



Hunt Institute for Botanical Documentation
5th Floor, Hunt Library
Carnegie Mellon University
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: www.huntbotanical.org

The Hunt Institute is committed to making its collections accessible for research. We are pleased to offer this digitized item.

Usage guidelines

We have provided this low-resolution, digitized version for research purposes. To inquire about publishing any images from this item, please contact the Institute.

Statement on harmful and offensive content

The Hunt Institute Archives contains hundreds of thousands of pages of historical content, writing and images, created by thousands of individuals connected to the botanical sciences. Due to the wide range of time and social context in which these materials were created, some of the collections contain material that reflect outdated, biased, offensive and possibly violent views, opinions and actions. The Hunt Institute for Botanical Documentation does not endorse the views expressed in these materials, which are inconsistent with our dedication to creating an inclusive, accessible and anti-discriminatory research environment. Archival records are historical documents, and the Hunt Institute keeps such records unaltered to maintain their integrity and to foster accountability for the actions and views of the collections' creators.

Many of the historical collections in the Hunt Institute Archives contain personal correspondence, notes, recollections and opinions, which may contain language, ideas or stereotypes that are offensive or harmful to others. These collections are maintained as records of the individuals involved and do not reflect the views or values of the Hunt Institute for Botanical Documentation or those of Carnegie Mellon University.

About the Institute

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

1977 Univ. Wis. Daily Cardinal Nov 8
"The solution is very fluid," he said. Shain initiated the meeting with a gradiose view of the future for the University. "The 21st century evokes wild dreams of an alternative future and our task is to prepare the University for this," Shain said. He said the current administration must start preparing and that "everyone should work together" to prepare the University.

INTERNATIONAL Dateline

W.H.O.
Journ.
1978 Jan 29 Sunday

Mexico Undertaking Its 1st Effort to Control Population Explosion

Mexico City, Mexico —AP— The Mexican government is making its first effort to halt an explosion of the country's population, which if left unchecked could equal or exceed that of the United States in 40 years.

out work or holds only part time jobs. The situation only adds to the problem of illegal aliens entering the US. The US Border Patrol says that in 1977 it apprehended more than a million illegal Mexican aliens, and it believes that at least twice that number got through undetected.

A \$130 million a year family planning program aims at reducing population growth from a record 3.2% to 1% annually by the turn of the century.

The Mexican population has been rising most rapidly in rural areas, where families of 8 to 14 children are still the rule because of widespread poverty, ignorance and the lack of labor saving machinery.

Officials from President Jose Lopez Portillo down say it is none too soon. "We should have started 20 years ago; we are 20 years too late," says Dr. Jorge Martinez Manatou, 47, the health coordinator of the project, which includes the distribution of birth control pills and a wide ranging educational program.

"Every additional child is another pair of arms to do the work," goes the saying in the Mexican countryside. If unchecked, Mexico by the year 2020 will match or exceed the population of the United States, which is now estimated at 216 million and is near the rate of zero growth. But Mexico is only one-fifth the size of the United States and has barely one-sixth its resources.

inflow to irrigation projects," and a program, supervised by a committee of seven, has been shot and sold for food. However the good news is that Ab-i-Estada should be a wildlife sanctuary.

It is especially ironic that nothing has been done up to now to control births in Mexico, since the country is the world's principal producer of birth control pill ingredients, which are derived from barbasco, a wild growing weed from the nation's southern jungles.

is straining Mexico's resources is becoming increasingly especially in the big citrus. Food supplies are on the

Mexico: 1940-20 million; 1960-40 million; 1978-65 million

BLACK & WHITE TV-770
Snug-size Sony screen super at sea shore
The screen on this Sony is a modest 7" measured diagonally, but it beautifully covers everything you'll want to watch at the shore. The TV-770 plays on AC current at home, and it's still a lightweight on top you load the optional batteries for 4 hours of portable TV. Also works on car battery with optional adaptor.
This set won't wilt on hot summer days because Sony has engineered in 100% solid state circuitry for dependability. Glass-free screen lets you enjoy crisp contrast picture even under bright sun. Automatic Gain Control stabilizes picture on all VHF and UHF channels. You can even drown out the ocean by plugging in the personal earphone.

of Common cranes which breed in west Russia and winter in Iranian wetlands. The Indian (winter) population of the Siberian crane is now only 56 — 15 less than in 1970. Maybe as many as 300 are still wintering along the river Yangtze in China, but nothing is known about their conservation status.

birds face the added hazard of being shot and sold for food. However the good news is that Ab-i-Estada should be a wildlife sanctuary.

"Flamingo lake" should soon be safe

On the shores of Lake Nakuru, a million flamingoes, is a factory producing copper oxychloride, a toxic fungicide. An accident permits its escape into the lake the abundant blue-green food of the pink

I.U.C.N. Bulletin 1978

Chemicals new contaminate all sources of Milk.

By WARREN BROWN
Washington Post News Service
WASHINGTON — Scientists told a Senate subcommittee Wednesday that it is difficult, if not impossible, to find safe milk for newborn infants.

taminated our bodies and in doing that we have contaminated human breast milk," he said.

Well said though "human breast milk has been, and still is, an excellent nutritional basis for infant feeding . . . we now find that liquid may contain pathogenic bacteria and viruses, opiates, salicylates, barbiturates, and antibiotics, lead, mercury, arsenic, and a host of fat soluble chemical poisons."

Well was one of nine witnesses to testify Wednesday before the subcommittee, which is holding two hearings this week on the "Implications of contamination of mothers' milk with pesticides and industrial chemicals." The second hearing is scheduled Friday.

Sen. Edward M. Kennedy (D-Mass.), chairman of the subcommittee, said the purpose of the hearings is not to discourage breast-feeding. Instead, "We feel that individual families should have all the information they need to make personal decisions about the merits of breast-feeding their infants. We hope this session will aid in that educational process," he said.

Wednesday's testimony seemed to indicate that there is

Human breast milk increasingly contains pesticide residues and other chemical contaminants that can cause cancer and other diseases, they said, while harmful lead deposits often are found in infant formulas.
And cow's milk, itself a major source of contaminants found in human breast milk, is also a major contributor to childhood allergies, they told a Senate subcommittee on health and scientific research.

The problem is that in this "period of industrial chemistry, we are beginning to reap the penalty of acute and chronic poisoning," said Dr. William B. Well Jr., professor and chairman of the Department of Human Development at Michigan State University.

"As we have contaminated our environment, we have contaminated ourselves." (MH 1978) (D)

Milk.

Note to above story
USA net increase in 1977 was ca. 2.2 million!
Z.P.G. is a long way off.

WISCONSIN ACADEMY REVIEW

26

WINTER 1962

Wisconsin Academy Review

WHAT DOES A PRAIRIE MEAN TO YOU?

By Hugh H. Iltis, Curator
Herbarium, Univ. of Wisconsin

In Norman C. Fassett's files in the Herbarium of the Botany Department at the University of Wisconsin, two documents recently came to light that have much meaning to the naturalists and conservationists in the 1960's, in fact, to all people concerned about the disappearance and destruction of Wisconsin vegetation, who would like to see at least some remnants of virgin land preserved. The poetry and eloquence, the sentiment and philosophy in both of these writings deserve our close attention.

The first is an appeal to save 40 acres of prairie, written by Aldo Leopold, the second a personal appreciation of Leopold, written after Leopold's death in 1948 by his friend and colleague, Norman C. Fassett.

EXIT ORCHIS

By Aldo Leopold

Wisconsin conservation will suffer a defeat when, at the end of this week, 75 cattle will be turned to pasture on the Faville Grove prairie, long known to botanists as one of the largest and best remnants of unplowed, ungrazed prairie sod left in the state. In it grow the white lady-slipper, the white fringed orchis, and some twenty other prairie wildflowers which originally carpeted half of southern Wisconsin, but most of which are now rare due to their inability to withstand cow or plow.



Thirty miles away a C.C.C. camp on the University of Wisconsin Arboretum has been busy for four years artificially replanting a prairie in order that botany classes and the public generally may know what a prairie looked like, and what the word "prairie" signifies in Wisconsin history. This synthetic prairie is costing the taxpayer twenty times as much as what it would have cost to buy the natural remnant at Faville Grove, it will be only a quarter as large, the ultimate survival of its transplanted wildflowers and grasses is uncertain, and it will always be synthetic. Yet no one has heard the appeals of the University Arboretum Committee for funds to buy Faville Grove prairie, together with other remnants of rare native flora, and set them aside as historical and educational reservations. Our educational system is such that white fringed orchis means as little to the modern citizen of Wisconsin as it means to a cow. Indeed it means less, for the cow at least sees something to eat, whereas the citizen sees only three meaningless words.

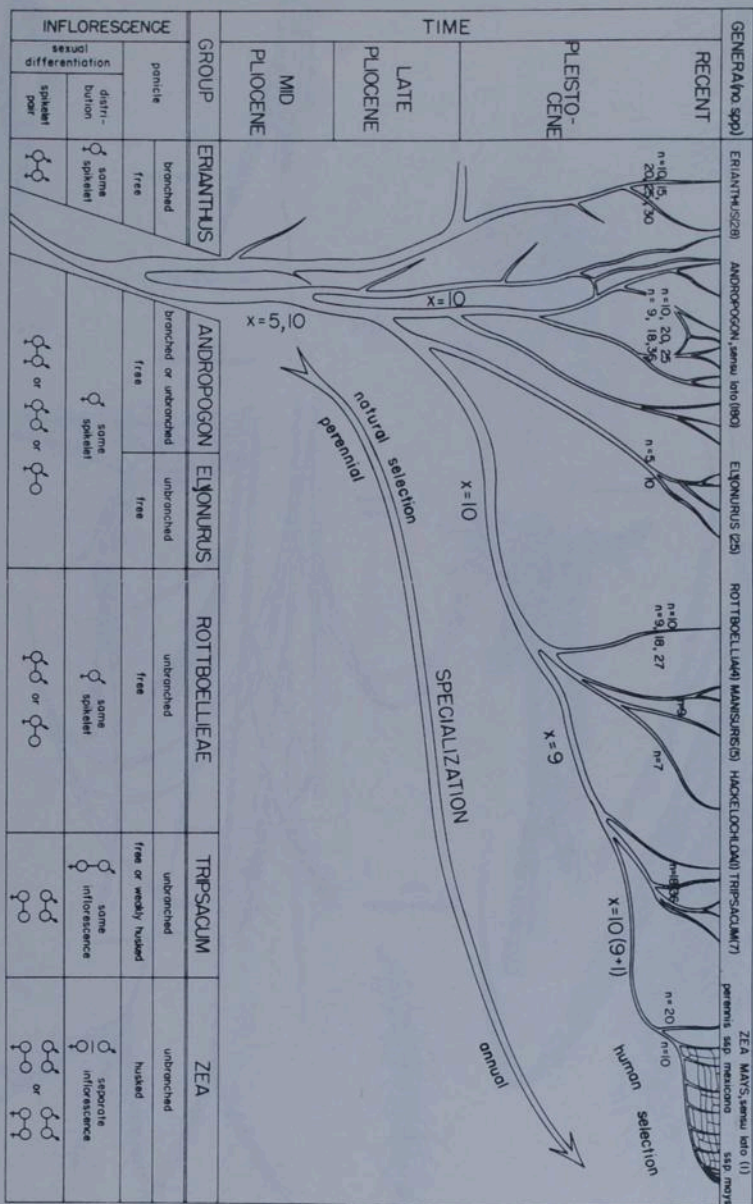
In preparation for the hoped-for floral reservation at Faville Grove, the Botany Department and the Department of Wildlife Management of the University have, during the last three years, mapped the location of each surviving colony of rare flowers, and each spring have counted the blooms. It was hoped to measure

Reprinted from the AMERICAN JOURNAL OF BOTANY, Vol. 54, No. 8, September, 1967
Printed in U.S.A.

