

1991 Laureates

C. EVERETT KOOP, M.D.

*Surgeon General,
U.S. Public Health Service
1982 - 1989*

DR. M.S. SWAMINATHAN

*Honorary Director
Centre for Research on
Sustainable Agricultural
and Rural Development*

Inviting Nominations for the 1992

Tyler Prize

**The World Prize
For Environmental Achievement**

Nomination Deadline:
October 1, 1991

Tyler Prize

Eligibility

Citizens of all nations are invited to nominate living individuals or institutions of any nation.

Nominees may be associated with any field of science.

Persons eligible to make nominations include, but are not limited to:

Scientists in fields such as biology, oceanography, geology, chemistry and physics; engineers in fields such as civil, environmental, petroleum and chemical engineering; and social scientists in fields such as geography, political science, economics and law;

National academies of science, engineering or their equivalent, and their members;

Universities, research institutions and their members;

National and international science, health, environment and development organizations.

Deadline for Nominations

Nominations for the 1992 Tyler Prize must be received no later than October 1, 1991. Related credentials, supporting material and letters of reference must be received no later than October 15, 1991.

Selection Criteria

Prizes are awarded for any one of the following:

- (a) the protection, maintenance, improvement or understanding of ecological and environmental conditions anywhere in the world; or
- (b) the discovery, further development, improvement, or understanding of known or new sources of energy.

Tax Provisions:

Individual recipients will have the following options pursuant to the applicable provisions of the Tax Reform Act of 1986: (a) receive all of the Prize money; (b) designate one or more charitable institutions appropriately qualified by the Internal Revenue Service to receive the money; or (c) a combination of the above. Any funds retained by an individual recipient and not transferred to a charitable institution as referred to in (b) above will be subject to federal income tax in the United States, under provisions of the Tax Reform Act of 1986.

Awards to non-exempt corporations pursuant to U.S. tax laws, will be used for student scholarships to benefit universities as chosen by such non-exempt honored corporations.

Nomination Procedures

Nominations should be submitted in the English language and include the following information:

1. *Identification of Nominee*

Include a person's name, professional or home mailing address, present occupational title, and institutional affiliation. Enclose a vita or resume.

If an institution or corporation is nominated, identify the administrative officer of the organization or subgroup responsible for the accomplishments cited.

2. *Summary of Accomplishment*

Provide a brief statement (1-2 pages) of the individual's or institution's discoveries, improvements, or other contributions in one or both fields for which the award is proposed. Be clear and succinct.

3. *Detailed Description of Contributions*

Provide a detailed explanation of the contributions and explain why each is unique. Describe how each was accomplished. Mention any significant involvement of others.

4. *References*

Have three or more letters of recommendation mailed directly to us from individuals who are able to assess the nominee's contributions. Identify three to five additional references who might be contacted by the Executive Committee.

5. *Evidence of Contributions*

The Tyler Prize Executive Committee reserves the right to request examples of publications, or other evidence, which best represents the candidate's contributions. Materials will be retained unless otherwise requested.

Length of Candidacy

Nominees will be considered for three years. A new letter of nomination will be required after three years.

Mail Nomination to:

Dr. Jerome B. Walker
Executive Director, The Tyler Prize
Office of the Provost
University of Southern California
Los Angeles, California 90089-4019, USA

Telephone: (213) 740-6559
FAX: 213-740-1313
TELEX: 674803 UNIVSOCAL LSA

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*Vice President Emeritus
Purdue University*

Professor Frank Bowerman

*Director & Chief Engineer
Orange County Waste
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*Director & Executive Vice President
JAYCOR
Vienna, Virginia*

Inviting Nominations for the 1992

Tyler Prize

The World Prize For Environmental Achievement

*Nomination Deadline:
October 1, 1991*



Printed on recycled paper.

Inviting Nominations for the 2000

Tyler Prize

The World Prize
For
Environmental Achievement

Celebrating the New
2000 Millennium

THE TYLER PRIZE FOR ENVIRONMENTAL ACHIEVEMENT

Since 1973, the Tyler Prize has been the premier environmental science and leadership prize in the world. The award is funded by the Alice C. Tyler Trust through the University of Southern California.

An award of \$200,000 will be presented to the Tyler Prize Laureate(s) in the year 2000.

Tyler Laureates

1974 — Arie Jan Haagen-Smit*
G. Evelyn Hutchinson*
Maurice Strong

1975 — Ruth Patrick

1976 — Rene Dubos*
Charles S. Elton*
Abel Wolman*

1977 — Eugene P. Odum

1978 — Russell E. Train

1979 — In memory of
Arie Jan Haagen Smit

1982 — Carroll L. Wilson*
Southern California
Edison Co.

1983 — Harold S. Johnston
Mario J. Molina
F. Sherwood Rowland

1984 — Roger R. Revelle*
Edward O. Wilson

1985 — Bruce N. Ames
Organization for Tropical
Studies

1986 — Werner Stumm
Richard A. Vollenweider

1987 — Richard E. Schultes
Gilbert F. White

1988 — Bert R.J. Bolin

1989 — Paul J. Crutzen
Edward D. Goldberg

1990 — Thomas Eisner
Jerrold Meinwald

1991 — C. Everett Koop
M.S. Swaminathan

1992 — Perry L. McCarty
Robert M. White

1993 — F. Herbert Bormann
Gene E. Likens

1994 — Arturo Gomez-Pompa
Peter H. Raven

1995 — Clair C. Patterson*

1996 — Willi Dansgaard
Claude Lorius
Hans Oeschger*

1997 — Biruté Galdikas
Jane Goodall
George Schaller

1998 — Anne H. Ehrlich
Paul R. Ehrlich



**deceased*

Tyler Prize

Selection Criteria

Prizes are awarded for any one of the following:

- (a) the protection, maintenance, improvement or understanding of an ecological or an environmental condition anywhere in the world; or
- (b) the discovery, further development, improvement, or understanding of known or new source of energy.
- (c) medical discoveries or achievements with such worldwide implications that they significantly benefit environmental aspects of human health.

Eligibility

Living individuals or public or private institutions of any nation, are eligible for nomination.

Who May Nominate

Persons eligible to make nominations include, but are not limited to :

Any individuals or entity active in fields such as biology, oceanography, geology, medicine, public health, chemistry, and physics, engineers in fields such as civil, environmental, petroleum and chemical engineering, and social scientists in fields such as geography, political science, economics and law; and universities, research institutions and their members.

Self-nominations are not accepted.

Nomination Procedures

Nominations should be submitted in the English language and include the following information:

Name, professional or home mailing address, present occupational title, and institutional title. Enclose a vita or resume.

If an institution or corporation is nominated, identify the administrative office of the organization or subgroup responsible for the accomplishments cited.

A one-page statement of the individual's or institution's discovery, improvement, or other contribution for which the award is proposed.

An in depth analysis of the contribution, a comparison to the work of others in the field, and an evaluation of the impact of the contribution. Mention any significant involvement of others.

Three or more letters of recommendation mailed directly to us from individuals who are able to assess the nominee's contribution. Identify three to five additional references who might be contacted by the Executive Committee.



Length of Candidacy

Nominees will be considered for three years.

Deadline for Nominations

Nominations for the year 2000 Tyler Prize must be received by September 15, 1999. Related credentials, supporting material and letters of reference must be received by the deadline.

Tax Provisions

Individual recipients will have the following options pursuant to the applicable provisions of the Tax Reform Act of 1986:

- (a) receive all of the Prize money;
- (b) designate one or more charitable institutions appropriately qualified by the Internal Revenue Service to receive the money; or
- (c) a combination of the above. Any funds retained by an individual recipient and not transferred to a charitable institution as referred to in (b) above will be subject to federal income tax in the United States, under provisions of the Tax Reform Act of 1986.

Awards to non-exempt corporations pursuant to U.S. tax laws, will be used for student scholarships to benefit universities as chosen by such non-exempt honored corporations.

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Los Angeles, California 90089-4019, USA

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Tyler Prize Executive Committee

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Inviting Nominations for the 2000

Tyler Prize

The World Prize
For
Environmental Achievement

Celebrating the New
2000 Millennium

UNIVERSITY OF SOUTHERN CALIFORNIA
LOS ANGELES 90089-4019

The following provisions govern the award of the Tyler Prize:

- 1) Citizens of all nation are invited to nominate individuals or institutions of any nation who have benefited humanity in fields associated with the environment or energy. Self nominations are not accepted.
- 2) The Prize is not awarded posthumously.
- 3) The Prize is awarded on the recommendation of the Tyler Prize Executive Committee.
- 4) Recipients will travel at the Prize's expense to receive the award.

TYLER PRIZE EXECUTIVE COMMITTEE

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Los Angeles, California

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SURVEY OF NOMINATIONS

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<input type="checkbox"/> NAE	<input type="checkbox"/> Ecological Society of America	<input type="checkbox"/> Academy of Science _____ (Country)	
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Other _____			

Alice Tyler

*Alice Tyler
The Executive Committee
and the
University of Southern California
welcome you as our guests to honor the recipients
of the
John and Alice Tyler Prize
for Environmental Achievement*

*Friday evening, the fifth of April
Nineteen hundred and ninety-one
Four Seasons – The Ballroom
300 South Doheny Drive, Los Angeles*

*Reception at six-thirty
Black Tie*

*Dinner at seven-thirty
Response card enclosed*

Reservations limited. For information telephone 213-740-6559.

Water



Executive Committee

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Vice President Emeritus
Purdue University

* **Mr. Frank Bowerman**
Director & Chief Engineer
Orange County Waste
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Mr. Frank W. Clark Jr.
Partner
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San Diego, California

* **Dr. Walter A. Rosenblith**
Institute Professor
Massachusetts Institute of
Technology

Dr. Robert P. Sullivan
Director & Executive
Vice President
JAYCOR
Vienna, Virginia

1991 Tyler Prize
Nomination of Dr. M.S. Swaminathan
by the United Nations University

Dr. M.S. Swaminathan, Director, Centre for Research on Sustainable Agricultural and Rural Development, Madras, India, and currently President of the International Union for the Conservation of Nature and Natural Resources (IUCN) is nominated for the 1991 Tyler Prize in recognition of his significant contributions to the protection, maintenance and improvement of ecological and environmental conditions in India as well as in several other parts of the world. Dr. Swaminathan's contributions made over a period of 43 years (1947-1990) relate to three important areas.

First, he has been a pioneer in promoting continuous advances in biological productivity on an ecologically sustainable basis. In the late fifties, he concluded that population-rich but land-hungry countries like India must adopt "land saving agriculture", if prime forests are not to be destroyed for making way for food production. He initiated the high yielding varieties programme in cereals like wheat which led to an era of production advance based on higher yield per hectare. For example, Indian farmers produced 12 million tonnes of wheat in 1964 from 14 million ha of land. In 1990, they produced about 55 million tonnes of wheat from 23 million ha. Had he not re-oriented the research thrust in early sixties to the land saving goal, even the remaining forests in India would have vanished by now. In fact, the United Nations Environment Programme (UNEP) considers extension of agriculture as a major cause of decline in forest area in developing countries.

What is significant is not just the emphasis placed by Dr. Swaminathan on yield improvement, but equally significant is his stress on integrating the principle of ecological sustainability in the yield enhancing technology. In his Presidential Address to the Agricultural Sciences Section of the Indian Science Congress held at Vararasi, India in January 1968, he warned:

"The initiation of exploitative agriculture without a proper understanding of the various consequences of every one of the changes introduced into traditional agriculture and without first building up a proper scientific and training base to sustain it, may only lead us into

/...

an era of agricultural disaster in the long run, rather than to an era of agricultural prosperity".

Having given this warning, he worked tirelessly for developing techniques which can help to increase the productivity of major farming systems based on ecological ground rules. During the last 2 years, he has been working on a methodology for Coastal Systems Research (CSR) which can help to enhance the productivity of coastal ecosystems on a sustainable basis.

Dr. Swaminathan's second major contribution in the area of protection and improvement of ecological conditions is his work on the conservation, evaluation and utilization of biological diversity with particular reference to crop genetic resources. During 1952-53, he participated in the establishment of the research programmes of the Inter-regional Potato Introduction Station at Sturgeon Bay, Wisconsin, USA. In early sixties, he initiated with assistance from a PL-480 funded project a systematic collection of wild rices in the N.E. Himalayan region. This collection of over 6,000 strains, known internationally as the "Assam Rice Collection", has proved to be a veritable mine of valuable genes. Had he not organized this collection thirty years ago, much of this material would have been lost due to the extensive prevalence of shifting cultivation in this area. During the seventies, he was instrumental in getting the National Bureaus of Plant, Animal and Fish Genetics Resources established in India and the International Board for Plant Genetic Resources at the international level. More recently, he has organized a Community Biodiversity Conservation Movement in India as well as a Genetic Resources Centre for Adaptation to Climatic Changes, particularly sea level rise. This is the first of its kind and Dr. Swaminathan's proposal for organizing a global network of such centres, starting with the conservation of germplasm of Mangrove Species, has been supported by the International Tropical Timber Organization (ITTO). Dr. Swaminathan's Research Centre in Madras and ITTO are jointly organizing a Workshop in January, 1991, at Madras to bring about such a network. His call for anticipatory research for adaptation to new temperature and precipitation regimes is now getting integrated in the research priorities of national research systems. In recognition of his contributions to the saving of Mangrove germplasm, Dr. Swaminathan has

been elected as the Founder-President of the International Society for Mangrove Ecosystems (ISME).

A third important area in which Dr. Swaminathan has made unique contribution is in influencing Government policy and scientific strategies and priorities. During the last 5 years he has chaired several important international and national committees dealing with environment protection. Some of these are:

- i) Advisory Committee on Environment, Food Security and Forestry of the World Commission on Environment and Development,
- ii) International Steering Committee for the Keystone Dialogue on Plant Genetic Resources,
- iii) Commonwealth Team for the sustainable management of tropical rainforests in Guyana,
- iv) Core Committee for the preparation of a National Conservation Strategy for India, and
- v) National Committee for the sustainable management of India's groundwater resources. (Copies of reports are enclosed.)

