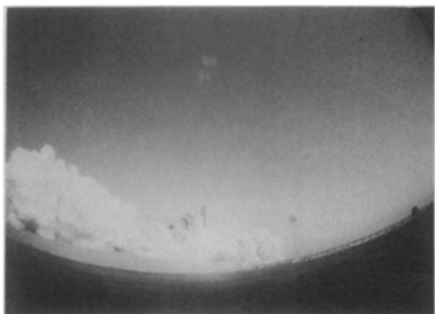


Science News of the Year

This is a review of important science news stories of 1982 as reported in the pages of *SCIENCE NEWS*. The references after each item refer to the volume and page number in which the main article on the subject appeared in *SCIENCE NEWS* (Vol. 121 is Jan.-June; Vol. 122 is July-Dec.). Where several references exist, the news developed and was reported in more than one issue. Back issues or, when out of stock, copies of articles are available for \$1.00 each by writing to *SCIENCE NEWS*, 1719 N Street, N.W., Washington, D. C. 20036.

Space & Astronomy

- The first element-by-element analysis of the rocks of Venus was provided by the Soviet Venera 13 and 14 landing craft (121: 214), which also took the first color photos of the planet's surface. 121: 248
- The space shuttle successfully flew its first operational mission, launching a pair of communications satellites (122: 324). Europe's Ariane rocket, however, the shuttle's main competition, malfunctioned during its first operational flight and left its satellite payload on the bottom of the Atlantic. 122: 180



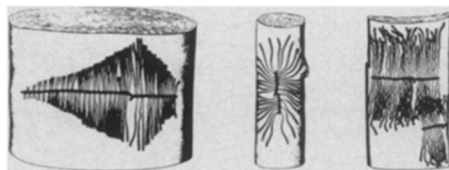
- Concerns about growing militarization of the U.S. civilian space program were prompted by such factors as: accusations that NASA was subsidizing the Defense Department's space shuttle costs (121: 343), the appointment of a former Air Force chief of staff to head Jet Propulsion Laboratory (122: 71), and the announcement of a new national space policy, heavily oriented toward national security matters, from President Reagan. 122: 20
- The first U.S. privately launched rocket designed to place satellites in orbit was successfully test-flown. 122: 180
- The Soviet Salyut 6 space station reentered the atmosphere after nearly half a decade in orbit (122: 85), after which Salyut 7 was occupied by two cosmonauts who set a 211-day record for a human stay in space, breaking the previous, 185-day mark. 122: 390
- Cosmonaut Svetlana Savitskaya, making a trip to Salyut 7, became only the second woman to fly in space. 122: 134
- Evidence for an oblateness in the shape of the sun raised questions about the adequacy of the theory of general relativity. 121: 260
- Evidence that the whole universe rotates was presented. 122: 84
- A supercluster of galaxies stretching halfway around the sky was found, and raised serious cosmological questions. 122: 391
- A meteorite showing signs of possibly having come from the moon was discovered in Antarctica. 122: 341
- Radio astronomers reported the first detection in interstellar space of a compound containing sodium (sodium hydroxide). 122: 343
- A pulsar that pulses 642 times per second was discovered. 122: 357
- The first direct evidence suggesting that Uranus may have a magnetic field was obtained from satellite observations. 122: 150
- Dark companions to several stars were found by the new technique of infrared speckle interferometry. 121: 424
- A group of Caltech astronomers became the first to detect comet Halley on its way to a 1986 perihelion. 122: 277
- The U.S. ISEE-3 satellite was sent from its position on the sunward side of the earth toward a 1985 pass through the tail of comet Giacobini-Zinner. 121: 407, 421
- A quasar with a redshift of 3.78 was discovered and became the most distant known object in the universe. 122: 229
- Observations supported a theory of how bursting X-ray sources operate that involves their presence in binary star systems. 121: 52
- A method was developed to determine surface features of stars from information contained in the lines of their spectra. 122: 36
- Controversy continued over whether there is a black hole in the center of the Milky Way galaxy. 121: 293; 122: 23
- The Landsat 4 earth-resources satellite was launched (122: 55) amid growing con-

cern about problems in managing the device's vast output of data. 122: 4, 343

- The sun's rate of energy output reached a minimum and started up again. 121: 294; 122: 278

