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**DICTIONARY OF
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On the cover: Photomicrograph of crystals of vitamin B₁.
(Dennis Kunkel, University of Hawaii)

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of thorium which has mass number 228. Symbolized RdTh. ['rād-ē-ō 'thōr-ē-ōm]

radio time signal [COMMUN] A time signal sent by radio broadcast. ['rād-ē-ō 'tīm ,sīg-nəl]

radio tower [COMMUN] A tower, usually several hundred meters tall, either guyed or freestanding, on which a transmitting antenna is mounted to increase the range of radio transmission; in some cases, the tower itself may be the antenna. ['rād-ē-ō ,tau-ər]

radiotracer See radioactive tracer. ['rād-ē-ō 'trās-ər]

radio tracking [ENG] The process of keeping a radio or radar beam set on a target and determining the range of the target continuously. ['rād-ē-ō 'trak-ŋ]

radio transmission [COMMUN] The transmission of signals through space at radio frequencies by means of radiated electromagnetic waves. ['rād-ē-ō tranz 'mish-ən]

radio transmitter [ELECTR] The equipment used for generating and amplifying a radio-frequency carrier signal, modulating the carrier signal with intelligence, and feeding the modulated carrier to an antenna for radiation into space as electromagnetic waves. Also known as radio set; transmitter. ['rād-ē-ō 'tranz ,mīd-ər]

radio transponder [ELECTR] A transponder which receives and transmits radio waves, in contrast to a sonar transponder, which receives and transmits acoustic waves. ['rād-ē-ō tran 'spān-dər]

radio tube See electron tube. ['rād-ē-ō ,tūb]

radio watch See watch. ['rād-ē-ō ,wāč]

radio wave [ELECTROMAG] An electromagnetic wave produced by reversal of current in a conductor at a frequency in the range from about 10 kilohertz to about 300,000 megahertz. ['rād-ē-ō ,wāv]

radio wavefront distortion [ELECTROMAG] Change in the direction of advance of a radio wave. ['rād-ē-ō 'wāv ,frənt dī ,stōr-shən]

radio-wave propagation [ELECTROMAG] The transfer of energy through space by electromagnetic radiation at radio frequencies. ['rād-ē-ō 'wāv ,prəp-ə-gā-shən]

radio window [GEOPHYS] A band of frequencies extending from about 6 to 30,000 megahertz, in which radiation from the outer universe can enter and travel through the atmosphere of the earth. ['rād-ē-ō ,wīn-dō]

radish [BOT] *Raphanus sativus*. 1. An annual or biennial crucifer belonging to the order Capparales. 2. The edible, thickened hypocotyl of the plant. ['rād-īsh]

radist [NAV] Radio-navigation system in which the comparison of arrival times of transmitted pulses, at three or more ground stations, indicates the position of the vehicle. ['rā ,dīst]

radium [CHEM] 1. A radioactive member of group II, symbol Ra, atomic number 88; the most abundant naturally occurring isotope has mass number 226 and a half-life of 1620 years. 2. A highly toxic solid that forms water-soluble compounds; decays by emission of α , β , and γ -radiation; melts at 700°C, boils at 1140°C; turns black in air; used in medicine, in industrial radiography, and as a source of neutrons and radon. ['rād-ē-ōm]

radium age [NUCLEO] The age of a mineral as calculated from the numbers of radium atoms present originally, now, and when equilibrium is established with ionium. ['rād-ē-ōm ,āj]

radium bromide [INORG CHEM] $RaBr_2$ Water-soluble, poisonous, radioactive white powder, corrosive to skin or flesh; melts at 728°C; used in medicine, physical research, and luminous paint. ['rād-ē-ōm 'brō ,mīd]

radium carbonate [INORG CHEM] $RaCO_3$ Water-insoluble, poisonous, radioactive, white powder; used in medicine. ['rād-ē-ōm 'kār-bō ,nāt]

radium cell [NUCLEO] A sealed thin-wall tube containing radium. ['rād-ē-ōm ,sel]

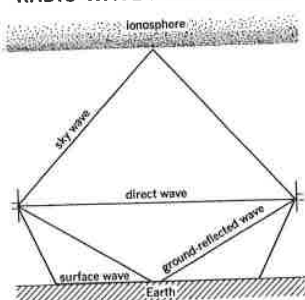
radium chloride [INORG CHEM] $RaCl_2$ Water- and alcohol-soluble, poisonous, radioactive, yellow-white crystals; corrosive effect on skin and flesh; melts at 1000°C; used in medicine, physical research, and luminous paint. ['rād-ē-ōm 'klōr ,īd]

radium F See polonium-210. ['rād-ē-ōm 'ef]

radium needle [NUCLEO] A radium cell in the form of a needle, usually of platinum-iridium or gold alloy, designed primarily for insertion in tissue. ['rād-ē-ōm ,nēd-əl]

radium plaque [NUCLEO] A radium container in which the radium is distributed over a surface; the shielding is usually