He has been President of the International Union for the Conservation of Nature and Natural Resources (IUCN) since 1984 and has also been serving as the Chairman of the Editorial Advisory Committee of the World Resources Report published by the World Resources Institute in collaboration with UNDP and UNEP. Dr. Swaminathan has lectured extensively on problems of environmental protection. While serving as Director General of the International Rice Research Institute, he organized an active research programme as well as symposia on the impact of climate on rice production jointly with WHO and the Climate Committee of AAAS chaired by Dr. Roger Revelle.

In summary, Dr. Swaminathan's contributions to providing the scientific foundation for ecologically sustainable food security in developing countries and the conservation and utilization of biological diversity have been truly monumental. No wonder, the Secretary General of the United Nations, Mr. Javier Perez de Cuellar has described him "a living legend and a world scientist of rare distinction".

Tyler Prize

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Terri Morgan - 213/740-6559
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FOR RELEASE ON OR AFTER APRIL 5, 1991

1991 TYLER PRIZE AWARDED TO
THE SCIENTIFIC LEADER OF INDIA'S GREEN REVOLUTION
AND THE AMERICAN SENTINEL ON SMOKING HAZARDS

C. Everett Koop, father of the anti-smoking revolution in America, and M. S. Swaminathan, scientific leader of the "Green Revolution" in India, will share the 1991 Tyler Prize for Environmental Achievement. The \$150,000 prize, a premier world prize for environmental science and leadership, is being presented tonight in Los Angeles. The men are being recognized for their contributions to improving environmental health and sustainable food sources.

Dr. Koop, Surgeon General of the United States from 1981 - 1989, was the main force behind changing the smoking habits of Americans. The public was awakened to the hazards of nicotine through Koop's straight talk and his campaign for a Smoke-Free Society by the year 2000. Dr. Swaminathan's genetic research and collection of food grains have transformed India from the country with the largest food deficit to a country that feeds all its people.

As the chief public health officer in the U.S., Dr. Koop transformed his office into a mighty weapon for public education on smoking, AIDS, diet, and the health of children. Starting with his appointment as Surgeon General in 1981, and continuing until his resignation in 1989, Koop's annual reports shed light on the dangers of nicotine, and the direct and indirect health hazards of smoking. He referred to smoking as "the greatest killer and producer of premature deaths" in the United States.

Dr. Koop was the first national health official to acknowledge publicly that smoking cigarettes is linked to chronic lung diseases, strokes, and cancer of organs not related to the respiratory tract. He continued to press the message home through his attempts for legislative solutions.

With great courage and foresight, Dr. Koop overcame formidable political obstacles to make his point about the deleterious effects of smoking on the American public. His reports significantly influenced changes of state and local laws regarding smoking. The fact that many areas of American life are now smoke-free, including restaurants, airplanes, and workplaces, and the fact that we are on our way to making this a smoke-free society can largely be attributed to the tireless efforts of Dr. Koop.

Dr. Koop says that his success in informing Americans about the harms of smoking was the greatest of his numerous public health accomplishments. The percentage of Americans who smoke dropped during his tenure from 34% to 26% -- almost 20 million people -- a remarkable environmental achievement.

Dr. Swaminathan's 43 years of research on cereal grains (by combining the fields of genetics and applied botany) have made it possible to grow more food per hectare of land. In 1964 India produced 12 million metric tons of wheat on 14 million hectares of land and in 1990 they produced 55 million metric tons on 23 million hectares of land.

While working on creating high-yielding grains for farmers to grow, Swaminathan has always been conscious of the need to preserve the environment. His goal is "sustainable development" so that the land will be healthy enough to produce the amount of food necessary for India's survival. Biological diversity is the key to success; and the "Assam Rice Collection" of more than 6,000 strains of wild rice that Dr. Swaminathan, in association with Drs. S.V.S Shastri, S.D. Sharma, and E. A. Siddiq, collected in the early 1960's has provided the necessary gene pool to ensure ecological sustainability.

Dr. Swaminathan has made his presence felt in India by chairing numerous national committees devoted to developing environmental and agricultural policies. He has just completed his terms as President of the International Union for the Conservation of Nature and Natural Resources (IUCN) and the National Academy of Sciences in India, and he is a former Director General of the International Rice Research Institute (IRRI) in the Philippines. Currently, he is President of the National Academy of Agricultural Sciences of India.

To advance agricultural science, the M. S. Swaminathan Research Foundation was established in 1988 near Madras, India. Here scientists are creating new "green technologies" to take the food revolution into the 21st century. Presently, Dr. Swaminathan is also working on enhancing the productivity of coastal ecosystems.

For his many contributions to agricultural science, Dr. Swaminathan is a living legend. Javier Perez de Cuellar, the Secretary General of the United Nations, has said, "He will go into the annals of history as a world scientist of rare distinction."

Tyler Prize

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FOR RELEASE ON OR AFTER APRIL 5, 1991

C. EVERETT KOOP
PIONEER IN ENVIRONMENTAL HEALTH

In 1981, when Dr. C. Everett Koop was sworn in as the 13th Surgeon General of the United States, 34% of Americans still smoked. During his tenure, Dr. Koop stood as the point man, the authoritative source for information and the conscience of the nation as it turned an historical corner with respect to individual smoking and the effects of second-hand smoke in the environment.

On May 20, 1984, Dr. Koop announced his plans for a Smoke Free Society by the year 2000. During his quest, he was instrumental in inspiring many changes in state and local laws regarding smoking in public places. Persuaded by medical research that "passive" smoke had a dangerous effect on non-smokers, Koop called for smoke-free environments -- workplaces, restaurants and airplanes.

-more-

Koop himself claims the decrease in numbers of smokers as his greatest accomplishment while in office. The number of American smokers dropped from 34% to 26% -- almost 20 million people -- during his tenure. The number of children smokers also declined between 1981 and 1989. Koop criticized the tobacco industry for targeting the youth as the next generation of "replacement smokers" and launched a campaign to inform youngsters of the negative effects of smoking.

Much of the knowledge that Americans have today about the dangers of smoking are a result of Koop's efforts. He used formal reports to define nicotine as addictive to exhort physicians to take a greater role in educating their patients about the hazards of smoking. He was the first to acknowledge that smoking causes strokes, chronic lung diseases and cancer in organs not related to the respiratory tract. Koop saw the dangers as so great that he called smoking the "greatest killer and producer of premature death" in the United States, and he presided over an era of fundamental change in the opinion of the American people about smoking -- especially the hazards of exposure to tobacco smoke in the environment. Through intensely personal leadership, Dr. Koop's impact was catalytic on the enclosed living environment.

Dr. Koop's extraordinary leadership in the education of the American public concerning HIV infection has had a similarly important impact on the public health of this country. His frank stand on AIDS was consistent with the mix of idealism and pragmatism that he applied to all the major public health issues he faced as Surgeon General. An informative pamphlet on AIDS was sent to every American household. This gave most people their first direct, comprehensive information in plain language about the disease.

The achievements of the former Surgeon General are also praised abroad. His courage, forcefulness and impact in alerting the American public to the risk of both direct and indirect effects of smoking are universally recognized. He is still asked to speak overseas on health issues.

His strong interest in public health, especially of children, was no surprise to those who knew Koop before he was sworn in to office. When he was a 16-year old at Dartmouth College, Koop welcomed the opportunity to specialize in pediatric surgery because children with surgical problems did not get adequate attention in an adult world. After receiving his degree from Dartmouth he graduated from Cornell Medical School. His Sc.D. was received at the Graduate School of Medicine at the University of Pennsylvania. In 1947, Koop joined the Hospital of the University of Pennsylvania as Assistant Surgeon. One year later he was named Surgeon-in-Chief at The Children's Hospital of Philadelphia, where he established the nation's first neonatal intensive care unit.

Dr. Koop earned an international reputation as a pediatric surgeon. He performed pioneer surgery on babies with birth defects ranging from facial deformities to Siamese twins. Some of the patients had such bad defects that no other doctor would accept them. Koop accepted these patients, one of whom is now a pediatric surgeon herself.

During his more than 40 years of service to public health, Dr. Koop has received numerous international awards. He has been presented with the highest presidential honors in both France and the Dominican Republic as well as the Distinguished Service Medal of the Public Health Service. Upon his departure from his government post in 1989, Koop was given the Surgeon General's Exemplary Service Medal and the Surgeon General's Medallion. In 1990, the National Academy of Sciences presented Dr. Koop with its Public Welfare Medal, the Academy's highest distinction, which carries with it honorary membership in the Academy.

Koop served as US delegate to the World Health Organization of the United Nations and the Pan American Health Organization for eight years, and received the WHO Leon Bernard Medal. He also serves as a member of the American Surgical Association, the Society of University Surgeons and the American Pediatric Surgical Association.

Although Koop is retired from "official" public service he continues to inform people about health policy, pediatrics, smoking and AIDS through his more than 200 books and articles as well as through lectures and television. At present, Dr. Koop is Chairman of the National Safe Kids Campaign, writing a book of his memoirs and he has just presided over the International Conference on Cancer Prevention at the National Institutes of Health.



Tyler Prize

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FOR RELEASE ON OR AFTER APRIL 5, 1991

M.S. SWAMINATHAN
PIONEER IN BIOLOGICAL DIVERSITY AND SUSTAINABLE DEVELOPMENT

As the scientific leader of the "Green Revolution" in India, Dr. Swaminathan has done more than any other single person to change the landscape of that country. He has been at the forefront of one of the most remarkable agricultural accomplishments in recent history - moving India from having the largest food deficit in the world to producing enough grain to feed all its people.

As the pioneer of economic ecology, Dr. Swaminathan's 43 years of work have led to high-yielding varieties of the principal cereal grains, wheat, and rice. Combining the fields of genetics and applied botany, Dr. Swaminathan identified barriers to high yields in wheat and initiated the dwarf wheat breeding program. He made it possible to grow much more food per hectare of land and improved the quality and stability of wheat, rice and potatoes. In 1964, Indian farmers produced 12 million metric tons of wheat from 14 million hectares of land (1 hectare = 2.471 acres). In 1990 the farmers produced 55 million metric tons of wheat from 23 million hectares of land.

While Dr. Swaminathan has been able to help triple the wheat output in India, he has always insisted that advances in biological productivity cannot take priority over environmental preservation. For Dr. Swaminathan, there can be no conflict between development and the preservation of the environment: the two must proceed hand in hand. Dr. Swaminathan's idea that the goal is "sustainable development" - land development that will not erode with time - has led him to be a world leader in environmental conservation.

Dr. Swaminathan's contributions to the conservation of biological diversity began in the early 1960's when, in collaboration with Drs. S.V.S. Shastry, S.D. Sharma, and E.A. Siddiq, he collected over 6,000 strains of rice from Northeast India that could have been lost because of shifting cultivation in the region. The "Assam Rice Collection," as the project became known, has proven to be a mine of valuable genes that provide resistance to rice pests and other economic traits. In 1971 he proposed the organization of the International Board for Plant Genetic Resources. At home, he established the National Bureau of Plant Genetic Resources during his term as Director General of the Indian Council for Agricultural Research (1972 - 1980). Dr. Swaminathan also reorganized the gene collection at the International Rice Research Institute in the Philippines into the International Rice Germplasm Center and launched an intensive drive for the collection and conservation of wild rices while he was Director General of the IRRI (1982 - 1988).

Dr. Swaminathan has been successful in influencing India's governmental policy, scientific strategies, and priorities as they relate to the environment. As Principal Secretary of the Ministry of Agriculture and Irrigation (1979 - 1980), Dr. Swaminathan managed India's response to the disastrous drought of 1979 and he developed a Monsoon Management Strategy. In addition to India's agriculture, Dr. Swaminathan has concerned himself with global environmental problems through a variety of roles. For example he chaired the U.N. Advisory Committee on Science & Technology for Development (1981 - 1984) and the Advisory Panel on Food Security, Agriculture, Forestry and Environment to the World Commission on Environment & Development (1985 - 1987).

In 1987, Dr. Swaminathan received the first World Food Prize. On that occasion, the Secretary General of the United Nations, Javier Perez de Cuellar, said, "Dr. Swaminathan is a living legend. His contributions to agricultural science have made an indelible mark on food production in India and elsewhere in the developing world. By any standards, he will go into the annals of history as a world scientist of rare distinction."

To advance agricultural science the M.S. Swaminathan Research Foundation was established in 1988. The goals are to develop new "green technologies" that are ecologically sound and economically viable; to generate greater opportunities for skilled employment; and to promote sustainable and equitable agricultural and rural development.

Currently, Dr. Swaminathan is the Honorary Director of the Center for Research on Sustainable Agricultural and Rural Development in Madras, India. Dr. Swaminathan just completed his terms as President of the International Union for the Conservation of Nature and Natural Resources (IUCN) and the National Academy of Sciences in India. He continues as President of the World Wide Fund for Nature - India (WWF-I) and the National Academy of Agricultural Sciences of India. In recognition of his great scholarly distinction, Dr. Swaminathan has been inducted into the Royal Society of London and the National Academies of Science in the USA, Sweden, Italy, and the USSR. He also is a founding Fellow of the Third World Academy of Sciences.

The author of over 200 articles in national and international scientific journals, Dr. Swaminathan has also left his impression on the world of education. His many contributions in science and education have earned Dr. Swaminathan 33 honorary doctorates from universities in various countries including Germany, India, Italy, Netherlands, Philippines, Thailand, and the USA. He has also been honored with fifteen awards for science; the Padma Vibhushan award by the President of India in 1989; and the Golden Heart Presidential Award in 1987, presented by President Corazon Aquino.

Dr. Swaminathan was born in Tamil Nadu, India. He earned two B.S. degrees, one in 1944 from Travancore University, and the other in 1947 from Madras University. He received his Ph.D. from the School of Agriculture, University of Cambridge, in 1952.