Biology

- Relocation and mutation of normal genes were each implicated in human cancers. The transforming genes of several human cancers were found to be closely related to the active genes of viruses causing cancer in animals. 122: 151, 316, 326
- In the first dramatic success of gene transfer in mammals, a rat growth hormone gene implanted into mice caused some mice to grow to twice their normal size. 122: 389
- Scientists devised a technique for transplanting genes between strains of fruit fly. The genes are stably inherited and correctly expressed. 122: 260
- The brain chemical that regulates many of the human body's metabolic and growth processes, growth hormone releasing factor, was isolated and synthesized. 122: 292
- Mouse embryos were grown in laboratory culture to the halfway point of normal gestation; they had beginnings of organs and circulating blood. 122: 213
- Long-lost botanical art from a scientific expedition sent from Spain to the New World in 1787 was found in Barcelona and acquired by an institute in Pittsburgh. 121: 202
- Devastation of pine forests in Yellowstone National Park and other areas of western United States drew new attention to normally inconspicuous bark beetles. 121: 314



- One female mouse living more than 30 years ago is the ancestor of almost all the inbred mice in laboratory use, suggests a study of mitochondrial DNA. 121: 71



- In experiments with frog eggs, scientists used a suppressor gene to counter the genetic defect that gives rise to an anemia. 121: 292
- Synthetic sex pheromones were used to promote fatal copulations between male cotton bollworms and female tobacco budworms, offering a new approach to biological control of these two serious crop pests. Scientists also synthesized the first pheromone for an insect that preys upon agricultural pests. 122: 135, 373
- Observations of exotic bowerbirds and birds of paradise offered clues to the evolutionary meaning of fancy plumage and intricately decorated bowers. 122: 152, 170
- Laboratory studies suggested that effluents from drilling rigs may cause in ocean animals subtle behavioral changes, which could reduce their ability to survive. 122: 234
- Proteins from cells that ensheath peripheral neurons were demonstrated to stimulate nerve regeneration. 122: 276
- Animal experiments provided evidence that coma results from activation of a specific brain system that suppresses normal behavior. 122: 310
- A test-tube system with all the ingredients for initiating replication of a bacterial chromosome was devised. 121: 54

Chemistry

- For a fraction of a second, a new element, 109, lived. 122: 212
- The search continued for a chemical that can protect the body from dangerous free radicals — molecules that form in numerous situations, including exposure to radiation. Meanwhile, the most promising candidate to date, a chemical called "WR-2721," was tested in several clinical trials. 121: 233; 122: 124
- Synthetic successes included poppy-

free opium derivatives (121: 311); a molecular Möbius strip (122: 36); the complex anti-cancer chemical bleomycin (122: 301); and the most strained per carbon atom of any known organic compound stable at room temperature. 122: 393

- In a move that rekindled a long-standing fire-safety controversy, the National Institute of Building Sciences decided that it would be premature to recommend that building codes contain smoke-toxicity restrictions. 122: 86

- On the chemical warfare front, reports from the U.S. State Department and other sources suggested that a Soviet-supplied fungal toxin, yellow rain, continues to fall in Southeast Asia and Afghanistan (122: 122, 230, 343; 122: 39, 358). Meanwhile, Congress did not give the administration money it had requested for the first U.S. production of chemical weapons in 13 years; however, the legislature did leave open the possibility of providing money for such a program next year. 122: 68, 117

- Rep. David R. Obey (D-Wisc.) accused the National Cancer Institute of yielding to industry pressure to tone down its report on the health risks of exposure to benzene, a major raw material of chemical processes. 122: 103

- An old analytical technique, nuclear magnetic resonance (NMR) spectroscopy, was called on to probe in animals and test-tube experiments the chemical events that may initiate cataract formation. Such research eventually may lead to NMR analyses of lenses in humans. 121: 236

- Silicone can flake off tubes in kidney dialysis machinery and contaminate the blood being purified, Australian researchers reported. The scientists also said that the risk of exposing humans to toxic substances via medical devices may not be limited to silicone pump tubing; polyvinyl chloride and plasticizers used in equipment also may be culprits. 121: 93