STUDIES IN THE CAPPARIDACEAE. XI: CLEOME AFROSPINA,
A TROPICAL AFRICAN ENDEMIC WITH
NEOTROPICAL AFFINITIES

HUGH H. ILTIS

Department of Botany, University of Wisconsin, Madison



The Maize Mystique - A Reappraisal of the Origin of Corn.

Hugh H. Iltis¹

Abstract

Corn is domesticated Teosinte (*Euchlaena mexicana*, sensu lato), differing not at all in any of its basic vegetative, floral, or genetic attributes. All the unique peculiarities of corn are concentrated in the structure of the female inflorescence, the corncob, and all can be easily interpreted as the result of human selection for human needs for more food: for greater quantity, and for greater, more efficient harvestability. Thus, compared with wild Teosinte, the increase in the volume of harvest sub-units, namely in grain size, in grain number through activation of aborted spikelets and aborted florets, in row number and in cob length were all selected for by primitive man to produce more food. The decrease in the number of primary harvest units (the female inflorescences) to one or two giant, apically dominant, terminal inflorescences per plant, the coordinated protection of these inflorescences by many husks, these liberated from their old function of protecting the many, now suppressed, lateral cobs, and the change from a fragmenting, disarticulating rachis (cob axis) and rachilla to one that is shatterproof, were all selected for by primitive man to increase the ease and efficiency of harvesting. In addition, the reinforcement in the corn plant of Teosinte's annual habit and of a single, gigantic stem are likewise due to human selection. The resulting cultigen is easily grown, easily harvestable and abundantly yielding.

The domestication steps of corn outlined above are analogous to what has happened in the evolution of other crops. Thus, the reactivation of the sterile pedicellate spikelet of a pistillate pair (and even the occasional reactivation of the sterile, aborted floret of each spikelet) are analogous to the reactivation again by human selection, of the two lateral sterile spikelets of a "triplet" in barley (*Hordeum vulgare*). The giant monocephalic terminal corn cob derived by suppression of the many tiny lateral female inflorescences found in a fertile Teosinte branch and the stout strong single stem of corn are analogous to the monocephalic head and stout single stem of the cultivated sunflower, *Helianthus annuus* var. *macrocarpus*, which makes one think of corn as a graminoid "sunflower".² In these two crops, and in most cultivated grains, increase in both size and number of harvest sub-units (Heiser 1951), as well as in the complexity and size of the primary harvest unit itself, are both very prominent, trends that are replicated in the series from Teosinte through popcorn to modern maize. All these three crops are cultivar analogues, artifacts of man's selection, triumphs of the human ability to turn weedy annuals into high-yielding crops.

¹ Department of Botany, University of Wisconsin, Madison. Lecture presented at Iowa State University, Ames, December 18, 1970, and at the University of Illinois Urbana, September 12, 1969.

² The common name of the sunflower in N. Mexico is "Maiz de Tejas", i.e. flat corn! (Bukasov, in Mangelsdorf and Reeves, 1939).

To be published in
Landscape Architecture
Quarterly, June 1973

Can One Love A Plastic Tree?

Hugh H. Iltis
Dept. of Botany, University of Wisconsin, Madison

Every planner, landscape architect or human ecologist should read Martin Krieger's "What's wrong with plastic trees?" (Science, 179: 446-455. Feb. 2, 1973) if he wishes to catch a glimpse of the nightmare future that technology is preparing for man and nature. His article discusses the titanic events of the environmental crisis, of Man vs. Nature, totally outside of the framework of biological reference; hence, one of his conclusions --- that plastic trees and all sorts of nature substitutes have a valid place in planning --- reads like a bad fairy tale. If he had only contemplated Hans Christian Anderson's "The Emperor's Nightingale" in which a mechanical nightingale is given the emperor to substitute for the real one whose song the emperor had loved. Eventually, of course, the clockwork breaks. Death comes and sits on the emperor's bed. But the real nightingale reappears and sings so sweetly that the emperor recovers. It is an old moral --- you can't make a real nightingale out of wheels and diamonds, an idea quite lost on our author.

If there is nothing wrong with plastic trees, if plastic trees can "give most people the feeling that they are experiencing nature", why not invent plastic dogs instead of live ones? Why not plastic corsages with synthetic perfumes, instead of orchids or gardenias? Why not substitute plastic dolls which need no diapers instead of babies? Why not 3,000 giant Disneylands, one in each county, and then develop the rest of the country to grow more food and build more cities?

Why worry about the extinction of the African giant sable antelope or the Indian tiger? Or the preservation of the weedy Mexican grasses ancestral to corn or Peruvian wild potatoes? Why protect the Amazonian Rain Forest, or preserve the arctic tundras? According to Krieger, such proposals are "imperialistic at worst, unrealistic at best" (p. 447). But if biologists and ecologists or, for that matter, planners, won't concern themselves about the fate of Nature, who is there that will?

Sangamon State University
THE ENVIRONMENTAL CRISIS
What Can Be Done?



University Week

May 8 - 12

Featured Speakers

Morris Udall, Sol Alinsky, Hugh Iltis, Van Rensselaer Potter
Mark Terry, Griscom Morgan

Multi-Media Shows, Films, Panels

Friday, May 12, 2 - 5 p.m.

ENVIRONMENTAL FESTIVAL

Blue Grass Music

Demonstrations Literature

ILTIS

DON'T MISS THE

UNIVERSITY 1970 INSTITUTE
exploring

A

LAND ETHIC

FOR

ALASKA

choc
305

WITH

DR. HUGH H. ILTIS
PROFESSOR OF BOTANY
UNIVERSITY OF WISCONSIN



"EVOLUTIONARY ETHIC AND THE FATE OF THE ALASKAN LAND"

WEDNESDAY, MARCH 4, 8 P.M. A MU AUDITORIUM

Digitized by the Hunt Institute for Botanical Documentation

UNIVERSITY INSTITUTE
ALASKA METHODIST UNIVERSITY

March 4-6, 1970

*hi!
Make the front pages
with that one
page*

WEDNESDAY - MARCH 4th

8:00 PM Introduction of speaker: President McGinnis Auditorium

KEYNOTE ADDRESS: Hugh H. Iltis
"EVOLUTIONARY ETHIC AND THE FATE
OF THE ALASKAN LAND"

THURSDAY - MARCH 5th

9:30 AM CONSERVATION AND DEVELOPMENT: EXCLUSIVE OR Auditorium
COMPLEMENTARY ALTERNATIVES ?

Mr. F. G. Larminie, British Petroleum
Alaska Oil and Gas Association

Dr. Robert Weeden
Alaska Conservation Representative

1:30 PM DISCUSSION GROUPS
Alaska's Oil: A Test Case For Development Auditorium
Without Destruction

The Native Claim On The Land Grant 313

The World In Which I Wish To Live Grant 212

Man's Future Environment: Scientific, Political Grant 211
and Social Aspects

3:00 PM TOWARDS A LAND ETHIC FOR ALASKA (Presentation Auditorium
with slides)

Joseph Blum, Ronald Summerville
Alaska Department of Fish and Game

7:30 PM FILMS: "New For Tomorrow", "The Last Frontier" Auditorium
"Magnificence in Trust"

FRIDAY - MARCH 6th

9:00 AM THE FUTURE ENVIRONMENT OF MAN IN ALASKA: Auditorium
SOME PERSPECTIVES AND PLANS

Mr. Homer Burrell, Director
Division of Oil and Gas, State of Alaska

Mr. Chancy Croft, Representative
Alaska State Legislature

Mr. Eugene Guess, Chairman
Alaska State Legislative Council

Mr. Robert W. Pavitt, Director of Planning
Greater Anchorage Area Borough

1:30 PM ALASKA'S FUTURE AS AN ENVIRONMENT FOR MAN: Auditorium
SOME INFLUENTIAL VIEWS

Mr. Stanley Abbott, Managing Editor
Anchorage Daily News

Mr. Robert Henning, Editor and Publisher
Alaska Magazine

PILOT PROJECT IN ENVIRONMENTAL SCIENCES

Ecology Subcommittee

Discussion No. 5: The Optimum Human Environment and Its Relation
to Modern Agricultural Preoccupations

Discussion Led by: Hugh H. Iltis, ^{Assoc.} Professor, Department of Botany

We are meeting here to discuss the biological bases for human existence. In so doing, we are trying to reformulate our cultural concepts of man's ancient relationships to his natural environment. That similar dialogues are going on all over this campus and in many parts of the world is evidence for the overriding urgency of the problem. The problem is one of a single species of animal who is making the earth unfit for habitation by conquering it.

The city-dwelling American, in particular, has been so removed from an intimate relationship with nature through the spectacular advances of science, industry and agriculture that he tends to lose sight of his very real dependence on nature (a dependence brought forcefully home by last summer's water shortage in New York, by the famines in India, by the pollution of air in Los Angeles, etc.). The more complex science and technology become, and the more extensive their use, the more far-reaching will be their destructive effects on nature, and the more difficult it will be to assess those effects, to stop them, or reverse them. The more successful science becomes the more difficult also will it be to ask the pertinent questions and expect any sensible answers. Technological success corrupts the ability to see the human animal in proper biological perspective. Technological success has become a technological plague.

It would be blind not to acknowledge the immense debts of modern man to this technological destruction. In mastering the environment, the fabulous inventiveness of modern agriculture has allowed a cultural explosion that continues to this day. In fact, it has made our civilization possible. Agricultural technology of the 19th and 20th centuries, from Liebig and the gasoline engine to hybrid corn, weed killers and pesticides, has crashed an exploitative sound barrier of increased production and prosperity in favored regions of the world whose long-term effect for good (and for evil) we must now try to assess.

Because of this success, some of our chemical or agricultural leaders now firmly hold that we can feed the world, that we can do anything we wish. Because of the population explosion, we must bend

Clipping from
The New York Times

JUN 14 1970

Date

Plea for Primacy of Nature in Ecology Effort

To the Editor:

The ubiquitous conservation speeches of today stress mainly the urgent problems of population, pollution and crowding. That priorities are given to these big-city, strictly human, homocentric syndromes is obvious — and understandable. People die of pollution, people go crazy with crowding, people starve and lay waste the lands through overpopulation.

It is to be hoped that we may solve this pollution crisis; we can, I think, clean up our polluted nests. But what if in cleaning up the cities, we forsake the rest of life? If we, in human preoccupation, let all but corn and cow slide into the abysmal finality of irreversible extinction, our species indeed will commit ecological suicide.

With the specters of ecosystem collapse, of catastrophic extinctions of most animal and vast numbers of plant species on the horizon, there is little cause for optimism in the broader environmental crisis.

Have our genes ceased to need the environment that shaped them? If we destroy ecosystems and species with abandon, ecosystems to which we

are adapted, species whose values we do not know and cannot predict—we surely do it at our own peril.

Butterfly and wild flower, mountain lion and antelope, blue whale and pelican, coral reef and prairie land—my grandchild may need to know them, to see and smell them, to hear and feel them, to be alive, bright and happy! Yet, hardly anyone speaks for wild nature —for Morpho butterflies in a Peruvian valley, for timber wolves chasing caribou in Alaska.

The ultimate question is: Shall man come always first, at the expense of other life? And is this really first? This may be expedient but in the long run impossible.

Not until man places man second, or, more precisely, not until man accepts his dependency on nature and puts himself in place as part of it, only then does man put himself first. This is the great paradox of human ecology.

Not until man sees the light and submits gracefully, moderating his homocentricity; not until man accepts the primacy of beauty, diversity, and in-

tegrity of nature, and limits his domination and numbers, placing equally great value on the preservation of natural environments as on his own life, is there hope that he will survive.

