**Waste Transformation**

**Behold, I make all things new.  *(Revelation 21:5)***

**Many is the African who collects discarded aluminum cooking pots, which are hammered into body ornaments. *(L. M. Boyd)***

**Boy Scouts in Jackson, Wyoming, have found a profitable new use for the shred elk antlers they regularly gather from the National Elk Refuge. Last May the Scouts re-$18,000 for 4000 pounds of antlers. Among those attending the sale were aphrodisiac-makers from Hong Kong. *(National Wildlife)***

**The apple is the only fruit with its own folk hero – John Chapman, alias “Johnny Appleseed.” Wearing a cooking pot for a hat and often walking barefoot, he traveled the wild and rugged Ohio Valley region for almost 50 years, planting seeds taken from Pennsylvania cider presses. *(Jack Denton Scott, in Reader’s Digest)***

**Mariah Reading, an artist from Maine, saw so much garbage during hikes through national parks that it alarmed her. But it also gave her an idea. She would collect the trash and use it as her canvas. Since 2017, Reading, 28, has painted and photographed discarded cans, crumpled plastic water bottles, even old hubcaps, so that, when held just right, they blend in seamlessly with nature. Instead of cluttering landscapes, the trash has become landscapes. She calls it “breathing new life into forgotten objects.” *(Reader’s Digest, July/August, 2022)***

**The bacteria clearing oceans: It’s a riddle that has long puzzled scientists: Of the 14 million tons of plastic thought to enter our oceans each year, only about 1 percent is ever detected in sampling surveys. A new study suggests that some of the missing garbage is being eaten up – by bacteria that live in seawater. Researchers at the Royal Netherlands Institute for Sea Research treated plastic with UV light to mimic sunlight, which broke it down into smaller chunks. They then fed it to Rhodococcus ruber, a common bacterium that’s known to be able to transform harmful pollutants into harmless molecules. Sure enough, the bacteria did its work, turning the plastic into carbon dioxide. The researchers estimate that Rhodococcus ruber alone can probably break down more than 1 percent of available plastic in a year. But while it might be technically possible to grow more bacteria and scale the process up, doing so could produce harmfullevels of carbon dioxide. “Much better than cleaning up is prevention,” co-author Maaike Goudriaan tells The Daily Telegraph (U.K.). “And only we humans can do that.” *(The Week magazine, February 10, 2023)***

***\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**The economy of the Pacific island of Nauru, which has a population of 6,056 and one of the world’s highest per capita incomes, is based almost entirely on bird droppings. The bird droppings are exported as fertilizers, adding vast sums of money to the gross national product of the tiny country. *(Paul Stirling Hagerman, in It’s A Weird World)***

**Reports is bird’s nests for bird’s nest soup are now selling for $1,200 a pound in Sarawak. *(L. M. Boyd)***

***\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**For people who need bone marrow transplants but who lack a compatible donor, doctors are salvaging hope from blood found in umbilical cords and placentas. Usually thrown away, such blood is rich in stem cells, which like the stem cells in bone marrow, can produce red blood cells, white blood cells and platelets. In the largest study of cord blood to date, 562 patients had survival rates similar to those using bone marrow from unrelated donors who perfectly matched the recipients. Patients were gravely ill with leukemia, lymphoma, other cancers or genetic diseases, and all were given cord blood because bone-marrow donors were unavailable. The results were announced by Dr. Pablo Rubinstein, head of immunogenetics at the New York Blood Center, which has been banking cord blood since 1993 and provided it to the 98 hospitals in the study. Dr. Claude Lenfant, director of the National Heart, Lung, and Blood Institute calls the prospects “fantastic,” but cautions that the emerging treatment needs more study. *(Denise Grady, in New York Times, as it appeared in Reader’s Digest, May, 1999)***

**Most of the caffeine in sodas comes from the leftovers from the process of making decaffeinated coffee. *(Samantha Weaver, in Tidbits)***

