

# Science News of the Year

This is a review of important science news stories of 1980 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. 117 is Jan.-June; Vol. 118 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 50 cents each by writing to SCIENCE NEWS, 1719 N Street, N.W., Washington, D. C. 20036

## Space & Astronomy

- Saturn revealed a wealth of new detail to the Voyager 1 spacecraft, including eccentric and "braided" rings, spoke-like radial ring structure and, on the satellite Titan, a nitrogen-rich atmosphere with a pressure 50 percent greater than earth's (117: 341; 118: 180, 277, 282, 307, 324, 343, 375, 391). Multiple satellites in the same or similar orbits were detected from earth-based observations. 117: 340



- Continued study of last year's Voyager data on the Jovian system revealed a 15th and 16th satellite of Jupiter (117: 295; 118: 151), while other observations detected X-rays from the giant planet (118: 4) and showed that the volcanically active satellite Io emits about 30 times as much heat per unit area as the earth. 117: 215
- An improved global view of the atmosphere-shrouded surface of Venus emerged from the radar maps of the orbiting Pioneer Venus spacecraft. 117: 215, 358; 118: 167
- The long-lived Viking lander 2 and orbiter 1 spacecraft finally ceased operating after four years of studying Mars (117: 231, 389; 118: 25, 85). Earth-based data indicated a natural laser effect taking place in the Martian atmosphere (118: 260) and added radar analysis to the controversy about the possibility of liquid water beneath part of the surface. 117: 230

- Speckle interferometry strongly indicated another controversial possibility, that at least two asteroids — Pallas and Victoria — have moons. 118: 295



- The Solar Maximum Mission spacecraft, launched Feb. 14 (117: 116), provided much new data on the sun, including confirmation of a previously hypothesized mechanism for the production of solar flares. 117: 404; 118: 152
- A possible quadrupole anisotropy in the geometry of the universe was discovered. 117: 54
- A triple quasar was discovered, a second possible gravitational lens. 118: 4, 36, 106
- The source of one of the mysterious cosmic gamma-ray bursts was identified for the first time. 117: 276
- It was suggested that neutrinos with mass could make up the "missing mass" to "close" the universe (118: 228), and proposed that evidence of such neutrinos may already be in hand. 118: 292
- The first calculated estimate of the mass of gas blown off by a supernova was reported. 118: 365
- The existence of the sun's long-period acoustic vibrations was confirmed. 118: 100
- The second and third binary pulsars were discovered. 117: 201, 309

- Theory and observation continued to complicate the model of SS433, which may be a previously unknown kind of astronomical object. 117: 140

- Two Soviet cosmonauts set a 185-day record for man in space (117: 246; 118: 247), during which time they were visited aboard the Salyut 6 space station by three other crews, two of them including the first Vietnamese and Cuban cosmonauts (117: 373; 118: 71). Later, the station was visited by a redesigned version of the Soyuz spacecraft, carrying the first three-man cosmonaut crew in nearly a decade. 118: 357, 394

- The possibility of accepting cosmonaut candidates from India was raised by Soviet officials, and an astronaut training program in progress was reported by the People's Republic of China. 117: 153

- NASA announced that it was working toward launching the first U.S. space shuttle in March of 1981 (118: 87, 358), though the agency offered potential users the option of selecting a Delta rocket for their payloads in case the shuttle's uncertainties continued. 117: 137



- Following the successful, late-1979 launching of the European Space Agency's first Ariane rocket (117: 90), the second Ariane failed when its first-stage engines shut down prematurely (117: 341), delaying the planned third launch from Sept. 1980 to mid-1981. 118: 394
- India became the seventh nation to launch a satellite with a rocket of its own,

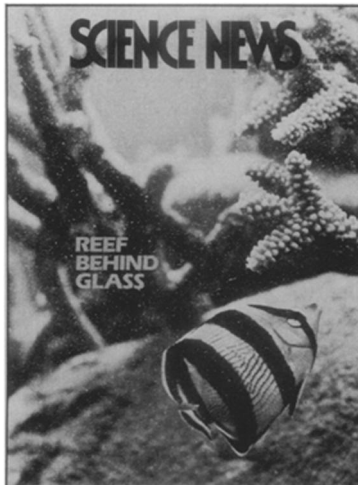
joining the United States, USSR, China, France, Great Britain and Japan. 118: 53