TYLER PRIZE LAUREATES

- 1974 - ARIE JAN HAAGEN-SMIT* - Discoverer of the chemical nature of smog and advocate for change, the air pollution research he started at Caltech has expanded to air quality research worldwide.
- G. EVELYN HUTCHINSON - One of this century's preeminent ecologists, his work in theoretical ecology provided the foundation of modern ecological practice.
 - MAURICE STRONG - Founding director of the United Nations Environmental Programme, he has provided leadership in the international political-environmental arena.
- 1975 - RUTH PATRICK - A lifetime researcher on the ecology of rivers, she has been instrumental in providing a link between science and industry for the protection of America's rivers.
- 1976 - ABEL WOLMAN* - A pioneer in water resource management and waste water treatment, and a professor at John Hopkins from 1921 until 1989, he trained generations of young people in the field of water conservation.
- CHARLES S. ELTON - Often considered as the father of the science of animal ecology, his fundamental research has led to a greater understanding of ecological competition, and the organization and disruption of animal communities.
 - RENE DUBOS* - Scientist and internationally influential author, his books and articles provided society with a new perspective on the interaction between the environment and humanity.
- 1977 - EUGENE P. ODUM - One of the first educators to establish an institute for the training of ecologists, his research and writings have influenced countless students throughout the world.
- 1978 - RUSSELL E. TRAIN - A leader in the United States political-environmental arena, and as first chairman of the Council on Environmental Quality he was instrumental in formulating environmental policy and in developing environmental quality standards in the United States.
- 1982 - CAROLL L. WILSON* - Contributor to fundamental work in the modeling of world energy supplies, he enlisted governmental and industrial leaders from around the world in studies of global energy prospects through the year 2000.

- SOUTHERN CALIFORNIA EDISON COMPANY - The first major utility in the United States to establish as policy a shift to alternate and renewable energy sources, they continue to provide strong corporate leadership.
- 1983 - HAROLD S. JOHNSTON - One of the world's authorities in atmospheric chemistry, he was one of the first to call attention to the possibility that stratospheric contamination by nitrogen oxides might threaten the Earth's ozone layer.
- MARIO J. MOLINA - Co-developer of the Rowland-Molina hypothesis on ozone depletion by chlorofluorocarbons, he has been studying the disruption and perturbation of natural cycles in the stratosphere.
- F. SHERWOOD ROWLAND - Co-developer of the Rowland-Molina hypothesis, his policy initiatives led to regulations that controlled the use of chlorofluorocarbons as aerosol propellants in the western world.
- 1984 - ROGER R. REVELLE - A scholar of great breadth in oceanography, world population studies, and global climatic perturbations, he is a pioneer in the understanding of global resources.
- EDWARD O. WILSON - Co-developer of the theory of island biogeography, he was instrumental in its application to conservation. His research into population dynamics and chemical ecology has led to new insights in modern biology.
- 1985 - BRUCE N. AMES - Developer of the Ames Test for the rapid screening of environmental carcinogens, his test has proven invaluable in protecting against unnecessary exposure to cancer-causing agents.
- ORGANIZATION FOR TROPICAL STUDIES - A consortium of U.S. and Costa Rican universities, OTS provides the preeminent facility for on-site education and field research on tropical forest ecology.
- 1986 - WERNER STUMM - The preeminent water chemist in the world, his fundamental research on chemical equilibria in water systems and its relationship to the distribution and circulation of chemical substances has made possible the protection of lakes and rivers throughout the world.
- RICHARD VOLLENWEIDER - A theoretical limnologist whose research led to the development of predictive models of eutrophication of fresh waters, his theories resulted in major advances in water pollution control throughout the world.
- 1987 - RICHARD E. SCHULTES - The preeminent ethnobotanist in the world, he promoted tropical forest conservation at the level of the developing country by demonstrating the value of tropical plant species to industry and medicine.

- GILBERT F. WHITE - An outstanding geographer and world leader on problems of the environment, he promoted the scientific basis for, and the consequent application of, innovative alternative water resource and river basin management policies and practices.
- 1988 - BERT R.J. BOLIN - A pioneer in global climate changes, he helped focus international attention on the potential dangers to the world's climate posed by the greenhouse gases and acid rain. His lifelong research has contributed to knowledge about the carbon cycle, and the phosphorus, nitrogen and sulfur cycles.
- 1989 - PAUL J. CRUTZEN - One of the world's authorities on atmospheric chemistry, he made landmark discoveries on stratospheric and tropospheric ozone, nuclear winter, and humanity's capacity to upset the global atmosphere.
 - EDWARD GOLDBERG - One of the premiere marine geochemists and chemical oceanographers investigating global ocean pollution problems, he greatly advanced understanding of radionuclides, wind-borne DDT, petrochemicals, and heavy metals. He pioneered coastal pollution monitoring with "Mussel Watch" using living bivalve organisms.
- 1990 - THOMAS EISNER - Partner with Meinwald in founding chemical ecology, he provides biological explorations to unravel many intricate strategies that insects use for survival. To safeguard the chemical treasury of nature, he has acted forcefully for the preservation of species.
 - JERROLD MEINWALD - Partner with Eisner in founding chemical ecology, he provides molecular characterizations of the chemical signals insects, plants and animals use to communicate. His chemical insights have heightened awareness of the importance of "secondary metabolites" in nature.

IRRI *HOTLINE*

An advance information summary published by the International Rice Research Institute

INTERNATIONAL RICE RESEARCH INSTITUTE

Vol. 1, No. 2 • July 1991

IRRI Scientists Grow Rice in Volcano-Damaged Central Luzon

IRRI scientists already are studying how Philippine farmers might again grow rice in areas devastated by Mt. Pinatubo's eruption on 12 June.

Experiments started only two weeks after volcanic ejecta buried more than 60,000 hectares of agricultural land in Central Luzon 1-meter deep in ash and mud. A team of IRRI researchers planted seeds of several rice varieties on a farmer's ash- and mud-covered rice field in Bacolor, Pampanga.

"Four weeks later, the plants were looking well, although those in plots without fertilizer had started to yellow," says Dr. Benito S. Vergara, IRRI plant physiologist and acting deputy director general for research. "It appears that — with proper fertilizer management and sufficient rainfall — a normal rice crop can be grown in the area."

Vergara's staff is also checking out which rice varieties grow best in mixtures of volcanic ash, mud, and soil, in tests in the phytotron at IRRI headquarters.



International Meeting on *B. thuringiensis* at IRRI

A major international meeting of researchers working to introduce *Bacillus thuringiensis* (*B.t.*), a naturally occurring bacterium that causes insect disease, into the rice plant was held at IRRI 10-13 July.

"Deployment of *Bacillus thuringiensis* endotoxin in engineered rice plants," was jointly sponsored by The Rockefeller Foundation and IRRI. Participants came from national rice research programs across Asia; from leading *B.t.* research laboratories in Europe, USA, Japan, and Australia; and from international agencies such as FAO, the Rockefeller Foundation, and IRRI.

They reviewed current efforts, identified information gaps, and drew up a coordinated plan for future research and for networking with national programs, according to Dr. Dale G. Bottrell, IRRI entomologist and meeting coordinator.

B.t. is deadly to insects, but has no adverse environmental effects. Unlike most chemical pesticides, *B.t.* targets only specific insects, not animals or humans.



Farmer Prospers as Manufacturer of IRRI Farm Equipment

A farmer in a remote area of the Sierra Madre mountain range in Luzon, Philippines, who turned part-time farm machinery manufacturer, finds IRRI machines highly marketable, says Dr. G. R. Quick, Head, Agricultural Engineering.

Mr. Fabian Tamayo started manufacturing IRRI-designed drum seeders and cono weeders in his backyard in 1990, after he saw an on-farm demonstration of IRRI equipment. Tamayo has sold 120 seeders and 20 weeders so far — and demand for the labor-saving equipment he makes is increasing.

Quick says that Tamayo, who may drop farming to take up manufacturing full time, also wants to produce the IRRI vertical metering-slit seeder, which was shown publicly just this month. That would meet local farmers' need for a multicrop seeder usable over a wide range of soil conditions, according to this farmer-manufacturer.



Major Awards

Swaminathan Receives Tyler Prize

Dr. M. S. Swaminathan, IRRI director general from 1982 to 1988, received the 1991 Tyler Prize for Environmental Achievement on 5 April in Los Angeles. Swaminathan was cited for his 40 years of work as a pioneer in economic ecology and sustainable agricultural development, and for his contributions to the conservation of germplasm. He shares the Prize with C. Everett Koop, former U.S. surgeon general.

The Tyler Prize was established in 1973 by John and Alice Tyler to foster the growth of environmental knowledge to enable humanity to restore and preserve the environment.

Watanabe Receives Japan Agronomy Award

Dr. Iwao Watanabe, former head of the IRRI Soil Microbiology Division, received the 1991 Japan Agronomy Award (Nihon Nogakukaishou) on 5 April in Tokyo. He was recognized for his work on nitrogen fixation by azolla, and its application as a biological fertilizer. The annual agronomy award is given to distinguished Japanese agricultural scientists by the Association of Agricultural Science Societies of Japan.

The *Yomiuri Shimbun*, a widely read Japanese newspaper, gave Watanabe a companion award for this achievement. According to the *Yomiuri*, Filipino farmers consider Watanabe the "Father of Azolla."

Hibino Receives Scientific Merit Award

Dr. Hiroyuki Hibino, former IRRI plant pathologist, received the 1991 *A Person of Scientific Merit* Award on 16 April in Tokyo. He was recognized for his work on rice virus diseases in tropical Asia. The award is given yearly to distinguished Japanese scientists and engineers by Japan's Ministry of Science and Technology.



Editor's note: More detailed versions of most IRRI Hotline items will also be prepared as IRRI press releases with black-and-white or color photos. For copies, write to the IRRI Information Center, P.O. Box 933, 1099 Manila, Philippines. Fax: (63-2) 818-2087. Telephone: (63-2) 818-1926. Telex: ITT 45365 RICEPM.

JOHN AND ALICE TYLER

It was in 1972 that John and Alice Tyler, both outdoor enthusiasts, decided to create a new international award that recognizes those paving the way in preserving and enhancing the environment. The Tylers had become deeply distressed to witness the effects of increasing pollution and ecological imbalance, and decided to do something about it.

In 1974, the first Tyler Prize was presented by Ronald Reagan, then governor of California.

The Tylers' sensitivity to natural harmony and beauty developed during their childhoods. John Tyler, founder of the Farmers Insurance Group, was raised in South Dakota at a time when wildlife, forests, streams and lakes were not gravely threatened. Alice Tyler grew up amid the natural beauty of Northern California and Oregon. Many of the happiest moments of their 20-year marriage were spent outdoors ranching, horseback riding, sailing and traveling.


Together, the Tylers researched and created the award they envisioned. They recruited concerned individuals and noted scientists to oversee the nomination process and select winners. Details were arranged and the award was officially established with the Internal Revenue Service in 1973, just a few days after John Tyler's death.

Page Two

For the past eleven years the prize has been administered by the University of Southern California. The 11-member Executive Committee, which selects the Tyler Prize Laureates, includes members from the Massachusetts Institute of Technology, Harvard University, University of California at San Diego, Purdue University, Baylor University and the corporate sector.

Eighteen years after its establishment, the Tyler Prize remains a unique working partnership between Mrs. Tyler, as a private citizen, educators, scholars and environmentalists. Researchers from a wide range of disciplines have been honored as Tyler Laureates. All 29 winners are, according to Alice Tyler, "the guardians of the future."

#

Program 

TYLER PRIZE
AWARD DINNER

Four Seasons Hotel

April 5, 1991



WELCOME

Omar Fareed, M.D.

Dr. Steven B. Sample

INVOCATION

Dr. William Hornaday

DINNER



PROGRAM CHAIRMAN

Dr. Robert A. Frosch

SPECIAL PRESENTATION

Dr. James H. Zumberge



READING OF THE TYLER PRIZE

PRESENTATION

Dr. Walter A. Rosenblith

ACCEPTANCE

C. Everett Koop, M.D.

PRESENTATION

Dr. Roger R. Revelle

ACCEPTANCE

Dr. M. S. Swaminathan



WELCOME

*Omar Fareed, M.D.
Dr. Steven B. Sample*

INVOCATION

Dr. William Hornaday

DINNER



PROGRAM CHAIRMAN

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PRESENTATION

Dr. Roger R. Revelle

ACCEPTANCE

Dr. M. S. Swaminathan

LIVING
CENTERPIECE

*To the person whose
birthday is nearest to
June 14, Flag Day*

Tyler Prize

*For Environmental
Achievement*



Eighteenth Anniversary



“Man’s Responsibility”

by Pascal

In Memory of John Tyler

*Symbolic of mankind’s obligation to
preserve life on earth: its land, waters, and
the atmosphere. (The orb of stabile steel
sculpture rotates with air currents.)*



The Tyler Prize

For Environmental Achievement



*Laureate
Commemorative Medallion*

The Tyler Prize was established in 1973 by John and Alice Tyler. The prize grew out of their respect for nature and their hope that this award would foster the growth of knowledge and enable humanity to restore and preserve the environment.

Since its inception the Tyler Prize has been America's foremost environmental award and is now recognized as a premier world prize. With the election of Drs. C. Everett Koop and M.S. Swaminathan as the 1991 Tyler Laureates, twenty-nine Laureates will have been honored for outstanding achievements benefiting humanity. In past years the prize has been presented annually in Los Angeles; at the White House, Washington, D.C.; and in Nairobi, Kenya, celebrating the tenth anniversary of the first United Nations Conference on the Human Environment.

