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Tilth

NEWSLETTER

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FIRE OR ICE?

The CO₂ Debate

-VICKI WHITNAH

Jokes about the weather aren't funny anymore—especially when phrases such as "greenhouse effect," "CO₂ build-up," and "Ice Age" are thrown into the conversation.

Meteorologists, geologists, oceanographers, and everyone else concerned about the fate of the world are caught in the debate over whether we are headed for extreme heat, as in the "greenhouse effect," or toward coldness, as in an Ice Age. The Environmental Protection Agency, the Woods Hole Oceanographic Institute and others discuss the "greenhouse effect," maintaining that the earth is warming up quickly due to excess carbon dioxide (CO₂) in the atmosphere. Woods Hole scientists blame human activity, especially the burning of fossil fuels. They explain that this CO₂ is trapping the sun's rays and holding in heat as in a greenhouse. Environmental buffers which absorb excess CO₂ in the air—the ocean and plant life—are not able to keep up with our industrial pollution, say William Jenkins, Woods Hole scientist, Elizabeth Whitney, editor of *The New Weather Observer*, and John Hamaker, author of *The Survival of Civilization*.

Proponents of the Ice Age theory, including Hamaker, Dr Larry Ephron of the Institute for a Future in Berkeley, and John Gribbin, author of *What's Wrong with Our Weather?*, tell us we are in for a very cold future because we are somewhere near the end of the current interglacial warming phase. "Each ice age takes some 90,000 years, with the warmer, interglacial periods, such as the one we're in now, lasting only about 10,000 years," says Ephron, "and it has been some 10,800 years since the end of the last ice age."

Hamaker, in fact, maintains that the next ice age will be upon us by the turn of the century.

The "hot" and "cold" camps "each acknowledge the other's evidence," says Whitney, "but each also maintains that the warming (or cooling) trend will overcome the opposite effect."

Whatever happens ultimately, we have plenty of current and recent examples of bizarre climatic behavior. Nature has been throwing more and louder tantrums than usual lately, giving Earthlings the

Becoming Citizens of the World



Mark Musick Gulwant, India

Tilth members participated in two international delegations in recent months. In February Mark Musick represented Tilth at the International Exposition of Rural Development in New Delhi, India. Mark's report on the conference and his experiences in remote rural villages will appear in the next issue of Tilth.

James Donaldson of Methow Tilth recently returned from a fact-finding mission to Nicaragua. His report is on page 10.

cruel cold shoulder and the hot dry brush-off. A lot of the drama is blamed on El Nino, a drastic warming of ocean currents due to a reversal of pressure systems in the South Pacific.

The February issue of *National Geographic* includes an excellent article describing the vicious winds, floods, and droughts caused by El Nino around the globe. Hit and run incidents, many with lasting effects include:

- Record-breaking droughts in parts of Southeast Asia, India, and southern Africa, causing heavy crop and livestock loss and spreading disease.
- The worst drought of the century in Australia, accompanied by dust storms and bush fires nipping at the outskirts of cosmopolitan Melbourne.
- Five months of incessant rain in Cuba and the Gulf states, damaging crops and property.
- Pacific hurricanes, cyclones, and coastal

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The CO₂ Debate (Continued from page 1)

storms causing killer floods in Ecuador and Peru as well as taking chunks out of the California coast.

- Storms and floods destroying land along the Colorado River and in Utah.

- Ruining of the anchovy industry in western South America due to the severe warming of the ocean; also the disappearance of island nesting birds from their normal habitats due to a food shortage.

EFFECTS IN THE NORTHWEST

Closer to home, El Nino is blamed for the severe shortage of young and adult Pacific salmon which has precipitated an 80% reduction in salmon fishing along the Washington, Oregon, and California coasts. The unusually warm current was also identified as the cause of a bacterial infection which has decimated the razor clam population on the Northwest coast.

If you think it's getting colder and wetter in the Northwest, you're right. In the Northwest, weather records are on the rise. Five of Oregon's seven wettest rainy seasons have been since 1970, according to Kelly Redmond, assistant state climatologist at Oregon State University, Corvallis. Oregon logged a record-breaking 33 straight days of rain last spring. In April of this year Idaho was hit with the heaviest flooding in 30 years.

The Northwest and much of the nation froze under abnormally-cold temperatures in late December. One example of environmental impact has been increased soil erosion. In January a two-day deluge of rain broke a long cold spell, eroding rich Palouse topsoil and sending heavy silt into lakes, rivers, and reservoirs. The January storm signalled a "dangerous period of soil erosion," according to Dr. Carl Engle, Washington State University soil scientist. The problem will diminish in May or June, he says, when crops planted in the spring are large enough to start protecting the soil.