- It was a politically tumultuous year for the U.S. space program, in which NASA administrator Robert Frosch announced his forthcoming resignation even before the presidential election (118: 245), and three key science division chiefs made plans to leave NASA headquarters (118: 260). Scientists expressed growing concern for the program's future (117: 196) and lobbied for a U.S. mission to comet Halley (117: 101, 167), while growing numbers of grassroots pro-space organizations appeared, such as the Planetary Society and the Viking Fund. 118: 100

- The GOES-D satellite was launched as the first geostationary weather-watcher designed to take vertical profiles of atmospheric moisture and temperature. 118: 165

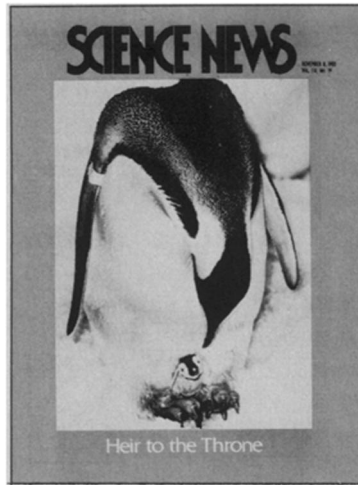
## Biology

- The first large coral reef community to be maintained away from the ocean went on display at the Smithsonian Institution. 118: 250



- Bacteria were genetically engineered to produce more substances of potential commercial value, including amino acids, (117: 216), interferons (117: 52, 372), beta-endorphin (117: 309), the blood-clot-dissolving enzyme urokinase (117: 271), the immune-system-stimulating hormone thymosin alpha-1 and the insulin precursor proinsulin (117: 165). The first tests in humans of a product made with recombinant DNA techniques showed that human insulin made bacterially is effective in lowering blood sugar levels in healthy subjects (118: 53).

- The U.S. Supreme Court ruled that microorganisms that have been genetically modified by scientists can be patented (117: 387; 118: 71), and a patent was granted for the basic gene-splicing techniques (118: 372).



- Although genetic engineering still has put no product on the market, it caused a big splash on Wall Street when Genentech became the first genetic engineering concern to offer stock to the public (117: 202; 118: 261). Harvard University considered, then rejected, a plan to start its own gene-splicing corporation (118: 340). The first British biotechnology company was established, in part with public funding (118: 372).

- The federal safety guidelines for recombinant DNA research continued to be eased, and several companies received permission to scale up operations with genetically engineered bacteria. 117: 165; 118: 357

- Genes transferred into fertilized mouse eggs were identified in a small proportion of the resultant newborns, demonstrating that transplanted genes can be correctly reproduced during embryonic development. 118: 163

- A California researcher transferred a gene into mouse bone marrow cells, which could subsequently populate the marrow of other mice. He was criticized, however, when he used a similar technique to transfer genes for normal hemoglobin production into two patients suffering from a fatal blood disease. 117: 244; 118: 245

- Stanford researchers produced the first hybrid human cells selected to make large quantities of a pure human antibody in laboratory culture. 118: 85

- The first successful breeding of emperor penguins in captivity produced three chicks. Scientists observing the captive colony learned to distinguish male and female penguins by their trumpeting vocalizations. 117: 182; 118: 297

- A single nerve cell can make two, or even three, chemical transmitters to carry its signal to other cells. 118: 342

- Experiments on song learning in canaries and on sensory input from a monkey's hand indicated that the brain areas de-

voted to specific functions can adjust to meet changing needs of an animal. 118: 341

- Fine mapping of the chromosome regions that code for the protein portions of hemoglobin revealed families of genes, including members unable to make proteins. The maps indicate that genes evolve both by small changes and by large duplications and deletions of genetic material. 118: 396

- A second system for nitrogen fixation was discovered in free-living soil bacteria. The process, which requires no molybdenum, functions naturally as a back-up system. 118: 293

- A bacterium from the leaves of barley, wheat and oats was found able to counter in infected trees the fungus responsible for Dutch elm disease. 117: 362



- Work on calmodulin, a protein associated with calcium in cells of plants and animals, described its role in cell division and promised new types of contraceptives, antipsychotic tranquilizers and cancer diagnostic tools. 118: 119