Tyler Laureates have been honored for outstanding contributions in many environmentally related fields. Laureates have included scientists, policy makers and two institutions. The work for which they have been honored includes the following:

- Landmark studies in animal ecology and maintaining species diversity.
- Preserving and understanding tropical forests.
- Pioneering atmospheric chemistry and warning against ozone depletion.
- Detecting carcinogens in the environment and in food.
- Discovery and analysis of the chemical nature of smog.
- Increasing the world's understanding of the importance of chemical signals in nature.
- Worldwide leadership in wildlife protection.
- Understanding and defining future strategies for global energy supply.
- Pioneering research in oceanography and ocean pollution.
- Designing and implementing renewable sources of energy.
- Pioneering waste purification and water quality standards.

*Tyler Prize
For Environmental
Achievement*

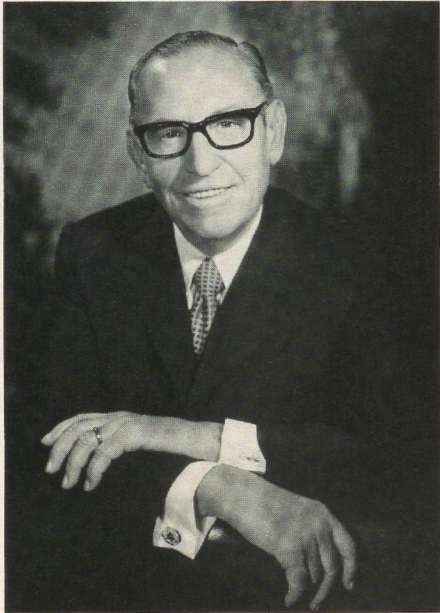
*"Man masters nature not by force
but by understanding."*

Jacob Bronowski
Science and Human Values

John and Alice Tyler: A Profile

"A sense of continuity with the past and with the rest of creation is probably essential . . ."

Rene Dubos, 1976 Laureate



John C. Tyler

At an early age the late John Tyler worked for his father, a founder of several insurance companies. This experience along with the elder Tyler's encouragement ultimately led John Tyler to follow in his father's footsteps. In 1928 he founded Farmers Insurance Group, a fledgling company that overcame the many obstacles of our country's great depression. As Chief Executive Officer for 25 years and later as Chairman, the company grew to rank among the leaders in its field.

John and Alice Tyler appreciated nature and enjoyed its closeness through ranching, sailing, and all forms of outdoor life. They were concerned about the increasing ravages of pollution and resolved to help conserve what is natural and beautiful in our world. They established an international award as an inspiration to people of all nations to become involved and understand the importance of preserving our environment.

President Ronald Reagan, then Governor of California, helped inaugurate the John and Alice Tyler Prize in 1973. Twenty-nine Tyler laureates have been honored since the first awards were presented in 1974. Mrs. Tyler in speaking of these distinguished honorees says, "I have faith that the ever-growing research by brilliant world scientists will continue to alert us to the delicate balance that sustains life . . . and that we will become more aware of the dire urgency to improve and maintain this vital cycle for the preservation of our Universe".

Together John and Alice Tyler established a remarkable record of philanthropy. In addition to her foremost concerns, world environment and education, Mrs. Tyler's interests also extend to child health, medical research, and the arts. She is a co-founder of ARCS (Achievement Rewards for College Scientists).

Alice Tyler and her late husband were founding members of the Los Angeles Music Center Building Fund, and Alice continued her support of the Center's Blue Ribbon group. The Tylers have provided buildings in years past to the University of Southern California and Pepperdine University. Mrs. Tyler is a supporter of medical research at the University of California and has contributed building funds to local hospitals.

Along with other causes close to her heart, Mrs. Tyler especially embraces Childhelp U.S.A. for its dedication and care of abused children. A constant in Alice and John Tyler's lives has been their affection for animals; to continue this bond, Mrs. Tyler has adopted a variety of endangered wildlife and provided for their exhibition at the Los Angeles Zoo. She has put together a large art collection, some of which focuses on peace and the environment. Mrs. Tyler is a Dame of the Danish Order of St. John.



Alice C. Tyler

"As long as I live, I'll hear waterfalls and birds and winds sing. I'll interpret the rocks, learn the language of flood, storm, and the avalanche. I'll acquaint myself with the glaciers and wild gardens, and get as near the heart of the world as I can."

John Muir

INSTITUTE OF MEDICINE
NATIONAL ACADEMY OF SCIENCES
2101 CONSTITUTION AVENUE WASHINGTON, D.C. 20418

March 14, 1991

SAMUEL O. THIER
PRESIDENT

C. Everett Koop, M.D.
National Safe Kids Campaign
111 Michigan Avenue, NW
Washington, D.C. 20010

Dear Chick:

Congratulations upon your selection as a 1991 Tyler Prize Laureate. This well-deserved award recognizes that as Surgeon General from 1982 to 1989, you advised the public and the federal government on matters such as acquired immune deficiency syndrome, diet and nutrition, immunization, disease prevention, and particularly smoking and health.

You stood as the authoritative source for information, and, indeed, the conscience of the nation, as it turned a historical corner with respect to individual smoking and the effects of second-hand smoke in the environment. With no legislative power and little executive authority, you used tools, including formal reports of the Surgeon General that defined nicotine as addictive, exhortation of physicians to educate their patients about the hazards of smoking, and multitudinous public and media appearances, to carry the message forward.

You, in effect, presided over an era of fundamental change in the opinion of the American people about smoking--especially the hazards of exposure to tobacco smoke in the environment. More than any other single individual in America, you facilitated this change. During your tenure, the air in many public enclosures was made more breathable, as federal, state, and local statutes and regulations limited the latitude of smokers to impose their preference on the atmosphere, and hence, on others.

The unique contribution you made was your permissive action for a broad cross section of American officials to act to protect the air, and all who breathe it, from tobacco smoke. Through intensely personal leadership, you lowered the barriers to change on this front. Your impact was catalytic and will be felt for years to come.

The Institute joins me in expressing warmest congratulations.

Sincerely,



Samuel O. Thier, M.D.



THE THIRD WORLD ACADEMY OF SCIENCES

OFFICE OF THE PRESIDENT:

INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS - 34100 TRIESTE (ITALY) - P.O.B. 586 - MIRAMARE - STRADA COSTIERA 11
TEL.: (040) 2240-1 - CABLE: CENTRATOM - TELEX: 460392 ICTP I

13 March 1991

Dear Dr. Walker,

I am delighted to hear that the Tyler Prize Committee has agreed to my suggestion that Professor M.S. Swaminathan should be awarded the 1990 Tyler Prize. Professor Swaminathan is one of the world's most eminent scientists. His extensive research work in genetics and breeding has gained him wide international recognition. In particular, his discovery of genetically superior strains of wheat, rice and coarse grains has substantially improved productivity in India and other parts of the Third World.

In his capacity as President of the International Union for the Conservation of Nature and Natural Resources (IUCN), Professor Swaminathan has been instrumental in advancing the movement for food and nutrition security in the Third World based on ecological and economic sustainability. In 1989 Professor Swaminathan founded an International Commission on Peace and Food to address these problems and to help in designing ecologically sound agricultural systems in the poor regions of the world.

Professor Swaminathan is a Founding Fellow of the Third World Academy of Sciences and has been involved in the Academy's programmes since its inception.

In my opinion, Professor Swaminathan is a most worthy winner of the Tyler Prize. The Committee has made an excellent choice.

With best regards,

Yours sincerely,

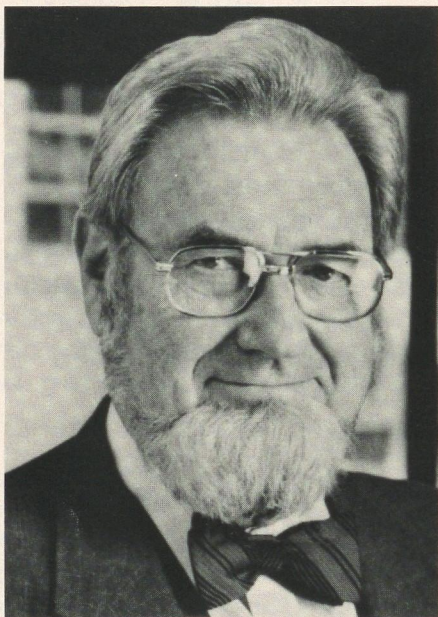
Abdus Salam
President, Third World
Academy of Sciences
President, Third World Network
of Scientific Organizations
Director, International Centre
for Theoretical Physics

Dr. Jerome Walker
3454 Trousdale Parkway, LAS II-Room 204
University of Southern California
Los Angeles CA 90089 4019
USA

The 1991 Tyler Laureates

*"A quiet passion burns . . .
for the sensation of constant advance."*

Edward O. Wilson, 1984 Laureate



Dr. C. Everett Koop

C. EVERETT KOOP was sworn in as the 13th Surgeon General of the United States in 1981. As the chief public health officer in the U.S., Dr. Koop transformed his office into a mighty weapon for public education on smoking, AIDS (acquired immune deficiency syndrome), diet, and the health of children. Dr. Koop stood as the sentinel and the conscience of the nation as it turned an historic corner in the recognition of and response to the risks of individual smoking, passive smoking, and the AIDS epidemic. His frank stands and formal reports were unprecedented in their candor, explicit language, and advocacy of improved elementary-school health education.

As early as May 20, 1984, Dr. Koop announced his plan for a Smoke Free Society by the year 2000. His quest was consistent with the mix of idealism and pragmatism which he applied to all major public health issues he faced as Surgeon General. Persuaded by medical research that second-hand smoke had a dangerous effect on non-smokers, Dr. Koop advocated smoke-free environments in the workplace, in restaurants, and in airplanes. He was instrumental in inspiring many changes in state and local laws affecting smoking in public places.

When he tackled the subject of smoking in a 1986 report, Dr. Koop bluntly linked all forms of cigarette smoking to cancer, shed light on the addictive dangers of nicotine, condemned smoking as "the greatest killer and producer of premature deaths" in the United States, and exhorted physicians to accept a greater role in educating their patients about the hazards of smoking. He was the first national health official to publicly acknowledge that smoking cigarettes is linked to strokes, chronic lung diseases, and cancer in organs not related to the respiratory tract.

C. Everett Koop presided over an era of fundamental change in the opinion of the American people about smoking – especially the hazards of exposure to tobacco smoke in the environment. Through intensely personal leadership, Dr. Koop's impact was catalytic on cleansing enclosed living environments. He claims the decrease in the number of smokers as his greatest accomplishment while in office.

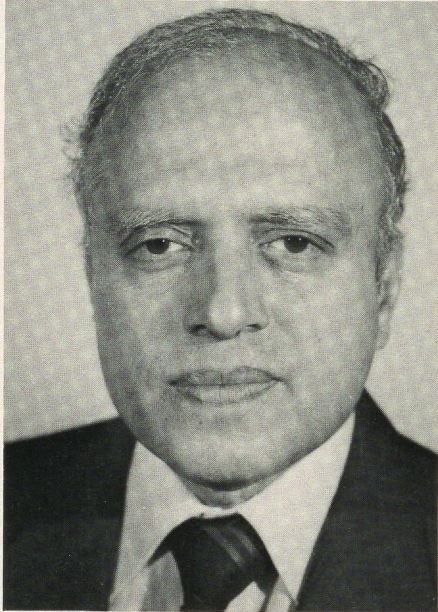
The number of American smokers dropped from 34% to 26% – almost 20 million people – during his tenure as Surgeon General. Dr. Koop was particularly critical of the tobacco industry for targeting young people as the next generation of “replacement smokers,” so he launched a campaign to inform children of the negative effects of smoking.

AIDS provoked growing concern during 1986 as health authorities began to realize the full implications and international dimensions of the disease. The potential global consequences of the AIDS epidemic were officially recognized by the World Health Organization (WHO) in November, 1986, in an announcement which described the disease as “a health disaster of pandemic proportions.” The prospect that heterosexual transmission might become predominant outside of Africa could not be dismissed. In a report issued in 1986, Surgeon General Koop warned of the potential spread of AIDS beyond the already identified high-risk groups to the population at large. By mailing an informative pamphlet on AIDS to every American household, Dr. Koop gave most people their first comprehensive information in plain language about the disease.

When he was sixteen at Dartmouth College, Koop decided to specialize in pediatric surgery because there were only five such physicians in the nation. After receiving his degree from Dartmouth, he graduated from Cornell Medical School, and pursued his Sc.D. at the Graduate School of Medicine at the University of Pennsylvania. In 1947, Dr. Koop joined the University of Pennsylvania Hospital as Assistant Surgeon. One year later he was named Surgeon-in-Chief at the Children’s Hospital of Philadelphia, where he established the nation’s first neonatal intensive care unit.

Upon his departure from his government post in 1989, Dr. Koop was given the Surgeon General’s Exemplary Service Medal and the Surgeon General’s Medallion. In 1990, the National Academy of Sciences presented Dr. Koop with its Public Welfare Medal, the Academy’s highest distinction, which carries with it honorary membership in the Academy.

*Tyler Prize
For Environmental
Achievement*



Dr. M.S. Swaminathan

M.S. SWAMINATHAN's mission in life has been to increase biological productivity on an ecologically sustainable basis. One of the world's most eminent agricultural scientists, Dr. Swaminathan has single-mindedly devoted himself to research in genetics and breeding to discover genetically superior strains of wheat, rice and coarse grains to enhance the productivity and stability of food crops in India and other parts of the Third World. While searching for methods to achieve higher production, he has been sensitive to the need for populous, land-hungry countries like India to protect forest land from being destroyed and to adopt "land saving agriculture."

Dr. Swaminathan pioneered continuous advances in biological productivity. His search for genetic improvements in food species started at the Indian Agricultural Research Institute, New Delhi, in 1947. Combining genetics and applied botany, Dr. Swaminathan identified barriers to high yields in wheat and initiated the dwarf wheat breeding program. He improved the quality and stability of wheat, rice and potatoes. The yield per hectare of land in India tripled, earning him a reputation as the scientific leader of the "Green Revolution." In 1964, Indian farmers produced 12 million metric tons of wheat from 14 million hectares of land; in 1990, the farmers produced 55 million metric tons of wheat from 23 million hectares of land. More than any other single individual, Dr. Swaminathan helped India overcome the largest food deficit in the world and create a self-sustaining nation.