The winter of 83-84 cost Washington state alone about \$16 million in weather-related property damage—seventh highest in the nation—according to the *Seattle Times*.

THE HAMAKER THEORY

What is the logic of all this chaos? Is it getting hotter or colder, drier or wetter on the planet? Maybe all of the above. According to Whitney of *The New Weather Observer*, many scientists believe the extremes in weather, all happening simultaneously, actually compliment each other. The heating, caused by CO₂ build-up, may be a prelude to severe cold. "It is not contradictory to assume that a warming trend which produces more evaporation at the Equator could end up creating more snow on the poles. The increase in cloud cover would itself reflect away solar heat, initiating a cooling. Once snow begins to build at the poles, its reflective ability, which is nearly total, is seen as a critical factor in perpetuating the Ice Age condition," says Whitney in her article "Greenhouse or Ice Age—or Both?"

Is it possible to halt an advancing Ice Age? As incredible as it seems, a few people think so. But the scale of the undertaking is suggested by the proposal of Fred Hoyle in his book, *Ice*.

According to Hoyle, the solution is to raise the ocean to the temperature it was 20 million years ago by pumping cold water up from the bottom and letting the sun warm it. The catch is that every year for 3,000 years one 3,000th part of the ocean below 500 meters would need to be raised. To put things in perspective, Hoyle notes that "the necessary effort would not be greater, comparatively speaking, than the building of Stonehenge to a neolithic people, or the pyramids to the ancient Egyptians, or the road system to the Romans, or the first lunar landings to the Americans."

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John Gribbin, in his book *What's Wrong with our Weather?*, recommends dusting high-latitude snow-fields with soot. "There seems to be little doubt that we could encourage the melting of the snow and ice and prevent another full ice age from developing, albeit at considerable cost and with an effort that would require global, not national, resources," says Gribbin.

In his book, *The Survival of Civilization*, John Hamaker ties such diverse factors as increased volcanic activity, the death of forests, and de-

"Bad" weather is making news—bad being weather that breaks in on our daily round and makes us late for work or ruins roads or brings down power lines. Then we begin to learn some old truths about weather and habitation. One truth is the fact that what we have always called normal weather—the patterns that existed for the first half of this century in America—was actually a time of abnormally temperate weather. The current thinking is that we are returning to a time of "normal" weather: a time when extremes of heat and cold and wet and dry are stirring up some pretty powerful tempests on land and sea."

Elizabeth Whitney in
Raise the Stakes, Spring, 1984

clining soil fertility into a unified theory of climatic change. Hamaker, a former engineer, has been acutely aware of human abuse of the environment since working with toxic chemicals and later with oil refining equipment. He now farms in Michigan.

Hamaker says a primary reason for CO₂ build-up is the gradual but steady dying of our forests over the last half century. Drought, disease, and fire have taken heavy forest casualties. "Insect populations formerly lived in a balanced ecology with the forests—borers, budworms, gypsy moths, bark beetles—have been exploding in numbers lately and destroying millions of acres of trees. Chemical poisons do not seem to be able to stop them." And he says forest fires have doubled in number in the past two decades.

Hamaker blames this forest destruction on mineral-depleted soil, which in turn weakens the trees' resistance to disease and fire damage. Hamaker makes the point that glaciers serve the ecological function of re-mineralizing soil by grinding rock and spreading the mineral-laden dust across the land. He claims that we can re-mineralize the earth ourselves with glacial gravel dust to rejuvenate forests and prevent the next Ice Age. To do so, he maintains that we must mobilize now and re-mineralize the planet's forests within the next few years.

To remineralize the earth, he advocates government-organized, large-scale dustings of the world's forests. "Yet the territory that must be

covered is so enormous that thousands of planes will have to begin flying full time if we are to have a chance of succeeding in time," says Ephron of Hamaker's proposal. "Many aircraft will have to be taken out of military and commercial service for this purpose." Hamaker thinks that forests would stop dying about two years after re-mineralization.

Hamaker also maintains that we must plant huge tree plantations which will consume CO₂ as well as give us wood to replace fossil fuel sources.

If we do not follow this advice—dust the forests and plant new trees—Hamaker says we will suffer worldwide starvation by the 1990s, and from there we will plunge rapidly into a new Ice Age.

Not everyone agrees with Hamaker's thesis concerning re-mineralization as a deterrent to an Ice Age, let alone his fear that the catastrophe will be on us by the end of the century. His theory does, however, force us to recognize that there are very contradictory explanations of what the future will be for the world's climate. And the climate's trend, whether toward fire or ice, will affect everyone on the planet. All points of view, no matter how extreme, need to be considered in order to better anticipate the future.