- A technique that involves melting and recrystallizing silicon film in discrete zones came close to achieving a single, thin, perfect silicon crystal. Such work eventually will lead to thin, wide-screen television sets and compact high-speed logic devices. 122: 308

- In laboratory tests, a naturally occurring substance, ellagic acid, was found to "neutralize" the cancer-causing form of the exhaust pollutant benzo[a]pyrene. 122: 361

Medicine

- For the first time in medical history, a permanent artificial heart was implanted into a human. 122: 372, 388

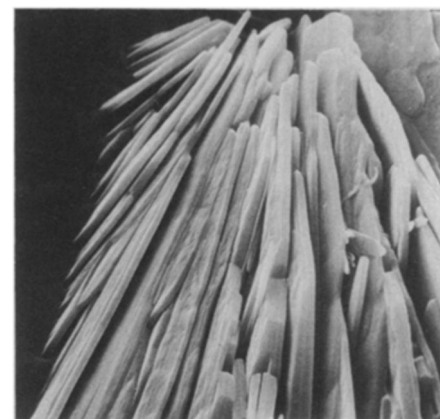


- Three patients with beta-thalassemia and three patients with sickle cell anemia had their diseases partially corrected by gene manipulation, representing a major advance in human gene engineering. 122: 388

- America's first test-tube baby was born, joining a small but rapidly growing number of others throughout the world. 121: 7, 43

- A drug made by recombinant DNA techniques reached the marketplace for the first time; it was insulin. 122: 230, 294

- For the first time, a drug to treat initial genital herpes infections was approved by the U.S. Food and Drug Administration; evidence also suggested that the drug, acyclovir, can counter recurrent genital herpes infections. 121: 247; 122: 214



Acyclovir crystals

- Monoclonal antibodies (mass-produced antibodies directed against highly specific targets) were successfully used to treat a patient with the most serious of all the immune deficiency diseases. 122: 244

- Eight years after its innovation, electrical healing of fractures seems to have become an accepted orthopedic surgery technique. 121: 119

- Endorphins and enkephalins, brain proteins known to influence the mammalian mind and behavior, were found also to influence the body's immune system; in fact, evidence suggests that they are chemical intermediaries linking stress and reduced resistance to disease. 122: 55, 332

- Already known to be an effective preventive of travelers' diarrhea, antibiotics were found to be a highly efficacious treatment for the condition as well. 122: 231

- For the first time, the vicious form of skin cancer known as melanoma was linked to fluorescent lighting. 122: 132

- Long thought to be innocuous to the human body, the element aluminum was increasingly implicated in degenerative brain diseases. 122: 166, 292

- A novel carbon fiber implant looks promising in the reconstruction of severely torn ligaments and tendons. 122: 219

- Scientists at the U.S. Centers for Disease Control predicted that by October 1982 measles would be eliminated from the United States; physicians from 21 countries concurred that worldwide eradication of measles was possible, probably within 20 years. 121: 215

- Continued occurrence of often fatal cases of acquired immune deficiency syndrome (AIDS), first identified in promiscuous homosexuals in 1981, baffled scientists. 122: 202

- The safety of Bendectin, a drug used to combat nausea and vomiting in pregnant women, again was questioned. This time a study that linked exposure to Bendectin in pregnant rats with diaphragmatic hernias in their offspring rang the alarm. 122: 7

- The Food and Drug Administration banned further sale of the diet aids starch blockers until their safety and effectiveness are proved. Meanwhile, a Baylor University study with humans showed that the blockers do not appear to inhibit the digestion and absorption of starch calories as advertisements had claimed. 122: 58, 231, 373

Energy

- In the most serious incident at a nuclear power plant since the Three Mile Island accident three years earlier, a ruptured steam generator tube triggered a four-month shutdown of the Ginna plant in Ontario, N.Y. (121:68, 277). Deterioration of steam generator tubes proved to be a significant problem in many pressurized-water nuclear reactors. 121:105, 283; 122:10

- A two-hour television-camera inspection at the damaged Three Mile Island-2 nuclear reactor revealed that much of the reactor's core had been reduced to rubble (122:68). The TMI-2 cleanup continued slowly amid uncertainties over who will pay for it (121:263). New concerns about the psychological health of residents in the area stalled the restart of the undamaged TMI-1 reactor. 121:55, 308