A world leader in environmental conservation, Dr. Swaminathan recognized very early in his career the need for the preservation of biological diversity. His doctoral work at Cambridge University focused on the Commonwealth potato collection; and, in 1952, he helped organize work at the Inter-regional Potato Introduction Station at Sturgeon Bay, Wisconsin. Returning to India, he started assembling genetic material for wheat and rice in 1954. This work led him to launch a plant collection expedition in Northeast India in the early 1960's, in association with Drs. S.V.S. Shastri, S.D. Sharma, and E.A. Siddiq, to assemble and preserve the many genotypes of wild rice that were threatened by the spread of shifting cultivation in the region. This assemblage of over 6000 strains, known internationally as the "Assam Rice

Collection," has proven to be a goldmine of genes resistant to rice pests and possessing other valuable economic traits.

Extending his commitment to biological diversity, Dr. Swaminathan proposed the organization of the International Board for Plant Genetic Resources (known as the IBPGR) in 1971 and played a pivotal role in its creation. Later, during his tenure as Director General of the Indian Council of Agricultural Research, he established the National Bureau of Plant Genetic Resources for his homeland and later stimulated the development of similar National Bureaus for Animal and Fish Genetic Resources.

Serving as Director General of the International Rice Research Institute in the Philippines from 1982 to 1988, Dr. Swaminathan reorganized the rice gene collection, retitled it the "International Rice Germplasm Center," and launched an intensive drive for the collection and conservation of wild rices. More recently, he has organized a Community Biodiversity Conservation Movement in India; and, as Honorary Director of the Centre for Research on Sustainable Agricultural and Rural Development in Madras, he is organizing a Genetic Resources Center for Adaptation to Climate Change. This unique center will assemble species and strains possessing genes for tolerance to sea water intrusion as well as to flooding and drought, in anticipation of the possible long-term effects of global warming.

Dr. Swaminathan just completed his terms as President of the International Union for the Conservation of Nature and Natural Resources (IUCN) and as President of the National Academy of Sciences of India. He continues as President of the World Wide Fund for Nature - India (WWF-I) and as President of the National Academy of Agricultural Sciences of India. In recognition of his great scholarly distinction, Dr. Swaminathan has been inducted into the Royal Society of London and the National Academies of Science in Bangladesh, China, Italy, Sweden, the United States, and the USSR. He also is a founding Fellow of the Third World Academy of Sciences.

Secretary General of the United Nations, Javier Perez de Cuellar praised Dr. Swaminathan on the occasion of his receipt of the first World Food Prize in 1987, declaring, "By any standards, he will go into the annals of history as a world scientist of rare distinction."

*Tyler Prize
For Environmental
Achievement*

Tyler Prize Laureates

"They are the guardians of the future."

Alice C. Tyler

*Tyler Prize
For Environmental
Achievement*

ARIE JAN HAAGEN-SMIT* – Discoverer of the chemical nature of smog and advocate for change, the air pollution research he started at Caltech has expanded to air quality research worldwide.

G. EVELYN HUTCHINSON – One of this century's preeminent ecologists, his work in theoretical ecology provided the foundation of modern ecological practice.

MAURICE STRONG – Founding director of the United Nations Environment Programme, he has provided leadership in the international political-environmental arena.

RUTH PATRICK – A lifetime researcher on the ecology of rivers, she has been instrumental in providing a link between science and industry for the protection of the nation's rivers.

ABEL WOLMAN* – A pioneer in water resource management and waste water treatment, and a professor at Johns Hopkins University from 1921 until 1989, he trained generations of young people in the field of water conservation.

CHARLES S. ELTON – Often considered as the father of the science of animal ecology, his fundamental research has led to a greater understanding of ecological competition, and the organization and disruption of animal communities.

RENE DUBOS* – Scientist and internationally influential author, his books and articles provided society with a new perspective on the interaction between the environment and humanity.

EUGENE P. ODUM – One of the first educators to establish an institute for the training of ecologists, his research and writings have influenced countless students throughout the world.

*Tyler Prize
For Environmental
Achievement*

RUSSELL E. TRAIN – A leader in the United States political-environmental arena, and as first chairman of the Council on Environmental Quality he was instrumental in formulating environmental policy and in developing environmental quality standards in the United States.

CAROLL L. WILSON* – Contributor to fundamental work in the modeling of world energy supplies, he enlisted governmental and industrial leaders from around the world in studies of global energy prospects through the year 2000.

SOUTHERN CALIFORNIA EDISON COMPANY – The first major utility in the United States to establish as policy a shift to alternate and renewable energy sources, they continue to provide strong corporate leadership.

HAROLD S. JOHNSTON – One of the world's authorities in atmospheric chemistry, he was one of the first to call attention to the possibility that stratospheric contamination by nitrogen oxides might threaten the Earth's ozone layer.

MARIO J. MOLINA – Co-developer of the Rowland-Molina hypothesis on ozone depletion by chlorofluorocarbons, he has been studying the disruption and perturbation of natural cycles in the stratosphere.

F. SHERWOOD ROWLAND – Co-developer of the Rowland-Molina hypothesis, his policy initiatives led to regulations that controlled the use of chlorofluorocarbons as aerosol propellants in the western world.

*Tyler Prize
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Achievement*

ROGER R. REVELLE – A scholar of great breadth in oceanography, world population studies, and global climactic perturbations, he is a pioneer in the understanding of global resources.

EDWARD O. WILSON – Co-developer of the theory of island biogeography, he was instrumental in its application to conservation. His research into population dynamics and chemical ecology has led to new insights in modern biology.

BRUCE N. AMES – Developer of the Ames Test for the rapid screening of environmental carcinogens, his test has proven invaluable in protecting against unnecessary exposure to cancer-causing agents.

ORGANIZATION FOR TROPICAL STUDIES – A consortium of U.S. and Costa Rican universities, OTS provides the world's finest facility for on-site education and field research on tropical forest ecology.

WERNER STUMM – The preeminent water chemist in the world, his fundamental research on chemical equilibria in water systems and its relationship to the distribution and circulation of chemical substances has made possible the protection of lakes and rivers throughout the world.

RICHARD VOLLENWEIDER – A theoretical limnologist whose research led to the development of predictive models of eutrophication of fresh waters, his theories resulted in major advances in water pollution control throughout the world.

RICHARD E. SCHULTES – The preeminent ethnobotanist in the world, he promoted tropical forest conservation at the level of the developing country by demonstrating the value of tropical plant species to industry and medicine.

GILBERT F. WHITE – An outstanding geographer and world leader on problems of the environment, he promoted the scientific basis for, and the consequent application of, innovative alternative water resource and river basin management policies and practices.

*Tyler Prize
For Environmental
Achievement*

BERT R.J. BOLIN – A pioneer in global climate changes, he helped focus international attention on the potential dangers to the world's climate posed by the greenhouse gases and acid rain. His lifelong research has contributed to knowledge about the carbon cycle, and the phosphorus, nitrogen, and sulfur cycles.

PAUL J. CRUTZEN – One of the world's authorities on atmospheric chemistry, he made landmark discoveries on stratospheric and tropospheric ozone, nuclear winter, and humanity's capacity to upset the global atmosphere.

EDWARD D. GOLDBERG – One of the premier marine geochemists and chemical oceanographers investigating global ocean pollution problems, he greatly advanced understanding of radionuclides, wind-borne DDT, petrochemicals, and heavy metals. He pioneered coastal pollution monitoring with "Mussel Watch" using living bivalve organisms.

THOMAS EISNER – Partner with Meinwald in founding chemical ecology, he provides biological explorations to unravel many intricate strategies that insects use for survival. To safeguard the chemical treasury of nature, he has acted forcefully for the preservation of species.

JERROLD MEINWALD – Partner with Eisner in founding chemical ecology, he provides molecular characterizations of the chemical signals insects, plants and animals use to communicate. His chemical insights have heightened awareness of the importance of "secondary metabolites" in nature.

* Deceased

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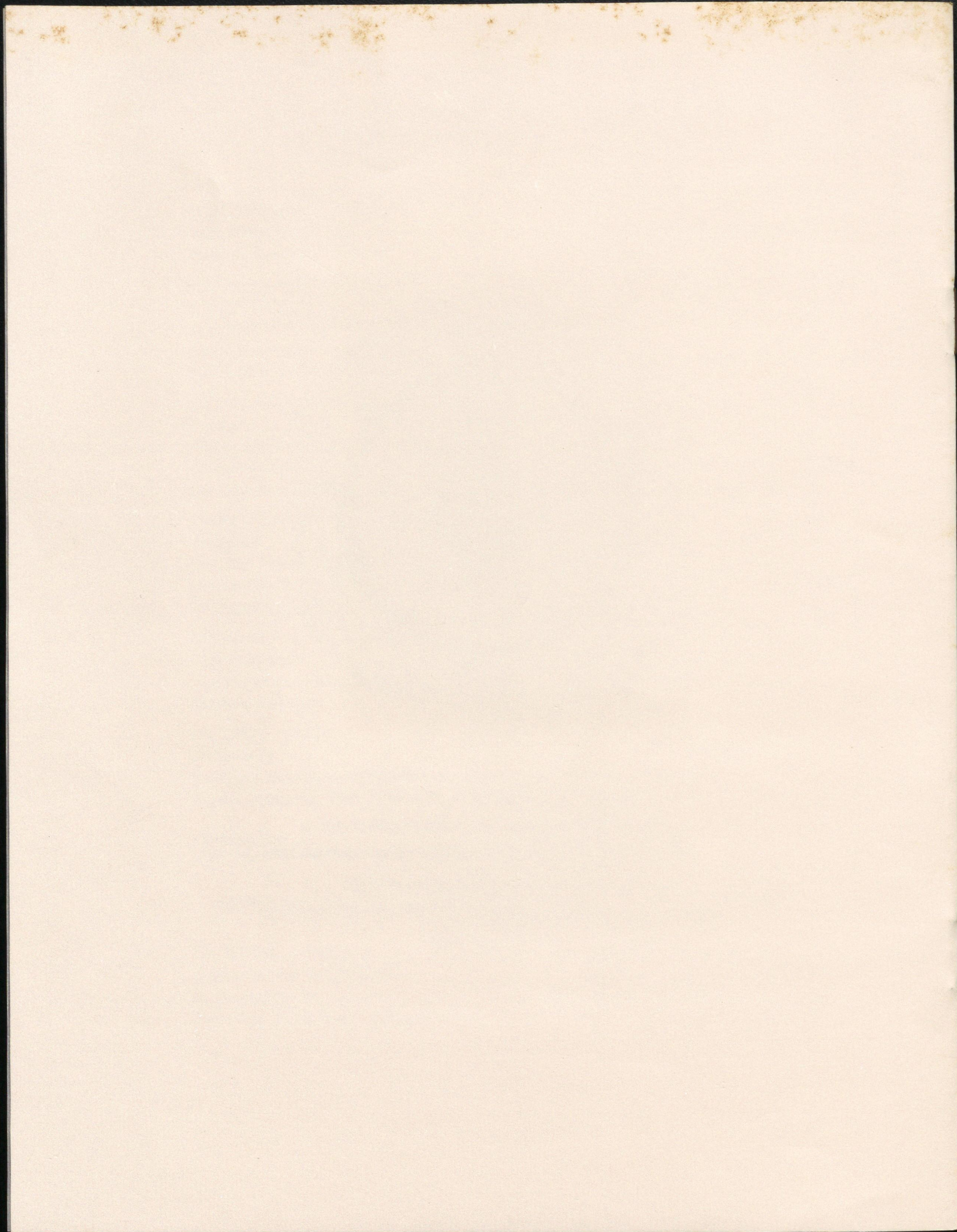
*This 16th-century engraving represents
 a conceptualization that mixes metaphysics
 and astronomy to analyze the realm of the heavens.*

* Charter Member
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*Only in recent years, however, has
 accurate assessment of the levels of earth's atmosphere
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Biblical reflection of Rama's sentiments

MADRAS

The significance attached to values such as Justice, Truth, Virtue and Charity are common to entire mankind. No religion will say that a person should defy moral laws, disobey his parents or resort to falsehood. World over, it is admitted that transgression of the rules of righteous conduct will entail punishment. No doubt, upholding these sacred principles will involve difficulties but man ought to try his best to overcome them.

Two tablets, on the sides of the entry to a church in a foreign country, carry valuable messages. On one is inscribed the famous declaration of Lord Rama about His resolve to stand by His promise. Quick to react to all pleas by Bharatha and the sages, Sri Rama said: "The snow on the Himalayas may dry, the moon may lose its lustre, the ocean may rise (above its normal level) to inundate the earth but I shall stand firm in My resolve to abide by My pledge given to My father. There is no going back upon My words."

On the other, is the Biblical statement: "Mother, at your breast the humanity is nourished and the Universe is fed. On your lap, civilisation is cradled." These sentiments, whether they came from India or elsewhere are applicable to everyone and ought to be honoured.

Sri M. R. Nagasubramaniam in his Ramayanam discourse, said listening to such teachings, people should get themselves reformed. By meditation, prayers and chanting God's names, the mind will be purified. It is futile for a person to claim that he will take to religious pursuits after his retirement from his profession.

Adi Sankara points out that by then, his faculties will fail to respond to his commands. A story is told about a woman who used to pray to God daily for a number of years, to grant her release from the worldly thralldom. At one stage when God in her dream informed her of the date of passing away, she stopped visiting the temple, explaining that she did not expect that the call would come so soon and that she desired to live for a few years more.

Failing to force Sri Rama to return to the kingdom to rule it, Bharata carried His "Padukas" as His representative and placing them on the throne, carried on the administration till the Lord's return after 14 years.