**Streets of Calcutta are clean, contrary to popular belief. No paper, no trash, no cow dung. Human scavengers immediately collect what’s dropped – to sell, recycle, dry for fuel. (*L. M. Boyd)***

**So you think carpet slippers were so-named because you use them to walk on the carpet, eh? Wrong. Carpet slippers are simply made of carpet material, a practicethat started many years ago when thrifty housewives found other uses for old, worn-out carpets. *(Bernie Smith, in The Joy of Trivia, p. 320)***

**The charcoal briquette was invented by Thomas Edison and Henry Ford, as a way to make use of all the scrap wood left over from the making of cars. *(Don Voorhees, in The Essential Book of Useless Information, p. 237)***

**What do they chicken raisers do with the heads, feet, innards and feathers? Grind them up and put them in their chicken feed. *(L. M. Boyd)***

**Everybody knows chocolate milk comes from brown cows. But few people know what happens when cows eat chocolate: feed bills usually go down, the milk’s butterfat content usually goes up, and therefore the milk fetches a higher price. William Flickinger, a livestock nutritionist in Dover, Pa., tells clients to mix chocolate with the hay their herds consume. On those farms, the average cow eats five pounds of chocolate a day -- about a tenth of its total diet. “They love it,” says Ralph McGregor. He and over 30 other farmers get their chocolate from the Salvage Center at the Hershey Chocolate USA plant in Hershey, Pa., where defective Kit Kats, Reese’s Pieces and the like are finely ground and piled up. At $100 a ton, the chocolate is $20 cheaper than corn--and provides twice the energy. *(Kristen Lee Swartz, in The Wall Street Journal)***

**One evening I was taking in the Kurt Schwitters exhibit at the Museum of Modern Art in New York City. Near me, two women were reviewing a typical Schwitters abstract collage made of string, train tickets, wire screens, snapshots, and a broken wheel. I overheard one whisper to the other, “It just goes to show - don’t ever throw anything away.” *(John Van Zwienen, in Reader’s Digest)***

**That pink concrete lining the ancient Roman aqueducts was made with lime, pork fat and the milk of figs. *(L. M. Boyd)***

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Business makes paper from corn stalks: A series of investor sign-up meetings has found strong interest in the proposed Heartland Fibers paper pulp plant from Aurora, Arapahoe and Hastings area farmers, Heartland’s president said. Interest in participation in the plant planned for the Kearney area has reached as far east as York and Geneva and west to Cambridge, Dale Lindquist said this week. Recent meetings held for the first time in central Nebraska drew about 120 farmers, he said. Farmers heard company officials describe a second investment opportunity for the plant, which would make paper pulp out of corn stalks and residue remaining after harvest. *(The North Platte Telegraph, December 21, 1997)***

**A sizable Ozark industry is the corncob pipe. When corncobs were waste (they’re ground for cattle feed today), someone discovered that they could be cut to length and hollowed out for cool, sweet smoking. A business was born. Boom times came when Gen. Douglas MacArthur popularized the “Missouri meerschaum.” Today, Missouri still leads the world in corn-cob-pipe production. *(Richard Rhodes, in Reader’s Digest)***

***\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**Visitors can buy $150 worth of genuine currency for 75 cents. Each day, the Bureau of Engraving & Printing in Washington, operated by the Treasury Department, shreds tons of new-mis-printed currency, stamps and other items deemed unfit for circulation. For $88, the L.A. branch will deliver an entire day’s output--up to 5500 pounds--to your door if you live closer than the nearest dump. *(Wallace & Wallechinsky)***

**In the ghost town of Boughtown, Colorado, a gambling house once flourished. Last miners to leave tore it down. And shook out the walls and floors. And panned thousands of dollars worth of gold out of the dirt under the place. *(L. M. Boyd)***

**A young disc jockey in Oakland, California, found his on-air humor didn't impress the station's general manager. Musing on what to do, he pulled a discarded magazine out of a studio wastebasket. It contained biographies and record-sales statistics on pop singers and musicians. That night, before playing a record, the D.J. teased listeners with some obscure fact from the magazine about a singer. After a record or two, he identified the singer and played one of that artist's songs. Listeners loved it, and Casey Kasem was launched toward his nationally syndicated “American Top 40" radio career. *(Ralph Kenney Bennett, in Reader's Digest)***