HUGH H. ITRIS

Department of Botany
University of Wisconsin
Madison, Wis., May 25, 1970

Letters

A Plea for Man and Nature

While Dobzhansky's humanism is to be admired ("Changing man," 27 Jan., p. 411), his "evolutionary optimism" is incongruous, not because man cannot change, but because of long life-span and genetic limitations he cannot change fast enough! Today, technological effects are so enormous and rapid that man soon will live in a radically changed environment where his heredity will be out of phase with the natural forces that shaped it. Thus, evolutionary optimism is ill-founded. Anyone driving from New York to Washington or from Palo Alto to San Francisco can see, not a better world, but a natureless ecological nightmare. Can man function here as a well-adapted human? Will selection to "higher" evolutionary levels really occur? Dobzhansky seems blind to the technological impact on a highly vulnerable nature, especially in the tropics. As highly evolved as we are, our core of biological adaptations are still programed to the natural environment and not to the big cities. Is it sensible to suggest that natural or even rural environments are of no value to man, that "we must certainly prefer an adaptedness to the present environments, not to those long defunct?" In effect, has there been, or will there soon be sufficient selection by polluted metropolitan environments to erase man's unspoken needs for open spaces, wild mountains, clean lakes, or small towns? Does Dobzhansky mean it is desirable to permit (let alone encourage) adaptation to New York-type cities, their bleak lifeless canyons of stone crawling with humanity, their noisy sunless streets and overcrowded subways? He sounds like so many of our big city students who brag of dislike for nature; who glory in technological sophistication, but are blind to flowers or songbirds in the spring. Yet without nature they, as members of the human species, are unadapted and meaningless. Dobzhansky decries

the prophets of doom. Yet their emphasis on the interrelatedness within the web of life, of man's dependence on living nature, is quite realistic! That "evolution may some day be directed by man" independent of nature, which presumably by then will have gone the way of all Dodo's, seems more absurd.

Recently, in San Francisco, I heard two symphonies, Roger Sessions' cacophonics followed by Beethoven's melodies. And why did I prefer Beethoven? Because it is like a sunny day on Cape Cod compared with downtown New York. I don't know whether Dobzhansky has forgotten what it was like to walk the dunes in solitude or to swim in the ocean, but to most humans, as products of natural selection, it is pleasanter than basking in 5 p.m. traffic on Fifth Avenue. Man will never become genetically adapted to technological society and remain human. Even if he could adjust genetically to this disbiological change, a biological and cultural absurdity would result.

Blind faith in the ecological good sense of man has dug graves for many human societies. Long before the problems which geneticists fear become realities, the population explosion will have destroyed those very qualities of nature to which we, as vertebrates, mammals, and finally as humans, have become adapted through 200 million years of natural selection. The most precious values of man, the enjoyment of life and of living, will then cease to have meaning for *Homo post-sapiens*. He will end as a species which has devoured its evolutionary mother, with a culture which has lost its biologic roots. Beethoven and Shakespeare, like flowers and hummingbirds, wild geese, and the free human spirit, will be incomprehensible curiosities.

Let us realize that future human evolution can develop only within contexts of diverse environments which are at least partly untamed in a nature pro-

tected as man's silent ancient companion in evolution. Only by defending a biological equilibrium, and not by manipulations of our genotypes or technological constructions of "better" environments, can a self-enlightened humanity give valid evolutionary directions to the changing of man.

HUGH H. LLTIS

Department of Botany,
University of Wisconsin, Madison 53706

ILTIS
POLLUTION: CAN MAN ADAPT?

by Hugh H. Iltis

Why is pollution so important a question today? Why, is it ^{so} crucial to human survival? Bad odors, noise, a few dead birds and many dirty beaches are indeed unpleasant, but most of us can live with them, or have learned to ignore them. (Perhaps For these reasons,) the beginnings of the pollution crisis were not much noticed, and were no more obvious than milk turning sour. In fact, by the time you can taste the sourness in milk, it's too late. Similarly with pollution -- most people barely noticed what was happening, and here we are today -- faced with a thoroughly polluted and disrupted biosphere.

(Kills) We often hear about The obvious manifestations of pollution, but do we really comprehend the seriousness and urgency of our situation? Today, we ought to understand what we did not know 30 years ago. At best, pollution maims an individual, or the people of a city. At worst, pollution disrupts the biosphere, selectively exterminates species, and, if man is not careful, most life forms on this planet -- an ecological suicide lurking around the corner.

Leaving discussions of eco-catastrophes to others, let us here focus on the effects of pollution on city man. Emphysema, lung cancer, and chronic bronchitis affect tens of millions of people, and each year additional unsuspecting millions, mostly children, are initiated gradually into their own physiological hells. The clinical effects of these diseases, of course, make grim statistics of which the general public is now well

7005/160

PARKS OPEN SPACES AND WATERWAYS

Human Needs and Their Evolutionary Reasons

by HUGH H. ILTIS, Associate Professor of Botany, University of Wisconsin, Madison

What sort of world do we want? A beautiful world, of course, rich, diverse, colorful and clean, with lots of wildlife, butterflies and flowers, pleasing and healthy for man. We can all agree on this. How to achieve this, how to plan for this, is another matter!

Man Needs Nature!

To plan a truly human world in a biologically (i.e. scientifically) sound way, we must be guided by the acceptance of the *Biological Nature of Man and the Biological Relationship of the Human Animal to his Environment*. Man, after all, is an intellectualized, clothed ape. We must therefore accept man as a part of, and the result of evolution, and as an inseparable part of the nature that produced him. This we can use as an absolute standard by which we can plan cities, states, and human lives! Man needs nature as part of his very existence, because *this need is part of his adaptational inheritance, the result of his long biological evolution*. Like all living things, man is a complex bundle of biological adaptations. His eyes and ears, his brain and heart, even his psyche, are the evolutionary adaptations of the human organism to nature, including other human beings. Remove these adaptations from their environment, from nature, and sick modern man is the result. Modern city man, in particular, far removed from nature in his asphalt jungles has to pay the price in neurosis, delinquency, and despair.

Many sensitive citizens, especially those who are "bird-watchers and flower-lovers," though often ridiculed by some segments of the public, are among the most dependable allies in conservation battles, for they are the very people who often instinctively understand man's inherited needs for beauty and diversity, man's inherited needs for nature.

Human Need for Beauty

I wish to stress that one of the reasons why we have to save and preserve natural areas is to save their beauty. *Human Needs for Natural Beauty, like Human Needs for Love, are very Likely Inherited*. Their overpowering force alone suggests evolutionary origins. This will be questioned, but I see no reason why we should not consider the ability to get pleasure from beautiful colors, views, and sounds, as well as from peaceful landscapes, in short, the ability to respond with pleasure to beauty, as an evolutionary adaptation, produced over hundreds of millions of years by natural selection. Thus, Tennyson's lines, "*Nothing In Nature Is Unbeautiful*," takes on new and deep significance.

If our generalized need for natural beauty is an ancient evolutionary adaptation, don't we need natural areas—not only for teaching, for research, or for direct economic reasons, but also to give our ears rest from the noisy cities, to give our eyes relaxation in green fields and blue skies, to give our brain a chance to function in the very environment which originally produced it, an unhurried, rather quiet, peaceful

Presented at Waukesha County (Wisconsin) Beautification Conference, February 1967.

land. The needs of healthy, happy humans for natural beauty are founded in the obligatory evolutionary relationship between man and nature. Nature could well live without man, but man cannot live long without nature. While man cannot change his physical, physiological and psychological evolutionary adaptations, since evolution is a geologic process measured in millions of years, man can rather easily modify his cultural view of his environment and thus stop its destruction. Unbridled human destructiveness is part of human culture. And, human culture, as history has shown us time and again, can be modified in a lifetime.

What Guidelines for Highway "Beautification"?

It is easy to pontificate about "beauty" and the inherent dependence of man on nature. But "Beauty is in the eye of the beholder"! And what if that beholder prefers cornfields or parks to prairies or flowers? Thus, there is always the immense danger of impressing our own personal, often city-conditioned ideas of what constitutes "beauty" on a helpless landscape. How should we then, implement present efforts to beautify often despoiled roadsides? Is the removing of junk yards and the planting of trees enough?

It seems to me that there are two major alternatives, one, the construction of manicured park-like roadsides, expensive to plant, expensive to maintain; or, two, the encouragement of the local native vegetation, be it oak savanna in Central Wisconsin, hemlock-white pine forest in Northern Michigan, tall grass prairie in Illinois or Kansas, short grass prairie in Texas, or desert vegetation in Arizona. Not that parks do not have their time-honored place, especially on the outskirts of cities? But for the vast USA, native vegetation types would seem superior. As in other cases, what is cheapest is also best, and such is the case here for the following reasons:

1) Natural plant communities are diverse, integrated and beautiful in many ways, give shelter to native animals, and, since next to nothing needs be planted, are cheap and *save the taxpayer money*. On the other hand, one artificial landscaped roadside is like any other, whether in Maryland, Wisconsin or California. Once you have seen one, you have seen them all: mowed grass, scattered conifers or shrubs, very pretty, very expensive, and very dull!

2) Certain natural communities and many of their species, especially in Wisconsin and the Middle West, are getting to be rare, and in the case of the once waving oceans of prairie grasslands, are all close to permanent extinction. Indeed, some of our last remaining prairie communities are along unsprayed railroad rights-of-way and country roadsides. There, any and every new road "improvement" program and "weed" control spraying destroys miles of hedgerows and innumerable beautiful and now rare flowers. Here again, the cheapest "beautification" would at the same time

(Continued on Page 35)

ILTIS

PARKS, OPEN SPACES AND WATERWAYS
Human Needs and Their Evolutionary Reasons

Hugh H. Iltis, Associate Professor
of Botany
University of Wisconsin, Madison

What sort of world do we want? A beautiful world, of course, rich, diverse, colorful and clean, with lots of wildlife, butterflies and flowers, pleasing and healthy for man. We can all agree on this. How to achieve this, how to plan for this, is another matter!

MAN NEEDS NATURE!

To plan a truly human world in a biologically (i.e. scientifically) sound way, we must be guided by the acceptance of THE BIOLOGICAL NATURE OF MAN AND THE BIOLOGICAL RELATIONSHIP OF THE HUMAN ANIMAL TO HIS ENVIRONMENT. Man, after all, is an intellectualized, clothed ape. We must therefore accept man as a part of, and the result of evolution, and as an inseparable part of the nature that produced him. This we can use as an absolute standard by which we can plan cities, states, and human lives! Man needs nature as part of his very existence, because this need is part of his adaptational inheritance, the result of his long biological evolution. Like all living things, man is a complex bundle of biological adaptations. His eyes and ears, his brain and heart, even his psyche, are the evolutionary adaptations of the human organism to nature, including other human beings. Remove these adaptations from their environment, from nature, and sick modern man is the result. Modern city man, in particular, far removed from nature in his asphalt jungles has to pay the price in neurosis, delinquency, and despair.

Many sensitive citizens, especially those who are "birdwatchers and flower-lovers", though often ridiculed by some segments of the public, are among the most dependable allies in conservation battles, for they are the very people who often instinctively understand man's inherited needs for beauty and diversity, man's inherited needs for nature.

HUMAN NEED FOR BEAUTY

I wish to stress that one of the reasons why we have to save and preserve natural areas is to save their beauty. HUMAN NEEDS FOR NATURAL BEAUTY, LIKE HUMAN NEEDS FOR LOVE, ARE VERY LIKELY INHERITED. Their overpowering force alone suggests evolutionary origins. This will be questioned, but I see no reason why we should not consider the ability to get pleasure from beautiful colors, views, and sounds, as well as from peaceful landscapes, in short, the ability to respond with pleasure to beauty, as an evolutionary adaptation, produced over hundreds of millions of years by natural selection. Thus, Tennyson's lines, "NOTHING IN NATURE IS UNBEAUTIFUL", takes on new and deep significance.

