

By Hal Aigner

WHY IS IT THAT A WALK by the sea or a visit to a waterfall can be so invigorating while a day in the city can leave you tired and irritable even when you've been relaxing? Research conducted for two decades at the University of California, Berkeley, under the direction of Dr. Albert Paul Krueger, professor emeritus of biometeorology, suggests the answer may lie in understanding electrical balances in the air and the role played by ions.

Ions are tiny clusters of airborne gases attached to a negative or positive electrically charged molecule. They occur freely in nature, generated from many sources, including cosmic rays and ultraviolet radiation, energy emissions from radioactive substances in soil and rock, the spray from waterfalls and the crash of surf on coastal shores.

Despite their infinitesimal size, these ions are capable of producing strange and powerful physiological and psychological effects. This is true particularly for the 15-30 percent of the population that is especially weather sensitive.

On the basis of 75 research papers from his own laboratory and several thousand papers detailing the work of fellow ion researchers in other countries, Dr. Krueger can attest to a long list of these ion effects—a list that is both unnerving and encouraging.

Air laden with positive ions is damaging to humans and some other animals tested. Inhalation of excessive doses may cause aching joints, insomnia, irritability, hot and cold flashes, diarrhea, vertigo and inhibited delivery of oxygen to various parts of the body.

In positive-ion heavy air, sinuses turn against hay fever victims. Asthmatics develop lung congestions. Secretaries and bosses snap at each other. Elderly people become depressed, apathetic, fatigued.

But negatively charged atmospheric ions, supplied in modest quantities of from 3,000 to 5,000 per cubic centimeter of air, relieve these symptoms. In addition, they stimulate increased energy, exhilaration, spontaneous activity, greater sexual inclination and enjoyment and improved mental alertness and psychomotor performance.

In negative ion-laden air, psychoneurotic and somatic complaints have been known to disappear; viral and bacterial growths, including influenza, are retarded, and burns heal faster with fewer scars. Houseplants thrive.

Generally, both kinds of ions are generated together. There are places and times, however, where they occur unevenly.

At waterfalls and near ocean surf, the positive ions tend to sink down in larger drops of water while the negative ones rise with the spray and therefore occur more densely in the surrounding atmosphere.

In desert and mountain regions, during legendary ill winds, positive ions are overabundant. Such winds are the Rocky Mountains' Chinook, the Midwest's Sharav, and the Föhn of the Northern Alpine Valley. In Southern California there is the Santa Ana, described by Raymond Chandler in a short story, *Red Wind*:

"There was a desert wind blowing that

ENVIRONMENT

ACCENTUATE THE NEGATIVE ELIMINATE THE POSITIVE



night. It was one of those hot dry Santa Anas that come down through the mountain passes and curl your hair and make your nerves jump and your skin itch. On nights like that every booze party ends in a fight. Meek little wives feel the edge of the

carving knife and study their husbands' necks. Anything can happen."

One explanation holds that as winds blow through arid areas, they stir up dust and lose their negative charge, for dust and other particulates leech out negative

ions. As they breeze into populated areas, they then poison bodies and souls with a surplus of the positive.

Cities tend to duplicate many of the natural conditions that favor positive ions. Urban pollutants react with ions in much the same way as natural particulates. Auto exhaust, factory fumes, tire dust and tobacco smoke all drain the beneficial electricity out of the downtown environment and leave the detrimental behind.

Cities also tend to create large pockets of air with no ions at all. Plastics, synthetic fibers and other objects that pick up electrical charges remove ions from the air. So do the metal ducts covering heating and air conditioning outlets; so do the synthetic materials of clothing and furniture coverings; and so do metal screens.

The Soviets have experimented with raising mice in an ion-depleted atmosphere. Within a few weeks, all of them died. The Japanese have found that ion-depleted air can induce somnolence and depression.

Unlike other grim environmental reports, however, this one points to a hopeful development: Electronic designers have developed several models of low-cost negative ion generators, ranging from small devices for personal use to major systems.

But there's a problem. The history of ion generator sales is not unblemished. During the '50s, similar devices were marketed under spurious claims. They were, for example, hawked as cancer medicine. The federal Food and Drug Administration clamped down and has not lifted its ban on the machine yet—which explains why news of ions and their effects hasn't much left the lab and seeped into the popular consciousness.

As scientific data continues to accumulate, however, Dr. Krueger predicts that "There's every reason to expect engineers and environmentalists to get together and supply us with air that is not only pollutant free but also has the air ion level and charge restored to that which prevails in nature."

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Hal Aigner is a writer specializing in scientific subjects.