**Kenyan conservationist Mike Bugara has developed a technique to turn elephant droppings into paper. The dung is collected from fields raided by the animals, then boiled and crushed into a porridge-like consistency. The fibers are then rolled out and left to dry in the sun. *(Rocky Mountain News, 1997)***

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**In 2008, Janice Guzon, a student at Saint Viator High School in Arlington Heights, Illinois, founded EYEsee after learning that 4 million pairs of eyeglasses are discarded each year in North America. Members of EYEsee have collected thousands of eyeglasses, which have been distributed to the world’s poor. *(American Profile magazine)***

**I’m told the artists’ finest paint brushes are made from the eyelashes of camels. *L. M. Boyd, in Boyd’s Book of Odd Facts, p. 6)***

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**Fecal transplants may reduce the effects of aging. When researchers gave older mice a slurry made from the poop of the young, the rodents developed better protection against inflammation-related illnesses, particularly those affecting the brain and eyes. Conversely, younger mice given an older poop transplant developed inflammation in the brain and showed early signs of aging. Lead author Aimee Parker says if similar results are seen in humans, people could one day take a “poop pill” supplement to rejuvenate their gut microbiomes. *(The Week magazine, December 30, 2022 / January 6, 2023)***

**Good week for: Poop power, after the Toronto Zoo agreed to send 3,000 tons of feces from rhinoceroses, giraffes, bison, and other animals to a new biogas plant. The power plant will convert the zoo’s poop and food waste into heat, electricity, and fertilizer. *(The Week magazine, July 1-8, 2011)***

***\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**Americans feed ten times more grain and thirty times more legumes to livestock than to people, while India’s cattle exist on straw, stalk and other non-edible wastes. *(Lisa M. Spooner, in Vegetarian Times)***

**Cattle and sheep are now willing to help out with waste problems. Dr. Paul Walker, animal scientist at Illinois State University, has developed an experimental feed mixture that includes 61.1 percent grass clippings, 24.9 percent shredded newsprint, and 14 percent corn -- to which is added 1 percent molasses. “The sheep ate it just fine,” Walker said, “and if sheep will eat it, cattle will.” Walker also plans to study a mixture of cafeteria food waste, corn, and paper. (Paper accounts for 34 percent of municipal solid waste; lawn waste, 10 percent. *(Old Farmer’s Almanac, 1993)***

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**Let us gasp in admiration at Donald Roberts of Kilmarnock, Va., who put 20 bushels of spoiled frozen fish into his garden and got a record crop of sweet corn. *(Newsweek)***

**For two years, St. Louis’s Union Electric Company has been burning 300 tons of garbage a day to help run its generating plants. By 1977, when the privately financed, $70-million project is finished, Union Electric will be processing 8000 tons of waste a day - every scrap of garbage produced by 2.5 million people in a seven-county metropolitan area. In doing so, the company will be saving $10 million worth of coal each year, producing six percent of the area’s power, and ending the land-gobbling spread of garbage dumps and landfills. *(Ann Dear, in Reader’s Digest)***

**To make the drink called Postum, Charlie Post removed the bran from the wheat. Then to make use of the bran, he invented Grape-Nuts. *(L. M. Boyd)***

**Numerous prospectors pan for gold in India -- in the gutters downstream from jewelry shops. There aren’t any gold mines in India. *(L. M. Boyd)***

**The fine hair in the ears of slaughtered cattle usually wind up in artists’brushes labeled “camel’s hair.” *(L. M. Boyd)***

**More and more utilities, which are learning to harness waste heat and perhaps even turn a profit by entering an unlikely new business of fish-farming. At some elegant New York City restaurants, patrons dine on oysters cultivated in water from a Long Island electric plant. In California, 1000 Maine lobsters thrive in water used to cool an oil-fired power facility. *(Newsweek, as it appeared in Reader’s Digest, December, 1980)***