If our generalized need for natural beauty is an ancient evolutionary adaptation, don't we need natural areas -- not only for teaching, for research, or for direct economic reasons, but also to give our ears rest from the noisy cities, to give our eyes relaxation in green fields and blue skies, to give our brain a chance to function in the very environment which originally produced it, an unhurried, rather quiet, peaceful land. The needs of healthy, happy humans for natural beauty are founded in the obligatory evolutionary relationship between man and nature. Nature could well live without man, but

THE UNIVERSITY OF WISCONSIN
MADISON, WISCONSIN, U. S. A. 53706

DEPARTMENT OF BOTANY
BIRGE HALL
TELEPHONE NO. 608-282-1087

July 12, 1972

Senator Gaylord Nelson
Senate Office Building
Washington, D. C. 20510

Dear Senator Nelson:

I am writing to you about a most urgent and significant matter concerning the biology staff (or rather the lack of it) of the Environmental Protection Agency in Washington. As you know, one of the most important duties of the EPA is to prepare environmental impact statements (EIS). To properly prepare an environmental impact statement it is absolutely essential to have the services of competent taxonomists. Without the services of competent taxonomists, the environmental impact statements turn out to be nothing but charades, in fact frauds, to bamboozle the public. (Thus, the recent EIS on the Kickapoo River is shot through with hundreds of errors to the point of being ridiculous since the Corps does not avail itself of any taxonomic help. Nor does it have any taxonomist of its own. This EIS cites species after species that do not grow in the area, or that are known only from gardens!) It is obvious that the factual base of any environmental impact statement must include a thorough, competent, taxonomic survey of the plants and animals of the area. Clearly, the EPA should employ a minimum of one or two plant taxonomists per state, and at least as many animal taxonomists.

However, the facts concerning EPA are these: Among the EPA's 5000 Washington employees there is not one single plant or animal taxonomist! The EPA is dominated by pollution physicists, chemists and lawyers. Thus, the truly environmental, biological questions are not only neglected but, if included, are given lip service, fulfilling merely the letter, but not the spirit of the law.

I would like to urge you, then, to energetically encourage the EPA to use trained taxonomists and force the EPA to carry out its congressional mandate to present accurate environmental impact statements, which--as the very first step--must include taxonomic surveys largely to be carried out by taxonomists to be hired by EPA,

The matter is very serious. A related topic was the subject of a resolution presented at the June 6-8, 1972 symposium of the National Academy of Sciences dealing with SYSTEMATIC BIOLOGY--THE DEVELOPMENT OF A NATIONAL PROGRAM ON RESOURCES AND RESOURCE MANAGEMENT, I enclose a copy of this resolution, which urges increased federal support for systematic work. To carry out the provisions of this resolution, it is imperative that EPA hire at least 50 plant taxonomists. There is no shortage of trained personnel. It would not be difficult today to find competent plant systematics, since many young ones are looking for positions.

Finally, thank you for your magnificently presented statement at the Democratic National Convention. I was very proud that you represent Wisconsin in the Senate,

With all good wishes,

Hugh H. Iltis
Professor of Botany
Director of the Herbarium

cc; Richard Cowan
Peter Rayen
Billie Turner
Ruth Patrick
Pat Holmgren

HHI/lmr

Iltis: 'Get involved, save environment'

By DOUGLAS BROOKHART

Man has a right to a decent environment, but the only way he can save the ecosystem is to get involved, according to Hugh Iltis, professor of botany from the University of Wisconsin.

Iltis termed the University's high-rise concrete dormitories "glorified pig pens" in his speech at Hitchcock Hall Tuesday.

Iltis, who traveled more than 50,000 miles and made 70 speeches last year on the ecosystem, said, "We don't need conservation — we need preservation."

He said the environment is being destroyed at a fantastic rate and nothing is being done about it.

Iltis added, "Flowers are getting rarer; noise is getting louder; life is not what it should be."

"The reason to save flowers is that flowers make us happy. Healthy society requires healthy people, and healthy people require a healthy environment."

He attributed 75 per cent of the problems with the environment to technology, profit and the population explosion.

Calling himself a "professor of flowers," Iltis said celebrating Earth Week is a melancholy affair for him because nothing is being done to improve the environment.

He said, "I am thoroughly pessimistic; nothing has really happened this past year."

Everywhere people are grabbing for the last piece of land, Iltis said.

He added, "There is an obsession for developing, developing and making money."

He said the real criminals in the country are those who continue to exploit the environment for a profit.

Iltis explained that what is happen-

ing to the outdoor environment is a result of making the indoor living better.

He attacked what he called "ecopornography" calling it the "people's obituary." He explained advertising urging use of more appliances, power and conveniences is a threat to the environment.

Commenting on the title of his speech, "Dodos and Shooting Stars," Iltis said the dodo bird has been extinct since 1690 and now the shooting star, a prairie plant, is being plowed up to raise food and soon will also be extinct.

Iltis said the last landscape which has not been destroyed is the national

park. He said millions of city dwellers are now going to the parks to escape from an environment where they can't breathe or relax, but in doing this they are destroying the parks.

He said six million people visited Smoky Mountain Park last year and hotels and motels are springing up in the area.

Iltis said, "What little land we have left, they are selling off to satisfy the city people."

Iltis said ecology must be made a part of our nationalism and called for an "eco-religion" in which people would dedicate themselves to preserving the environment.



Jim Strock photos
PROFESSOR OF FLOWERS — Hugh Iltis, professor of botany from the University of Wisconsin, gestures emphatically in his Tuesday lecture on ecology at



Ohio State. "Flowers are getting rarer," he lamented. "Noise is getting louder; life is not what it should be."

Candidates make last-minute statements

Last minute attempts to sway voters in today's Undergraduate Student Government (USG) elections were made by eight of the nine presidential candidates in a debate Tuesday night.

Each candidate presented his platform and opinions to more than 100 persons at Stadium Scholarship Dormitory.

David Agee, Campus Progressive Party candidate, said student government loses credibility because it is "here and gone."

He said that, if elected, he would work to establish long range goals like a centralized bookstore that would pass savings onto students.

Afro-Am candidate McDonald Anderson said the question to be decided at today's election was who would best represent the student body.

He emphasized he was working to

change the students' image of Afro-Am as a group of black militants.

He said he would work for all of the students if elected.

Jeffrey Benson, candidate from United Students Organization said he would deal primarily with student rights. "Your rights are basically denied by the University," he said.

Benson used the example of disruption hearings, saying the University sets the rules, the prosecutor and the jury, while the student selects only his faculty representative, he said.

Ohio Party candidate Dale Feneli stressed that student government should serve as the leader of the student body.

He said he would work to try to establish a research bureau to determine student opinion. According to Feneli, "Students need someone who will stand up for students."

Jerome Friedman, independent candidate, said student government has not had a leader.

"It needs people who are willing to support the government," he said. "If people move in the way they did last spring, there are going to be some dead bodies this spring."

Independent candidate Mark Jacobs, said that, if elected, he would try to restructure student government. He said he would introduce a proposal to increase Student Assembly representation to one representative per 100 students.

According to Jacobs, this would bring the government closer to the

students. Jacobs said he and his running mate Granville Gano endorse the assembly candidates of University Party.

Brent Howe, candidate from Overnight Party, had no opening remarks.

Independent candidate Craig Morton did not appear.

During a question and answer

period that followed, Benson was asked about rumors of his attempting to obtain campaign funds from the Drackett Tower council.

Benson said he was aware a motion to give him funds was being introduced, but he did not know at the time the action may be illegal. The motion did not pass.

Opponents charge Benson violated CSA rule, state law

Jeffrey Benson, presidential candidate on the United Students Organization (USO) ticket, has come under fire from his fellow candidates for soliciting a campaign contribution from Drackett Tower Council.

Benson is a Drackett Tower resident.

At a Ranney Commons debate Monday night and in a letter to the Lantern published on today's Opinion Page, Benson's opponents charge that the solicitation was illegal under state law and in violation of guidelines drawn up for student organizations by the Council on Student Affairs (CSA).

Benson, through an intermediary, made the request for a \$500 allocation to USO on the March 8 Tower Council meeting. According to council

or a University guideline had been violated. Donald L. Mader, a sophomore from Springfield and president of Drackett Tower Council, said no one on the council suspected the move was illegal at that time.

The CSA guidelines governing alloc-

ations to student groups were adopted in February, according to Kenneth L. Bader, dean of students.

Jacob Davis II, legal counsel for the University, will determine whether the CSA guidelines are included in state law.



ohio state lantern

Digitized by the [Hunt Institute for Documentation](#)

**Mass transit
speech today**

MAN AND HIS VANISHING ENVIRONMENT
(A Contemporary Catastrophy)

Marked Copy

Hugh H. Iltis
Associate Professor of Botany

- A. ORIGIN OF LIFE 4 billion years ago?
 Earliest algae (plants) 2 billion years ago.
 Earliest invertebrates 1.5 billion years ago.
 First land plants 400 million years ago.
 First aquatic vertebrates 400 million years ago.
 Coal age & terrestrial vertebrates 250 million years ago.
 Dinosaurs and early flowering seed plants 150 million years ago.
 Extinction of Dinosaurs, rise of mammals 100 million years ago.
 First anthropoids (monkeys) 40 million years ago?
 First man-like animals ca. 2 million years ago.
 Evolution of man & glaciation of Pleistocene period last 1 million years.
 Extinction of great mammals last 30,000 years.
 Rise of civilization last 10,000 years.
Neolithic (agricultural) revolution.
Urban revolution.
Industrial revolution.
Darwinian revolution. Scientific (medical) revolution. 1859.
Technological revolution.
Conservation revolution (i.e. in mans relation to his environment)

Homonoid Population of world.

Pleistocene	ca. 1-10 million???
Classical	ca. 50 million
Time of Christ	ca. 200 million
1650 A.D.	ca. 500 million
1950 A.D.	ca. 2.4 billion
1964 A.D.	ca. 3.3 billion
1984 A.D.	ca. 7 billion ????
2984 A.D.	ca. 50 billion ?????

B. NATURES ROLE IN PRODUCING MAN.

Homo sapiens L., a highly evolved animal, a clothed intellectualized transformed ape, the result of evolution by natural selection (see above). All organisms, incl. man, closely adapted, physically & mentally, to earth's environment, because this very environment produced organism (To quote G. G. Simpson "any monkey without a realistic perception of the tree branch he jumped for was soon a dead monkey and therefore not one of our ancestors").
 Selection & evolution very slow! Mammalian attributes since 100 million, primate since 40 million, human since less than 2 million and civilized ca. 20,000 years. Mans adaptations the very core of his being. To understand man, we have to understand his adaptations, to understand these, we have to know nature.
Man is one of many animals in nature even if a dominant and important one. He cannot be divorced from it, or placed above it except to his own detriment.

C. MANS ROLE IN CHANGING THE FACE OF THE EARTH.

- Man the hunter. Use of tools, fire, hunting (resultant changes in forest and savana?). EXTERMINATION of many big mammals by man. Prehistoric Eurasia--Mammoth, Irish Elk, many other species; in America--Mammoth, Mastodon, Giant Sloth, Horse,

Mr. Kraampert, Mr. Olson

Ladies and gentlemen and
Friends

June 4, 1966

Mr. Kraampert

Mr. Olson
Krusdike

We have met here to celebrate not a hero
not a human event, but a plant community:
a very special plant community with
great meaning for man - the prairie grassland

Not only the richest farm land, not only
a rich and complex flora, but a
human cradle and legend -

For it is likely that man's ancestors,
when they came out of the trees,
did so in grassland!

Man and the prairie,
Civilization and grassland
are indivisible.

