishing, trade in grain; Edinburgh Castle (oldest part, St Margaret's Chapel, 12th-c); Royal Mile from castle to Palace of Holyroodhouse, official residence of the Queen in Scotland; Holyrood Park, containing Arthur's Seat, extinct volcano; Scott Monument (1844), 61 m/200 ft high; observatory on Calton Hill, with unfinished reproduction of the Parthenon; Royal Observatory on Blackford Hill; Gladstone's Land (6-storey tenement, 1620), house of John Knox (15th-c), St Giles Cathedral (15th-c), National Gallery of Scotland, Scottish National Gallery of Modern Art, Scottish National Portrait Gallery, Royal Museum of Scotland, Museum of Childhood, Wax Museum, Royal Botanic Garden, zoo, Meadowbank Stadium sports complex, artificial ski slope; folk festival (Mar), Royal Highland Agricultural Show (Jun), Military Tattoo (Aug); International, Fringe, Jazz, Book, and Film Festivals, and Highland Games (Aug–Sep); named the world's first City of Literature by UNESCO in 2004.

**Edinburgh, Prince Philip, Duke of [edinbruh]** (1921–) The husband of Queen Elizabeth II of the United Kingdom, the son of Prince Andrew of Greece and Princess Alice of Battenberg, born in Corfu. He became a naturalized British subject in 1947, when he was married to the Princess Elizabeth (20 Nov). In 1956 he began the **Duke of Edinburgh Award Scheme** to foster the leisure activities of young people.

**Edinburgh Festival [edinbruh]** An international festival of the arts, particularly music and drama, that takes place in August/September every year in Edinburgh, UK. It was established in 1947. As well as the Festival proper, the 'Fringe' offers a lively and ever-growing selection of 'alternative' events.

**Edison, Thomas (Alva)** (1847–1931) Inventor, born in Milan, OH. He was the author of over 1000 inventions, including the printing telegraph (1871), the phonograph (1877), the electric light bulb (1879), and motion picture equipment.

**editing 1** The physical cutting and joining of the first prints of a motion-picture film negative ('rush prints'), each scene and take having been identified and synchronized with the corresponding magnetic sound by the clapper board at the head end. Material is studied on an editing table, with separate paths for picture and sound, the picture being shown on a small screen. Selected frames are marked with grease pencil, and the cut sections joined with transparent adhesive tape to build up the work print. When this is finally approved by the director, it acts as the guide for assembling the corresponding original picture negative. In videotape editing, the original is not cut. Scenes are assembled by re-recording selected sections on to another tape, a standard time-code giving precise identification of the chosen points. Time-codes are now increasingly used in film editing also.

**2** The preparation of a book for publication. A *commissioning editor* (or *sponsoring editor*) commissions books and assesses submitted typescripts. A *copy-editor*, *subeditor*, or *desk editor* checks the text for accuracy, consistency and conformation to house style, marks it with instructions for the typesetter, and may recommend changes in content and structure to the author. The work of the editor may also involve correcting typesetters' proofs, checking for libellous statements, and obtaining permission to use copyright material.

**Edmonton** 53°34N 113°25W, pop (2000e) 691 000. Capital of Alberta province, Canada, on banks of N Saskatchewan R; most northerly large city in North America; Fort Edmonton built by Hudson's Bay Company, 40 km/25 mi below present

site, 1795; destroyed by Indians, 1807, and rebuilt on new site, 1819; reached by railway, 1891; chosen as capital, 1905; rapid growth after discovery of oil nearby, 1947; University of Alberta (1906) and Athabasca University (1972); airport; airfield; petrochemicals, retail and trade centre; ice hockey team, Edmonton Oilers; football team, Edmonton Eskimos; Legislative Building, George McDougall Memorial Shrine and Museum (1871); Klondike Days display, including the Sourdough Raft Race (Jul).

**Edmund I** (921–46) King of the English (from 939), the half-brother of Athelstan. He re-established control over the S Dane-law (942) and Northumbria (944), and for the remainder of his life ruled a reunited England.

**Edmund II**, known as **Edmund Ironside** (c.980–1016) King of the English, the son of Ethelred the Unready. Chosen king by the Londoners on his father's death (Apr 1016), he defeated Canute, but was routed at Ashingdon (Oct 1016), and died soon after.

**Edmund, St**, originally **Edmund Rich** (1170–1240) Clergyman and Archbishop of Canterbury, born in Abingdon, Oxfordshire. He became the spokesman of the national party against Henry III, defending Church rights. Feast day 16 November.

**Edomites [eedomyts]** According to the Bible (*Gen* 36), the descendants of Esau who settled in the mountainous area S of the Dead Sea to the Gulf of Aqabah; in Greek, **Idumeans**. They often appear as enemies of Israel, having been conquered by David, but retaking parts of Judah and becoming a kingdom in the 8th-c BC. They participated in the overthrow of Judah in 587 BC by the Babylonians, but were eventually conquered by John Hyrcanus in the late 2nd-c BC, forcing their integration into the Jewish people. Herod I (the Great) was of Edomite descent.

