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Cover: A glimpse into the remarkable digital world of Tierra, in which each colored rod represents a self-replicating computer program. As these "organisms" evolve and diversify, hosts (red rods) and parasites (yellow) emerge, followed by parasite-resistant hosts (blue) that quickly dominate the computer screen in a scenario evoking natural selection. Tierra—also home to the computer equivalent of liars, cheaters and helpful neighbors—offers a unique opportunity to study theories about evolution and ecology, says biologist Thomas S. Ray, who created the electronic ecosystem. (Image: Marc Cygnus)



Departments

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'We learned that he really does it right'

In July 1969, Jonathan Eberhart found himself torn between two consuming passions, music and space. He was scheduled to sing at the Newport (R.I.) Folk Festival, even as the Apollo 11 astronauts flew toward the moon. Characteristically, Jonathan performed in Newport and made it to NASA's Johnson Space Center (JSC) in Houston in time to cover the first human landing on Earth's orbital companion.

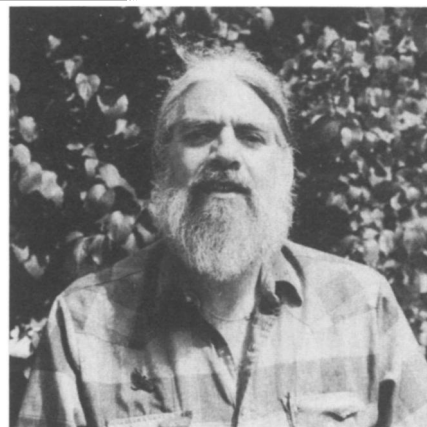
"I was running like crazy to be at those two events," he recalls. "I finished up in Newport, got on a plane for JSC, and got there just as [Neil] Armstrong was beginning his descent onto the surface."

Through much of three decades, Jonathan covered space sciences for this magazine—decades that saw historic and

revealing ventures throughout the solar system. Now Jonathan has retired from SCIENCE NEWS for health reasons, and it is our time to pay tribute to a man who delighted so many readers; who set such a high standard for other reporters (including myself) covering the space sciences; and who aggravated, impressed and influenced any number of space scientists with his pertinent and insightful questions.

Nothing I say here, however, can match the honor accorded Jonathan by those whose work he covered. Astronomers have named an asteroid after him: "Jonathan Eberhart," née 1983 CC.

This chunk of rock, 6 kilometers in diameter, orbits the sun on the inner edge of the Asteroid Belt, which lies between



Richard Monastersky

Mars and Jupiter. Edward Bowell of the Lowell Observatory in Flagstaff, Ariz., discovered the asteroid on Feb. 11, 1983.

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Its orbit — a mean distance of 292 million km from the sun — periodically takes it to within some 45 million km of Mars.

"We picked that asteroid because of Jonathan's known interest in Mars; we thought he might like one that came fairly close to Mars," Bowell says.

"For more than two decades, Eberhart has reported advances and discoveries in planetary science . . ." states the asteroid citation. "He is known and respected for his attention to detail and accuracy in science reporting." It notes further: "Eberhart is also a talented composer and performer of folk music."

Jonathan worked three summers at SCIENCE NEWS, beginning in 1960, and then became a full-time writer in 1964. He arrived with his fascination with space already ablaze. "When the first satellite went up [Sputnik I; Oct. 4, 1958], I ran outside, not because I thought I could see it, but because I knew the sky was different now," he says.

By the late 1960s, Jonathan had distinguished himself as much for what he did not emphasize in his writings as what he did. He left to others the personality profiles of astronauts, the tales of their families' anxieties, the descriptions of televised press conferences from space, and the detailed accounts of the chitchat between crews and Mission Control.

"I was never very interested in who the hero astronaut was," Jonathan says. "I

was interested in the things to think about."

He wanted to know what the scientists wanted to know, why they wanted to know it, how they planned to find out and what new questions each mission had raised.

"The really interesting thing about science is not the answers but the questions," he says. "The questions are part of the process of reasoning one's way through from one step to another. And it is the questions, rather than the sometimes spectacular answers, that make science such a humanizing experience."

Many space scientists remember Jonathan best for his penetrating questions and his attention to detail and accuracy.

"Many times we have seen your own queries of an unintelligible scientific presentation put the work into perspective not just for the laymen, but for those of us who were supposed to understand the talk," Ted A. Maxwell of the National Air and Space Museum, chairman of the Geological Society of America's planetary geology division, wrote to Jonathan upon hearing of his retirement.

"Jonathan did cause us, as scientists, to think a little more clearly about what we were doing as scientists," Dale Cruikshank of NASA's Ames Research Center in Mountain View, Calif., told me. "Over the years, with our experiences with Jonathan, we learned that he really does it right."