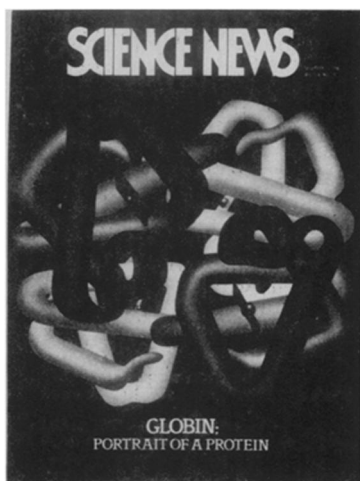
## Chemistry

- With future solar energy applications in mind, researchers catalytically split water (118: 103), constructed synthetic chloroplasts (118: 84), mimicked the first step of photosynthesis in a single molecule called "P-Q" (118: 68) and isolated a protein that may be necessary for photosynthetic oxygen evolution (117: 38).

- The observation of "transfer reactions" renewed hope in the search for linear accelerator-made superheavy elements. 118: 148

- Chemists investigated methods of interfering with the gelling hemoglobin molecules of sickle cell disease. 117: 102; 118: 379

- Two copy machine chemicals—trinitrofluorenone (118: 294) and nitropyrene (117:



246)—the suntan-lotion ingredient 5-MOP (117: 389) and the hair-dye chemical EMPD (117: 133) were added to the list of suspected carcinogens.

- A controversial trial brought to the public's attention doubts about the safety of Bendectin — a drug used to treat the nausea and vomiting of pregnancy. 118: 395
- Successes in synthesis included an efficient route to the widely used beta-lactam antibiotics and the first complete synthesis of a substance released in allergic reactions, leukotriene C, a chemical victory that will pave the way to anti-asthma drugs. 117: 87, 134
- Black-and-white film with silverless negatives entered the world of photography. 118: 164
- Canadian researchers reported a Stable Product Low Leach Glass (SPLEG) concept that has applications for nuclear waste disposal. 118: 339
- Researchers armed themselves with mathematical formulas in the war against rust. 118: 311

## Medicine

- For the first time interferon was made with recombinant DNA (117: 52; 118: 327); it was purified using an antibody (117: 391); drug companies invested millions of dollars in recombinant DNA and other technology to make large batches of interferon (117: 202; 118: 327); interferon clinical trials expanded (117: 119, 166, 358); more and more types of interferon emerged (117: 372; 118: 301).
- Recombinant DNA was used to make beta-endorphin (117: 309); endorphins in the cerebrospinal fluid were found to increase during acupuncture and to decrease during migraines (117: 390); beta-endorphin continued to look promising in the treatment of depression but not in the treatment of schizophrenia (117: 405); an excess of enkephalins was linked with brain disease (118: 278); the endorphins,

which had already been linked to pituitary hormones, were also linked to interferon, suggesting that all these proteins might have a common origin (118: 342).

- A lung cancer epidemic among women was reported, apparently due to the large increase in cigarette smoking among women in recent years. 117: 37
- The lives of patients with lung cancer — one of the most common and lethal cancers — were extended with injections of antigens from lung cancer cell membranes, suggesting that such antigen injections might be an effective treatment for lung cancer (118: 26). Researchers reported extending the life spans of liver cancer victims with radioactive iodine-tagged antibodies. 118: 229
- The United States' first test-tube clinic was approved and opened for business, but it was not able to produce any test-tube babies with its technology. 117: 23; 118: 231
- Hodgkin's disease was found to be curable for more than 50 percent of patients. 117: 311
- A new disease — toxic-shock syndrome — came under Center for Disease Control surveillance and was linked to the use of certain tampons. 117: 343; 118: 6, 198, 247
- Both a prospective and retrospective study showed that women who drink alcohol moderately during pregnancy are at increased risk of miscarriage, strengthening previous indications that moderate drinking as well as heavy drinking can adversely affect human fetuses (118: 110). Studies of rats showed that caffeine and moderate amounts of phenobarbital negatively affected fetal development (117: 21, 153).
- Continued progress was made toward designing an artificial pancreas for insulin-dependent diabetics so they would not need daily insulin injections. 118: 36, 358
- There was increasing evidence that young mammalian nerves in the central nervous system can repair themselves if damaged and, even more important, that transplants of young central nerves could correct central nerve disorders in the adult mammalian brain. 118: 389
- Injections of the brain-gut hormone cholecystokinin looked promising as a treatment for obesity; a cellular defect — fewer sodium pumps — was also observed in obese people, although physiological implications were unclear. 117: 42; 118: 295
- Although high-density lipoproteins appeared to help prevent heart disease, they also seemed to pose a cancer risk (118: 246). Balloons were used to flatten fat-rich plaques in clogged coronary arteries, while coronary artery bypass surgery received a qualified green light from a National Institutes of Health consensus conference (118: 341, 374). An implantable

defibrillator for treatment of heart arrhythmias was introduced (118: 87).