**Clergymen of old in British Isles needed beeswax for candles. With the leftover honey they made an alcoholic beverage called mead, served in especially great quantities after weddings. That post-ceremony time came to be called the month of honey, then honeymoon. *(L. M. Boyd)***

**In many developing countries, poor hygiene and sanitation can be a death sentence. That fact led sales exec Shawn Seipler to quit his job seven years ago to launch Clean the World, a charity dedicated to collecting and recycling leftover hotel soap for those in need. His company has since partnered with Global Soap, and together the two groups have delivered more than 25 million bars to 99 countries. "One of the most effective ways to prevent many deaths is actually just hand washing with soap," said Global Soap director Sam Stephens. "We're hoping to make a difference." *(The Week magazine, April 24, 2015)***

**The Jack Pine was once a “weed.” It was not only too small to use for**

**Lumber, but a substance within its cellular structure prevented its use for pulp in the manufacture of paper. Jack Pine was considered a “tree weed,” with little present value and none foreseeable. Millions of acres of Jack Pine were considered waste land -- an area larger than the State of Connecticut. But men of a paper company in Michigan believed “that a weed is merely a plant for which man has not yet found a use.” They did what others considered impossible. They found an economical way to remove the substance contained in Jack Pine’s cellular structure which had prevented its use for paper pulp. As a result, this firm is now making a beautiful, high-quality paper out of Jack Pine -- employing many thousands in this work. Those who claimed nothing from Jack Pine -- received nothing. Those who planted their seeds, believing in their own success -- reaped the harvest. *(Jon Speller, in Seed Money in Action, p. 24)***

**Many inventions have come about because someone took what others termed waste and made something useful out of it. It was just about 100 years ago that Frederick Walton was cleaning out his basement and came across a large can of paint without a lid on it. Because it had been exposed to air, a thick skin had formed that was tough and rubbery, and glossy. Walton wondered what, if anything, could be made of this paint skin and so he began experimenting. He mixed paint with ground cork and poured it on some canvas, spreading it out even. When it had dried he had a tough, yet flexible bit that seemed to be an ideal floor covering! His next move was to name his invention and so he combined the Latin words for flax and oil and came up with linoleum, an inexpensive, yet durable floor covering whose use spread all over the world!**

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**Don Fleming’s secret is simple: if you want to grow a megapumpkin, an orange monster weighing 604.5 pounds, be prepared to use lots of cow manure and give your vine plenty of attention. Fleming has won the 1987 World Pumpkin Confederation title with his giant vegetable, besting competitors as far away as Australia. *(Rocky Mountain News)***

**Supermarket meat nobody buys goes to a rendering plant to wind up in pet food, soap, whatever. *(L. M. Boyd)***

**One of the Bank of England’s buildings is heated by a furnace that burns nothing but wornout money. *(L. M. Boyd)***

**An impoverished Paraguayan community located in a landfill is the proud home of an orchestra that uses musical instruments fashioned from trash. The unique ensemble is the brainchild of Favio Chavez, an ecological technician who figured out how to build violins, flutes, and cellos from oil drums, jars, and discarded wood and metal, and encouraged children from the slum town of Cateura to learn music. The orchestra is the subject of a stirring new documentary, Landfill Harmonic. “Even though these students are in extreme poverty, they can also contribute to society,” said Chavez. “They deserve an opportunity.” *(The Week magazine, December 21, 2012)***

**Anything goes: Birds will build their nests out of almost anything. Some use their own saliva, while others collect mud, sheep’s wool, spiders’ webs, feathers, moss, or pebbles. A crested flycatcher uses old snakeskins. *(The Diagram Group, in Funky, Freaky Facts, p. 55)***

**There is a house in Rockport, Massachusetts, built entirely of newspaper. The Paper House at Pigeon Cove, as it is called, is made of 215 thicknesses of newspaper. “All the furniture is made of newspaper,” its builder reports, “including a desk of newspapers relating Lindbergh’s historic flight.” *(David Louis, in Fascinating Facts)***

