

Academic Press
Dictionary
of Science and
Technology





Academic Press Dictionary of Science and Technology

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which the blank or smokeless powder is chiefly used.)

ecad *Ecology*. an organism that is specifically, and occasionally uniquely, adapted to its habitat, with the characteristic adaptations not being inheritable.

ECC earth continuity conductor.

eccentric *Science*. 1. located away from a center. 2. of two circles, having different centers. 3. of a body in motion, deviating from an orbit or path. *Mechanical Devices*. see ECCENTRIC ROD.

eccentric angle *Mathematics*. the angle measured at the center of an ellipse (or hyperbola) from the line passing through the foci to the line from the center to a point on the ellipse (or hyperbola). Equivalently the angle ϕ that appears in the parametric equations of the ellipse or hyperbola in normal form; namely, $x = a \cos \phi$, $y = b \sin \phi$ or $x = a \sec \phi$, $y = b \tan \phi$, respectively.

eccentric anomaly *Astronomy*. for an object moving in an unperturbed elliptic orbit, the angle (measured at the center of the ellipse) between the periapsis point and the point on a circumscribed circle where a line perpendicular to the orbit's major axis would pass through the orbiting body.

eccentric bit *Mechanical Devices*. a chisel-like drill bit in which the cutting edge extends further on one side than the other.

eccentric cam *Mechanical Devices*. a revolving disk and shaft assembly with the axis of rotation displaced from its geometric center.

eccentric contraction *Medicine*. a contraction in which the muscle fibers lengthen as the muscle responds to a resistance, allowing itself to be stretched.

eccentric gear *Mechanical Devices*. a gear with the axis of rotation offset from its geometric center.

eccentric implantation *Cell Biology*. the embedding of the blastocyst within a fold of the uterine wall, which then seals off from the main cavity.

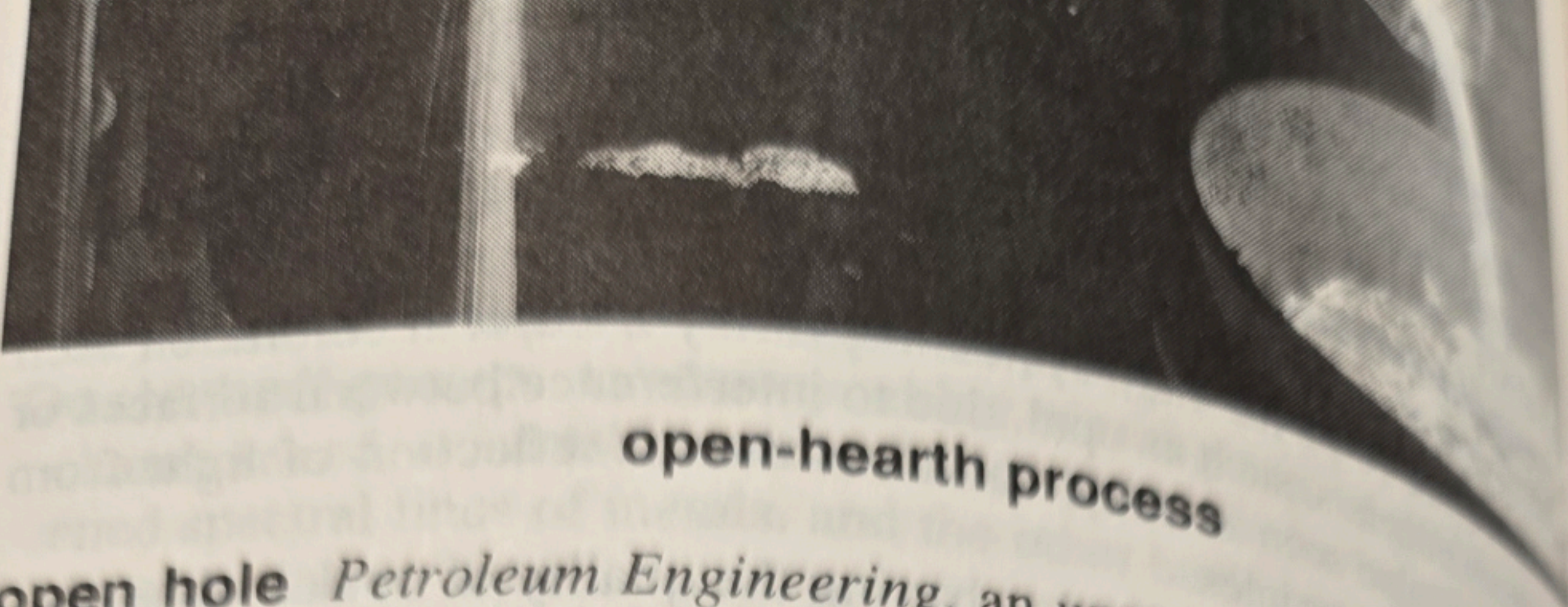
eccentricity *Astronomy*. a number that defines how much an ellipse departs from a circle, given by $c/2a$, where a is the length of the ellipse's major axis and c is the distance between the two foci. *Mathematics*. in analytic geometry, the constant positive number that is the ratio of the distance of a point on a given conic from the focus and the distance from the directrix. The type of conic depends on the eccentricity; an ellipse has eccentricity less than 1; a parabola has eccentricity equal to 1; and a hyperbola has eccentricity greater than 1.

eccentric load *Engineering*. a load on a structure or machine part that is applied away from the central point of the structure.

eccentric orbit *Astronomy*. a closed orbit that is not a circle; for planets, the sun is at one of the two foci.

eccentric reduction *Cartography*. the correction that must be applied to a direction observed by an eccentric instrument or signal to reduce the observed value to what it should have been with no eccentricity.

eccentric ring structure *Astronomy*. the planetary rings exhibiting noncircular orbits, discovered by the Voyager spacecraft at Saturn and Neptune.



open-hearth process

open hole *Petroleum Engineering.* an uncased wellbore or the section of a drill hole below the casing.

open-hole completion *Petroleum Engineering.* oil well production that occurs in the absence of a casing or liner opposite the producing formation, resulting in the unrestricted flow of reservoir fluids into the wellbore.

open ice *Oceanography.* sea ice that is sufficiently broken up to allow navigation.

opening an open place; a hole or space; specific uses include: Forestry an area within a forest that is thinly wooded in comparison with adjacent tracts. *Geography.* a break in a coastline or landform, especially between coastal islands or shoals. *Oceanography.* in sea ice, any break that reveals the water. *Anatomy.* an orifice or ostium.

opening die *Mechanical Engineering.* a screw-cutting die head that automatically clears the screw thread as it comes to the end.

opening snap *Cardiology.* a term for the sound caused by the movement of the mitral leaflet into the left ventricle at the beginning of the diastolic phase when blood begins to flow into the ventricle.

open interval *Mathematics.* a set of real numbers x satisfying $a < x < b$, where a and b are fixed real numbers; denoted by (a, b) .

open jaws *Transportation Engineering.* a flight itinerary that resembles a round trip, except that the departure and arrival points are not identical (e.g., arrival at a different airport in the same metropolitan area as the departure airport).

open joint *Geology.* see FISSURE.