Add to the political and cultural changes swirling around our planet a new era of uncertainty about the climate. The one thing we can be certain of is that change is now the norm. Our survival may depend on how well we learn to adapt. ●

SOURCES

Thomas Canby. "El Nino's Ill Wind." *National Geographic*, February 1984, pp. 144-183.

Planetary view of the destruction wrought by El Nino. Photos and maps trace the waves of flooding, fire, drought, and famine that circle the globe.

Larry Ephron. "How Soon Will We Have to Stop Eating? Unexpected Fears About the Coming Ice Age." September 1983, Institute for a Future, 2000 Center St., Suite 1001, Berkeley, CA 94704.

An interpretation of Hamaker's theory of an upcoming Ice Age, including evidence supporting Hamaker's thesis as well as evidence that an Ice Age is farther in the future than Hamaker claims.

Elizabeth Whitney. "Ice Age or Greenhouse or Both?" November 1, 1982, pp 2-3. *The New Weather Observer*, Box 485, Inverness, CA 94937.

A well-documented overview of the controversy within the scientific community over the future of the climate of the planet.

The New Weather Observer is a periodic report on the state of the world's weather. Subscriptions are \$10 per year.

John Gribbin. *What's Wrong with Our Weather?* 1979. New York: Charles Scribner's Sons.

Documentation and explanation of what has been happening with our weather, with a prediction of an upcoming "little ice age."

John Hamaker, annotations by Donald Weaver. *The Survival of Civilization*. 1982. Hamaker-Weaver Publishers, Box 1961, Burlingame, CA 94010. \$8.

A discussion of large concepts—soil and forest mismanagement, nutrition, food supply, carbon dioxide and the global "greenhouse effect," glaciation, and economic and political abuses—and how they all are leading to planetary destruction. Presentation of specific courses of action which he claims can save the planet, if we can persuade world governments to act now.

Solar Age or Ice Age? *Bulletin*, Box 1961, Burlingame, CA 94010. Follow-up networking newsletter to the Hamaker-Weaver book.

The Earth Regeneration Society, Inc.
470 Vassar Avenue
Berkeley, CA 94708

Non-profit organization mounting global campaign to correct environmental abuses which are leading to world disaster. Group is addressing imbalances due to CO₂ build-up, degradation of soils and forests, food shortages, and glaciation. A position paper is available. Send a self-addressed stamped envelope.

Friends of the Trees

Herbicides Banned

Many citizens' groups and non-profit organizations in the Northwest have long been denouncing abuse of forest land. Now some federal agencies are starting to listen:

A recent court injunction has banned herbicide spraying for vegetation control on U.S. Forest Service lands in Oregon and Washington (Region 6) and on Bureau of Land Management lands in Oregon.

The decision, issued in Oregon Federal District Court, found Northwest timber agencies in violation of the law. It was the culmination of seven other decisions on spraying in the last 10 months.

For information concerning alternatives to herbicide use and ecologically sound approaches to forest management, contact these organizations: NORTHWEST COALITION FOR ALTERNATIVES TO PESTICIDES (NCAP), P.O. Box 375, Eugene, OR 97440, (503) 344-5044.

Regional clearinghouse for pesticide-related information. Publishes *NCAP News*, an excellent quarterly magazine. \$10 yearly.

HUMBOLDT HERBICIDE TASK FORCE,
P.O. Box 4536, Arcata, CA 95521.

Publishes the *Drift Dodger*, a quarterly newsletter. \$15 yearly.

Biological Weed Control

Controversy in recent years over herbicide use has led to some practical, creative solutions.

The U.S. Forest Service and Oregon State University are testing new ways to control vegetation on newly-planted tree farms: they let sheep graze the land in the Alsea Forest Service District.

The program, in its fourth year, is conducted by OSU and funded by the Forest Service. This season ranchers who choose to participate will truck up to 5,000 ewes and lambs to the Alsea District.

The BLM also plans to graze sheep for vegetation control in the Medford area. Cattle are used on some newly-forested areas of Northeast Oregon.

Ashland City Forest Blossoms

The Ashland Street Tree Commission, an all-volunteer citizen group, promotes 'urban forestry' through various activities:

- Engaging the community in an inventory of all trees on public land and helping children inventory trees on school property.

- Developing a Street Tree Master Plan.

- Promoting community tree-planting projects, tree walks, and other educational activities; producing a series of "Tree Tributes" on outstanding trees in the city.

For more information, contact Serena Linde, commission member, at: 650 Oak St, Ashland, OR 97520, (503) 482-5324.