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BOOKS



Jane Melnick

David vs. agribusiness Goliath

THE UNSETTLING OF
AMERICA: Culture and
Agricultureby Wendell Berry
Sierra Club Books, 1977, \$9.95

A poet and Kentucky farmer, Wendell Berry goes forth like Don Quixote to do battle against stupendous foes—modern American agriculture and the society that spawns it. It should be the easiest thing in the world to sympathize with his argument and yet ignore it, for *The Unsettling of America* hits us hard in the bread basket.

With the growth in power of American corporations over the years, agriculture—like everything else in our society—has changed. In place of the small, self-sufficient, self-perpetuating family farm, we now have the large, highly-mechanized, “specialized” industrial farm. In the name of twin gods—profit and production—thousands of small farms and millions of acres have been transformed into capital-intensive agribusiness installations.

Twenty-five million people have been forced from the U.S. farming community since 1940. “Get big, or get out!” has been the commercial rule and government policy as well. The USDA, swooning over its yearly production figures and dreaming of international “agridollars” (“Food is a weapon!”), condones the squeezing of even higher profits from the chemicalized, compacted, depleted land. Private interest controls the “public good.” Earl Butz, for example, received his agriculture indoctrination as an executive with Ralston-Purina.

Like Barry Commoner, Wendell Berry knows how “giant corporations have made a colony out of rural America.” Such food-marketing companies as General Foods and Del Monte have been joined by conglomerates like ITT, Boeing, and Dow to make agribusiness America’s largest industry. These, in effect, are the new American farmers. Tenneco produces oil and chemicals, but also insecticides, fertilizers, and farm machinery. This “farmer” also owns Heggebladde - Marguelas

Inc., the nation’s largest marketer of fresh fruits and vegetables, as well as a piece of California farmland twice the size of Rhode Island.

Everywhere we look it seems inevitable that agriculture, as Berry puts it, is now “purely a commercial concern; its purpose

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is to provide us with as much food as quickly and cheaply and with as few man-hours as possible, and to be a market for machines and chemicals.” These are policies of waste and ruin which are helping to destroy our health as well as our soil.

There is probably no better place than the U.S. farm to observe just how much modern “efficiency” has brought less “civilization” to contemporary life. For the attentive soil and animal husbandry, the self-reliant innovation and—in a word—the *experience* of the traditional small farmer, we now find absentee owners, lack of crop rotation, plowed-out waterways, run-down farms, fall plowing and the general dissociation of the cultivator from the land, the crop, the “culture” of farming.

How has it all happened?

Jefferson once wrote that “the small landowners are the most precious part of the State.” Yet in recent years we have heard Earl Butz boast: “95 percent of the American people have been freed from the drudgery of producing their own food,” and hardly batted an eyelash! Berry argues that we must ask such questions as: Have our uprooted, disenfranchised farmers been prospering in the inner city? Since when is providing yourself with nourishment for either body or mind a practice in “drudgery”?

Through such considered questioning we begin to see the agricultural crisis for what it really is: a crisis of character; the

American character.

It is the nature of Berry’s sweeping indictment—an attack upon our “consciousness” as well as the institutions we tolerate—that determines the form of his book, which deals with the history, practice, politics, and philosophies of American agriculture. (The distinction is always between “agriculture”—cultivation of the soil—and “agribusiness”—making money from the soil.) Berry’s thesis is a simple one: “An agriculture cannot survive long at the expense of the natural systems that support it and provide it with models. A culture cannot survive long at the expense of either its agriculture or natural resources. To live at the expense of the source of life is obviously suicidal.”

But Berry has not written a requiem for a lost noble cause, or a paean to the past. He takes pains to discuss “unorthodox” farming methods now in use somewhere in the country, ranging from Amish customs to new organic farming productivity to the revision of current Ag-school curricula in the U.S.

The availability of such alternatives at the present time only makes the entrenchment of the Agribusiness Combine—corporations, university specialists, and government officials—seem all the more dangerous and sinister, a fact which enhances the revolutionary flavor of the book. Berry often sounds like a Tom Paine crying out against the new “colonialization” of America. His essay—a book of ideas, nothing more nor less—is a manifesto and a call to action. Whether we are working for food co-operatives or strip-mining legislation, we must have “a vision of perfection, we must strive for it, we must serve the possibility of approaching it.”

Written with what James Dickson has called “a poet’s evocative richness of language,” the book is ultimately about our attitudes: “One must begin in one’s own life the private solutions that can only in turn become public solutions.”

Peter Bohan is a Chicago writer who was born and raised in downstate Illinois.

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