**EDTA** C<sub>10</sub>H<sub>16</sub>N<sub>2</sub>O<sub>8</sub>, *diaminoethanetetra-acetic acid* (the abbreviation is from an older form of the name). One of the most versatile of the complexing agents; up to six of its O and N atoms can co-ordinate to a metal ion at one time. It is used to remove small traces of metal ions from solutions.

**education** What takes place when human beings learn something, often from others but sometimes for themselves. It may happen during the day in specially constructed buildings with qualified teachers following structured, approved courses based on books, equipment, or activities, or more informally away from institutions in homes, streets, or meeting places. It is not confined to traditional school subjects such as mathematics or history, though these will usually constitute an important part of it, nor is it offered only by paid teachers, for parents and elder brothers and sisters may well play a central part in it. Increasingly, education is seen as something which should develop the whole person, not just as a narrow academic training. Thus in a vast variety of locations around the world, from lavishly equipped buildings with the latest laboratory equipment to simple huts in poorer countries, children and adults are learning the basic skills of reading, writing, and arithmetic, developing qualities which will be valuable in adult life whether at home or work, and in many cases taking retraining courses because the job for which they originally prepared has been transformed.

There is considerable variety in educational provision. In some countries the curriculum is prescribed from the centre, with content, books, and even teaching styles laid down in the capital city; in others, with a less centralized curriculum, such decisions are delegated to regional or even individual school level. Most countries operate a primary phase for children up to 11 or 12, a secondary stage for those up to 15, 16, 17, or 18, and then further and higher education for anyone wishing to study beyond the minimum school-leaving age.

**Education Act, 1944** Legislation that transformed British education, laying down the framework for the post-war English free secondary education system. In England, pupils were sent to grammar, secondary modern, or technical school. Selection was based on their ability as defined by the '11-plus' examination, which was introduced in the 1950s and lost favour when the non-selective comprehensive system came to dominate state education. The Act was the result of efforts by R A Butler as President of the Board of Education. The Scottish Education Act

(1945) and the Northern Ireland Education Act (1947) made similar provisions for primary, secondary, and higher education.

**educational drama** The use of drama within an educational system, both as a means of learning and as a subject in its own right. Often more emphasis is placed on improvisation and exploration than on performance skills – on drama as process rather than on theatre as product.

**educational psychology** A branch of psychology developed in the early 20th-c to apply the findings of psychology to the understanding of learning. It was greatly influenced by the psychometric movement, which resulted in the traditional role of the educational psychologist often being limited to one of testing children and placing 'backward' ones into special education. With the decline in popularity of IQ tests and of segregated education, the profession has turned its attention increasingly to the task of assisting teachers in programmes designed to help individual children, and in advising schools about their function as organizations.

**Edward, Lake**, Democratic Republic of Congo **Lake Rutanzige** area 4000 km<sup>2</sup>/1500 sq mi. Lake in EC Africa, in the W Rift Valley on the frontier between the Democratic Republic of Congo and Uganda; length, c.80 km/50 mi; width, 50 km/30 mi; altitude, 912 m/2992 ft; receives the Rutshuru R; Semliki R flows N into L Albert; European discovery by Henry Stanley in 1889; named after the Prince of Wales (later Edward VII).

**Edward I** (1239–1307) King of England (1272–1307), born in London, the elder son of Henry III and Eleanor of Provence. In the Barons' War (1264–7), he defeated Simon de Montfort at Evesham (1265), then won renown as a crusader to the Holy Land in the Eighth Crusade (1270–2). In two campaigns (1276–7, 1282–3), he annexed N and W Wales, building magnificent castles, and reasserted English claims to the overlordship of Scotland thus beginning the Scottish Wars of Independence.

**Edward II** (1284–1327) King of England (1307–27), born in Caernarfon, Wales, the fourth son of Edward I and Eleanor of Castile. In 1301 he was created Prince of Wales, the first English heir apparent to bear the title. He was humiliated by reverses in Scotland, where he was decisively defeated at Bannockburn (1314). Throughout his reign, he mismanaged the barons, who sought to rid the country of royal favourites. He was deposed by his wife Isabella, and her lover Roger Mortimer Earl of March, and was murdered in Berkeley Castle.

**Edward III**, known as **Edward of Windsor** (1312–77) King of England (1327–77), born in Windsor, the elder son of Edward II and Isabella of France. By banishing Queen Isabella from court, he assumed full control of the government (1330), and began to restore the monarchy's authority and prestige. He defeated the Scots at Halidon Hill (1333), and in 1337 revived his hereditary claim to the French crown, thus beginning the Hundred Years' War. He destroyed the French navy at the Battle of Sluys (1340), and won another major victory at Crécy (1346).

**Edward IV** (1442–83) King of England (1461–70, 1471–83), born in Rouen, France, the eldest son of Richard, Duke of York. He entered London in 1461, was recognized as king on Henry VI's deposition, and defeated the Lancastrians at Towton. Forced into exile by the Earl of Warwick (1470), he recovered the throne after victories at Barnet and Tewkesbury.

