



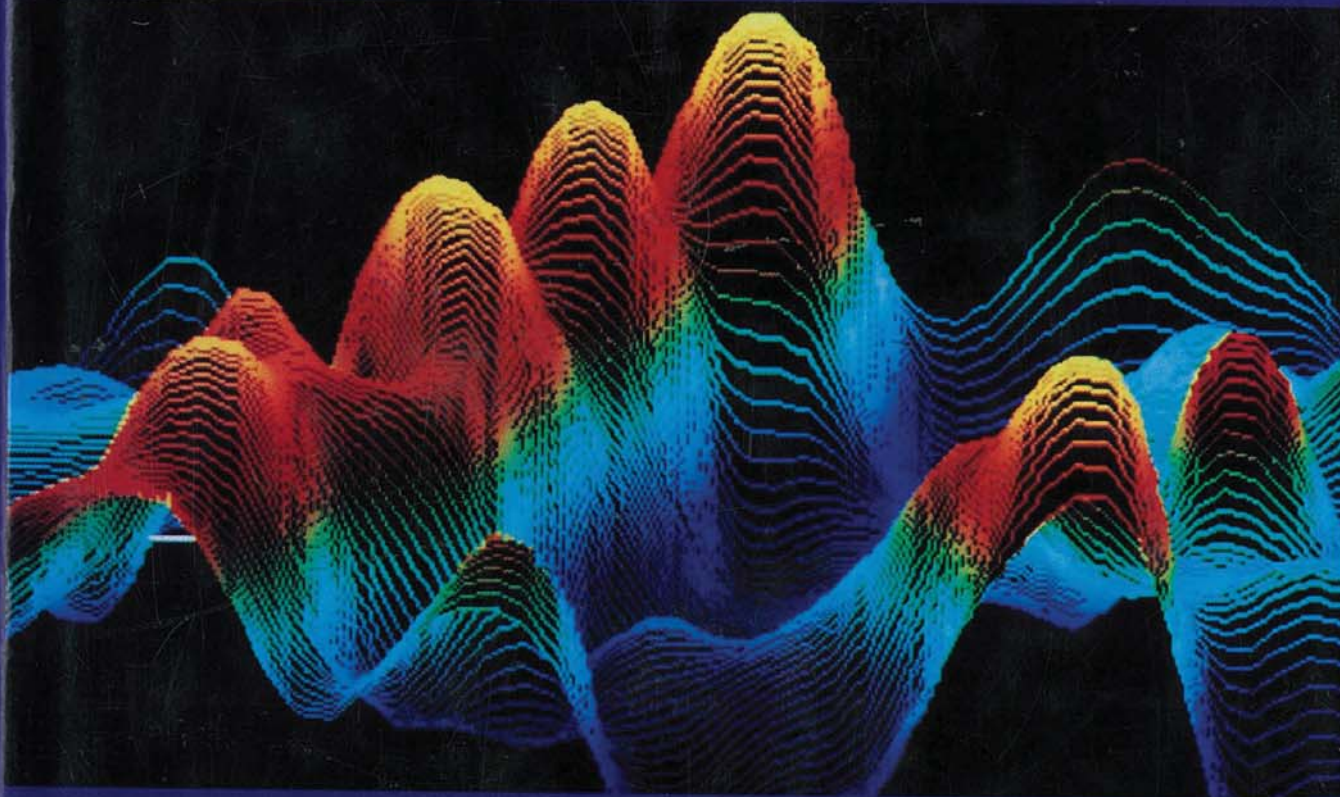
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CHAMBERS
DICTIONARY OF
SCIENCE
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control (*NucEng*) Maintenance of power level of a reactor at desired setting by adjustments to the reactivity by control rods or other means. See panel on **Nuclear reactor**.

control absorber (*NucEng*) See **control rod**.

control ampere-turns (*ElecEng*) Magnetomotive force applied to a magnetic amplifier.

control board (*ElecEng*) A switchboard on which are mounted the operating handles, push-buttons, or other devices for operating switchgear situated remotely from the board. The board usually has mounted on it indicating instruments, key diagrams and other accessory apparatus.

control bus (*Comp*) A **bus** which is used to carry control signals between two devices, eg between the **processor** and **main memory** or between the **processor** and a **peripheral** device.

