

PETER WARSHALL AT LARGE • WADE DAVIS • KEN KESEY

SUSUN WEED • WOMEN'S COMICS • RICHARD RODRIGUEZ • ORVILLE SCHELL • PAUL HAWKEN

Whole Earth

Access to Tools, Ideas, and Practices Spring 2002

THE GEOGRAPHY OF HEALTH

School kids who grow their own food

Rescuing endangered cultures

Confronting prostate cancer

Is "organic" healthy?



\$6.95/\$8.50 CDN

into the ongoing accident, the threat has not been diminished.

The responsible answer to America's energy woes lies in conservation and the use of renewable and sustainable energy sources, not nuclear power. Your advocacy of adding to the existing mountain of nuclear wastes disgusts me. I just don't get it.

Bill Cologie
Harrisburg, PA
By email

Peter Warshall responds: I hope that no reader assumes that we advocate everything asserted in every article we print. We sometimes present provocative viewpoints contrary to our own. Sometimes articles contradict each other. We knew that many readers would hate the idea of pebble reactors, but we also thought it noteworthy that MIT students were still holding on and reinventing what some citizens think is an extinct dinosaur. Can we redesign a failure and make it work? My personal take is that all currently designed nukes have had unexpected difficulties and unfulfilled promises. We covered many of them in the boxes accompanying the article. Imperfections in pebble production, waste processing and disposal issues, lack of experience with gas turbines using helium, past breakdowns with similar designs, and subsidies under the Price Anderson Act all portend unexpected difficulties. I felt that the title, "The Politically Correct Nuke," contained enough irony to suggest my doubts. Thanks for the websites. The South African critique (South Africa is where the new pebble nukes are happening) is one of the best.

Toto Flush

In the Summer 2000 issue, Peter told us the best low flow toilet was by Toto. Current issue has what *Consumer Reports* thinks, sans elucidation. Clarification? Thanks.

Peace,
Dave Smalley
By email



Toto Low-Flush Toilet, Toto USA.

Peter Warshall responds: I still go for Toto toilets. Oddly, *Consumer Reports* did not rate them. They are 1.6 gallons, but have a fine jet system and wider trap for better flushing (not a jimmied five-gallon flusher). If you can stand the noise, I also trust the pressure-assisted toilets and, for big bucks, try the Toto G-max selection.

Wind

Dear Peter Warshall,

I am most pleased that you devote a considerable section of the Winter issue to renewable energy, especially to wind energy. However may I perhaps suggest that there are a couple of misconceptions in the otherwise interesting article by Mr Cashman.

Four main influences were *vital* for this development—as opposed to the previous “top-down” approach as practiced by the USA and Western Germany (and indeed at one stage by the Danish government and the big Danish power generating utilities).

1. Alternative energy enthusiasts, students, grassroots groups, alternative “lifestylers,” etc.
2. Local school and college teachers.
3. Local small-scale machine and engineering shops, blacksmiths, etc. supplying agriculture.
4. A responsive and favorable political support and a government with a system responsive to small-scale grass-

root lobbying, with limited funding available for purchasers/consumers.

I am pleased to note that Mr. Cashman dwells at length on the question of “public awareness and support,” but two of his main points—“lack of good technology” referring to the USA wind energy development and “sufficient capital”—are perhaps a little misleading.

The USA wind energy industry in the late 1970s and early 1980s was based on good high-tech aerospace technology and industrial know-how, with a heavily government-supported top-down research contract approach, in contrast to the bottom-up nontechnical, slow-but-sure and reliable “Danish home-made garage technology.”

This Danish approach totally resulted in the adoption of the correct technological solution path, as practiced by the shop-floor blacksmiths and other tradesmen from Danish agricultural machine shops, assisted by inputs from a couple of young self-taught former students making standard components.

These machine shops produced the reliable energy-production track record that so amazed the hard-nosed Californian investors and resulted in the huge orders giving the initial input to the take-off of the industry.

Danish government financial support was mainly supplied not to the manufacturer or the producer, but instead was given to the purchaser.

It is interesting to note that this is the same approach that was utilized—with basically the same four interest groupings—in the first ultra-rapid development of wind technology and the wind industry for power generation almost a thousand years ago in England.