And man ~~does~~ ^{has} sung in praise of
grass since the prophets in the bible:
beginnings of humanity.

"All flesh is grass" said the prophet
Says ^{Senator} John James Ingalls ^(Kansas) in an address of ^{the} 1872
(USDA yearbook 1938 pp. 6-7)

"The primary form of food is grass.
Grass feeds the ox; the ox nourishes

man; man dies and goes to grass
again; and so the tide of life, with
everlasting repetition, in continuous
circles, moves endlessly on and upward,
and in more senses than one, all

flesh is grass"
"but herediction"

Not only praises are ³ sung for
the prairie. The ~~whole drama~~
wonder and pathos of the
human equation has never been
more dramatic, more touching, than
that of the early settlers in the
Midwest.

Write ^{Louis} ~~Paris~~ Hudson, in
Reapers of the Dust
"

"Once, in the memory of my own grandparents, that atomized earth had been nearly impossible to break with a plow. Enriched by the floods of vanished rivers, the droppings and bones of numberless generations of buffalo, the mulch of thousands of summers of grass, it waited now, - - -

A prairie child, walking in the loneliness of great spaces, absorbs familiarity with eternity. In that enduring loneliness I might have existed through centuries of freedom and bounty, when the grass rose to the shoulders of the buffalo and the grass and the buffalo fed each other, and the land and the grass held each other against wind and drought. This eternity of abundance had spread a feast for the bread-hungry world and for the soul of the farmer - but the farmer's soul had been too small to cherish the immense heritage.

Through the storm I was being informed that this eternity could not survive the ignorance of men. I was learning why my father sorrowed for the land, angrily grinding the dust in his teeth and thinking of the impossible combination of men and elements he faced - - - "

My own love of flowers⁽¹⁾ goes back to the prairie, to the prairies of my boyhood in Czechoslovakia.

When I was a young boy, my father, who was also a botanist, took me to Southern Moravia — to the steppes on the hills overlooking the Hungarian Plain. There among the warm vineyards were large rolling prairies, — steppes called the Puzsta — the western outthrust of the great Russian grassland.

We used to sit in the bright sun^{shine} on these tree-less slopes — in a sea of grass and flowers

Wild blue and yellow *Iris pumila* and *medeolus*

(5)

thyme and Inula and
prairie thistles, turkey foot
and Needle grass.

The foot-long feathery plumes
of the needle grass, — called by the
Hungarians "Orphan girls hair" — this
grass, especially, ^{undulating} waving in the wind
I will remember with love for the
rest of my life.

For My prairie days gave me,
as a 8 years old child, a sense of
Wonder,

When in the evening my father adjourned
to do botanical research at a vineyard with a
bottle of Tokay, I fell asleep at the table
clutching some prairie Iris and ^{prairie} ~~needles~~
Digitized by the Hunt Institute for Botanical Documentation

The first American Prairie plant that I ⁽⁶⁾
ever saw was Aster ericoides - the headless aster.

In the flower border behind my ~~year~~ old
German grandfather's house there was a big
bushy plant full of tiny white and
yellow stars, which ~~was not~~ gave out
flowers, and which he treasured with great
care. "Pass auf, die Aster aus Amerika"

Watch out! The Aster from America

From America! From America! What was the
land like, where this Aster grows ~~to~~ wild?
Would I ever see it?

I did come to America, and eventually
to Wisconsin and to Aster ericoides, ^{and I hope you finally met again} ~~which was~~ a ^{was}
speechless and tender reunion indeed.

The prairies— what a living
persian carpet! How beautiful!

(7)

But watch out, Aster from America,
and all the other prairie flowers!

Prairies make good corn fields!

And now only bits ~~of~~ and pieces are left.

Thus, we have to preserve what we can,
while we can.

~~For this land is the only~~

For this wild land is ~~the~~ only all we are
ever going to have, for all times to come.

To love, we hope to understand

To understand, we need to love

So both with the head and heart let
us learn what a prairie is, where it came

Oct. 24, 1966.

Dear George -

Thanks for your two notes.
Are you surprised at the reaction. I really
am not, for it is very difficult to change
anything in mid stream. as violently
opinionated I am, it was really quite
generous for me to be given such a fine
hearing. Perhaps Bernie (whom you must
greet from me) can follow up. Anyway, don't
forget. Just remember, *Allyrium* or *carbamide*
enclosed a copy of my Kenosha Prairie
Special - do with it what you want. Perhaps
you might like to pick out a choice to
to go with Andy's picture story.

I have had my Rebstock hall talk retyped
and will send you a copy with the
earnest request to tell me whether its
good enough for the *FIBS* Bulletin, and
if so, where I should cut and change.

Things here are as ridiculous as ever.
But never fear, sooner or later I'll ~~undo~~ ^{undo} through
you ~~last~~

A REQUIEM FOR THE PRAIRIE

Agriculture and the future of the American
Grasslands

Hugh H. Iltis
Associate Professor of Botany
University of Wisconsin, Madison.

Address to the Agriculture Convocation at Kansas State
University, Manhattan, Kansas, on Tuesday April 6, 1967.

We have talked tonight about the scientific utility of even 200 acres of prairie and what it can teach us of the evolutionary process, of hybridization, of extinction and ^{of} evolutionary history. || We have marvelled at the beauty of these plants, their bright colors and wondrous shapes, whose meaning as yet we cannot fathom. || And we have mentioned the practical values in agriculture that this plant community holds for the human species.

I have been pleased and honored to speak to this audience, pleased for very personal reasons, because your willingness to meet here is a thoughtful indication of your interest in saving from oblivion a piece of wild land that I ~~have learned~~ to love, ^{very much,} I have been honored because of far deeper reasons. Your presence here

is surely a reflection of a hopeful rebirth of human sanity, a human awakening to the great values that wild land has to man and I am honored to be a part of it. By coming together in this project, you are pointing an example to humanity, a lesson of far greater implications than that which can be learned from this remnant of unplowed prairie, a lesson that the varied end-results of two billion years of evolution (wherever they may still be left intact in all their dazzling complexity) have value to man far beyond their price tag in dollars.

There is, however, an additional and overriding urgency to awake in time to prevent the permanent extinction and subjugation of the living landscape. Taine, the ^{French} ~~English~~ historian, has said that "the

body of man in every country is deeply rooted in the soil of nature". "Give the philosopher a handful of soil, the mean annual temperature and rainfall, and his analysis would enable him to predict with absolute certainty the characteristic of the nation" (Ingals, JJ. in USDA 1948, 7).

We, in this overly rich country, have forgotten this basic truth. We have worshipped the high standard of living, but have forgotten that ultimately it flows from the land. Until 30 years ago, we as a people identified closely with the pioneers, their hardships and devotion, their environment of hostile Indians, of cattle and cowboys, of stars over the unending boundless oceans of waving grass. The prairie was their garden in more than one way. The marvel of 6 feet of top soil, the magnificence

of millions of buffab, the sweat of the breaking of the sod and the harvest of vast yellow fields of wheat are part and parcel of our history. Without the prairie, we, the American people of today, cannot understand where we came from, what we are, and where we are going.

When you were young, there were still virgin prairies, and from the Barnes Prairie south of Racine, carts-full of White Ladyslipper bouquets were carried to be sold in Chicago markets. When you were young, you still were part of the tradition that made your life. Today nothing is left here except Chiwaukee. ^{Prairie} In the whole "Prairie State" of Illinois, there are not 40 acres of deep-soil prairie left! The "landscape" to all people, of all lards, which to the poets was " a mother that

never dies", has been subjugated and killed.

Yet the landscape as it was when the settlers came is still vitally important to our educational process, to our whole culture. By our avarice, we are loosing touch with what made Wisconsin what it is today, not only our land resources that made us wealthy, but what made our culture, our life. ^{Yes, Science will} There is, furthermore, a vast gulf in our awareness, in what people think the scientist needs to keep us rich and abundant, and the simple unspoken needs of humanity to keep in touch with its ancestry. We need landscape, fenceless wild lands, to know how they, our forefathers lived and worked. We need wilderness to know where we, the human species came from. We are rapidly becoming cultural

and evolutionary orphans, a people without a past, *a species with unmyriad adaptations.*

We cannot, then, in truth, sing a halleluja, for the prairie is all but dead. We have come here instead for a solemn requiem. The word requiem comes from the first word of the mass for the peaceful repose of departed souls in a new life, "Requiem aeternam dona eis, domine". Let us remember that in singing a requiem for the prairie, we are ~~not only saying a prayer for man but~~ ^{here} rejoicing in its future! We who understand that the basis of human culture lies in the past, we who believe that man does not live by bread alone, are meeting here to pledge our conservational ideals with concrete action. That Chiwaukee Prairie shall thrive, is our responsibility. That Chiwaukee Prairie

7

shall live and bloom for 10,000 years to come, is our dedication to our culture and our legacy to our children, so that they, on a warm spring day, can feel peace in a sea of grass, watch a bee visit a shooting star, hear a sand-piper call in the sky, and understand the incomprehensible symphony of life.

1271 S

WILDERNESS: CAN MAN DO WITHOUT?

by Hugh H. Iltis

It is no simple task today to save wilderness or show concern for nature. Power-hungry politicians or nations, and profit-hungry land developers ^{or plain hungry people} do not like emotional outlooks embraced by "birdwatchers" and "nature-lovers" which block "honest" efforts to glory, fame and money, ^{or simply a full stomach} "What is more important, robins or people?" sneer the proponents of DDT. But what if man needs nature and natural diversity? What if he has to have wild land to fulfill environmental needs, genetic needs, though still mysterious and poorly understood, yet very real indeed to human happiness, needs for beauty and adventure, for solitude and love, needs for recharging our bodies and souls after the rat race of the crowded industrial super-state? The answers to these questions are crucial for our times; they must be carefully examined.

Aldo Leopold (1) pleaded for a "Land Ethic", for the preservation of wild nature for its own sake. In a way, one can approve of this altruistic sense of stewardship. Yet those who think Leopold's view is merely sentimental can make an equally strong case for wilderness preservation for man's sake. Why does man need nature? Beauty? Diversity? The answers are biological and lie in man's evolutionary past.

Whether we like it or not, we are but a thin slice of evolution above the apes, and not a thin prayer beneath the angels! We are, indisputably, primates, we are animals! Genetically we are programmed, not to Chicago or New York, but to the tribal hunting life of the forests and

THE MEANING OF HUMAN EVOLUTION TO CONSERVATION

Hugh H. Iltis
Department of Botany, University of Wisconsin
Conference on State Natural Area Systems, Held at the University
of Wisconsin at Madison, Nov. 13-14, 1964

To George, an attempt to pay
my debt to society -
from Hugh
(I still can't write!)

Evolution, like history, does not repeat itself. In both, the series of changes or revolutions, one on a geologic, the other on a cultural time-scale, however, do have predictatory value for man. By understanding his past history and biologic evolution man can hope to adapt to change and thus to control his fate. Failure to adapt on the other hand will mean extinction. The more rapid the changes, the more violent the revolutions, the greater the dangers of evolutionary or historical disasters. Since modern scientific man is the only animal that has to adapt through will rather than through fate, (since for him natural selection has all but ceased to operate), it is important that he understands the rules by which to play the game. Thus, whether man shall remain the "darling of the gods" or become extinct is strictly up to him. He may wish to remain happy without being good, but evolution will certainly not let him. For evolution and history are littered with the fossils of extinct species and the ruins of vanished cultures. Conservation, whether of species, biotic communities, or of man, thus becomes highly meaningful only with evolutionary understanding.

Now we, in the 1960's, are living in a period of unprecedented revolutions, rapid, violent revolutions in the relationship of man to his environment.

Of these, there is, first of all, the revolution of rising expectations that is sweeping the underdeveloped countries of the world, and even parts of the United States.