RADIO-WAVE PROPAGATION



Possible transmission paths of electromagnetic radiation at radio frequencies.

small in one direction so as to permit transmission of β -rays as well as γ -rays. ['rād-ē-ōm ,plak]

radium sulfate [INORG CHEM] $RaSO_4$ Water-insoluble, radioactive, poisonous, white crystals; used in medicine. ['rād-ē-ōm 'səl ,fāt]

radium therapy [MED] Radiotherapy using the radiations from radium. ['rād-ē-ōm ,ther-ə-pē]

radius [ANAT] The outer of the two bones of the human forearm or of the corresponding part in vertebrates other than fish. [MATH] 1. A line segment joining the center and a point of a circle or sphere. 2. The length of such a line segment. ['rād-ē-ās]

radius cutter [MECH ENG] A formed milling cutter with teeth ground to produce a radius on the workpiece. ['rād-ē-ās ,kōd-ər]

radius of action [ENG] The maximum distance a ship, aircraft, or other vehicle can travel away from its base along a given course with normal load and return without refueling, but including the fuel required to perform those maneuvers made necessary by all safety and operating factors. ['rād-ē-ās əv 'ak-shən]

radius of convergence [MATH] The positive real number corresponding to a power series expansion about some number a with the property that if $x - a$ has absolute value less than this number the power series converges at x , and if $x - a$ has absolute value greater than this number the power series diverges at x . ['rād-ē-ās əv kən'verjəns]

radius of curvature [MATH] The radius of the circle of curvature at a point of a curve. ['rād-ē-ās əv 'kər-və-čər]

radius of damage [ORD] The distance from ground zero of a nuclear blast at which there is a 0.50 probability of achieving the desired damage. ['rād-ē-ās əv 'dam-ij]

radius of geodesic curvature [MATH] For a point on a curve lying on a surface, the reciprocal of the geodesic curvature at the point. ['rād-ē-ās əv ,jē-ə'des'ik 'kər-və-čər]

radius of geodesic torsion [MATH] The reciprocal of the geodesic torsion of a surface at a point in a given direction. ['rād-ē-ās əv ,jē-ə'des'ik 'tōr-shən]

radius of gyration [MATH] The square root of the ratio of the moment of inertia of a plane figure about a given axis to its area. [MECH] The square root of the ratio of the moment of inertia of a body about a given axis to its mass. ['rād-ē-ās əv 'rā-shən]

radius of normal curvature [MATH] The reciprocal of the normal curvature of a surface at a point and in a given direction. ['rād-ē-ās əv 'nōr-məl 'kər-və-čər]

radius of protection [ENG] The radius of the circle within which a lightning discharge will not strike, due to the presence of an elevated lightning rod at the center. ['rād-ē-ās əv 'prō'tek-shən]

radius of rupture [ORD] Greatest distance from the center of an underground explosive charge at which the explosion will be destructive. ['rād-ē-ās əv 'təp-čər]

radius of safety [ORD] The horizontal distance from ground area beyond which the weapon effects on friendly troops are acceptable. ['rād-ē-ās əv 'sāf-ē]

radius of torsion [MATH] The reciprocal of the torsion of a space curve at a point. ['rād-ē-ās əv 'tōr-shən]

radius of total curvature [MATH] The quantity $\sqrt{-1/\rho}$, where C is the total curvature of a surface at a point. ['rād-ē-ās əv 'tōd-əl 'kər-və-čər]

radius of visibility [NAV] The radius of a circle limiting the area in which an objective can be seen under specified conditions. ['rād-ē-ās əv ,viz-ə'bil-əd-ē]

radius ratio [PHYS CHEM] The ratio of the radius of a cation to the radius of an ion; relative ionic radii are pertinent to crystal lattice structure, particularly the determination of coordination number. ['rād-ē-ās ,rā-shō]

radius rod [ENG] A rod which restricts movement of a part to a given arc. ['rād-ē-ās ,rād]

radius vector [ASTRON] A line joining the center of an orbiting body with the focus of its orbit located near its primary. [MATH] The coordinate r in a polar coordinate system, which gives the distance of a point from the origin. ['rād-ē-ās ,vek-tər]

radix See base of a number system; root. ['rād-īks]

radix approximation [MATH] The approximation of a number by a number that can be expressed by a specified finite