Delhi-Madras rail route fully electrified

ALLAHABAD

The Railways have completed electrification of the Delhi-Madras grand trunk rail route by bridging the final gap between Itarsi and Nagpur.

With the electrification of the Itarsi-Nagpur section during the current financial year, trains, both passenger and freight, can now be hauled by electric locomotives between Delhi and Madras, according to a press note issued by railway electrification, Allahabad.

Work on electrification of the 2194 km-long route started from Delhi and Madras in the late Seventies and the first section between Madras and Vijayawada on the Southern Railway was commissioned in 1980. During the next 11 years, work progressed from both ends, finally meeting at Nagpur, during the current year.

Electrification of the entire route, carried out at a cost of about Rs. 700 crores, would significantly contribute to fuel and energy conservation, the release said. — PTI

Nayudamma award for M. G. K. Menon

TENALI

Prof. M. G. K. Menon, eminent physicist and former Union Minister of Science and Technology, will be conferred the 1989 Dr. Yelavarthi Nayudamma Memorial Award, instituted by the Tenali branch of the Indo-Japan Friendship Association.

'Swarna Kamal' for Tamil feature film

NEW DELHI

The Tamil film "Maruppakkam," directed by K. S. Sethumadhavan, has been adjudged the Best Feature Film of 1990. Its director gets the "Swarna Kamal" and a cash prize of Rs. 25,000, while its producers, the National Film Development Corporation and Doordarshan, earn a "Swarna Kamal" and Rs. 50,000.

The second Best Feature Film Award has gone to Tapan Sinha's Hindi effort, "Ek Doctor Ki Maut." Sinha will get a "Rajat Kamal" and Rs. 15,000, and its producer, the National Film Development Corporation, a "Rajat Kamal" and Rs. 30,000.

Ajayan's Malayalam film, "Perumthachan," has won the Indira Gandhi award for the Best First Film of a Director, while the award for the Best Popular Film goes to Raj Kumar Santoshi's Hindi offering "Ghayaal."

Other notable awardees include: Tapan Sinha (best director), Amitabh Bachchan (best actor), Vijaya Shanthi (best actress), Nedumudi Venu (best supporting actor), K.P.A.C. Lalitha (best supporting actress), Shruti, Tarun and Shamily (best child artistes), M. G. Shreekrumar (best male playback singer), Lata Mangeshkar (best female playback singer), Santosh Siven (best cinematography), K. S. Sethumadhavan (best screenplay), M. S. Mani (best editing), Hridayanath Mangeshkar (best music direction), Pankaj Kapoor, Sunny Deol and Jaya Bharathy (special jury award).

The best feature films in regional languages are: Hemen Das's "Jooj" (Assamese), Nabyendu Chatterjee's "Atmaja" (Bengali), Govind Nihalani's "Drishti" (Hindi), S. V. Rajendra Singh's "Muthina Haara" (Kannada), G. Aravindan's "Vastuhara" (Malayalam), Mani Ratnam's "Anjali" (Tamil), B. Narsing Rao's "Matti Manushulu" (Telugu), and A. S. Sharma's "Ishanou" (Manipuri).

Minister's regret: In the categories of national integration, family welfare, environment, and children's films no entry was found good enough to be considered for an award.

The Union Minister of State for Information and Broadcasting, Mr. Subodh Kant Sahay, who announced the awards here today, regretted that the film industry had not responded to such a major national issue as national integration and said that the NFDC, the Films Division and Door-

darshan would be encouraged to make films on socially relevant subjects.

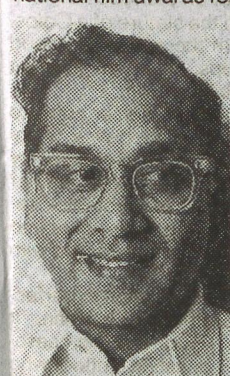
Sumitendra Nath Tagore and Shyamasree Tagore's "Graven Image" has been adjudged as the best non-feature film. Awards have also gone to 11 other films dealing with environment, arts, anthropology, biography etc. The award for best short fiction film has been given to Raj Kumar's, "Aamukh." Shoma A. Chatterjee has been adjudged the best film critic of the year, and the best book on cinema written in 1990 is Manmohan Chaddha's "Hindi Cinema ka Itihas."

The feature films were selected from among 117 entries by a 17-member jury headed by the noted actor Ashok Kumar. A five-member jury led by Mr. S. Krishnaswamy waded through 85 films to pick up the winner.

Nageswara Rao gets Phalke award

NEW DELHI

Telugu cinema's doyen Akkineni Nageswara Rao has bagged the Dada Saheb Phalke award for outstanding contribution to film industry and Hindi matinee idol Amitabh Bachchan gets the best actor award for the film "Agnepath" in the 38th national film awards for 1990 announced here.



"It has come as a surprise to me. I am the happiest person," the 67-year-old ANR, as he is popularly known, told reporters when they called on him at his residence in Hyderabad.

The Tamil film, "Maru Pakkam," produced jointly by the National Film Development Corporation (NFDC) and Doordarshan and directed by K. S. Sethumadhavan, was adjudged the best feature film of the year.

Nageswara Rao joins a select band of artistes who include Prithviraj Kapoor, V. Shantaram, Ashok Kumar, Raj Kapoor and Lata Mangeshkar.

Environment award for M. S. Swaminathan

WASHINGTON

Dr. M. S. Swaminathan, scientific leader of the "Green Revolution" in India and Dr. C. Everett Koop, father of the anti-smoking revolution in America, shared the 1991 Tyler prize for environmental achievement.



The \$150,000 (about Rs. 29 lakhs) prize, a premier world award for environmental science and leadership, was presented in Los Angeles in recognition of their contributions to improving environmental health and sustainable food sources.

A statement issued by the award committee said Dr. Swaminathan's genetic research and collection of foodgrains have transformed India from the country with the largest food deficit to one that could feed all people.

Dr. Koop, Surgeon-General of the U.S. from 1981 to 1989, was the main force behind changing the smoking habits of Americans. The public was awakened to the hazards of nicotine through Dr. Koop's straight talks and his campaign for a smoke-free society by the year 2000.

Direct flight from Riyadh to Madras

MADRAS

With the introduction of the Saudi Arabian Airlines' maiden Boeing-747 service from Riyadh and Dhahran, Madras becomes the third gateway point of the airline offering a direct link with the Kingdom of Saudi Arabia.

The plane which landed at the Anna International airport at Meenambakkam at 6-30 a.m. was received on behalf of the International Airports Authority of India (IAAI) by the Madras Airport Director, Mr. M. A. Khan.

According to Mr. Sari Islam, Vice-President, Sales, SAA, the airline with its worldwide network of over 75 destinations is now operating eight flights a week to Bombay and weekly two flights to Delhi and now to Madras.

The biweekly service on Mondays will arrive in Madras from Riyadh and Dhahran 6-30 a.m. and depart 8-30 a.m. On Fridays, the Jeddah-Riyadh-Madras service will arrive here 7-15 a.m. and leave for Dhahran and Riyadh 9-15 a.m.

Currency exchange problem: The passengers from Riyadh and Dhahran, much to their chagrin, found that they could not exchange Saudi Arabian riyals on landing.

They could not get much help from State Bank of India where the passengers went with their travel documents to exchange their Saudi Arabian riyals. They were told that the bank had no advance information about the SAA flight to Madras and thus was not in a position to exchange the currency.

The passengers who had to pay customs duty had to leave the goods at the airport or clear them with help from the relatives and friends who had come to receive them.

Madras airport is poised for receiving more international airlines. The International Airports Authority of India (IAAI), is now working on a war footing to make Madras the third busiest airport among the five international airports in the country.

A spokesman of IAAI said the additional seven parking bays would be made fit to receive widebodied planes.

The construction work on the new additional parking bays was now progressing and two of the proposed seven bays would be made by the end of next month. Besides this, work on approach runway lighting for the main runway extension was taken up.

Control tower to be shifted: The National Airports Authority of India (NAAI) has also chalked out proposals to shift the control tower from the old Meenambakkam airport to a place closer to the domestic terminal. The new control tower-cum-technical block would be equipped with modern amenities.

Concessions to foreign tourists visiting NE States

NEW DELHI

With a view to encouraging tourism in North Eastern region during the current year, which is designated as "Tourism Year," the Government of India has rationalised visa fee in respect of seven important tourist generating countries. Grant of restricted area permits to foreign tourists visiting North Eastern States, including Sikkim have also been relaxed to promote this region as an alternative destination to Kashmir Valley where tourist trade has been adversely affected by the continuing terrorist violence.

The Union Home Secretary has convened on April 10 a meeting of the State Chief Secretaries of the North Eastern States to consider the request made by the Chief Ministers of these States for withdrawing the permit system completely. Development of tourism in the region is also a priority item on the agenda of the Committee of Ministers for the economic development of the North Eastern States to be chaired by the Prime Minister, Mr. Chandra Shekhar.

Curbs relaxed: The April 10 meeting scheduled to be held in New Delhi is described as the follow up of the Deputy Prime Minister, Mr. Devi Lal's recent visit to the region where the Chief Ministers of the States concerned had impressed upon him to revoke the restrictions imposed on foreign tourists entry into certain areas.

According to official sources here, Mr. Devi Lal has recommended removal of the restricted area permit in view of the vast tourism potential offered by these States. He has argued that removal of restrictions on movements of foreign tourists, tourism would emerge as a major economic activity in the region.

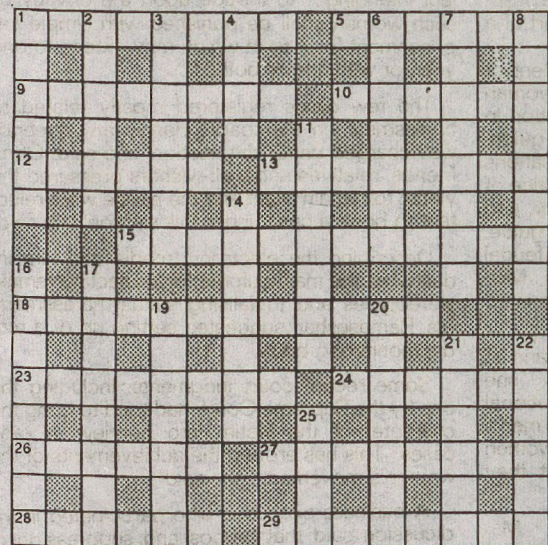
As an interim measure, visa fee for tourists from France and the U.S. has been fixed at Rs. 100, while in respect of tourists coming from Germany, Italy, the Netherlands, Spain and the U.K. the visa fee will be Rs. 200.

Foreign tourists visiting Assam and Jatinga bird sanctuary in North Chachar hill districts, provided the journey is made by the National Highway to Sib Sagar and by train to the bird sanctuary.

Duration of stay extended: Duration of stay of foreign tourists in Manipur has already been extended from three to five days. Foreign tourists visiting Meghalaya in groups will be allowed to go up to Barapani and Chirapunji and can stay there upto ten days after obtaining necessary restricted area permit from the competent authorities. According to new rules the foreign tourists can spend upto ten days in Shillong instead of seven days as prescribed earlier.

Group tours of not less than four persons organised by recognised Indian travel agencies to Sikkim can get permits extending upto 15 days to trek in Zongri area of west Sikkim.

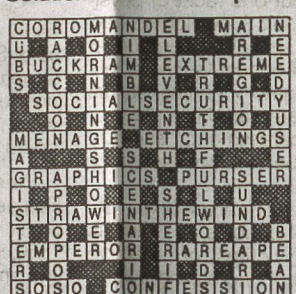
The Hindu Crossword



- Across**
 1 Took it all in — to the Reader's delight. (8)
 5 Habituated to his dues! (4, 2)
 9 Almost defunct bone found in a sandbank. (8)
 10 Forty winks for the tired worker under cover. (3-3)

- 12 Girl goes along that way to meet the sage. (6)
 13 Winkers? (8)
 15 Candid to follow suit. (5-2-5)
 18 Taking on more than he can grasp? (4-8)
 23 I rave about the son, much to their dislike. (8)
 24 Used extensively by mackerel fishermen. (6)
 26 Don't allow any freedom to a medico? (6)
 27 Saw that the old boy was given his food. (8)
 28 Passed before the sty, inadvertently. (6)
 29 Quiet stays according to the rules in the White House. (8)
- Down**
 1 It's material to enquire after a parent. (6)
 2 Ed gave the poor girl the belt. (6)
 3 How awful to turn the bus back to pack up Emil left behind. (7)
 4 The Dane teased the girl. (4)
 6 You can rely on the trustworthy to stop the flow of blood. (7)
 7 Silly to wear it on your head. (5-3)
 8 Resist it and be directly contrary. (8)
 11 The cloth near by in pieces, with stains too. (7)
 14 Perfidy of a British gunner, from the onset. (7)
 16 Is there a pub around here? (8)
 17 Souvenirs of those moments in the East, long gone! (8)
 19 The substitute rather keeps to himself. (7)
 20 Creatures who bite youngsters. (7)
 21 Went fifty-fifty. (6)
 22 Promptings? (6)
 25 Bare at the river mouth. (4)

Solution to last week's puzzle



MATRIMONIAL

Alliance for Iyer 29/185, Kausika, Swathi, well educated Ph.D. (USA) decently employed in Miami. Educated girl from decent and respectable family settled in the States preferred. Reply with horoscope to Box No. 9312, C/o, THE HINDU International Edition, Madras- 600002, India.