There is, secondly, the allied revolution in the methodology of exploitation, in the tremendously increased efficiency in the use and destruction of resources, living or dead.

Third and last, important for all of us in its rather healthy if late beginnings, there is the Revolution of Conservation.

There can be little doubt, that 1964 and the second session of the 88th Congress, called rightly not only the "Civil Rights Congress" but also the "Conservation Congress", with its WILDERNESS BILL, Land and Water Conservation Act, "Clean Air" bills, pesticide bills, with its new National Parks, National Seashores, and the Ozark River bills, represents a milestone, in a sense a tremendous revolution, in American conservation.

Now, like all revolutions, the revolution of conservation, is a giant battle for the minds and feelings of men, not only of the select conservationists that are leading this cause, but also of the man in the street, the "common man".

If we are to win this revolution in man's view towards his environment, and win we must if human culture, (yes, even the human species) is to survive, we must understand the issues, we must understand what we are fighting for and what we are fighting against. For only by having a clear understanding ourselves, can we change the understanding of others, understanding that will eventually result in intelligent conservation.

ILTIS

To George -

My best friend (and mentor!)
I give this in thanks for
teaching me how to write
from Hugh

"THE MEANING OF HUMAN EVOLUTION TO
CONSERVATION"

Hugh H. Iltis

This talk was delivered on RELIGION FOR TODAY
over W I B A on Sunday, April 4, 1965.
RELIGION FOR TODAY is presented every Sunday
morning at 10:05 by the First Unitarian Society
of Madison. 65-26

In an age when it is fashionable to glorify technology, when machines, we are told, will liberate man from all the limitations of his animal nature, when atomic physics promises to produce for us all we shall ever need, to discuss the meaning of human evolution to conservation may seem out of place. Yet evolution, that most wonderful of all phenomena, not only produced the lilies of the fields and the lowly earthworm amongst their roots, but also that king of all beasts, the human animal. It is obvious, therefore, that the study of evolution is a passport to the understanding of man and man's place on earth, as well as of conservation.

Evolution, like history, does not repeat itself. Nevertheless, in both, the series of changes or revolutions, one on a geologic, the other on a cultural time-scale, do have value for man. By understanding his past history and biologic evolution, man can hope to adapt to change and thus to control his fate. Failure to adapt on the other hand will mean extinction! The more rapid the changes, and the more violent the revolutions, the greater the danger of evolutionary or historical disaster. Since modern scientific man, generally dies in bed and of old age, is the only animal that has to adapt through will rather than through fate (since for his natural selection has all but ceased to operate), it is important that he understands the rules by which to play the game. Thus, whether man shall remain the "darling of the gods" or become extinct is strictly up to him. He may wish to remain happy without being good, but evolution will never let him. For evolution and history are littered with the fossils of extinct species and the ruins of vanished cultures. Conservation, whether of species, biotic communities, or of man, thus becomes highly meaningful only with evolutionary understanding.

Now we, in the 1960's, are living in a period of unprecedented revolutions, rapid, violent revolutions in the relationship of man to his environment. Of these, there is, first of all, the revolution of rising expectations that is sweeping the underdeveloped countries of the world, and even parts of the United States.

There is, secondly, the allied revolution in the methodology of exploitation, in the tremendously increased efficiency in the use and destruction of resources, living or dead.

Third and last, important for all of us in its rather healthy if late beginnings, there is the Revolution of Conservation.

1964 and the second session of the 88th Congress, called rightly not only the "Civil Rights Congress" but also the "Conservation Congress," with its WILDERNESS Bill, Land and Water Conservation Seashores, and the Ozark River bills, represents a milestone, a revolution, in American conservation.

THE
MEANING
OF
HUMAN EVOLUTION
TO
CONSERVATION

by

Hugh H. Iltis

In an age when it is fashionable to glorify technology, when machines, we are told, will liberate man from all the limitations of his animal nature, when atomic physics promises to produce for us all we shall ever need, to discuss the meaning of human evolution to conservation may seem out of place. Yet evolution, that most wonderful of all phenomena, not only produced the lilies of the fields and the lowly earthworm amongst their roots, but also that king of all beasts, the human animal. It is obvious, therefore, that the study of evolution is a passport, the only passport, to the understanding of man and man's place on earth.

Evolution, like history, does not repeat itself. Nevertheless, in both, the series of changes or revolutions, one on a geologic, the other on a cultural timescale, do have value for man. By understanding his past history and biologic evolution, man can hope to adapt to change and thus control his fate. Failure to adapt on the other hand will mean extinction! The more rapid the changes, and the more violent the revolutions, the greater the danger of evolutionary or historical disaster. Since modern scientific man, who generally dies in bed and of old age, is the only animal that has to adapt through will rather than through fate (since for him natural selection has all but ceased to operate),* it is important that he understand the rules by which to play the game. Thus, whether man shall remain the "darling of the gods" or become extinct is strictly up to him. He may wish to remain happy without being good, but evolution will never let him. For evolution and history are littered with the fossils of extinct species and the ruins of vanished cultures. Conservation, whether of species, biotic communities, or of man, thus becomes highly meaningful only with evolutionary understanding.

Now we, in the 1960's, are living in a period of unprecedented revolutions, rapid, violent revolutions in the relationship of man to his environment. Of these, there is, first of all, the revolution of rising expectations that is sweeping the underdeveloped countries of the world, and even parts of the United States, a revolution dependent on increased productivity through increased technology. Thus, there is, secondly, the allied revolution in the methodology of exploitation, in the tremendously increased and often blind efficiency in the use and destruction of resources, living or dead.

Revolution in American Conservation

Third and last, important for all of us in its healthy if rather late beginnings, there is the Revolution in Conservation, which, forced upon us by the alarming destruction of our wildlife resources, we finally have to face. In this revolution, the "shot that was heard around the world" was fired by a quiet studious lady biologist, Rachel Carson. In exposing man's deliberate pollution of his environment through pesticides, her brilliant book Silent Spring, published in 1962, drastically and probably for ever changed our optimistic faith in Science, and, as Garrett Hardin recently pointed out, forced scientists and technicians alike, for the first time in history, to recognize and accept their awesome and inescapable social responsibilities.

*The geneticist Sewall Wright, now emeritus professor at the University of Wisconsin, commented on this in a letter: "I doubt whether natural selection has all but ceased to operate in man, but I am afraid that it is operating to produce a type that flourishes in a slum environment that will hurry man's progress to destruction or at least to a tolerance of overpopulation under which human life would seem to lose most of its value."

Wisconsin Acad. Rev. 18-23

Spring 1966

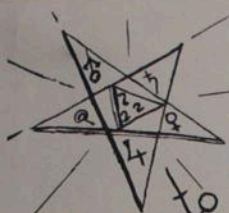
Digitized by the Hunt Institute for Botanical Documentation



Northwest Conifer

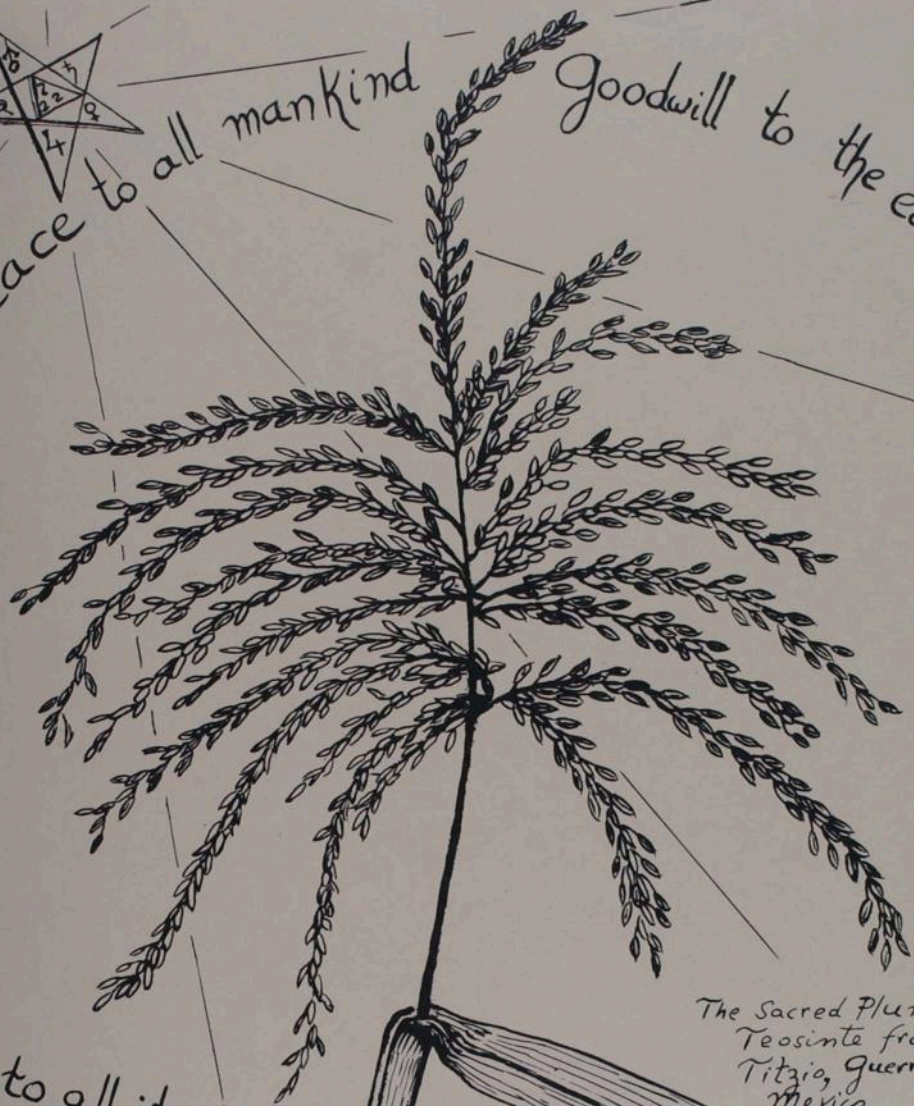
Pacific Northwest Chapter of the Sierra Club

VOLUME 17, NUMBER 4



Peace to all mankind

Goodwill to the earth,



The Sacred Plume,
Teosinte from
Titzio, Guerrero,
Mexico.

to all its flowers,
birds and children,
both young and old,
and to you -

From all of us
- a Happy New Year!

Conflicts At Milwaukee

The theme of the Winter Section Meeting held during March in Milwaukee was "Conflicts in the 70's." This theme proved to be very descriptive of considerable controversy and discussion followed two of the presentations. These were addressed by Mr. George Amidon, Asst. to Vice-President, Boise-Cascade Corporation and Dr. Hugh Iltis, Professor of Botany, University of Wisconsin. Following the meeting letters were exchanged between Mr. Richard Hull, Milwaukee Chapter Chairman, and Dr. Iltis. These letters are reproduced here for the benefit of the section membership.

Dear Dr. Iltis:

We appreciate your taking time to speak to the members of the Wisconsin-Michigan Section of the SAF. However, in all honesty, we do not understand why you chose the particular method of presenting your thoughts.

Because of a commitment with Mr. Meadows to appear on a local television show, I heard only the first few minutes of your speech. Upon returning, I was quite surprised to hear everyone talking, not about the concerns which you presented, but about the way they were presented. Particular concern was expressed about what appeared to be a personal attack on the previous speaker, Mr. Amidon.

There are a number of people espousing different causes who do it on the basis of emotion with very little scientific foundation. It is especially regretful that you, with a sound scientific foundation apparently failed to win support because of the method of presentation.

All of us know that the blame for the current situation or responsibility for what might happen in the future cannot be assigned to any one individual; to any one industry; or to any one anything else. Your apparent assumption that Mr. Amidon was personally responsible is, of course in error. Your further assumption that all our members support all the policies of industry, Government, and other forest land management components is also in error.

