

Ecology: The New Jeremiahs

THERE has not been a topic for such worried conversation since James Baldwin forecast the fire next time. Suburban matrons predict the melting of the polar icecaps followed by catastrophic floods. Busy executives and bearded hippies discuss the presence of DDT in the flesh of Antarctic penguins. All sorts of Americans utter new words like ecosystem and eutrophication. Pollution may soon replace the Viet Nam war as the nation's major issue of protest.

It is, in short, the year of ecology, a word derived from the Greek *oikos*, meaning "house." In modern usage, ecology is the study of nature's house or environment, including man's complex dependence on a bewildering variety of other creatures and life processes.

Because of their grim warnings about man's environmental abuses, the once sheltered ecologists are turning into modern Jeremiahs. Who are they? In part, they are the descendants of yesterday's conservationists, who harried the U.S. into setting up national parks and wildlife sanctuaries. But there are significant differences. The old conservationists were nature lovers and esthetes who often seemed devoted to fencing off nature for themselves. Today's ecologists are scientists who know that all nature is interconnected and that any intervention has far-reaching effects. They are moved to action not only by considerations of beauty and sentiment but also by growing knowledge of the possibly disastrous consequences of unthinking intervention. The need for their expert opinions is being increasingly felt in Congress, the regulatory agencies and corporations, giving them an influence that promises to match or surpass that of the outspoken atomic scientists of the '50s.

During the past weeks, TIME has interviewed some of the top men in key branches of ecology. All agree that ecologists combat threats to the environment. They differ only in the kinds of actions they would take:

► George E. Hutchinson, 66, of Yale, specializes in limnology (the study of lakes) and in the puzzle of why closely related animals coexist without devouring one another. He is a quietist. "I tend to concentrate on things where I can be uniquely effective," he says, and his theoretical work in limnology has greatly aided the practical work of water-pollution control. Unlike some alarmist ecologists, Hutchinson thinks that mankind will survive its excesses. "But the cost to the satisfactions of life will be enormous. There is already a reaction to overcrowding in the cities—riots. The fact that people can't sit in a garden, watch birds around them—this is the real source of difficulty. We need more

research not only on the minimal needs of people in cities but also on their optimal needs. What can we do to help them feel more truly human?"

► Kenneth E. F. Watt, 40, is a professor of zoology at the University of California in Davis, one of the world's major ecology training centers. He is also an activist. "How else can you tab a guy who is out making speeches every night and spending every spare minute writing articles?" A systems analyst who pioneered the use of computers for solving environmental problems, Watt is currently directing a \$174,000 Ford Foundation-financed study of California to examine the effects of population growth on urban transportation, pollution, public health and welfare, natural resources and law enforcement. "If we can't lick the population problem," he says, "we'll have to increase the size of the planet or put people in eight-by-eight-foot cells and feed them algae. I'm not proposing these things, but people have to face up to the necessity of birth control if they want freedom to move around, to be healthy, to have a balanced diet, to live like humans."

► Crawford S. Holling, 38, was once immersed in rather abstract research at the University of British Columbia—mathematical models of the relationships between predators and their prey. "Three years ago, I got stark terrified at what was going on in the world and gave it up." Now he heads the university's interdepartmental studies of land and water use, which involve agriculture, economics, forestry, geography and regional planning. "What got me started on this," says Holling, "was the profound and striking similarities between ecological systems and the activities of man: between predators and land speculators; between animal-population growth and economic growth; between plant dispersal and the diffusion of people, ideas and money."

► Eugene P. Odum, 55, of the University of Georgia, is a specialist on estuarine marshes and author of the standard college textbook, *Fundamentals of Ecology*. "We have got to stop thinking of ourselves as being in the growth stage of civilization and realize that we are in the mature stage," says Odum. "Up to now we have been a consumptive, destructive civilization. We must now learn to recycle and reuse." Under his direction, the University of Georgia's Institute of Ecology is studying how tide-water marshes help to produce 90% of the country's seafood—and how to save the marshes from unthinking land developers. Odum is working with a young Georgia legislator to protect his state's coastal wetlands from such destruction, and is particularly interested in seeing ecology taught to students of other



disciplines such as law and sociology. ► Barry Commoner, 52, chairman of the botany department at Washington University in St. Louis, is a prolific lecturer and writer (*Science and Survival*) who brings an ecologist's insight and a polemicist's passion to the dangers of environmental pollution. "The new technological man," says Commoner, "carries strontium 90 in his bones, iodine 131 in his thyroid, DDT in his fat and asbestos in his lungs. There is now simply not enough air, water and soil on earth to absorb man-made poisons without effect. If we continue in our reckless way, this planet before long will become an unsuitable place for human habitation." At Washington University, Commoner now heads the first of a series of environmental health institutes being established at major campuses by the U.S. Public Health Service. He envisions sweeping changes in the near future. Among them: the outlawing of automobiles with fume-belching internal-combustion engines, and the elimination of certain chemical fertilizers, which will make farming less efficient and less profitable but also less dangerous to the environment. "The important thing," he says, "is for the public to sense the seriousness of the issues. When they do, the right legislation will be passed."

The Old Spirit. Not every ecologist is as active as Commoner. Some are ill-equipped to influence political decisions in the right directions. Some risk making ecology more of a passing fad than a permanent force in U.S. life. Nevertheless, Americans can expect to hear many more expert warnings about the damage they are doing to their environment. Vice Admiral Hyman G. Rickover has described ecology as "the key science for correctly assessing the negative aspects of technology." And the new Jeremiahs are right in the spirit of the old: "I brought you into a plentiful country, to eat the fruit thereof and the goodness thereof; but when ye entered, ye defiled my land, and made mine heritage an abomination."

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