- Among the many woes of the nuclear power industry (121:374) were licensing delays (122:262) and the lengthy legislative process involved in producing a national nuclear waste management policy (121:308; 122:117, 374). Meanwhile, governments and industry continued to work on technical solutions to the radwaste problem. 121:9, 60, 296

- The Department of Energy selected for large-scale testing a laser technique for producing enriched uranium (121:327), while doubts about the future of an advanced gas centrifuge enrichment plant surfaced. 122:86

- The world's first "solar breeder," a fac-

tory for manufacturing solar cells and powered entirely by sunlight, opened in a former cornfield in Maryland. 122:293

- For the first time, a Stirling external combustion engine powered by solar energy produced electricity that could be fed directly into utility lines. 121:123

- Scientists at the Ford Motor Co. developed a sodium heat engine that converts heat directly into electrical energy (121:138). A Los Alamos physicist reported a new acoustic heat engine, which uses sound waves to generate temperature changes and may have potential as a refrigerator. 122:358

- The Soyland Power Cooperative selected a site for the first underground compressed air energy storage facility in the United States. The facility is designed to meet daily energy demand fluctuations more efficiently. 121:265

- Two groups received much publicity for their separate schemes for using solar energy to split water in order to extract hydrogen fuel. In both cases, the developers claimed their scheme has the potential for being scaled up to an efficient commercial-size procedure. And, in both cases, other researchers in the solar energy field doubted those claims and feared they were misleading the public into thinking the energy problem is being licked. 122: 198, 246

Physics

- A magnetic monopole may have been found. 121: 323; 122: 348, 362

- Uranium ions were accelerated to nearly a billion electron-volts per nuclear particle, opening new perspectives for high-energy nuclear physics. 122: 228

- Quantum mechanical electron tunneling through a vacuum was demonstrated for the first time. 121: 70

- Evidence mounted for the existence of anomalous, atomic nuclei that are unusually prone to interact with other nuclei. 122: 284

- The use of polarized nuclei to enhance the probabilities of nuclear fusion was proposed. 122: 308

- The world's first superconducting cyclotron went into operation at Michigan State University. 122: 247

- The first large Time Projection Chamber, a new kind of particle detector, was dedicated at the PEP colliding beam facility at Stanford University. 121: 103

- The world's largest superconducting magnet was completed and functioned successfully as part of a fusion experiment at the Lawrence Livermore National Laboratory. 121: 116

Anthropology & Paleontology

- Scientists uncovered a thigh bone and a skull fragment that, at 4 million years old, provide the earliest evidence of human evolution into a large-brained biped. Meanwhile, another group of scientists argued that even the 3.6-million-year-old Lucy may not have been fully bipedal. 121: 389; 122: 116

- Skull and jawbone fossils, 8 million and 13 million years old, suggest that the oldest ape-like ancestor of humans may actually have been related to orangutans. 121: 84



- The redating of a fossil site in Israel raises the possibility that man evolved into a toolmaker in Asia or the Middle East rather than on the African savannas. 122: 228

- The first true primates evolved much later than originally thought — about 50 million years ago — and their most significant biological adaptations were a grasping big toe and forward-looking eyes, according to an interpretation of new fossils. 121: 372

- A reanalysis of the 300,000-year-old Bodo skull indicates that this nearly human ancestor was scalped; the motive for the earliest known scalping is unknown. 121: 389

- Deposits of tools and animal bones in East Africa do not necessarily indicate the beginning of human social organization at 1.5 to 2 million years ago, according to a new interpretation of well-known fossil data. 122: 390

- Even before the arrival of Western man, Polynesians caused many bird species to become extinct. The finding may challenge existing theories of island biogeography. 122: 103

- Archaeologists thought most citizens of Herculaneum escaped when Mt. Vesuvius erupted in A.D. 79. Recent excavations, however, revealed that hundreds of people were buried alive. 122: 327

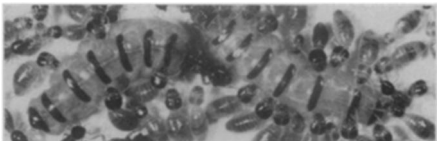
- Before the dinosaurs died out, some species were living in colonies and using the same nesting sites repeatedly. 122: 22