Vast inputs of capital without an essential popular and decentralized “grassroots” support will undoubtedly



result in a continuation of the policy of big US and other international auto and oil companies in their pursuit of fuel-cell technology powered by petroleum products rather than a more direct, lower-cost and more relevant hydrogen solution.

With best wishes,
John Furze
By email

Ty Cashman responds: I am very grateful to Mr. Furze for providing the Danish background on what I call "the more seasoned and reliable wind turbine technology from Denmark" that made the California wind farms a success. My article did fail to point out the four causes of this good technology's coming into being: (1) renewable energy enthusiasts, (2) high school and college teachers, (3) engineering, machine, and blacksmith shops, (4) political support for small-scale development and purchase.

In the States during the late 1960s and the 1970s we had number (1) and, in the late 1970s, number (4). But the essential practical experience and realism of blacksmiths and agricultural machine shop designer/builders was largely missing for us. To my knowledge, only one vocational/technical school in America offered a small-scale wind turbine program in the 70s. This school's graduates became leading wind farm operators and government wind administrators when the movement took off.

It is clear now that the top-down, high-tech, aerospace approach to wind power was a failure in America. There were those of us "alternative lifestylers" in the mid-70s who were telling state and federal governments that you cannot start big with wind energy. But even we were seduced by the lightness and flexibility of helicopter-derived designs. The long historical experience of the Danish agricultural machinists and blacksmiths was required to provide the world with turbines equal to the power and turbulence of real winds.

Water

Dear Editor,

In the recent issue of the *WE* there is an article about a \$300 device for disinfecting drinking water with UV-radiation. The device is touted as a low-cost solution to the drinking water problems of the developing world.

I would like to point out to you Aftim Acra's report published by UNICEF in 1984 on his research on the solar disinfection of drinking water. (<http://almashriq.hiof.no/water/>) It is also worth noting that several international projects are now in the works on this method.

Solar disinfection of drinking water simply consists of putting a standard plastic clear water bottle filled with potentially infected tap or well water in the sun to be disinfected by radiation from the sky. Time of exposure varies from twenty minutes to several hours.

The resulting water is safe and cheap, especially considering that clear plastic bottles are often a source of pollution in developing countries.

Barre Ludvigsen
By email

Peter,

I must take issue with your comments about on-demand water heaters (Winter 2001). At the urging of magazines like *Whole Earth* and others, we had our home designed to use an AquaStar On Demand water heater for the bath, laundry, and kitchen.

In Latin America and Europe, building permit departments allow gas on-demand heaters to be in the same room as the faucet they are heating. In America, you can't have a gas on-demand water heater in your kitchen or bathroom. Consequently, the length of time between the demand and the response is *much* longer. It took at least three times as long to get hot water to the shower with the on-demand. The cold water still in the pipes has to flow out before the heated-up water arrives (contrary to what your article implies) and then it takes a while for the request-

ed water to heat up, and all the while water is flowing down the drain!

If one is washing dishes with a gas on-demand water heater not in the same room, one cannot turn the water on and off while rinsing. You have to let it run the whole time. Otherwise you have to go through the whole request-and-heat-up cycle over and over. This is an enormous waste of water and, quite likely, the fuel to heat it. I added an electric on-demand one under my kitchen sink to solve this problem, but it still took longer to deliver hot water than the traditional hot water heater half-way across the house! I have only so much water in my well and had to take the on-demand heaters out because I literally didn't have enough water or time to stand there and wait for hot water.

Frankly, my guess is that the on-demand system doesn't save much fuel because it doesn't store heated water in an insulated tank, and it uses a *huge* burner—much bigger than the burner in a regular water heater. To get my water use down to reasonable proportions, I had to go back to traditional-style water heaters. Perhaps on-demand could work in perfectly designed situations, but I wish we had not been misled by incomplete information from articles such as yours.

Peggy Randall
By email

CORRECTIONS

Winter 2001:

Typos crept into the address for Airwell Solar Distillers (p. 37). The correct address is PO Box 10963, Zephyr Cove, NV 89448.

We included Water Partners International on the list of nonprofits that install and operate UV Waterworks water disinfectors (p. 39). Water Partners informs us that they have not installed UV disinfection systems in any of their projects.

We regret the errors.