- Disease prevention research continued to expand — people with high levels of vitamin A in their blood appeared to be better protected against cancer than those with low levels, and while transfer factor (a chemical in white blood cells that confers immunity) did not pan out as a disease treatment, it did look promising as a disease preventive. 118: 118, 123, 311
- Clinical trials finally got underway to test a new generation of contraceptives stemming from hypothalamic hormone research during the early 1970s. 117: 331
- The news on oral contraceptives ranged from bad to good: The Pill was found to elicit adverse but reversible physiological changes; a large epidemiological study failed to find serious health problems caused by Pill use; and Pill users were found to be at lower risk of developing endometrial cancer. 118: 103, 262, 311

## Anthropology & Archaeology

- A radar image taken from earth orbit revealed an extensive network of canals — perhaps 2,000 years old — in the lowlands of Guatemala that helps explain how the Maya civilization fed itself. 117: 373
- Fossil finds support the hypothesis that *Aegyptopithecus* — a small, tree-dwelling, semisocial primate that lived 30 million years ago — was a common ancestor to both humans and apes. 117: 100
- The earliest example of monumental architecture was discovered in southeastern Turkey and dated at 7,500 B.C. 117: 197



- The earliest example of a vaulted roof was discovered in Iraq and dated at 3,000 B.C. 118: 39
- The oldest fossils yet discovered — 3.5 billion years old — were found in Australia. 117: 229, 406

## Earth Sciences

- After a 120-year snooze, Washington State's Mt. St. Helens awoke with a bang on March 27. The volcano erupted violently on May 18, taking more than 60 lives and destroying 150 square miles around the mountain. Eruptions continued throughout the year as researchers honed their predictive skills. 117: 213, 229, 277, 324, 355, 391; 118: 58, 101, 261



- Geologists began to piece together the mechanism underlying intraplate earthquakes — those quakes that cannot be attributed to movement along a fault. 117: 9, 372



- Combining solid evidence and imagination, scientists came up with more theories to explain the extinction 65 million years ago of hundreds of species. 117: 22, 375, 381; 118: 134
- Mineral-rich geysers on the sea floor continued to attract attention. 117: 28, 84
- As the number of large earthquakes in California began to increase, scientists began to suspect that a large-scale tectonic change may be occurring. 117: 69, 136; 118: 309

- High-pressure experiments showed that the earth's core may be composed of iron and oxygen, not iron and nickel, and may explain how minerals segregated in the early earth. 117: 310
- Preliminary results from the Magsat satellite indicated that the earth's magnetic field is decreasing in intensity. 117: 407
- The protracted heat wave and drought that seared the south-central states confounded meteorologists and broke records across the country. 118: 52
- A magnitude 5.1 earthquake struck the usually seismically quiet state of Kentucky and was felt in 14 surrounding states. 118: 68
- The movement of the African plate against and beneath the Eurasian plate caused two deadly earthquakes in Algeria and Italy. 118: 317, 376
- Geologists predicted that the Columbia Glacier near Valdez, Alaska, will begin retreating in two to three years, which is bad news for oil tankers in the path of the increasing number of icebergs that will break off the glacier. 118: 23