control channel (*Telecomm*) See **broadcast control channel**.

control character (*Comp*) A non-printing character which is treated as a signal to control operating functions. Cf **alphanumeric**.

control characteristic (*ElecEng*) Curve connecting output quantity against control quantity under determined conditions in a **magnetic amplifier**.

control chart (*Stats*) A chart to monitor the behaviour of a process; in particular, to assist in the detection of deviations of the process from a norm.

control circuit (*ElecEng*) A circuit which controls the operation of a piece of equipment or electrical system.

control column (*Aero*) The lever supporting a hand-wheel or hand-grip by which the ailerons and elevator of an aircraft are operated. It may be a simple 'joystick', pivoted at the foot and rocking fore-and-aft and laterally. On military aircraft, usually fighters, it is often hinged halfway up for lateral movement; on transports it is usually either 'spectacle' or 'ram's horn' shape.

control-configured vehicle (*Aero*) One designed with artificial stability giving eg reduced wing size and control surfaces, enhanced manoeuvrability, reduced gust response and flutter suppression.

control current (*ElecEng*) One which, by its magnitude, direction or relative phase, determines the operation of an item of plant and/or electrical circuit.

control electrode (*ElecEng*) One, eg a grid, the primary function of which is to control flow of electrons between two other electrodes, without taking appreciable power itself, control being by voltage which regulates electrostatic fields.

control hysteresis (*ElecEng*) Ambiguous control depending on previous conditions. Jump or snap action arising in electronic or magnetic amplifiers because of excessive positive feedback which occurs under certain conditions of load.

control impedance (*Phys*) The electrical property of a device which controls power in one direction only, such as a gas-filled relay.

controllable-pitch propeller (*Aero*) See **propeller**.

controlled air space (*Aero*) Areas and lanes clearly defined in three dimensions wherein no aircraft may fly unless it is under radio instructions from **air-traffic control**.

controlled atmosphere packing (*FoodSci*) Modifying the atmosphere in a food pack by total or partial removal of oxygen and adjustment of the relative proportions of carbon dioxide and nitrogen. CO₂ is bacteriostatic for spoilage bacteria and slightly increases the acidity, while reducing oxygen delays spoilage due to oxidation. Largely made possible by films and laminates which selectively allow O₂ and CO₂ to move in or out of the pack. Abbrev **CAP**. Also **modified atmosphere packing (MAP)**.

controlled carrier (*Telecomm*) Transmission in which the magnitude of the carrier is controlled by the signal, so that the depth of modulation is nearly independent of the magnitude of the signal.

controlled cooling (*Eng*) Methods of heat treatment in which the cooling cycle is accurately controlled so as to

controlled degradation (*Chem*) Chemical type of analysis for helping to identify polymers, esp thermosets, which often have functional groups susceptible to hydrolysis. Soluble fragments may then be identified.

controlled variable (*Eng*) Quantity or condition which is measured and controlled in eg a servo system.

controller (*Comp*) A device which controls a functional element within a computer system, eg **hard-disk controller**, **cache controller**.

controller (*ElecEng*) An assembly of equipment for controlling the operation of electric apparatus.

control limit-switch (*ElecEng*) A limit-switch connected in the control circuit of the motor whose operation is to be limited.

control-line (*ElecEng*) A train-line used on multiple-unit trains for connecting master controllers or contactor gear on the different coaches.

control magnet (*ElecEng*) A magnet used in electric indicating instruments to provide a force for controlling the movement of the moving system.

control panel (*ElecEng*) Panel containing full set of indicating devices and remote-control units required for operation of industrial plant, reactor, chemical works etc. Cf **console**.

control point (*ElecEng*) Value of controlled variable, departure from which causes a controller to operate in such a sense as to reduce the **error** and restore an intended steady state. Also **set point**.

control points (*Biol*) Places in the cell cycle where the cell's behaviour may be changed. See panel on **Cell cycle**.

control program (*Comp*) See **monitor, operating system**.

control register (*Comp*) Computer **register** within the **control unit** and which stores a single control instruction.

control relay (*ElecEng*) See **relay**.