**Orange parts, chemists know, are worthy substitutes for industrial cleaning solvents that eat up the ozone layer. Among the candidates to replace CFC-113 is a class of chemical compounds taken from pine pulp, citrus skin and other plant material. The extracts, called terpenes, have been used for years in the manufacture of plastics, adhesives and fragrances. The Motorola plant went through 15 55-gallon drums of CFC-113 monthly. Since switching to terpene in mid-1991, the company has lowered its consumption to two drums a month. *(James McNair, in Miami Herald)***

**In Europe between the 16th and 18th century, pigeon poo was prized as an invaluable resource. As fertilizer, it was considered to be more potent than farmyard manure and armed guards were stationed in front of dovecotes (pigeon houses) to stop thieves from stealing it. *(Charlotte Lowe, in Fact-O-Pedia, p. 194)***

**A plastic-munching bacterium: In what could be a breakthrough in the battle against plastic pollution, German scientists say they have identified a bacterium that feeds on polyurethane. Discovered in the soil of a site covered in plastic waste, the as-yet unnamed species Pseudomonas is the only organism known to attack polyurethane, which is used in everyday items including diapers, sneakers and foam insulation. Millions of tons of the plastic are produced each year, with much of it ending up in landfill because it is so difficult to recycle, reports The Guardian (U.K.). As the material breaks down, it releases toxic chemicals that kill off most bacteria -- but not the new species. When scientists fed the bacterium chemical compounds of polyurethane in the lab , it used the compounds as a source of carbon, nitrogen, and energy. Its unlikely the microbe can break down larger polyurethane polymers. But if researchers can identify and produce the enzymes that cause this biochemical reaction, the bacterium could one day be used to biodegrade discarded plastic on a much larger scale. Lead author Hermann Heipieper says the findings are "an important step in being able to reuse hard-to-recycle polyurethane products." *(The Week magazine, April 17, 2020)***

**Early England’s roads were dirt over clay. Pottery makers, needing cheap clay for pots, dug for it, in spots where the ruts were deep. Teamsters of the sort who actually drove teams gave our name to those spots—“potholes.” *(L. M. Boyd)***

**$1 billion: The value of unused prescription drugs flushed down toilets each year. Oklahoma, Louisiana and Ohio have legislation allowing unused drugs from nursing homes, for instance, to be recovered for distribution primarily to poor patients. Nebraska even permits consumers to return unused drugs if they are in tamper-resistant packaging. *(The New York Times, as it appeared in the Rocky Mountain News, May 19, 2005)***

**Building off coastlines are at least 400 artificial reefs. Made not just of old tires, but of junked bathtubs, toilet bowls, stoves, refrigerators, whatever. It’s said they do no harm and much good. All sorts of oceanic wildlife breed in them. *(L. M. Boyd)***

**Rubbish is being used as a valuable raw material in the production of energy for the city of Nashville, the capital of Tennessee. A plant that cost $16.5 million went into operation in February, 1974, to start converting hundreds of tons of rubbish at a time into enough energy to provide heat and air-conditioning for 38 Nashville office buildings. Truckloads of trash from the city are fed into an incinerator pit and then into a furnace, where they are burned to convert water into high-pressure steam. The steam is then used to spin the rotors of turbines, and so generate electricity. *(Reader’s Digest: Strange Stories, Amazing Facts)***

**One of the great summer rituals in the Connecticut village near our house is the annual church rummage sale. Everyone donates, almost everyone totes something home and the proceeds help the church. In a world of waste, where the leftovers of our lives threaten to choke the planet, the time-honored ethic of the rummage sale is as morally consoling to the householder as the compost heap is to the gardener. *(John R. Barwick, in House Beautiful)***