Before leaving the meeting I felt you were being unfair in your presentation. Specifically, in referring to the fact that many forest industries were subdividing and selling some of their lands, you failed to explain the social and economic forces which have led to that situation and which, I am sure, you will agree are the real problem. I'm sure you will also agree that being more efficient is not necessarily contrary to the concept of a steady-state system. No one yet knows the optimum population of our "spaceship." We do know that it is not a very trim ship at the moment. Most of Mr. Amidon's comments on growth referred to improving production from forest lands which is just as important as recycling efforts. You chose to view this as a personal belief by Mr. Amidon in a policy of wholesale and unlimited growth. Primarily, my feeling of unfairness stemmed from the fact that the program did not provide an opportunity for Mr. Amidon to reply.

It is the consensus of our membership that an apology should be offered to Mr. Amidon. We hope you will consider doing so. Since we think your message is important, we would like to provide an opportunity for it to be restated to our members. Consequently, I will try to have your reply to this letter published in our newsletter.

Our treasurer is out of town this week. As soon as he returned, he will send you a check to cover your expenses as discussed with Dick Winslow.

Sincerely,
RICHARD D. HULL, Chairman

Dear Mr. Hull:

Thank you for your letter of March 23 regarding what you consider my controversial appearance before the Society of American Foresters in Milwaukee on March 17, 1972. I am sorry that you feel sensitive regarding my presentation. My assignment, as I understood it, was to shake the forestry industry out of its production-oriented, profit-motivated board-foot per acre intellectual ruts. That these ruts are deep indeed need not be repeated. In my comments I ob-

viously hit upon many sensitive issues. If, then, the shoe does fit, do not object to put it on.

First of all, I do not believe that Mr. Amidon (of whom I had never heard before this meeting) misunderstood my comments. They were not particularly personal attacks on him but clearly were intended as criticisms of the biglumber corporations, especially his own, Boise-Cascade, which he represents as vice-president. Mr. Amidon seemed perfectly capable of taking care of himself and of receiving, what are, in my opinion, well-deserved criticisms of the big lumber industry. We discussed these matters in the lobby after the lecture, and at that time I offered to him whatever personal apologies might be necessary. On the other hand, Mr. Amidon's own presentation was full of self-serving, snide and misleading remarks about organizations such as the Sierra Club and the Wilderness Society, the very organizations to which, in fact, we owe the recent initiation of basic changes in the political, economic, and environmental climate which this country and the world so desperately needs. I personally feel that Mr. Amidon does not have very great commitments to changing the malpractices of the forestry industry nor of his own company, except when forced to do so under political-environmental pressure. The Boise-Cascade Corporation may feel satisfied in using land subdivisions to bail itself out of financial trouble due to growth and profit megalomania, but this is still no excuse to swindle the American public with irresponsible albeit elegant advertisements. The court suits out West, with levies of over a million dollars in fines and reimbursements on Boise-Cascade land development schemes, speak for themselves.*

You ask me to apologize to Mr. Amidon. For my criticism of what he said in his speech, never! His whole speech was a plea to allow short-term forest exploitation without an intelligent thought toward long-term responsibilities. He came through clearly as a defender of special privilege, of the rich, of the stock-owners, of the developers who use the "commons" of nature to make money out of the outright destruction of the ecosystems, methods which his company, under the ideological likes of him, have perfected to the high

(continued on page 12)

Shepherds Leading Sheep to Slaughter

The Biology Teacher and Man's Mad and Final War on Nature

By HUGH H. ILTIS

• First part of a two-part article. The extensive references, including those cited here, will appear with the remaining text, in April. At that time, too, the significance of the italic line in the title will be more strongly apparent.

Walking the crowded streets of Chicago on the first morning of the NABT convention, I picked one of Mayor Daley's plastic flowers and wished for a few real ones. I also wished for fewer people and cars. After all, the topic of my address to the convention, and one of the main concerns of NABT, as it ought to be for all men, was the people-environment equation. And there is no better place in the world to perceive the staggering imbalance so typical of modern civilization than downtown Chicago. I was reminded of a comment by Marston Bates (1955), to this effect: Human population growth is like cancer. The yearly annual increase is now about

This paper is adapted from the keynote address to the annual convention of the National Association of Biology Teachers, 14 October 1971, in Chicago. Hugh H. Iltis is professor of botany and director of the herbarium, University of Wisconsin, Madison 53706. A 1948 graduate of the University of Tennessee, he did graduate work at Washington University and the Missouri Botanical Garden (M.A. 1950, Ph.D. 1952). He has taught at Wisconsin since 1955. Iltis's field work has taken him to Costa Rica, Mexico (maize studies), Hawaii, and Peru (potato studies). His special interests are biogeography, evolution, and the preservation of biotic communities. A devotee of backpacking and camping, with a deep concern for the "optimum human environment and human adaptations, especially as they relate to children and the family," he has been active in Nature Conservancy, the Sierra Club, the Wilderness Society, and other preservation groups.



70 million, or 6 million a month—the equivalent of the population of Chicago. And whatever one may think of Chicago, a new one every month seems a little excessive.

Excessive, too, is the general unawareness of the significance of all the environmental turmoil: the popular view that, on the one hand, man can somehow adapt to pollution and crowding and, on the other hand, that he can solve his environmental problems solely by relying on technologic advances.

In a cartoon in *Look* magazine (Flagler, 1971) two businessmen are walking down Fifth Avenue with their attaché cases; one is saying to the other: "The way I look at it, there's a price tag on everything. You want a high standard of living, you settle for a low quality of life." The irony here may not be lost on you, but it seems to have been missed by many economists and sociologists. Indeed, even Philip Hauser, the eminent demographer at the University of Chicago, seems to see nothing particularly incongruous about giving up a biologically rich and humanly decent environment for one with increased urbanization and all that that implies—and using almost the identical language of that cartoon to do so! He said, in an interview:

The romantic nostalgia that some town and country planners have espoused is utter nonsense. Ferdinand the Bull sitting under the trees and smelling the pretty flowers just won't work in the modern world of the present or the future. This could be accomplished only at the expense of lower productivity and lower levels of living. (Hess, 1971)

But the problem of man and nature cannot be so cavalierly and sarcastically dismissed. Like so many

FROM FLOWERS TO HUMAN ECOLOGY -
The Genesis of an Environmental Concern

Hugh H. Iltis --- March 29, 1973
Department of Botany, University of Wisconsin
Madison, 53706

the referent is obscure - it must be 'wage', but one friend thinks of 'loveless'

Why do I get an irrepressible urge to defend what I love, the beauty and diversity of ^{the} Nature, and, especially, the utter ^{of} devastating loveliness of its flowers? A peculiarly circuitous route led me to this, [add] ^{concern} and to a critical interest in what one might call the "foundations" of a science of landscape architecture. And ^{since} ^{has asked me} since your editor ^{how it comes about that I have} wanted personal views of the genesis of these ideas and convictions, I am pleased to present them.

One of my earliest recollections ^{is} was joyfully picking huge and wildly ^{un}disorganized bouquets ^s of flowers on a Moravian mountain meadow, Scabiosas, Campanulas, ^{blackbelle and} daisies, and then lying in tall, tall grass watching the bees and the clouds. Ever since ^{then} I have been an addicted botanist, "half-plant", as an old friend of mine used to describe me.

scabiosa (= Scabiosa)

When I was five, I had a small rock garden behind our house, and from ^{our family} every field trip ^{we} my family went on, we brought back ^{specimens} plants of Adonis vernalis, Iris pumila, and a host of other prairie plants. We were fortunate --- for even while the insane clouds of Nazism cast a shadow on my native Czechoslovakia, ^{we spent} our summers ~~were spent~~ in the Bohemian ^w Woods, helping farmers bring in the rye on big horse-drawn wagons, catching fish by hand, cooking cray fish, but especially walking over heath and moor, looking for rare flowers and butterflies. By the time we landed in Virginia in 1939, ^{only six weeks} ahead of Hitler's invasion of Czechoslovakia, I knew my plants well and loved them even better.

Why not ^{more} ^{I doubt I know what 'I love you better' means. Ich liebe dich besser' good German? I don't know. If it is, you are} Now, to be a refugee was no fun: to learn a new language ^{and} and

from in words? into

... I don't know. If it is, you are ... Ich liebe dich besser' good German? I don't know. If it is, you are ...

edited by: J. David Allan, University of Chicago
Arthur J. Hanson, University of Michigan

Wadsworth Publishing Company, Inc.
Belmont, California, 1972, pp. 98-102.

Pollution: Can Man Adapt?

Hugh H. Ittis

Why is pollution so important a question today? Why is it so crucial to human survival? Bad odors, noise, a few dead birds, and many dirty beaches are indeed unpleasant, but most of us can live with them, or have learned to ignore them. For these reasons, perhaps, the beginnings of the pollution crisis were not much noticed and were no more obvious than milk turning sour. In fact, by the time you can taste the sourness in milk, it's too late. Similarly with pollution most people barely noticed what was happening, and here we are today—faced with a thoroughly polluted and disrupted biosphere.

We often hear about the obvious manifestations of pollution, but do we really comprehend the seriousness and urgency of our situation? Today, we ought to understand what we did not know 30 years ago. At best, pollution kills an individual or maims the people of a city. At worst, pollution disrupts the biosphere, selectively exterminates species and, if man is not careful, most life forms on this planet—an ecological suicide lurking around the corner.

Leaving discussions of eco-catastrophes to others, let us here focus on the effects of pollution on city man. Emphysema, lung cancer, and chronic bronchitis affect tens of millions of people, and each year additional unsuspecting millions, mostly children, are initiated gradually into their own physiological hells. The *clinical effects* of these diseases, of course, make grim statistics of which the general public is now well aware. In addition one may be impressed by well-publicized disasters such as the London smog of December 1952, which killed 4000 people, or by predictions of future and far greater disasters for Chicago or Los Angeles.

Less well known by far are the less spectacular, but probably more important *subclinical effects*, the subtle effects of chronic exposure to air, water,

and food pollution found in the larger cities. The problem was well phrased by Harold Cassidy who cites Randolph's 1956 study of pollution effects in Chicago:

... in one third of his chronically ill patients, the leading causative factor was susceptibility to pollutants in air, water, food and drugs; in another third, it appeared to be a contributing factor. Now consider the effects of chronic exposure. These are manifested in asocial attitudes, moroseness, sullenness, "seclusive, and sometimes hostile and paranoid behavior," dopeyness, indifference to surroundings sometimes approaching lethargy, etc.

Put all these discoveries together and realize that the people affected are continually making decisions—sometimes major ones, like determining community policy; sometimes minor ones, like initiating a quarrel. If irritability is increased, asocial attitudes enhanced, and judgment impaired, the effects [of pollution] can become amplified to enormous proportions. We have here a factor that is not commonly mentioned in listing the causative reasons for riots, crime and the less spectacular idiocies we see practiced in our cities.¹

Now, for the sake of argument, consider a president and his cabinet sitting in the White House, Constitution Avenue on one side, Pennsylvania Avenue on the other, both crowded with trucks and cars. They are discussing the possible bombing of Red China or our invasion of Cambodia, when a series of trucks sends huge clouds of exhaust gases into the conference room. Remember some of the subclinical effects of such pollution: "... asocial attitudes, ... hostile and paranoid behavior, dopeyness ..."

Fantasy? Perhaps. But who can say it isn't so?

Similar concerns have been voiced by René Dubos, relating to the truly devastating subclinical effects of pollution on children:

All environmental influences have their deepest and most lasting effects when they act on the organism during the early ... formative development. ... It is not an overstatement to say that in human beings the first four years of life—and for that matter, prenatal life—are of such critical importance that if the environment at that time is *not just right* the organism suffers some kind of handicap from which it will *never recover*. In the light of this fact, the worst effects of environmental pollution are probably yet to come, since it is only during recent decades that certain chemical pollutants have reached high levels, and that children have been exposed to these pollutants almost from birth [emphasis added].