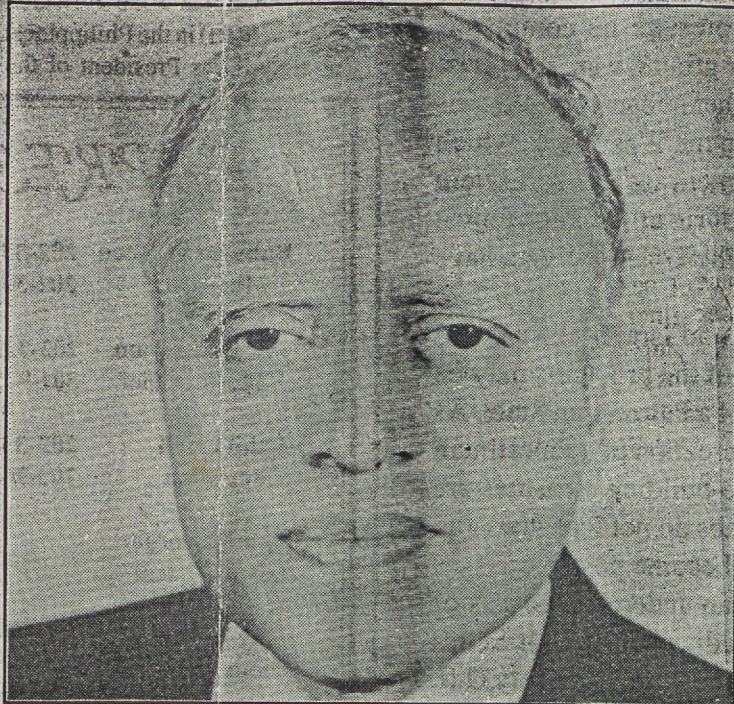
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1991 Tyler Prize For Swaminathan

Dr. M.S. Swaminathan, the scientific leader of India's Green Revolution and C. Everett Koop, father of the anti-smoking revolution in America will share the 150,000 dollar 1991 Tyler Prize for Environmental Achievement. Both are being recognized for their contributions to improving environmental health and sustainable food sources.

Dr. Swaminathan's genetic research and collection of food grains have transformed India from the country with the largest food deficit to a country that feeds all its people.

Dr. Swaminathan's 43 years of research on cereal grains (by combining the fields of
See TYLER PRIZE page 2



Karan Singh Backs Gandhi

Express India News Service

Dr. Karan Singh, former Ambassador to Washington, who came to the U.S. to inaugurate a unique, revolving 7-ft Nataraja at Yogaville which he had donated during his tenure in the U.S. capital, discussed a wide range of subjects with correspondents and community leaders at a reception held by Ambassador Abid Hussain at the Indian Chancery.

Dr. Karan Singh made it clear that he is not a candidate in the coming elections but will support Rajiv Gandhi's Congress-I as the only way, as he sees it, to put India back on the road to stability. He said that one had to choose among three parties or alliances—V.P. Singh's party now allied with the Communists, the BJP and Congress-I. To him the choice was

clear, and he was confident that it would be clear to the electorate too. Dr. Karan Singh warned that if there was no clear-cut leadership in India for the next ten years, "if for the next ten years we do not have stability in India, the situation in India is going to get extremely grim". He went to the extent of saying that if there were hung See KARAN page 2

INDIA EXPRESS April 5, 1991

TYLER PRIZE

From page 1

genetics and applied botany) have made it possible to grow food per hectare of land. In 1964 India produced 12 million metric tons of wheat on 14 million hectares of land and in 1990 they produced 55 million metric tons on 23 million hectares of land.

While working on creating high-yielding grains for farmers to grow, Swaminathan has always been conscious of the need to preserve the environment. His goal is "sustainable development" so that the land will be healthy enough to produce the amount of food necessary for India's survival. Biological diversity is the key to success; and the "Assam Rice Collection" of more than 6,000 strains of wild rice that Dr. Swaminathan, in association with Drs. S.V.S. Shastri, S.D. Sharma, and E.A. Siddiq, collected in the early 1960's has provided the necessary gene pool to ensure ecological sustainability.

Dr. Swaminathan has made his presence felt in India by chairing numerous national committees devoted to developing environmental and agricultural policies. He has just completed his terms as President of the International Union for the Conservation of Nature and Natural Resources (IUCN) and the National

National Academy of Agricultural Sciences of India.

To advance agricultural science, the M.S. Swaminathan Research Foundation was established in 1988 near Madras, India. Here scientists are creating new "green technologies" to take the food revolution into the 21st century. Presently, Dr. Swaminathan is also working on enhancing the productivity of coastal ecosystems.

For his many contributions to agricultural science, Dr. Swaminathan is a living legend. Javier Perez de Cuellar, the Secretary General of the United Nations, has said, "He will go into the annals of history as a world scientist of rare distinction".

KARAN

From page 1

Parliaments again in India, it would be time to think of a Presidential form of Government and develop a national consensus behind that concept.

He blasted V.P. Singh for dividing the country along caste lines on top of the religious divisions.

On the Ram Janmabhoomi issue, he said that with the money that had been collected for the agitation, one could have built a magnificent Ram temple in Ayodhya without disturbing the mosque. Regardless of the exact

April 5, 1991

The Tyler Prize for Environmental Achievement

Acceptance Speech
by
M.S. Swaminathan

I am grateful to the Tyler Prize Executive Committee for choosing me for this year's prize and for the privilege of sharing it with Dr. Everett Koop. I thank you for this recognition of the work carried out by my colleagues and myself over the last 40 years, work that has sought to build the scientific foundations essential for developing an ecologically sustainable food security system in India and in other developing countries. I would like to pay tribute to the generosity and vision of John and Alice Tyler. John Tyler's initiative in organizing the Farmers' Insurance Group helped prevent much ^{human} misery ~~among farmers~~ during the Great Depression in the United States in the early thirties. ~~It also helped to protect the livelihood security of farmers during adverse crop seasons.~~ Mrs. Tyler and her late husband together have done much to promote the ecological security of our planet. While accepting this Prize with gratitude and humility, I would like to share with you my views on the protection of our natural environment and on poverty alleviation -- among the two most challenging tasks facing humankind today.

The World Commission on Environment and Development called for the achievement of necessary growth rates in economic

development without harm to the life support systems of the planet, terming this sustainable development. This will be the theme for the U.N. Conference on Environment and Development scheduled to take place in Brazil in June 1992. Sustainable development involves paying concurrent attention to problems of intra- and inter-generational equity. The large volume of literature currently becoming available on this topic suggests that the problem facing us now is not so much to discover what must be done to ensure sustainability but, more importantly, to learn how to achieve it.

In population-rich but land-hungry countries like India, China and Bangladesh, enduring food security will depend greatly on strategies to enhance crop yields. At the same time, the onward march of the green revolution will have to be on the basis of "green" or environmentally friendly technologies. If productivity-enhancing technologies do not spread to more areas and farming systems, the poverty of small farm families will persist, since they will have very little marketable surplus and thus will not be able to profit from the remunerative output pricing policies of governments. Nor will it be possible to prevent the further expansion of cultivated area at the expense of forests and soils vulnerable to erosion or other forms of damage to their innate biological potential.

Both FAO and UNEP estimate that an important cause of deforestation in the world is the spread of agriculture into forest lands. At the same time, population increase and growth in

purchasing power make a more rapid advance in agricultural production necessary. Thus a continuous quest for technologies which can help to enhance the productivity of economic plants and farm animals per units of time, land, water and energy is essential. For example, in India cereal production will have to increase by at least 7 million metric tons per year during the present decade to meet demand, as against the average annual increase of 3.5 million tons of food grains achieved during the last two decades. In sub-Saharan Africa where population is growing at 3.5 percent a year, food production will have to be tripled during the next 25 years to meet the needs of the growing population. Similar progress will be needed in other agricultural commodities. Can such advances in agricultural production and productivity be achieved without over-exploiting land and ground water resources and increasing the problems created by biotic and abiotic stresses?

The solution lies in ecological agriculture. A major aim of the strategy described as Low Input Sustainable Agriculture (LISA) by the US Department of Agriculture is to ensure the long-term sustainability of current production levels in USA. However, while defending the status quo in yield may be the priority task in industrialized nations, raising average yields is the urgent need in developing countries. For example, the average yield of paddy in California is about 8.5 tons per hectare, while the current average paddy yield in India is about 2.5 tons per hectare. India already has over 47 percent of its land area under

agriculture. Less than 4 percent of the arable land of the country is under pastures and grazing lands, although India has over 20 percent of the world's farm animal population. Unless rice yields are doubled within the next 20 years, it will be difficult to manage the national food security system without food imports. The same situation prevails in wheat, sorghum, pulses, oilseeds, and other food crops. So, the pathways for sustainable agriculture in India will have to be based on substantial advances in productivity and not just on the maintenance of current yields and production levels, as in the U.S.

We thus face a paradox. On the one hand, several of the components associated with traditional green revolution or land-saving technologies, particularly those involving the use of high doses of mineral fertilizers, chemical pesticides and heavy farm machinery, have negative ecological repercussions. On the other hand, a continuous growth in terrestrial and aquatic productivity is a must in countries where agriculture holds the key not only to food security but to the livelihood security of rural families. Only new research strategies designed to combine the strengths of traditional and frontier technologies can help us to face this situation.

Sustainable agriculture has several dimensions -- social, cultural and economic, besides ecological. For example, when in the mid-eighties the European Community subsidized sugarbeet sugar heavily, a thriving sugarcane industry in the Negros island

of the Philippines collapsed, leading to great human misery in the rural areas. In commodities of international trade, the agricultural policies of industrialized nations tend to determine the economic sustainability of the cultivation of those crops in developing countries. At the same time, national economic policies have a profound impact on the sustainability of land and water use patterns. High price incentives could lead to the cultivation of water-loving plants in low rainfall areas, resulting in an unsustainable exploitation of the aquifer and in the abandoning of scientific crop rotations. High export subsidies, often necessitated by heavy debt servicing burdens, lead to the cutting down of forests and to soil and water mining. Thus, technology and trade both need attention if the principle of ecological sustainability is to be integrated with that of economic efficiency.

There are probably about two million farms in the United States now, while in contrast, in India, the number of operational farm holdings is presently about 100 million. Ecologically sound technologies like integrated pest management and integrated nutrient supply and the sustainable management of ground water resources can be adopted under conditions of small holdings only if all the farming families in a village or watershed cooperate. This task is made complex in large countries like India and China not only by the numbers involved, but by the pressures of competing needs. Unless there is equity in sharing the benefits, cooperation will not be easily forthcoming. For

example, in semi-arid rainfed areas, cooperation in water saving is seen only in places where there is equity in the sharing of the harvested water. Today, "water lords" who have access to ground water resources often exploit them with only a short term profit motive. Development which is not equitable cannot, in the long run, become sustainable. This is true both within and among nations. We therefore need a new paradigm of agricultural research and development for enduring global and national food security, consisting of three interacting components -- ecological sustainability, equity-based economic efficiency, and convergence and synergy among the efforts of the government, non-governmental and corporate sectors.

The new technologies which can help to make such a paradigm an operational reality are in the areas of biotechnology, space and information technologies, new materials, and management technology. Space and information technologies enable the integration of meteorological and marketing data with land and water use plans. A computer-aided extension system can help to spread such integrated information in rural areas with speed and accuracy. Current and emerging biological technologies offer opportunities for pyramiding of genes conferring tolerance to a wide spectrum of biotic and abiotic stresses. Management technologies can help to optimize the benefits from the available land, water, energy and credit resources. They can help to promote the conjunctive use of surface and ground water resources in an effective manner, as often emphasized by Professor Roger Revelle.

Successful genetic engineering needs access to a wide range of genetic resources of crops and animals. About 1.5 million species have been described by taxonomists so far. Some experts estimate that over 50 million species may exist on our planet, if we take into account the prevailing genetic variability in invertebrates and micro-organisms. Unfortunately, interest in the science of biosystematics is waning among young scholars and we may not even know what we are losing. Meanwhile, the number of threatened protected areas of the world in the IUCN Register is growing. Yet even now, hardly 3 percent of the terrestrial ecosystems and 1 percent of marine ecosystems have been designated as "protected areas." But already 91 of such sites in 57 countries, comprising both developing and industrialized countries including USA, are threatened due to both anthropogenic pressures and unsustainable development. This list is growing. In developing countries, the threat to National Parks, Biosphere Reserves and Reserve Forests comes from human communities who perceive the protection as being in conflict with their economic survival. This is a sad reflection on the quality of our management of biological wealth. The loss of ecosystems, species and genes is occurring at a time when new gene combinations may be essential for adaptation to potential changes in climate and sea levels and to a higher incidence of Ultra violet B radiation and when genetic engineering has opened up the possibility for moving genes across sexual barriers. The loss of every gene and species limits our options for the future.

Coastal and mountain ecosystems richly endowed with biological diversity are often among the most seriously threatened. Coastal mangroves, sea grasses, coral reefs and associated flora and fauna rich in genes of value in the breeding of new strains of plants for adaptation to potential changes in sea levels, are being indiscriminately destroyed. Recently, my colleagues and I at the Centre for Research on Sustainable Agricultural and Rural Development at Madras have established, in the state of Tamil Nadu, in collaboration with the State Forest Department, a Genetic Resources Centre for Adaptation to Sea Level Rise. We have also developed a programme, jointly with the International Tropical Timber Organization, for establishing a global grid of genetic resources centres in mangrove species. Mangrove forests are being destroyed at a rapid rate for a variety of reasons -- tourism, pollution, industrial requirements, the spread of coastal aquaculture and the extension of human settlements right up to the coast. Both the ecological security of coastal regions and the livelihood security of coastal communities will be adversely affected if coastal flora and fauna are lost.

The task of achieving sustainable advances in biological productivity is thus a formidable one. The progress made so far through changes in plant architecture and physiological responses is largely due to a higher allocation of the total biomass to the part of economic value. Further progress will depend on our ability to improve total biomass production per unit of land and

water. This is where the tools of molecular biology have added to our research capability. The biological technologies essential to derive the necessary gene combinations through recombinant-DNA experiments are largely being perfected in the private sector in industrialized nations and will thus be covered by patent protection. Mechanisms for the speedy dissemination of environmentally friendly technologies are essential if the needs for planet protection and patent protection are not to become antagonistic. This should be a priority task to be addressed by the Global Environment Facility recently established by the World Bank, UNDP and UNEP.