**Edward V** (1470–83) King of England (Apr–Jun 1483), born in London, the son of Edward IV and Elizabeth Woodville. He and his younger brother Richard, Duke of York, were imprisoned in the Tower by their uncle Richard, Duke of Gloucester, who usurped the throne as Richard III. The two princes were never heard of again, and were most probably murdered (Aug 1483) on their uncle's orders.

**Edward VI** (1537–53) King of England (1547–53), born in London, the son of Henry VIII by his third queen, Jane Seymour. During his reign, power was first in the hands of his uncle, the Duke of Somerset, then of John Dudley, Duke of Northumberland. Under the Protectors the English Reformation flourished.

**Edward VII** (1841–1910) King of the United Kingdom (1901–10), born in London, the eldest son of Queen Victoria. In 1863 he

married Alexandra of Denmark, by whom he had six children. As Prince of Wales, his behaviour led him into several social scandals, and the queen excluded him from affairs of state.

**Edward VIII** (1894–1972) King of the United Kingdom (Jan–Dec 1936), born in Richmond, Greater London, the eldest son of George V. He abdicated in the face of opposition to his proposed marriage to Wallis Simpson, an American who had been twice divorced. He was then given the title of Duke of Windsor, and the marriage took place in France in 1937. His wife, the **Duchess of Windsor** (1896–1986), lived in seclusion in Paris after her husband's death.

**Edward (Antony Richard Louis), Prince** (1964– ) Prince of the United Kingdom, the third son of Queen Elizabeth II. After studying history at Cambridge, he joined the Royal Marines in 1986, but left the following year and began a career in the theatre, beginning as a production assistant with Andrew Lloyd Webber's Really Useful Theatre Company. In 1993 he formed his own company, Ardent Productions. He was made Earl of Wessex on his marriage to Sophie Rhys-Jones (1965– ) in 1999. Their daughter, Lady Louise Windsor, was born in 2003.

**Edward the Black Prince** (1330–76) Eldest son of Edward III, born in Woodstock, Oxfordshire. In 1346, though still a boy, he fought at Crécy, and is said to have won his popular title from his black armour. He won several victories in the Hundred Years' War, including Poitiers (1356).

**Edward the Confessor, St** (c.1003–66) King of England (1042–66), the elder son of Ethelred the Unready. Although in 1051 he probably recognized Duke William of Normandy (later William I) as his heir, on his deathbed he nominated Harold Godwinson (Harold II) to succeed, the Norman Conquest following soon after. Edward's reputation for holiness began in his lifetime, and he was canonized in 1161. Feast day 13 October.

**Edward the Elder** (c.870–924) King of Wessex (899–924), the elder son of Alfred the Great. He built on his father's successes and established himself as the strongest ruler in Britain, conquering the S Danelaw (910–18), and assuming control of Mercia (918).

**Edward the Martyr, St** (c.963–78) King of England (975–8), son of Edgar. He was murdered at Corfe, Dorset, by supporters of his stepmother, Elfrida, and canonized in 1001. Feast day 18 March.

**Edwardes, Sir Michael (Owen)** (1930– ) British business executive, born in South Africa. After moving to Britain in 1966, he developed a reputation for rescuing ailing companies, and in 1977 was challenged to rescue British Leyland from commercial collapse, which he succeeded in doing over the next five years.

**Edwards, Blake**, originally **William Blake McEdwards** (1922– ) Director and writer born in Tulsa, OK. A former actor and radio scriptwriter, he made his film directorial debut in 1955 with *Bring Your Smile Along*. He is best known for *Breakfast at Tiffanys* (1961), and his series of *Pink Panther* films (1964–78) starring Peter Sellers. Other films include *Operation Petticoat* (1959), *S.O.B.* (1981), and *Switch* (1991).

**Edwards, Huw** (1961– ) Television journalist and presenter, born in Llangennech, nr Llanelli. He joined the television newsroom in BBC Wales (1985), becoming their parliamentary correspondent (1986) and chief political correspondent for BBC News 24 (1988). He has presented the Six O Clock News (1999–2002) and the Ten O Clock News (2003–), and also several general-interest programmes, notably *The Story of Welsh* (2003) and *Bread of Heaven* (2004).

**Edwards, Jonathan** (1703–58) Calvinist theologian and metaphysician, born in East Windsor, CT. His works, which include *Freedom of the Will* (1754), led to the religious revival known as the 'Great Awakening'.

**Edwards, Jonathan** (1966– ) Triple jump athlete, born in London. His sporting achievements include Commonwealth Games gold (2002), Olympic gold (2000), European Championship title (1998), and two World Championship gold medals (1995, 2001). He holds the world record of 18.29 m, set at the 1995 Championships in Gothenburg, Sweden. He retired in 2003.

**Edwin, St** (584–633) King of Northumbria (616–33), brought up in North Wales. Under him, Northumbria became united, and he