Earth Sciences

- El Chichón erupted in Mexico, injecting an enormous quantity of sulfur-rich particles into the atmosphere. One result may be slight global cooling. 121: 326; 122: 120



- The United States took a nearly solitary stand in its decision not to sign the international sea law treaty. 122: 38, 391
- Gas trapped in polar ice suggested that concentrations of atmospheric methane began to increase only within the last several hundred years, probably because of human activities. 122: 375
- Crustal movement, not faulty engineering, was blamed for failure of the intricate canal system that wound through ancient Peru. 122: 56
- The most sophisticated planes are fast, efficient, and highly vulnerable to lightning. The planes themselves, researchers found, may be involved in the lightning process. 122: 346
- Seismic activity at Mammoth Lakes in eastern California stirred concern about a potential volcanic hazard. 121: 390
- Fossilized jaw bone of a marsupial, found in Antarctica, provided long-sought evidence that marsupials from South America crossed Antarctica on their way to Australia before the continents split apart. 121: 213
- The OASIS expedition to the East Pacific Rise at 21°N examined the biology of deep sea vents. 121: 410
- The first petroleum formations at deep sea hydrothermal vents were found in the Guaymas Basin. 121: 103
- Termites may contribute as much as fifty percent of atmospheric methane. 122: 295



- High resolution satellite photographs showed that the earth's aurora is nearly round. 121: 6
- During Leg 83 of the Deep Sea Drilling Project, the drill penetrated 1,076 meters into oceanic crust, breaking a 600 meter "barrier." 121: 152
- A circular feature that stretches 2,800

kilometers across North America may have formed after a meteorite hit the earth early in its history. 121: 69

- Freon gases proved a useful tool in tracing ocean mixing and circulation. 121: 200
- Continents may insulate the earth's mantle, causing heat to build up and thereby affect the distribution of mass and the shape of the globe. 121: 404
- Studies of stromatolites — "living fossils" — offered a glimpse into the earliest ecosystems. 121: 284
- Satellite images of the sea surface allowed the seafloor to be mapped in remarkable detail. 122: 364
- A simple plasticine model may explain how India's continuing push into Eurasia has moved huge continental blocks and activated some of the world's longest faults, researchers say. 122: 391

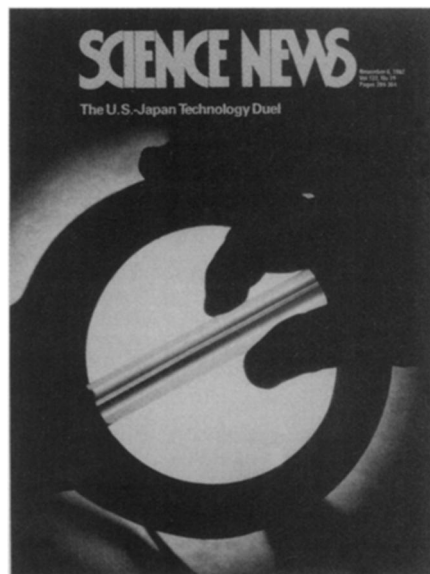
Technology

- Increasingly sophisticated computers and computer programs opened up new applications in fields like computer graphics (121:153; 122:328). However, computer-aided crime became more worrisome (121:346, 409; 122:12), and standards were proposed that would reduce arithmetic errors made by computers. 122:72

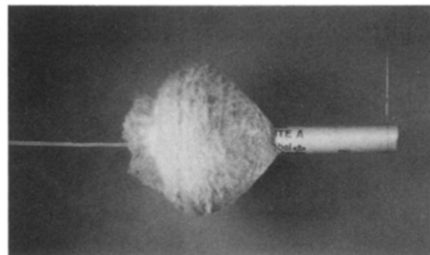


- Competition from Japan (122:296) and other countries pushed U.S. industry to form cooperative research groups like the Semiconductor Research Corp. (121:277; 122:271, 379) and the Microelectronics and Computer Technology Corp. (122:247). The growing number of agreements and con-

tracts with U.S. universities, however, raised concerns about university independence and led to discussions of guidelines for university-industry research. 121:229



