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Fourth Edition

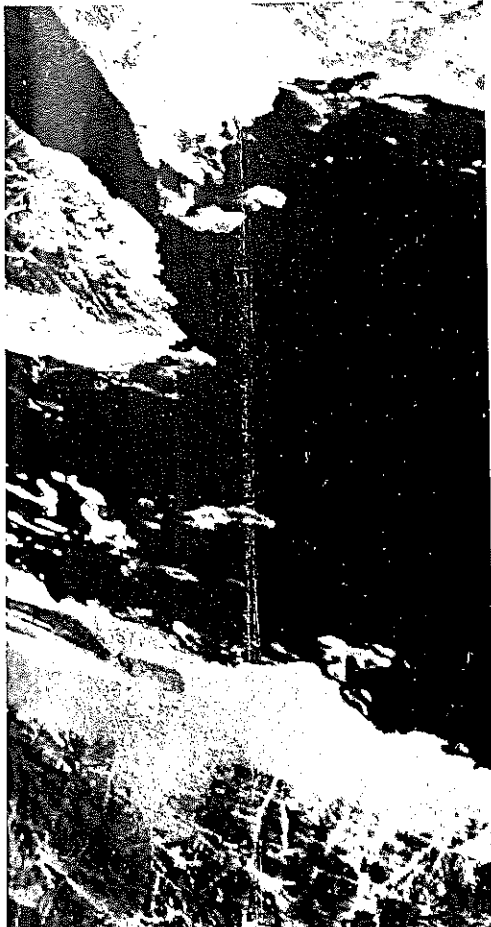### Sybil P. Parker
EDITOR IN CHIEF

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On the cover: Pattern produced from white light by a computer-generated diffraction plate containing 529 square apertures arranged in a 23 × 23 array. (R. B. Hoover, Marshall Space Flight Center)

On the title pages: Aerial photograph of the Sinai Peninsula made by Gemini spacecraft. (NASA)

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34567890   DOW/DOW   9543210

ISBN 0-07-045270-9

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can be realized by a network that has only resistances, capacitances, inductances, and ideal transformers.   { ‚rē·ə‚līz·ə'bil·əd·ē }

realization of a stochastic process   [STAT]   A probability space whose points are sample paths of the stochastic process and whose probability is obtained from the joint probability distributions of the random variables in the process.   { ‚rē·ə·lə'zā·shən əv ə stō'kas·tik 'prä·səs }

real number   [MATH]   Any member of the unique (to within isomorphism) complete ordered field.   { 'rēl 'nəm·bər }

real orthogonal group   [MATH]   The group composed of orthogonal matrices having real number entries.   { 'rēl ȯr'thäg·ən·əl ‚grüp }

real part   [MATH]   The real part of a complex number $z = x + iy$ is the real number x.   { 'rēl ‚pärt }

real power   [ELEC]   The component of apparent power that represents true work; expressed in watts, it is equal to volt-amperes multiplied by the power factor.   { 'rēl ‚pau̇·ər }

real precession   [NAV]   In marine gyroscopes, that component of the total precession caused by bearing friction, torque unbalance, and other manufacturing or design defects. Also known as induced precession.   { 'rēl prē'sesh·ən }

real source   [ACOUS]   A source of sound consisting of a macroscopic body that is composed of materials different from those of the medium in which the sound propagates and has sharply delineated physical extent, and which generates sound by executing complex motions while immersed in the medium.   { 'rēl 'sȯrs }

real storage   [COMPUT SCI]   Actual physical storage of data and instructions.   { 'rēl 'stȯr·ij }

real-time   [COMPUT SCI]   Pertaining to a data-processing system that controls an ongoing process and delivers its outputs (or controls its inputs) not later than the time when these are needed for effective control; for instance, airline reservations booking and chemical processes control.   { 'rēl ‚tīm }

real-time clock   [COMPUT SCI]   A pulse generator which operates at precise time intervals to determine time intervals between events and initiate specific elements of processing.   { 'rēl ‚tīm 'kläk }

real-time control system   [COMPUT SCI]   A computer system which controls an operation in real time, such as a rocket flight.   { 'rēl ‚tīm kən'trōl ‚sis·təm }

real-time holographic interferometry   [OPTICS]   The study of the interference fringes generated when a hologram is made of an object and is later placed back into its original position relative to the object, now slightly deformed, so that there is interference between the object and its hologram.   { 'rēl ‚tīm ‚hō·lə‚graf·ik ‚in·tər·fə'räm·ə·trē }

real-time operation   [COMPUT SCI]   **1.** Of a computer or system, an operation or other response in which programmed responses to an event are essentially simultaneous with the event itself.   **2.** An operation in which information obtained from a physical process is processed to influence or control the physical process.   { 'rēl ‚tīm ‚äp·ə'rā·shən }

real-time processing   [COMPUT SCI]   The handling of input data at a rate sufficient to ensure that the instructions generated by the computer will influence the operation under control at the required time.   { 'rēl ‚tīm 'prä‚ses·iŋ }

real-time programming   [COMPUT SCI]   Programming for a situation in which results of computations will be used immediately to influence the course of ongoing physical events.   { 'rēl ‚tīm 'prō‚gram·iŋ }