**Gary Schroeder, owner of a Kentucky Square mushroom farm, has made a remarkable breakthrough in the cultivation of one of the world’s most popular mushrooms, the light-brown, meaty Asian shiitake. It used to be shipped here dried, mostly from Japan, where it is cultivated. The shiitake, also called the Black Forest mushroom, normally grows wild on tree trunks. The Japanese devised a method of cultivating it on natural logs. But it takes them two years to harvest a crop, which makes the shiitake a very expensive mushroom. Schroeder combines nutrient-enriched hardwood sawdust with a grain supplement that is impregnated with mushroom spawn, and forms the mixture into logs. In less than two months, he begins harvesting the American Shiitakes, which retain for about $10 a pound. To the amazement of other mushroom growers, especially the Japanese, Schroeder packages and ships 60oo pounds of shiitakes weekly. *(Jack Denton Scott, in Reader’s Digest)***

**In the not too distant future, the water you flush on Monday morning may reappear as a mixer for your Scotch on Friday night. The Denver Water Department’s recycling plant in North Denver is turning one million gallons of sewage per day into drinkable water. That success is prompting department officials to think about constructing a large-scale plant in 1991 to supplement Denver’s drinking water--all of which currently comes from the mountains. Officials say that by the year 2000, 15 percent of the city’s drinking water could be converted sewage. *(Up The Creek magazine)***

**The fragile shells of the paper nautilus are among the most beautiful of sea-creature skeletons. Resembling white half-moons, with black ridges along the arc of their backbones, they are rarely washed up on beaches. But in the last few days, hundreds of them have appeared in Nature’s Valley, a seaside village some 300 miles east of Cape Town, South Africa. Residents have been happily scooping them up as if they were treasures. “I came running back from the beach, shouting, ‘This is mine!’” said Rosalie Van Heerden, 52. “People thought I was mad. But I thought I had picked up a diamond.” *(The Week magazine, July 15, 2005)***

**Star Wars: Not all the effects were computer inspired or controlled. For shots using miniatures, George Lucas’s crew cannibalized more than 300 model kits and collected parts from old tanks and World War II planes. *(Time magazine)***

**British tennis officials are donating tennis balls discarded at Wimbledon to protect tiny harvest mice from mass slaughter. The mice, which weigh only 6 grams when fully grown, normally weave their homes out of shredded reeds and grass. But developers and farmers are increasingly destroying their fragile habitats in the English countryside. So now, they All England Lawn Tennis Club has donated 36,000 used tennis balls to house the rodents. The British Wildlife Trust is carving tiny holes in the balls and attaching them to poles, so the mice can then nest, safe from birds and other predators. *(The Week magazine, March 9, 2007)***

**The tires of your car are worth a four-day supply of electricity for your home -- in Modesto, California, anyway. There, the nation’s first power plant fueled solely by waste tires burns 15,000 a day to power 15,000 households. According to the plant’s developer, the Oxford Energy Co., tires make a better, cleaner fuel than coal. And there’s no shortage -- U. S. car owners discard 200 million each year, creating eyesores, overflowing landfills, and providing breeding grounds for mosquitoes. Waste tires are cheap too: a set of four costs the plant about 28 cents. *(Science Impact)***

**Prairie Tumbleweed Farm in Garden City, Kansas, harvests and sells tumbleweeds for decorations and movie props. *(American Profile magazine)***

**Earl Tupper of Berlin, New Hampshire, went to work at DuPont in 1937 as a chemist. Tupper asked his supervisor for some leftover plastic material, which he molded into bowls, cups and plates. He patented the air-tight Tupperware seal in 1947 and began selling his invention in retail stores. Sales were slow, but a year later he noticed that two distributors for Stanley Home Products were selling a lot of Tupperware during “home parties.” So Tupper, a former door-to-door salesman, introduced the Tupperware method of selling to the nation. Single mother Brownie Wise of Buford, Georgia, with less than an eighth-grade education, became the company’s vice president and played a key role in developing the concept of Tupperware parties. Many historians say Tupper’s greatest invention wasn’t his Tupperware products, but rather his sales method. The company that bears his name now has 1.9 million independent distributors worldwide. *(Paul Niemann, in Invention Mysteries)***