- High technology continued to invade medicine with the development of an implantable, electronic "artificial ear" (122:340) and an electrical technique for helping braces shift teeth faster. 121:331
- Researchers discovered that some gels change volume dramatically in response to electric fields, suggesting the possibility of artificial muscles. 122:282
- Improved high-speed cameras and video systems brought high-speed photography into new applications. 122:164, 204



- Bell Laboratories researchers tested optical fiber cables for long-distance, undersea uses. 121:279; 122:279
- A novel videotape recording system allowed viewers to see three-dimensional color images on their own television sets (122:137). In another system, an oscillating mirror and a special cathode ray tube displayed data in a 3-D format. 121:87
- The Eastman Kodak Co. introduced its disc photographic system after years of human factors research (122:168). The company also unveiled a high-speed color film that produces pictures even by candlelight. 122:254
- Perpendicular magnetic recording promises to squeeze more information onto magnetic disks, drums and tapes for computer memories. 122:41

Behavior

- Evidence from several laboratories indicates that a deficit of the neurotransmitter serotonin may be implicated in aggressive and impulsive behaviors, including violent suicide and psychopathic murder. 121: 355; 122: 282
- An internal waking mechanism has been found to work independent of restfulness. Applying this knowledge to the design of an actual factory work schedule, scientists improved job satisfaction and productivity. 122: 7, 69
- Government scientists identified a particular kind of depression linked to change of seasons and have had preliminary success in treating the disorder with exposure to intense light. 121: 212
- A National Academy of Sciences panel concluded that existing IQ tests are not racially biased in their prediction of academic performance, but the publishers of the first new intelligence test in a generation claim that their test is more fair to racial minorities. 121: 84; 122: 280



- Studies of both animals and humans indicate that temperament — specifically bashfulness — may be inborn. 121: 36
- After more than a decade of research, scientists isolated and figured out the makeup of Factor S, a chemical found in the human gut that is thought to play a key role in human sleep. 121: 342
- Electrophysiological studies of people with multiple personalities provided the first evidence that changes from one personality to another involve alterations in brain function. 121: 356
- Scientists reported the first human evidence of anatomical differences in the brains of males and females. 121: 422
- Data from a follow-up study cast doubt on a ten-year-old research project and on its fundamental conclusion — that addicted alcoholics can be taught to become controlled drinkers. 122: 20, 168, 311

- Too much noise — including everyday household noise — can delay intellectual development in infants and lead later to significant behavioral and language deficits, according to a new study. 122: 133
- Several investigators have discovered evidence of child abuse among monkeys and apes, raising questions about the evolutionary significance of such aggressive behavior. 122: 24



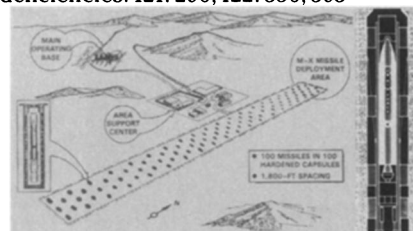
- Apnea, a life-threatening sleep disorder characterized by frequent respiratory failure, may be exacerbated by the use of sleeping pills and other central nervous system depressants, researchers reported. Use of sleeping pills by the elderly is especially dangerous because apnea so often goes undiagnosed. 121: 421
- Although the use of anti-anxiety medications such as Valium has dropped dramatically over the past decade, there remains a significant number of people — mostly elderly widows — who are chronic users. 121: 261

Science & Society

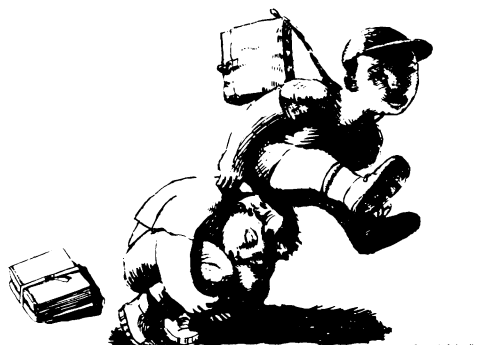
- Increased government efforts to restrict the flow of sensitive scientific information that may be militarily useful to the Soviets led to cancellation of more than 100 scientific papers at a technical meeting. A National Academy of Sciences study concluded university activities played only a small role in such technology leaks. 122: 148, 180, 229
- In a turnabout in the U.S. policy aimed at limiting nuclear-weapons proliferation, the Reagan administration offered certain foreign buyers of nuclear fuel something U.S. buyers cannot yet get — blanket approval to reprocess used fuel for recycling back into power reactors. 122: 27
- The Reagan administration revamped its research and development policy through notable funding shifts in federal projects. 121: 100; 122: 6
- America's technological leadership has encountered a stiff challenge from the Japanese, as is demonstrated by Japan's