real-time system   [COMPUT SCI]   A system in which the computer is required to perform its tasks within the time restraints of some process or simultaneously with the system it is assisting.   { 'rēl ‚tīm 'sis·təm }

real unimodular group   [MATH]   The group of all square $n \times n$ matrices with real number entries and of determinant 1.   { 'rēl ‚yün·i'mäj·ə·lər ‚grüp }

real variable   [MATH]   A variable that assumes real numbers for its values.   { 'rēl 'ver·ē·ə·bəl }

ream   [ENG]   To enlarge or clean out a hole.   [MATER]   **1.** A layer of nonhomogeneous material in flat glass.   **2.** Five hundred sheets of paper; a printer's ream consists of 516 sheets.   { rēm }

reamed extrusion ingot   [MET]   A hollow extrusion ingot whose original inside surface has been removed by reaming.   { 'rēmd ik'strü·zhən ‚iŋ·gət }

reamer   [DES ENG]   A tool used to enlarge, shape, smooth, or otherwise finish a hole.   { 'rēm·ər }

reaming bit   [DES ENG]   A bit used to enlarge a borehole. Also known as broaching bit; pilot reaming bit.   { 'rēm·iŋ ‚bit }

rear area   [ORD]   The area in the rear of the combat and forward areas.   { 'rir 'er·ē·ə }

rearming   [ORD]   **1.** An operation that replenishes the prescribed stores of ammunition, bombs, and other armament items for an aircraft, naval ship, tank, or armored vehicle, including replacement of defective ordnance equipment, in order to make it ready for combat service.   **2.** Resetting the fuse on a bomb, or on an artillery, mortar, or rocket projectile, so that it will detonate at the desired time.   { rē'ärm·iŋ }

rear-projection   [ELECTR]   Pertaining to television system in which the picture is projected on a ground-glass screen for viewing from the opposite side of the screen.   { 'rir prə'jek·shən }

rearrangement reaction   [NUC PHYS]   A nuclear reaction in which nucleons are exchanged between nuclei.   [ORG CHEM]   A chemical reaction involving a change in the bonding sequence within a molecule.   { ‚rē·ə'rānj·mənt rē‚ak·shən }

rear response   [ENG ACOUS]   The maximum pressure within 60° of the rear of a transducer in decibels relative to the pressure on the acoustic axis.   { 'rir ri‚späns }

rear sight   [ORD]   An item attached to the breech end and integral to a carbine, machine gun, pistol, rifle, or the like; it may be a fixed or adjustable cross blade with a U- or V-shaped notch or aperture, or it may have elevation and windage adjustment knobs, slides, and graduated scales and be provided with aperture disks.   { 'rir ‚sīt }

reasonableness   [COMPUT SCI]   A measure of the extent to which data processed by a computer falls within an acceptable allowance for errors, as determined by quantitative tests.   { 'rēz·nə·bəl·nəs }

Réaumur temperature scale   [THERMO]   Temperature scale where water freezes at 0°R and boils at 80°R.   { ‚rē·ō'myu̇r 'tem·prə·chər ‚skāl }

rebat   [METEOROL]   The lake breeze of Lake Geneva, Switzerland; it blows from about 10 a.m. to 4 p.m.   { re'bä }

rebecca   [NAV]   An electronic navigation system that has at least one radio transmitter and one radio receiver; the transmitter emits pulses which travel over a single path to a transponder and return to the interrogation receiver.   { ri'bek·ə }

rebecca-eureka system   [NAV]   An aircraft radar homing system in which an airborne interrogator-responsor (rebecca) homes on a ground radar beacon (eureka) that has been dropped or set up in advance; the system can also give the distance from the rebecca radar to the eureka beacon.   { ri'bek·ə yü'rē·kə ‚sis·təm }

reboiler   [CHEM ENG]   An auxiliary heating unit for a fractionating tower designed to supply additional heat to the lower portion of the tower; liquid withdrawn from the side or bottom of the tower is reheated by heat exchange, then reintroduced into the tower.   { rē'bȯil·ər }

reboot   [COMPUT SCI]   To reload systems software into a computer so that it makes a new start.   { rē'büt }

rebound   [GEOL]   The isostatic readjustment upward of a landmass depressed by glacial loading.   { 'rē‚bau̇nd }

rebound clip   [DES ENG]   A clip surrounding the back and one or two other leaves of a leaf spring, to distribute the load during rebounds.   { 'rē‚bau̇nd ‚klip }

rebound leaf   [DES ENG]   In a leaf spring, a leaf placed over the master leaf to limit the rebound and help carry the load imposed by it.   { 'rē‚bau̇nd ‚lēf }

reboyo   [METEOROL]   A persistent (day-long) storm from the southwest during the rainy season on the Brazilian coast.   { rə'bȯi·ō }

rebreather   [ENG]   A closed-loop oxygen supply system consisting of gas supply and face mask.   { rē'brēth·ər }

rebroadcast   [COMMUN]   Repetition of a radio or television program at a later time.   { rē'brȯd‚kast }

rebuild   [ENG]   To restore to a condition comparable to new by disassembling the item to determine the condition of each of its component parts, and reassembling it, using serviceable, rebuilt, or new assemblies, subassemblies, and parts.   { rē'bild }

recalescence   [MET]   Brightening (reglowing) of iron on cooling through the gamma- to alpha-phase transformation tem-