

A serious article on biomonitoring and what it can accomplish in the area of pollution control appears in *Bioscience* (40:2, 83-86). Michael Root takes a look at the wide variety of organisms that may be useful in detecting environmental hazards invertebrates such as fly larvae, worms, and bees; fish, birds, and mammals. Constant monitoring is often logistically difficult and economically unfeasible, but hazardous chemicals entering the environment and taken up by indigenous organisms over time will show up. Sublethal levels accumulated within their tissues can give scientists a measure of pollution integrated over time.



A discussion of scientific creativity, by Craig Loehle, is carried under "Roundtable" in *Bioscience* (40:2-Feb.'90). The three major headings are Choosing the Problem, Releasing Creativity, and Work Habits, but subheads, e.g. "picking fights," "where there's smoke," "inverse procrastination," "surfing," "let's get bored," and "be unrealistic," reflect the mix of wisdom and humor with which the subject is treated.

Loehle cites Robert H. MacArthur, a promising ecologist active in the '60s and '70s who died young but not before he became known for an unerring instinct for "discovering interesting problems that were solvable and for extracting the essence of complex problems so that they became solvable." Even when such people are wrong, Loehle writes, "they are wrong in interesting ways and on interesting topics."

Two "proposals" are shown in Fig. 2 of Loehle's article. C. Darwin's is "for the P.I., a geologist by training, to solve the problem of speciation. Method: Collect every possible fact and formulate in all-inclusive theory. Duration: 20 years." A. Einstein's is "for the study of the nature of space and time. Method: Conduct thought experiments in armchair, supported by abstract mathematics. Duration: 1 lifetime."

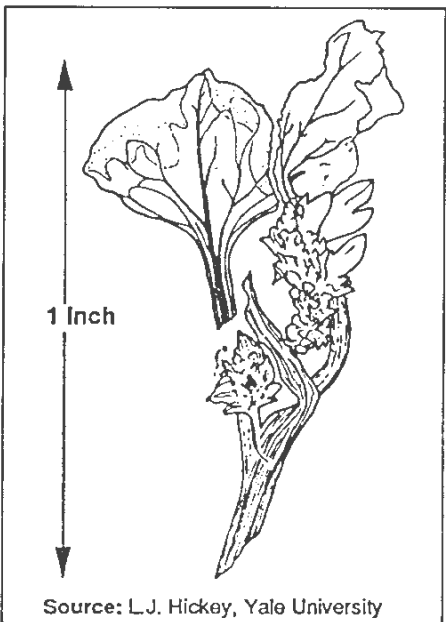
The Fig. 2 caption reads: "What would have happened if Darwin and Einstein as young men had needed to apply for government support? Their probability of getting past the grant reviewers would be similar to a snowball surviving in Hell."

The National Park Service Annual Science Report, *1988 Inventory of Research Activities in the National Parks*, published in November 1989 and edited by Anne Frondorf, is available from the NPS Publications Coordinator, c/o Air Quality Division, P.O. Box 80225-0287, Denver, CO 80225-8027; (303) 969-2156.



The oldest fossil flower yet found – barely one inch tall and resembling today's black pepper plant – has been found by Dr. Leo J. Hickey, Yale University paleobiologist, and Dr. David W. Taylor, Yale botanist. Their discovery, reported in the Feb. 9, 1990 issue of *Science*, lived 120 million years ago, 5 million years older than any such plant previously discovered. Because it bears characteristics of the two major branches of modern flowering plants scientists said the plant could be their common ancestor. Nearly all the world's plants that bear seed (about half a million species) would thus be descendents of this tiny plant.

Scientists now estimate that the earliest flowering plants may date back to 130 or 140 million years ago. Some fossil pollen from that period came from flowering plants, but the full plants and flowers of anything that old have yet to be identified.



An artist's rendering shows the fossil of the oldest known flower, called the Koonwarra plant. (New York Times News Service.)