dominance in robotics. 122: 296

- Despite a growing national protest over arms buildups and nuclear-war planning, President Reagan pushed hard for the MX missile. But its “dense-pack” basing scheme drew fire over alleged technical deficiencies. 121: 296; 122: 356, 393



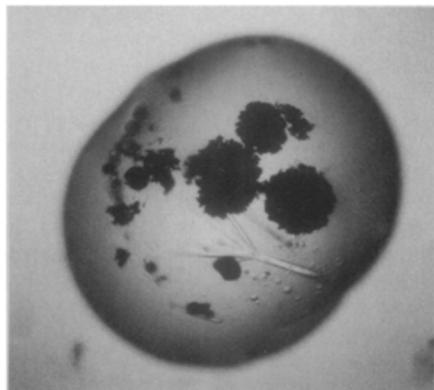
- The Arkansas law requiring “balanced treatment” for creation science got its day in court. Ultimately that law, and one like it in Louisiana, were struck down as unconstitutional. 121: 12, 20, 44, 104; 122: 27, 358
- A 13-man White House Science Council was appointed to advise the President's science adviser. 121: 152
- A U.S. District Court judge ordered that a case he decided in 1956 must be retried. Court testimony earlier this year showed, the judge said, that the United States had lied to the court in a case involving claims against the government for sheep that allegedly died from exposure to nuclear-weapons fallout. 122: 100
- The “windfall profits tax” — already responsible for bringing in more than \$40 billion — was ruled unconstitutional. 122: 333
- The White House Science Council initiated the first review in 20 years of the nation's federal laboratories with the aim of eventually closing some laboratories and redefining the missions of others. 121: 201
- Among major personnel reshufflings, John B. Slaughter resigned as director of the National Science Foundation and James B. Edwards resigned as Secretary of Energy. President Reagan appointed Edward Knapp to take over at NSF and Donald Hodel to succeed in directing a restructuring of the Energy Department. 121: 391; 122: 309
- University of Chicago researchers contested the claim of male superiority in math. Meanwhile, University of Michigan researchers found that in math achievement, Japanese students surpass their U.S. counterparts. 121: 198; 122: 28



- In a test of presidential powers, Reagan attempted to kill the Solar Bank by impounding its funds. But environmentalists sued and won; under a court order, the bank must begin processing loans. 121: 283; 122: 27
- The Supreme Court acted in two cases to guarantee the rights of institutionalized mental patients. 121: 420
- A jury cleared a Maryland psychologist of all but one count of animal cruelty in a trial that came to symbolize the competing rights of biomedical researchers and laboratory animals. 122: 37
- Gordon Gould's 1977 patent for an optically pumped laser amplifier withstood the first court challenge to its validity. But others were on the way. 121: 199; 122: 137
- The seven deaths from cyanide-laced Tylenol prompted a new law requiring that manufacturers begin marketing over-the-counter drugs and most cosmetics in tamper-resistant packaging. 122: 282, 333
- The voters in Berkeley, Calif., voted overwhelmingly to ban the use of electroshock therapy within city limits. 122: 309

Environment

- New research indicated that two-thirds of the North American continent is exposed to acid rain. But lawmakers had a tough time trying to develop legislative solutions when acid rain's formation was still so poorly understood. 121: 373; 122: 138



- A National Academy of Sciences panel cut in half previous estimates of how much ozone is being stripped from the stratosphere. 121: 244
- Interior Secretary James Watt approved a controversial five-year program for opening one billion acres of outer-continental-shelf property (all federal land) to leasing by private oil and gas companies. 122: 71
- An assessment of decreased agricultural productivity due to ozone pollution pegged crop losses at between \$2 billion and \$4.5 billion annually in the U.S.—5 percent of total farm output. 121: 200
- At a United Nations conference commemorating the 10th anniversary of the United Nations Environment Programme