## Technology

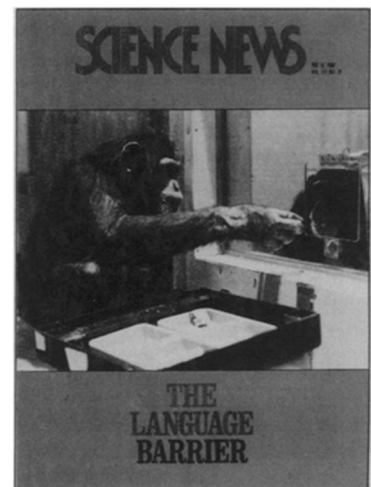
- The optical-digital computer will use light beams, prisms and lenses — not integrated circuits — to carry and process signals. 118: 249
- A new family of semiconductor devices that has been developed could lead to smaller, simpler, less expensive and more versatile electronic equipment. 118: 390
- Physicists have developed an energy-saving competitor for liquid crystals. Thin films of the iridium oxide change color quickly, hold their image for hours and have a wider viewing angle than liquid crystals. 117: 297
- Crystals of urea, a common and inexpensive chemical, transform visible laser light into ultraviolet wavelengths, thereby extending the range of color tunable lasers. 117: 349
- A hydrogen-maser clock that won't lose more than a millionth of a second in three years is the most punctual one going. 117: 297
- Electron-beam irradiation of corrosive industrial exhaust gases eliminated more than 95 percent of sulfur oxides and more than 80 percent of nitrous oxides. 117: 188
- The Naval Research Lab is developing sensors to tap the heat of the earth — long-wave infrared radiation — to propel and power military platforms above the clouds. 117: 379
- Human-piloted solar-powered aircraft

—like the Gossamer Penguin—finally got off the ground. 117: 373

- Computer reconstructions of X-ray motion pictures offer — without surgery — views of the interior of the living body. 118: 284
- Two new processes break down persistent halogenated pollutants such as PCB's. 118: 132, 202
- Shock waves were harnessed to crush kidney stones inside the body — without surgery. 118: 217

## Behavior

- B.F. Skinner used experiments with pigeons to suggest that any supposed "true language ability" claimed for nonhuman primates may be nothing more than a result of classical conditioning. 117: 87
- Studies of vervet monkeys in the wild suggest that these animals may use a system of rudimentary semantic signaling. 118: 348



- Studies of violence-filled pornography find that such material can cause increased aggression by men against women. 118: 166
- Long-term use of neuroleptics, the drugs commonly used to treat schizophrenia, may complicate the condition by causing psychotic side effects. 117: 53
- One type of schizophrenia — that associated with enlarged brain ventricles — may be resistant to treatment with neuroleptics and other antischizophrenic drugs. 117: 117
- Two studies contradicted the idea that renal dialysis can be effective therapy for schizophrenia. 117: 330
- For the first time in more than a decade marijuana use by high school students decreased. 117: 121
- Marijuana use by 18-to-25-year-olds increased as did cocaine use. 118: 24

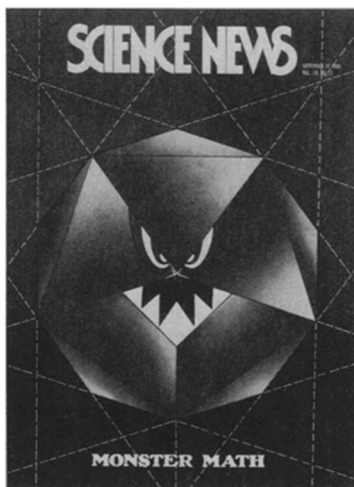


- Cigarette smoking by teenagers increased between 1968 and 1974 but now appears to be leveling off. 117: 137
- Sudden Infant Death Syndrome may be the result of a genetically caused learning disability (117: 150). Other research pointed to a vitamin deficiency and mild stress as possible causes of SIDS. 117: 379
- Certain types of anxiety may have biochemical or genetic causes. 117: 164
- The duration of human sleep was found to depend on circadian rhythms and body temperature rather than on tiredness or length of time previously awake. 118: 392
- Brief awakenings, which presumably interrupt abnormal sleep cycles, may be effective therapy for some types of depression. 117: 183
- Inconsistent sleep-wake patterns in premature infants were found to be indicative of possible neurological defects. 118: 234
- An eight-year follow up of transsexuals who have had male-to-female sex change operations finds that for a select group surgery is the best means of coping with transsexualism. 117: 262
- Data continue to mount suggesting that alcoholism may have a genetic component. 117: 357
- Experiments with monkey memory suggest that monkeys may provide a good model for studying human memory. 118: 137
- The electroencephalogram can be used to determine brain age as well as brain dysfunction. 118: 395
- A major longitudinal study found that preschool education pays off for disadvantaged children in higher academic achievement, lower delinquency rates and better earnings prospects. 118: 390
- Jean Piaget died. His work revolutionized our understanding of the development of human intelligence. 118: 199