Jonathan took a break from SCIENCE NEWS in 1970 to follow Aoede, the ancient

muse of song. He accepted an offer to perform for six months in the U.S. pavilion at the World's Fair in Osaka, Japan. When he couldn't arrange a leave of absence, Jonathan quit the magazine — a man must follow his muse — and didn't return to our fold for three years.

Music obviously plays a strong part in his life. He is partial to traditional music, and particularly to songs of the sea. About a decade ago, he and four friends formed The Boarding Party, a group that has won a nice following as a result of its folk festival appearances and recordings. The group has made two albums — "Tis Our Sailing Time" and "Fair Winds and a Following Sea" — and expects to record a third soon. Jonathan himself recorded a solo effort — "Life's Trolley Ride" — before The Boarding Party formed. And we featured one of his musical compositions — "A Solar Privateer" — as part of our Nov. 21, 1981, cover.

"Though I've written some songs, it's the traditional songs that most interest me," Jonathan says. "A folk song comes wrapped in its upbringing. It's history and the lives of the people, the adventures and misadventures that they went through."

And that helps explain why he worked so diligently in July 1969 to both perform in Newport and cover Apollo 11. For within himself, he has found a personal harmony between the worlds of the sciences and the humanities.

We will miss him. — Patrick Young

Letters

Litterballs?

Are buckyballs recyclable? If not, those "truckloads" of cheap, resilient, virtually indestructible fullerenes ("Buckyballs' Supercool Spring Surprise," SN: 4/20/91, p.244) might stick us with as big a waste problem as Styrofoam.

Rebecca Ripley
Menlo Park, Calif.

Other readers have expressed the same concern. However, it appears that ultraviolet light causes the 60-carbon molecules to break apart. In the May 23 NATURE, a group of chemists headed by Roger Taylor at the University of Sussex in England reports that C_{60} samples can degrade in 10 to 16 hours. They urge researchers to store fullerenes in the dark in a vacuum or in nitrogen, and they suggest that the molecule's sensitivity to light may explain why no one has observed naturally occurring fullerenes. — E. Pennisi

I read with interest of the doped fullerenes called dopyballs. You know, of course, that the next six developments will have to be called sleepyballs, sneezyballs, docballs, bashfulballs, grumpyballs and happyballs.

Jim Hill
Tonaslat, Wash.

Buckyball researchers aren't above such goofiness. Richard E. Smalley at Rice University in Houston has proposed the name "sillyball" for a modified buckyball in which silicon atoms would

replace a few of the carbons. And Fred Wuhl at the University of California, Santa Cruz, calls one of his modified buckyballs a "hairyball."

— E. Pennisi

The queue's the clue

The "seeming paradox" cited in "Hypertensive smoking gun" (SN: 5/4/91, p.279) — that blood pressure readings taken in the doctor's office tend to be no higher for hypertensives who smoke heavily than for those who don't smoke — should be no mystery at all to anyone who has walked through the front door of a doctor's office in the last decade. One is greeted by a "NO SMOKING" sign and is absolutely guaranteed a wait long enough to cool down the barrel of a smoking cannon.

If researchers' brows furrow, it's probably because doctors fail to record how many hours their patients wait before anyone takes their blood pressure; the only thing ever "taken" in the first 30 minutes is the patient's name.

G. James Van Osdol
Nokomis, Fla.

Silversword stowaway?

Researcher Donald W. Kyhos says that explaining the transport of plants from California to Hawaii "requires a bird" ("From Tarweed to Silversword," SN: 4/27/91, p.264). But explorer Thor Heyerdahl, in his *Early Man and the Ocean*, tells us that "the islanders of Hawaii made their largest canoes of giant trees that had drifted from the northwest American coast." Such trees, rafting with other flotsam flushed down the rivers, could carry all sorts

of genetic cargo to the Pacific isles. And, of course, the silversword's North American "cousins" might have ranged much farther north in millennia long past.

Marvin E. Kahn
Germantown, Md.

Haleakala is not an extinct volcano, as described in your silversword article. According to the *Catalog of Active Volcanoes of the World*, published by the International Association of Volcanology and Chemistry of the Earth's Interior, an active volcano is any volcano that has erupted during historic time. This is a particularly stringent definition in the case of Hawaiian volcanoes, because historic time goes back only 200 years or so in Hawaii, compared with more than 2,000 years in the Mediterranean area. But there was a recorded rift-zone eruption of Haleakala in 1790, so the volcano is not extinct.

Gary Alan Thomas
Austin, Texas

Telling statement

In "New Evidence of a Heavy Neutrino" (SN: 4/27/91, p.260), Ivars Peterson writes: "Because the existence of a totally new fundamental particle has such serious ramifications, physicists have so far tended to concentrate on the neutrino hypothesis."

Rarely does one see such an overt statement about the way scientific research is directed toward sustaining the prevailing paradigm rather than looking for truly new phenomena.

Jerry Shifman
Berkeley, Calif.