(and some say, the birth of a global environmental consciousness), the U.S. announced it would be scaling back its financial assistance for global environmental-protection programs. 121: 358

- The first national blood-lead measurement recorded levels in children much higher than had been anticipated. Findings of continued health effects from environmental lead pollution helped kill a move to ease limits on the amount of lead permitted in gasoline. 121: 88, 132, 212, 278, 373; 122: 55, 85, 135, 301
- Mount Sinai School of Medicine researchers concluded on the basis of fat and blood samples that nearly all of Michigan's population had been contaminated with polybrominated biphenyls (PBBs) after those toxic fire-retardant chemicals were accidentally added to livestock feed in the summer of 1973. In the largest toxic-waste settlement to date, Velsicol Chemical Co. agreed to pay \$38.5 million for cleanup of four Michigan sites contaminated with, among other things, PBBs. 121: 276; 122: 361
- The Environmental Protection Agency's new rules for hazardous-waste cleanup failed to defuse charges that the agency was unduly slow in analyzing contaminated sites and in issuing Superfund payments to clean up such sites. And though an EPA study of Love Canal habitability found the site as safe as control areas elsewhere in Niagara Falls, the study later drew criticism that it was too flawed to justify that claim. 121: 150, 218; 122: 52, 102, 310
- Ten national environmental groups leveled more than 200 specific complaints at President Reagan for the direction he and his adjutants had taken on environmental policy. It was a shift in policy by environmentalists, to put Reagan, not his cabinet, under the gun. 121: 246
- While debate on their health effects continued, polychlorinated biphenyls (PCBs) became the subject of new EPA regulations. Those regulations included a ban, effective Oct. 1, 1985, on PCB use in electrical transformers that might be used in places where a leak could contaminate human food or animal feed. 121: 359, 361, 407; 122: 169
- Research suggested radioactive radon, cycled through a burning cigarette, might account for most if not all the lung cancers attributed to smoking. 121: 119
- New estimates of radiation's health effects challenged long-held assumptions of what constitutes relatively safe doses. 121: 405; 122: 39
- New rules to upgrade worker protection from noise failed to protect all from hearing loss. Meanwhile, research results implicated noise in a host of other health effects, including high blood pressure and childhood learning problems. 121: 347, 377, 393, 423; 122: 133
- Nonionizing radiation was linked with

cancer: While a Washington State epidemiologist found an association between leukemia and magnetic or electric fields, an Australian study linked skin cancer with exposure to fluorescent lights. 122: 123, 132

- A study involving rats suggested levels of cadmium occurring in some foods and air may be sufficient to trigger high blood pressure in humans. 122: 134
- As the Clean Water Act was under review, prior to a routine 5-year reauthorization, disheartening news came in: 63 percent of all rural Americans drink contaminated and possibly unsafe water. 121: 407; 122: 11
- The Consumer Product Safety Commission banned installation of the once widely used urea-formaldehyde foam insulation because of its potential for causing cancer and other health problems. 121: 131
- Research showed significant levels of asbestos could be emitted from normal wear of floor tiles. The news came on the eve of new EPA regulations requiring inspection of schools for asbestos-emitting building materials. Manville Corp. filed for bankruptcy as a result of the 16,500 health-related lawsuits brought against the asbestos producer. 121: 409; 122: 22, 149, 182
- The Veterans Administration was accused of foot dragging on an investigation of whether Vietnam veterans were harmed by exposure to the chemical defoliant Agent Orange. Then, yielding to pressure, VA agreed to give up control of the investigation. 122: 149, 263, 301
- An EPA administrative law judge recommended the agency lift its ban on use of the poison Compound 1080 against coyotes. That decision was appealed, so the final ruling on 1080 rests with EPA Administrator Anne M. Gorsuch. 122: 248, 301



- The International Whaling Commission voted to phase in, over three years, a total ban on commercial whaling. But five nations, led by Japan, filed formal protests of the measure. 122: 71, 333