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## Mathematics

- The "monster" finite single group was discovered, capping the classification of finite single groups. 118: 204
- It was found that music can be analyzed as a structure with fractal dimensions. 117: 187
- The LASNEX computer program successfully modeled the implosions of laser-fusion targets. 117: 151
- A computer that understands spoken English in a limited way was developed. 117: 244
- Fractals were applied to the geometry of protein structure. 118: 281



- A space-time for the universe that incorporates two different time standards was developed. 117: 180

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## Physics

- Neutrinos have a rest mass (according to two claims) and oscillations of identity as well. 117: 292, 377; 118: 181



- An organic compound that is an electrical superconductor has been developed. 117: 212; 118: 281
- The TMX tandem magnetic mirror confined thermonuclear plasma. 117: 309; 118: 328
- The spin of the gluon was determined experimentally. 118: 365
- Plasmas in the spheromak shape can be formed and persist. 117: 117; 118: 329
- Discovery of "bare bottom" confirms the existence of the fifth variety of quark. 118: 52
- Intense, mysterious particle showers spraying upward from some event inside the earth were discovered in India. 118: 246

- Solitons, or solitary waves, were demonstrated experimentally. 118: 213
- Solid superlattices that combine metals with dissimilar structural characteristics were made. 118: 13
- The lifetimes of charm particles were measured, an important step in confirming that charm is what it is supposed to be. 117: 297

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## Science & Society

- A federal study highlights two major problems: First, any technical lead the United States may exhibit, relative to the rest of the world, is in jeopardy; second, there is a growing trend toward scientific and technical illiteracy in the United States. 118: 276
- A two-year, 66-nation study known as the International Nuclear Fuel Cycle Evaluation concluded that the proliferation of nuclear-weapon states cannot be divorced from the proliferation of nations harnessing nuclear power. 117: 148
- The U.S. nuclear-nonproliferation stance was weakened Sept. 24 when the Senate failed to block shipment of fuel for India's Tarapur reactor. 118: 197
- In retaliation to the Soviet invasion of Afghanistan, President Jimmy Carter halted sales of high-technology exports to the Soviets and discontinued most cooperative exchanges in science and technology. 117: 23
- To silence him, the Soviets banished outspoken nuclear physicist Andrei Sakharov to internal exile on Jan. 22. One month later, the National Academy of Sciences and other scientific groups began protesting such Soviet political gestures with a suspension of ties and cooperation. 117: 84, 135; 118: 116
- Having eradicated smallpox globally, the World Health Organization has embarked on a new campaign—to see that by 1990 every child is vaccinated against diphtheria, whooping cough, tetanus, measles, water-borne diarrheas, polio and tuberculosis. 117: 314
- The new Cabinet-level Department of Education opened its doors May 4 with Shirley Hufstедler at its helm. What is left of the former Department of Health, Education and Welfare is now called the Department of Health and Human Services. 117: 344
- By a narrow margin, the Supreme Court struck down OSHA's standard to protect workers from exposure to benzene, charging that the agency had not properly established scientific justification for its limit. 118: 20
- The experts are still arguing over a National Food and Nutrition Board report

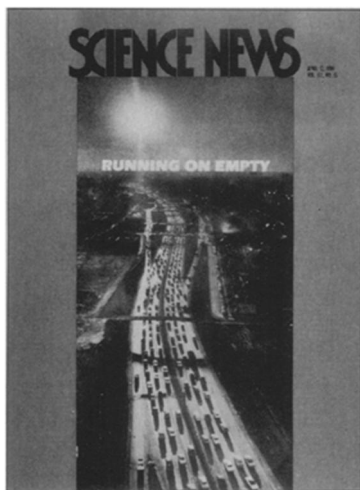
that claimed that evidence is too weak to confirm that cutting one's intake of fat and cholesterol will reduce one's risk of getting a heart attack. 117: 357; 118: 55

- As nations turn toward fueling autos with spirits distilled from agricultural commodities, "the price of oil may soon set the price of food," concludes a *Worldwatch* report. 117: 186

- Sen. William Proxmire (D-Wisc.) — creator of the infamous Golden Fleece award — was himself shorn of \$10,000 by a researcher he libeled. 117: 199

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## Energy



- A \$20 billion synthetic-fuels bill was signed into law June 30. Its goal is to launch an industry capable of producing 500,000 barrels of synthetic oil by 1985. 118: 5