control reversal (*Aero*) See **reversal of control**.

control rod (*NucEng*) Rod moved in and out of reactor core to vary reactivity. May be neutron-absorbing rod, eg boron or cadmium, or less often, a fuel rod. Also **control absorber**. See **regulating rod**, **shim rod** and panel on **Nuclear reactors**.

control rod worth (*NucEng*) The change in reactivity of a critical reactor caused by the complete insertion or withdrawal of the control rod.

control total (*Comp*) The sum resulting from the addition of a specified field from each of a group of records, often used for checking purposes.

control track (*ImageTech*) A linear track, outside the video area of the tape, where the control or sync pulses are recorded, one per frame, to ensure accurate tracking during playback.

control turns (*ElecEng*) Those wires on the core of a magnetic amplifier or transductor which carry the control current. Also **control windings**. US **signal windings**.

control unit (*Comp*) Part of the **central processor** which supervises the execution of instructions.

control voltage (*ElecEng*) One which, by its magnitude, direction or relative phase, determines the operation of an item of plant and/or electrical circuit.

control windings (*ElecEng*) See **control turns**.

control word (*Comp*) One which transmits an operating instruction to a **central processor**, eg XEQ for execute. Cf **control character**.

control zone (*Aero*) A volume of controlled air space, precisely defined in plan and altitude, including airports, in which flight rules additional to those in a control area pertain. ICAO defines a specific upper limit.

conus (*Zool*) Any cone-shaped structure or organ.

conus arteriosus (*Zool*) In some lower vertebrates, a valvular region of the **truncus arteriosus**, adjacent to the heart.

conus medullaris (*Zool*) The conical termination of the spinal cord.

convection (*Geol*) The very slow mass movement of sub-crustal material; believed to be the mechanism that drives

register marks (*Print*) Fine lines, cross marks or similar, added to artwork to provide reference points and thus aid fitting and positioning of images during film assembly, plate-making and printing.

register pin (*ImageTech*) See **pilot pin**.

register rollers (*Print*) Adjustable rollers that provide a means of varying the web length between one unit of a web-fed press and another.

register sets (*Print*) A combination of *mixed forme base* and *honeycomb base*, each supplied in a variety of accurately sized units, to be assembled with type to the size required for a particular plate, for which it is used to provide both a mount and a means of attaining register.

register sheet (*Print*) The sheet used in obtaining correct register or position.

reglet (*Arch*) (1) A flat narrow rectangular moulding. (2) A **facette**.

reglette (*Surv*) The short graduated scale attached at each end of the special measuring tape or wire used in baseline measurement.

Regnault's hygrometer (*Meteor*) A type of hygrometer in which the silvered bottom of a vessel contains ethoxyethane, through which air is bubbled to cool it, its temperature being indicated by a thermometer.

regolith (*Astron*) The layer of fine powdery material on the Moon produced by the repeated impact of **meteorites**.

regolith (*Geol*) The mantle of rock material that overlies bedrock.

regrating (*Build*) Operation of redressing the faces of old hewn stone work.

regression (*Behav*) In psychoanalytic theory, a defence mechanism which involves a reversion to an earlier and less threatening mode of functioning.

regression (*Biol*) A tendency to return from an extreme to an average condition, as when a tall parent gives rise to plants of average stature.

regression (*Geol*) The retreat of the sea from the land (stratigraphical usage).

regression (*Stats*) A model of the relationship between the expected value of a random variable and the values of one or more possibly related variables.

regular (*Bot*) A radially symmetrical **actinomorphic** flower.

regular convex solids (*Maths*) Solids having congruent all faces bounded by plane surfaces and all corners. They are (1) **regular tetrahedron**, four equilateral triangular faces, (2) **regular hexahedron** or **cube**, six equal squares as faces, (3) **regular dodecahedron**, 12 regular pentagons as faces, (4) **regular octahedron**, eight equilateral triangles as faces, (5) **regular icosahedron**, 20 equilateral triangles as faces.

regular-coursed (*Build*) Said of rubble walling built up in courses of the same height.

regular function (*Maths*) See **analytic function**.

regular polygon (*Maths*) One with all its sides equal and all its angles equal; eg a regular polygon of three sides is an equilateral triangle.