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**One of the most beautiful sights is a urine dump at sunset, because as the stuff comes out [in space] and as it hits the exit nozzle, it instantly flashes into 10 million little ice crystals, which go out almost in a hemisphere, because, you know, you’re exiting into essentially a perfect vacuum, and so the stuff goes in every direction, and radially out from the spacecraft at relatively high velocity. It’s surprising, and it’s an incredible stream...a spray of sparklers almost. It’s really a spectacular sight. *(Russell Schweickart, Apollo astronaut)***

**In Taipei, where 66-year-old Chen Ching-Chuan claims his youthful, 40ish looks can be attributed to the fact he consumes his own urine first thing every morning, officials now estimate that 220,000 Taiwanese do the same each day to improve their health and achieve longevity. *(Bill Flick, 1992)***

**Urine-powered battery: Researchers in Singapore have created a battery that’s powered by a reliably renewable resource: urine. Scientists have been seeking ever-smaller “biochips’ that can test for a variety of diseases, give instant results, and be produced inexpensively. Now, researchers at Singapore’s Institute of Bioengineering and Nanotechnology have developed a disposable health-care test kit that conveniently uses the fluid that is usually tested for disease – urine – to generate the electricity needed to power the device. It’s made from a layer of paper soaked in copper chloride and sandwiched between strips of magnesium and copper. “We are striving to develop cheap, disposable credit card-size biochips for disease detection,” researcher Ki Bang Lee tells London’s Daily Telegraph. “Our battery can be easily integrated into such devices.” Just 0.2 ml of urine generates about 1.5 volts. *(The Week magazine, September 9, 2005)***

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**Engineers at Cornell University have devised a sewage-treatment system that can produce energy and reusable water at less than traditional costs. By using bacteria to filter out heavy pollutants and then growing plants in the partially purified water, the system yields natural gas and valuable nursery plants while it cleanses the water. *(James E. Brady, in New York Times)***

**When it comes to water pollution, Toronto photographer student Jeremy Lynch tries to make the best of things. He has successfully developed photographic film in the chemical-laden waters of Lake Ontario, the Hudson River, and Love Canal. *(Jim Collins, in Old Farmer’s Almanac)***

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**In old Rome, layers of acid formed in the bottoms of wine barrels. When the women of the day could get to it, they rubbed it all over their faces to brighten up their skin. This according to historical footnotes. *(L. M. Boyd)***

**About 24 tons of steel from the ruins of the World Trade Center is being melted down to form part of a new Navy ship that will be named the USS New York. Casting of a section called the bow stem was set for today. The section will be shipped to Northrop Grumman Corp.’s shipyard at Avondale, just outside New Orleans. The steel, from a section of beam about 20 feet long, was salvaged from a New York landfill that received much of the debris from the twin towers. The construction of the $850 million ship will take about three years. *(Associated Press, as it appeared in the Rocky Mountain News, September 9, 2003)***

**Worms that eat Styrofoam: Scientists may be close to finding a way to recycle polystyrene, the long-lasting plastic packaging known as Styrofoam, thanks to the larva of the darkling beetle. In a new story, says The New York Times, larva fed on only polystyrene got enough nutrition to metamorphose into their beetle phase. The worms underwent several physiological changes on the all-polystyrene diet: Their feces turned from light brown to white, and their weight rose slowly. “Polystyrene is definitely a poor diet,” says co-author Christian Rinke, from the University of Queensland in Australia. But “the worms can survive it.” When the time came for metamorphosis, 67 percent of the plastic-munching worms were successful in pupating, compared with 10 percent of those that were fed nothing at all. If scientists can pinpoint what enzyme in the worm’s digestive system enables them to break down the plastic – and they think they have several promising contenders – they could use that enzyme in recycling facilities. “It would make the whole thing more interesting economically,” Rinke said, and “create something sought-after.” *(The Week magazine, July 1, 2022)***

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