- A windfall-profits tax, enacted to capture roughly half the profits oil producers would have received from oil-price decontrol, is expected to yield the government \$227.3 billion. 117: 238

- Congress gave the magnetic-fusion program a \$20 billion boost in September through a bill to speed commercialization of a power reactor. 118: 214

- Plans for the nation's first comprehensive radioactive-waste management program were announced Feb. 12. 117: 102

- The Nuclear Regulatory Commission's special inquiry into the TMI accident — headed by an independent Washington attorney — called for reorganization of the agency after charging that its gross lack of management threatened nuclear safety. 117: 68

- The world economic outlook is bleak unless between one-half and two-thirds of the additional energy needs of the world over the next 20 years is supplied by coal, according to an independent study led by MIT's Carroll Wilson. 117: 325

- Quadrupling the nation's gasohol production by year end was among goals of a presidential directive announced in January. 117: 94

- A major synfuels experiment, the \$116 million Exxon Donor Solvent coal-liquefaction plant, started operation in Baytown, Tex. 117: 152

- The world's first hot, dry rock geothermal power station began generating 60 kilowatts from a pair of wells at Fenton Hill, N.M. 117: 390

- Five years in preparation, a report by the Committee on Nuclear and Alternative Energy Systems attempted to detail aspects of the nation's energy situation that are likely to affect policy decisions between 1985 and 2010. 117: 36

- A new process announced by Ashland Oil Inc. permits refiners to squeeze 25 percent more gasoline from a barrel of oil. 117: 234

- Mobil Oil developed a one-step process that uses synthetic-zeolite catalysts for converting methanol to gasoline. 117: 235

- For the production of ethanol for gasohol, fodder beets could offer nearly triple the alcohol yield per acre from corn. 117: 282

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## Environment

- The "insurance policy" — drafted in February to see that Congress passed legislation protecting Alaska's virgin wilderness — worked. 117: 119; 118: 345

- Two mammoth international projects seek to wrest the planet from ecological plunder by scaring policymakers into action. The World Conservation Strategy offers a practical guide to help governments muster action against projected scenarios of gloom and doom quantified by the Global 2000 report. 117: 269; 118: 70

- EPA initiated a program that would track hazardous wastes in transit — from cradle to grave. 118: 345

- A \$1.6 billion emergency superfund was created to clean up damage from chemical spills and abandoned hazardous-waste dumps. 118: 374

- After a preliminary — and controversial — study found chromosome abnormalities in the blood of Love Canal residents, President Jimmy Carter declared the community a federal emergency and offered temporary relocation funds until more extensive tests could be conducted. 117: 325, 340

- The runaway Mexican oil well was capped March 23, nearly 10 months after it started. The 3.1 million barrels shed — more than twice that from the *Amoco Cadiz* — rank it the worst spill in history. 117: 199



- University of Illinois pathologists identified a high incidence of autoimmune antibodies in the blood of Vietnam veterans exposed to Agent Orange. Five other studies indicate that two components and a contaminant of the herbicide probably cause cancer too. 117: 55, 230

- Hooker Chemical Co. isn't the only one under the gun at Love Canal. The New York State Assembly suspects the Defense Department is responsible for improperly dumping dangerous chemical wastes there. 117: 356

- While polycyclic aromatic amines comprise only 0.5 percent by weight of synthetic-petroleum products, they contribute 50 percent of the mutagenicity associated with those products. 117: 249

- Studies seem to establish a firm link between drinking heavily chlorinated water and cancer. 118: 278

- Veterinary researchers found that a low-level diet of mineral oil safely speeds the natural elimination of PCB's and other polychlorinated hydrocarbons from contaminated livestock. 117: 188

- Two Caltech scientists conclude from meticulous studies on canned tuna that "half the lead in the American diet probably originates from lead-soldered cans." 117: 180

- Government studies show fluorescent lights more effective than sunlight in causing mutations in mammalian cells. 117: 393

- Two of the world's rarest infants died in captivity last summer. The 40-day-old condor chick expired in the hands of researchers as they measured it in the wild. An eight-day-old, five-ounce giant panda in Mexico was suffocated when its 260-pound mother accidentally rolled onto it. 118: 54, 117

- Acid rain, attributed to the reaction of pollutants with precipitation, became the focus of both scientific and political attention. President Jimmy Carter's proposed plan to increase coal use urged scientists toward solutions. 117: 76, 106, 199