regular reflection factor (*Phys*) The ratio of the luminous flux regularly reflected from a surface to the total flux falling on the surface.

regular transmission (*Phys*) Transmission of light through a surface in such a way that the beam of light, after transmission, appears to proceed from the light source.

regular transmission factor (*Phys*) The ratio of the luminous flux regularly transmitted through a surface to the total luminous flux falling on the surface.

regulating rod (*NucEng*) Fine **control rod** of reactor.

regulation (*Electronics*) (1) Fractional change in voltage level when a load is connected across a power supply, due to internal resistance. (2) Difference between minimum and maximum voltage drops across a reference diode over its range of operating currents. (3) The process of controlling a physical quantity (speed, temperature, position voltage etc), by a control system or network employing negative feedback.

regulator (*Electronics*)

desired quantity (eg voltage, current, frequency or a mechanical property) at a predetermined level, usually by comparison with a reference source.

regulator cells (*ElecEng*) Cells at the end of a battery of accumulator cells which can be switched in and out of circuit in order to adjust the voltage of the battery as a whole. Also **end cell**.

regulator gene (*Biol*) A gene whose product controls the rate at which the product of another gene is synthesized.

regulatory body (*Genrl*) Organizations set up by governments to oversee the proper use of method or technology. Particularly important in the nuclear industry, where such bodies have power to license use, construction and disposal.

regulus (*Maths*) One of the sets of lines forming a **ruled surface**.

Regulus (*Astron*) A bright blue-white multiple-component star in the constellation Leo. Distance 26 pc. Also **Alpha Leonis**.

regulus of antimony (*Eng*) Commercially pure metallic antimony. Also, the impure metallic mixture which is produced during smelting. 'Regulus' was the alchemical name for antimony, which readily combines with gold.

regurgitation (*Med*) (1) The flowing of blood in reverse direction to the circulation in the heart as a result of valvular disease, eg **aortic regurgitation**. (2) The reverse movement of the gastric contents.

regurgitation (*Zool*) The bringing back into the mouth of (undigested) food.

reheat (*Aero*) Injection of fuel into the jet pipe of a turbojet for the purpose of obtaining supplementary thrust by combustion with the unburnt air in the turbine efflux. Reheat is the UK, and original, term, but is gradually being superseded by the American term **afterburning**, with **afterburner** for the device itself.

reheating (*Eng*) The process of passing steam, which has been partially expanded in a steam turbine, back to a superheater before subjecting it to further expansion. Reheating is also used sometimes repeatedly, in heat-treating processes, like annealing, and in pneumatic systems for operating power tools. Also **resuperheating**.

reheating furnace (*Eng*) The furnace in which metal ingots, billets, blooms etc are heated to temperature required for hot-working.

Reichert-Meissl number (*Chem*) A standard used in butter analysis. A Reichert-Meissl number of n means that the soluble volatile fatty acids liberated from 5 g of butter fat under specified conditions require n cm³ of 0.05 M barium hydroxide solution for their neutralization.

Reimer-Tiemann reaction (*Chem*) The synthesis of phenolic aldehydes by heating a phenol with trichloromethane in the presence of conc KOH. The intermediate dichloro derivative is hydrolysed to an aldehyde. The CH=O group takes up the 2- or 4-position with respect to the hydroxyl group.

re-imposition (*Print*) (1) Transferring the page from one chase to another, the latter being perhaps a machine chase or a foundry chase. (2) Altering position of pages in a forme to suit a different size of paper or the requirements of printing and binding equipment.

reinforced concrete (*CivEng*) Concrete which is strong in compression, reinforced with steel which is strong in tension, designed so as to take advantage of both materials.

reinforced plastics (*Plastics*) General term for plastic composite materials, whether thermosetting or thermoplastic, in which the basic plastic has been reinforced by incorporating a fibrous material, eg paper, cloth, aramid, carbon or glass fibre, usually leading to enhanced stiffness, sometimes higher toughness but reduced impact strength.

reinforcement (*Acous*) Sound reproduction, using loudspeakers in different positions, in which the received enhanced level appears to come from the actual source as required, eg in theatres. See **Haas effect**.

reinforcement (*Behav*) Situations when a response is