**Harmful to Harmless**

**A Montana lumber company is using microbes to clean up a creosote spill on its Libby sawmill site. While it’s not the first time nature has been harnessed to clean up man-made messes, part of this cleanup project is underground in the aquifer – and that is new. *(Rocky Mountain News, October 22, 1989)***

**Ralph Portier, a researcher at Louisiana State University, has taught 14 strains of yeast and bacteria to eat environmentally dangerous chemicals, converting them into carbon dioxide, water and other harmless compounds. Portier built wetlands models in his laboratory, added PCBs and PCPs, two of today's most toxic chemical groups, and noted which of the microbes survived. He then removed elements until only the contaminant and those microbes that could feed on it were left. “The microbes that survived were able to adapt to the toxicant as a food,” he says. Hundreds of contaminated sites throughout the country are considered too expensive to clean up. Microbes could often be much cheaper, and Portier hopes they will be part of the E.P.A.'s Superfund to clean up hazardous-waste sites. *(Oceans)***

**Scavenger bacteria that break down organic matter keep the world from becoming an unbearable clutter of garbage; they turn the wastes instead into the rich nutrient soil that gives us our food, our flowers, and our trees. There are bacteria that convert nitrogen compounds into the nitrates that nourish plants, and there are bacteria that add to this supply of essential plant food by transforming the inert nitrogen from the air into chemicals useful for life. *(Miller/Goode, in Man and His Body)
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Green leaves feed upon carbon monoxide, the toxic, sometimes lethal to humans end-product of incomplete combustion of petroleum (and other) products. Lining freeways and highways with ivy, bushes and evergreens helps to minimize but not indemnify what is commonly called “smog.” *(Betty Lee Morales, in Let’s Live magazine)***

**Without green plants, we would all die. Green plants produce all the oxygen that we need to breathe. In sunlight, these plants take in carbon dioxide gas and turn it into oxygen. (The Diagram Group, in Funky, Freaky Facts, p. 86)**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Bacteria quickly consumed most of the 200,000 tons of methane gas released during the BP oil spill last year in the Gulf of Mexico, according to a new study by university scientists. Petroleum-eating microbes also consumed most of the millions of gallons of oil, and scientists have found little trace of the spill in Gulf waters. (Los Angeles Times, as it appeared in The Week magazine, January 21, 2011)**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Australian scientists say they have found a simple and safe way to destroy the world’s vast stores of poisonous chemicals by using a ball mill, normally used by the mining industry to crush rock. The research team from the University of Western Australia and the mining company CRA Ltd. said the process can safely destroy chemicals such as PCBs and the insecticide DDT. The ball mill is used to mechanically activate chemical reactions between the poisonous material and a reactant. *(Rocky Mountain News, October 4, 1993)***

**In the oceans, photosynthesis is carried on mainly by algae. Long before anything could live out of water, these plant dynamos did most of the work of changing the earth’s atmosphere from poisonous gases to breathable air -- a process which probably took some 2 1/2 billion years. Today, tiny algae called diatoms carry on the bulk of aquatic photosynthesis. *(Rutherford Platt, The Living World of Nature, p. 235)***

***\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\**Victims of disease - -people and animals -- are buried underground, and yet the soil remains fairly free of disease germs. Germs are destroyed by the bacteria and other microscopic organisms living in the soil.
*(Isaac Asimov’s Book of Facts, p. 231)***

**A research team from Georgia announced it has discovered a “superbug” that can eat and neutralize one of the greatest toxic hazards from industrial production. The discovery may help end the contamination of water supplies by the cancer-causing and fertility-damaging chemical used to manufacture everyday PVC products. The organic chloride used in plastic furniture, upholstery, pipes and insulation can seep into the water tables near chemical plants or industrial users. Microbiologist Frank Loeffler, assistant professor at the Georgia Institute of Technology in Atlanta, told reporters his team has found a disc-shaped bacterium that gobbles up vinyl chloride and a toxic derivative, dichloroethene. *(Universal Press Syndicate, as it appeared in the Rocky Mountain News, July 7, 2003)***

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