Clearly these children are not going to die. What will happen is that in 20 or 30 years, as a result of that slow, chronic response to environmental insult, these children will certainly suffer from some form of chronic disorder ...²

As Dubos points out, despite our high levels of technological knowledge, these man-made poisons, of which in car exhaust alone there are hundreds, are all but unknown:

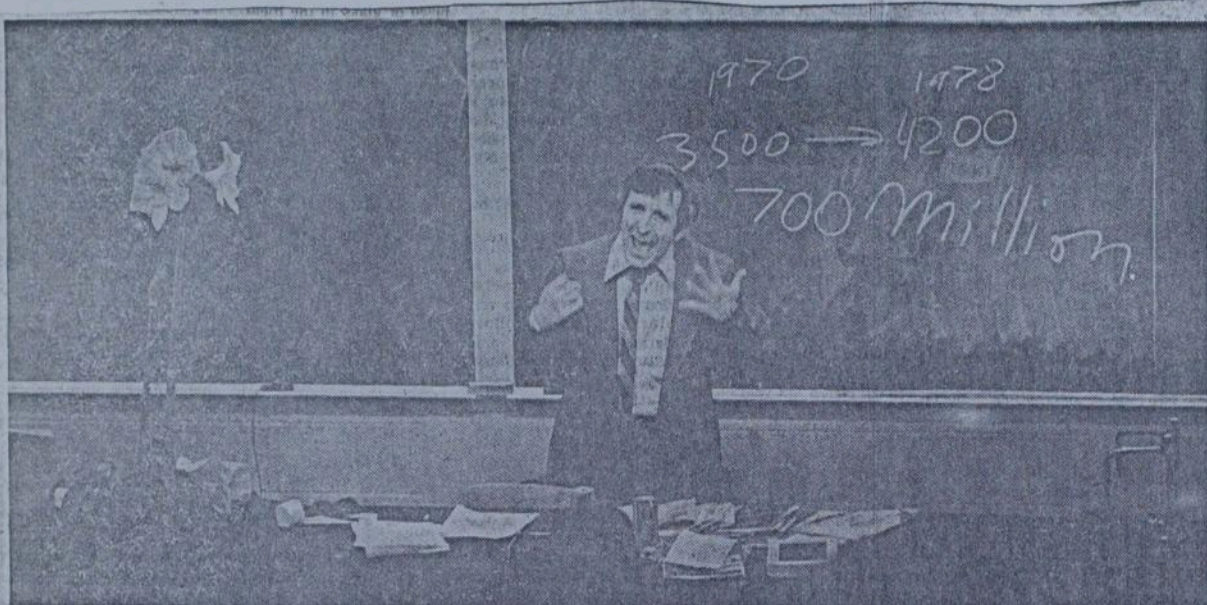
Most important, and generally overlooked, is the disturbing fact that some 70 percent of the particulate contaminants in urban air are still unidentified. Their

A REQUIEM FOR THE PRAIRIE

Agriculture and the future of the American
Grasslands

Hugh H. Iltis
Associate Professor of Botany
University of Wisconsin, Madison.

Address to the Agriculture Convocation at Kansas State
University, Manhattan, Kansas, on Tuesday April 6, 1967.



(Freeman Staff Photo by Lou McClarian)

Waukesha (Wisc.)
Freeman

Feb. 28, 1978

Hugh Illis makes a point about survival Wednesday at UW-Waukesha

Abortion—Earth's Final Chance?

By Paul Bargren
Freeman Staff

Free abortion is about the only hope for Earth's survival, according to Hugh Illis, professor of botany at University of Wisconsin-Madison.

It's not abortion that's the sin, he told UW-Waukesha students in a guest lecture Wednesday. It's the worship of a technology that is supposed to accommodate billions more people at the expense of raping the Earth.

But these truths, he said, are being kept from the public by "big

they shoot rockets to the moon," he said.

He exhorted his 120 listeners to action. "You need a social change of a very dramatic type," he said, "and I don't mean a change from Ford to Carter. The same people that controlled Ford control Carter — David Rockefeller and the Chase Manhattan Bank and the like."

Growth and development can no longer be the all-pervasive goal, he said.

He showed a slide of an artist's

vision of Earth's population in 2000. "If you double Earth's population in about 35 years, he said.

And last year, there were 51 million abortions in the world. Without those abortions, "who is going to feed 131 million people?" he asked. "And what is going to be left after all these people arrive?"

Endangered species are a prime concern of Illis. He laments the dwindling gene pool of the world, which threatens the adaptability and stamina of the world's plants and animals.

products of growth and free enterprise," he said. "They are the essence of it. You cannot make money unless you pollute, destroy, make people sick."

Because of stricter pollution laws in the United States, "they've moved to places like Peru and Taiwan."

"Where do your shirts come from? From Taiwan, from a factory that pollutes the world, because the multinationals own the world."

Does Illis see hope? It certainly won't come from "the Neanderthals in Milwaukee," he said.

Waukesha (Wisc.)
Freeman

Hugh Illis makes a point about survival Wednesday at UW-Waukesha

Febr. 28, 1978

Abortion—Earth's Final Chance?

By Paul Bargren
Freeman Staff

Free abortion is about the only hope for Earth's survival, according to Hugh Illis, professor of botany at University of Wisconsin-Madison.

It's not abortion that's the sin, he told UW-Waukesha students in a guest lecture Wednesday. It's the worship of a technology that is supposed to accommodate billions more people at the expense of raping the Earth.

But these truths, he said, are being kept from the public by "big business, the people that run this country," run the world, control the media, control our lives.

Among Illis' points:

• The world's environment is in more danger than ever because abuses are being ignored after the concern of the early 1970s.

• Environmental abuse has, to an extent, moved from the United States only to resurface in the rest of the world, which shares our water and air.

• Huge companies are attacking the tropical rain forests of the world with abandon, attempting to meet the world's demands for lumber, minerals and food and, as luck would have it, making a tidy profit in the process.

But those points might have been lost in the broad generalizations which formed the mainstay of Illis' lecture.

The world's policies are controlled by "an elite of madmen absolutely bent on technological advance," he said.

"The people that rip you off — they own the media ... they're going to drown you with garbage while

they shoot rockets to the moon," he said.

He exhorted his 120 listeners to action.

"You need a social change of a very dramatic type," he said, "and I don't mean a change from Ford to Carter. The same people that controlled Ford control Carter — David Rockefeller and the Chase Manhattan Bank and the like."

Growth and development can no longer be the all-pervasive goal, he said.

He showed a slide of an artist's conception of a future city, with towering buildings and massive roadways separated neatly by lush parks.

"Is this what you want?" he said. "Do you want to raise your kid on the 170th floor? If you don't have abortion, you are going to have it."

Last year, the world's population increased 80 million to about 4.2

billion, he said. The time needed to double Earth's population is now about 35 years, he said.

And last year, there were 51 million abortions in the world. Without those abortions, "who is going to feed 131 million people?" he asked. "And what is going to be left after all these people arrive?"

Endangered species are a prime concern of Illis'. He laments the dwindling gene pool of the world, which threatens the adaptability and stamina of the world's plants and animals.

But at the rate the world is being logged, mined and polluted, "every major animal — except for a few things like the white-tail deer — will be extinct in 50 years. All primates will be extinct, certainly," the victim of primate man.

It's greed that does it, he said. Pollution, soaring population and animal extinction "aren't the by-

products of growth and free enterprise," he said. "They are the essence of it. You cannot make money unless you pollute, destroy, make people sick."

Because of stricter pollution laws in the United States, "they've moved to places like Peru and Taiwan."

"Where do your shirts come from? From Taiwan, from a factory that pollutes the world, because the multinationals own the world."

Does Illis see hope? It certainly won't come from "the Neanderthals in Milwaukee," he said.

"Let's call a spade a spade," he told the students. "You are the one-tenth of one percent of the population who can do anything about it, because you are in a university and you know what's going on."

"The rest of the population doesn't know anything."

(Freeman Staff Photo by Lou McClellan)

UNIVERSITY OF WISCONSIN-MADISON

DEPARTMENT OF BOTANY

139 Birge Hall
430 Lincoln Drive
Madison, Wisconsin 53706
Telephone: 608/262-1057
February 27, 1978

COPY

Martin Schreiber
Governor
State of Wisconsin
State Capitol
Madison, Wisconsin

Dear Governor Schreiber:

This letter is an appeal for your veto of the recent anti-abortion bill (AB321) passed by the Wisconsin Legislature. The Legislature, like the Congress and the Supreme Court of the United States, is a great institution, but all three of these bodies can make and have made mistakes.

The recently passed abortion legislation is an example of the tragedy implicit in taking action based on a limited perspective and in ignorance of the relevant facts. It is my belief that the legislators failed to fully appreciate the moral and ecological consequences of the action they have taken.

Enactment of this legislation would lead to two major destructive consequences. The first of these is injustice leading to personal catastrophe: Punishing pregnant women, especially the poor and the ignorant, by forcing them to choose between two devastating alternatives -- either having an unwanted child or undergoing a dangerous "coathanger" abortion threatening the life and health of the mother. (The wealthy, of course, will still be able to obtain abortions whenever and wherever they want them.) The second consequence is the ever-widening ecological catastrophe of population growth, which here, now, and in the future is punishing all of us and our children with a crowded, polluted, inhumane environment.

I will readily agree with those who, on biological and moral grounds, argue that abortion is an evil. Certainly, no one should make light of an abortion. But compared to the evil that happens when abortions are denied or are not freely and cheaply available, abortion is by far the lesser of two evils. The abuse and rejection of unwanted children by family and society, the guilt and anxiety of mothers too young, too poor, or too helpless to afford a child, the hopelessness of families with already too many children, and the long range effects of the inevitable prenatal and postnatal stress on such truly innocent offspring, lead all too often by circuitous routes to the state penitentiaries and state hospitals, producing evils of truly another and far grander scale. When women want and need but are denied medically proper abortions, the repercussions are increased divorce, neglected,

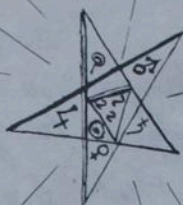
Peace
to Mankind,
Goodwill to the
Earth

To all the Flowers,
Butterflies, Birds,
and Whales —
And Children
young and old,
And especially
to you —

A happy
New
Year
1979

Isotype
of
Zea
diploperennis,
species
novum,
2 cm.
Cerro San Miguel,
Sierra Manantlan,
Jalisco, Mexico.
2400 m.

From the University of Wisconsin Herbarium
and Hello from Michael G. Gentry
to 1966/5



Dear George

How goes it, hair in your stomach + all?
Thought you might be interested in hearing I'm
applying to grad school in mathematics. Want
to study foundations of physics from mathematical side.
There are some very strong analogies between classical
+ quantum mechanics which I'd like to scrutinize
more closely. Merry Xmas, Hanukkah + happy
New Year etc. Hope to come westward
one day. Love, Michell

Dear George

Mike and I are having supper
together before I take off to collect
grasses of amazing kinds in Mexico.
We leave tomorrow (Dec. 28th) and
will probably do some of the field
work with Rogers McVaugh who is
down there now! How do you like
this card. Its a straight Xerox, with the
writing done right on the Xerox
paper. See you next year
Love, JFH

Peace to Mankind
Goodwill to the Earth

To all the Flowers, Butterflies,
Birds and Whales,
And Children, both old and young,

And especially to you,

A happy New Year

1978

From the
University of Wisconsin
Herbarium -

To all its Friends in Oregon
especially to one George
who loves grasses,
from Hugh

Andropogon scoparius

1mm [

1cm]