I would like to close by drawing attention to two basic requirements for harmonizing conservation and development. Fulfilling these requirements are beyond science but within the capacity of Society.

First, the adoption of sustainable life styles by the economically affluent sections of humankind is a must for halting the growing depletion of environmental capital stocks. If we measure in financial terms the total economic value of human production from the dawn of human civilization up to 1900, the figure would be about US \$ 600 billion. But today, the world economy is growing by more than this amount every two years. Today's \$ 15 trillion economy could multiply 5 fold in another 50 years; but this world production is still very unequally divided. In 1880, the ratio of real per capita income between Europe on

the one hand and India and China on the other was 2:1. By 1965, this ratio became 40:1. It has been widening ever since and is now nearly 70:1. This has repercussions in every area -- energy consumption, release of greenhouse gases, trade imbalances and the spread of poverty. Economic entitlements for the poor are essential for household nutritional and livelihood security. But ecological obligations of the rich are equally essential for protecting the planet's environmental endowments. Economic entitlements and ecological obligations when coupled can lead to lasting human happiness. This is an area where the rich and well-to-do have to set the example. Unless affluent nations and affluent people everywhere take the lead in promoting the growth of a Conservation Society based on the integration of the best in modern agricultural, industrial and information technologies with the best in traditional practices and life styles, it will be difficult to halt either the ever-widening rich-poor divide or continuous environmental deterioration.

Second, living in harmony with nature needs the curbing of the growing violence in the human heart - violence which is reflected at different levels - individual, community and countries. Last year at this time, the prospects for lasting peace and goodwill on earth appeared bright. Unfortunately, events since last August have again fostered the culture of violence towards both nature and fellow human beings. About 50 years ago, Mahatma Gandhi asked: "How can we be non-violent to nature unless the spirit of non-violence becomes central to the ethos of human culture?" ^{Recently} ~~Two months ago~~, while seeing television

pictures of cormorants, flamingos and grebes, not to mention children, struggling for life in the region affected by the Gulf war, I was reminded of the basic truth underlying Gandhi's conviction.

So it seems that a "greening" of the human mind must precede the greening of our earth. A "green" mind is one which cares, saves and shares. The life and work of John and Alice Tyler illustrate the power of the "green" mind to improve the quality of the human environment. If only this attitude pervaded our psychic environment, we would not have over 600 million children, women and men going to bed hungry tonight, including over 3 million children in USA, according to a recent report of the Food Research and Action Center.

A better common present is essential for a better common future. Unless the poor and the ~~penguin~~^{handa} receive concurrent attention, the divorce between environment and development will persist. It is for the cause of a better biofuture for the economically underprivileged that my wife and I have decided to use the Prize money.

On behalf of my wife and myself, I thank you all once again for your kindness and encouragement.

The Tyler Prize
University of Southern California
LAS II - 208
University Park
Los Angeles, California 90089-4019

_____ will be able to attend


_____ will be unable to attend

Phone _____

City of Residence _____

Zip Code _____

Please respond by March 22, 1991

Program 

TYLER PRIZE
AWARD DINNER

Four Seasons Hotel

April 5, 1991



WELCOME

Omar Fareed, M.D.
Dr. Steven B. Sample

INVOCATION

Dr. William Hornaday

DINNER



PROGRAM CHAIRMAN

Dr. Robert A. Frosch

SPECIAL PRESENTATION

Dr. James H. Zumberge



AWARDING OF THE TYLER PRIZE

PRESENTATION

Dr. Walter A. Rosenblith

ACCEPTANCE

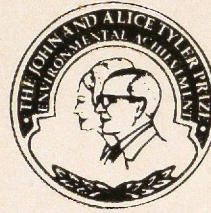
C. Everett Koop, M.D.

PRESENTATION

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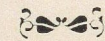


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LIVING
CENTERPIECE

*To the person whose
birthday is nearest to
June 14, Flag Day*

Top environmental award for pioneer in sustainable agriculture

One of America's most prestigious environmental awards — the Tyler Prize — has been won by Dr M. S. Swaminathan, President of WWF-India, and one of the world's leading scientists in sustainable agriculture and conservation of biological diversity.

Dr Swaminathan — an expert on genetic improvements in food crop species — shares this year's US\$150,000 award with American scientist, Dr Everett Koop, who has waged an unrelenting campaign against smoking.

Dr Swaminathan played a key role in helping India overcome the largest food deficit in the world through a strategy that became known as the WWF NEWS 8

'Green Revolution'. His work on genetically superior strains of wheat, rice and grains increased the productivity and stability of food crops in India and other developing countries.

In the early 1960s, in association with his co-workers, he launched a plant expedition to Northeast India to collect and preserve the many geno-types of wild rice that were threatened by shifting cultivation in the region. The collection of over 6,000 types — known internationally as the Assam Rice Collection — turned out to be a gold-mine of genes resistant to pests.

While researching ways of increasing food production, Dr Swaminathan has consistently

argued that developing countries should prevent the destruction of forests and take measures to protect their biological diversity. He proposed the organization of the International Board for Plant Genetic Resources (IBPGR), later establishing the National Bureau of Plant Genetic Resources in India, and was instrumental in the setting up of similar national centres for animals and fish. He has recently established WWF-India's Community Biodiversity Conservation Movement and is now organizing a Genetic Resources Centre for Adaptation to Climate Change — the first of its kind in the world. Under the aegis of the M. S. Swaminathan Research

Foundation, the new resource centre will collect species and strains with genes that are resistant to sea water, flooding and drought — threats posed by global warming.

In his acceptance speech, Dr Swaminathan said that national economic policies have a profound impact on the sustainability of land and water-use patterns. "High export subsidies, often the result of heavy debt servicing burdens, lead to the cutting down of forests and to soil mining," he said. "Technology and trade both need attention if the principle of ecological sustainability is to be integrated with that of efficiency."

WWF News No 71 Day - June - 1991



TYLER PRIZE
FRIDAY, APRIL 5, 1991

Puff Pastry of Salmon with Julienne
of Vegetables and Beurre Blanc

* * *

Salad of Mixed Greens with Grilled Vegetables Antipasto
of Eggplant, Zucchini, Mushrooms, Italian Olives, Balsamic Vinaigrette

* * *

Breast of Guinea Hen with Mustard Crust
Grilled Corn, Asparagus, Baby Carrots, Red and Yellow Peppers

* * *

Warm Rolls with Butter and Margarine,
Sliced Breads and Breadsticks

* * *

Tiramisu of Espresso Laced Lady Fingers with Mascopone
Cream Filling, Coffee Creme Anglaise and Chocolate Fan

* * *

Coffee, Tea, Decaffeinated Coffee and Herbal Tea

Carmenet Chardonnay 1989, Sonoma County

FOUR SEASONS HOTEL LOS ANGELES



Dr. M. S. Swaminathan at the Tyler Prize ceremony, with Dr. Sally Ride, director of the California Space Institute at the University of California, San Diego (and the first American woman in space), and Dr. C. Everett Koop, former surgeon general of the U.S. Dr. Koop was also honored with a Tyler Prize this year. Dr. Ride serves on the executive committee of the Tyler Prize.

development organizations. For information about how you can support the FRAC campaign contact

Campaign to End Childhood Hunger
 Food Research and Action Center
 1875 Connecticut Ave., NW, Suite 540
 Washington, DC 20009, USA
 Phone: 202-986-2200
 Fax: 202-986-2525

Hunger Project Director Swaminathan Receives Distinguished Environmental Achievement Award

Hunger Project director M. S. Swaminathan was recently awarded the 1991 Tyler Prize for Environmental Achievement in Los Angeles. Established in 1973, this award is recognized as a premier world prize, and the laureates have included scientists, policy makers and two institutions. Dr. Swaminathan's biography, which appeared in the program for the prize, reads in part:

M. S. Swaminathan's mission in life has been to increase biological productivity on an ecologically sustainable basis. One of the world's most eminent agricultural scientists, Dr. Swaminathan has single-mindedly devoted himself to research in genetics and breeding to discover genetically superior strains of wheat, rice and coarse grains to enhance the productivity and stability of food crops in India and other parts of the Third World. While searching for methods to achieve higher production,

he has been sensitive to the need for populous, land-hungry countries like India to protect forest land from being destroyed and to adopt "land saving agriculture."

The Hunger Project is honored to have Dr. Swaminathan serve as a member of its global board of directors.

Hunger Project Volunteers Launch New Era of Fulfillment

In mid-April, more than 130 individuals from all over Southern California gathered in Los Angeles to be updated by Lynne Twist, director of global funding, on The Hunger Project and to launch the new era of fulfillment. The group included individuals who had attended the original Hunger Project presentations in 1977, Charter Group members, major investors and people new to The Hunger Project.

The gathering also included a wide variety of individuals representing organizations and groups with which The Hunger Project is aligned, including

UNIVERSITY OF SOUTHERN CALIFORNIA

PROVOST'S OFFICE

FAX TRANSMITTAL FORM

Date: April 2, 1994

To: Dr. M. S. Swaminathan - Hotel West

(Name)

1012 Jassant Hotel, Los Angeles

(Company/Department)

(213) 879-4572

(FAX No.)

From: Rachel Koenig & Terri Mungen

Number of Pages:

(including cover)

Special Instructions: note - is one copy of your speech. We will print out

either two copies without at 7 pm along with the banquet booklets and other

materials that you request.

If you have any questions or trouble with this transmission, please call:

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Telephone (213) 740-6559

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development without harm to the life support systems of the planet, terming this sustainable development. This will be the theme for the U.N. Conference on Environment and Development scheduled to take place in Brazil in June 1992. Sustainable development involves paying concurrent attention to problems of intra- and inter-generational equity. The large volume of literature currently becoming available on this topic suggests that the problem facing us now is not so much to discover what must be done to ensure sustainability but, more importantly, to learn how to achieve it.

In population-rich but land-hungry countries like India, China and Bangladesh, enduring food security will depend greatly on strategies to enhance crop yields. At the same time, the onward march of the green revolution will have to be on the basis of "green" or environmentally friendly technologies. If productivity-enhancing technologies do not spread to more areas and farming systems, the poverty of small farm families will persist, since they will have very little marketable surplus and thus will not be able to profit from the remunerative output pricing policies of governments. Nor will it be possible to prevent the further expansion of cultivated area at the expense of forests and soils vulnerable to erosion or other forms of damage to their innate biological potential.

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I would like to close by drawing attention to two basic requirements for harmonizing conservation and development. Fulfilling these requirements are beyond science but within the capacity of Society.

First, the adoption of sustainable life styles by the economically affluent sections of humankind is a must for halting the growing depletion of environmental capital stocks. If we measure in financial terms the total economic value of human production from the dawn of human civilization up to 1900, the figure would be about US \$ 600 billion. But today, the world economy is growing by more than this amount every two years. Today's \$ 15 trillion economy could multiply 5 fold in another 50 years; but this world production is still very unequally divided. In 1880, the ratio of real per capita income between Europe on

the one hand and India and China on the other was 2:1. By 1965, this ratio became 40:1. It has been widening ever since and is now nearly 70:1. This has repercussions in every area - energy consumption, release of greenhouse gases, trade imbalances and the spread of poverty. Economic entitlements for the poor are essential for household nutritional and livelihood security. But ecological obligations of the rich are equally essential for protecting the planet's environmental endowments. Economic entitlements and ecological obligations when coupled can lead to lasting human happiness. This is an area where the rich and well-to-do have to set the example. Unless affluent nations and affluent people everywhere take the lead in promoting the growth of a Conservation Society based on the integration of the best in modern agricultural, industrial and information technologies with the best in traditional practices and life styles, it will be difficult to halt either the ever-widening rich-poor divide or continuous environmental deterioration.

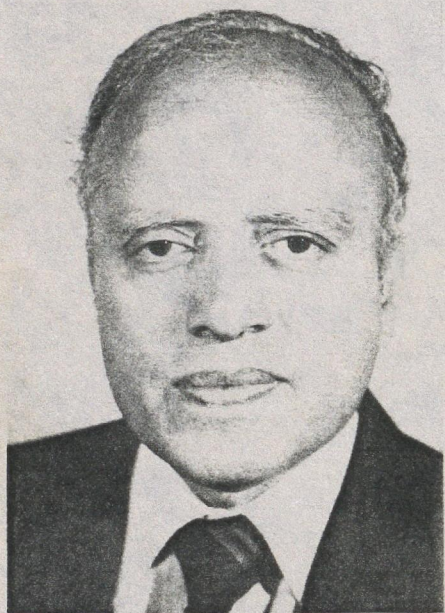
Second, living in harmony with nature needs the curbing of the growing violence in the human heart - violence which is reflected at different levels - individual, community and countries. Last year at this time, the prospects for lasting peace and goodwill on earth appeared bright. Unfortunately, events since last August have again fostered the culture of violence towards both nature and fellow human beings. About 50 years ago, Mahatma Gandhi asked: "How can we be non-violent to nature unless the spirit of non-violence becomes central to the ethos of human culture?" Two months ago, while seeing television

plumes of cormorants, flamingos and grebes, not to mention
the area, struggling for life in the region affected by the Gulf
war. I was reminded of the basic truth underlying Gandhi's
conviction.

So it seems that a "greening" of the human mind must precede
the greening of our earth. A "green" mind is one which cares,
saves and shares. The life and work of John and Alice Tyler
illustrate the power of the "green" mind to improve the quality
of the human environment. If only this attitude pervaded our
psychic environment, we would not have over 600 million children,
women and men going to bed hungry tonight, including over 3
million children in USA, according to a recent report of the Ford
Research and Action Center.

A better common present is essential for a better common
future. Unless the poor and the Panda receive concurrent
attention, the divorce between environment and development will
persist. It is for the cause of a better biofuture for the
economically underprivileged that my wife and I have decided to
use the PIRA money.

On behalf of my wife and myself, I thank you all once again
for your kindness and encouragement.



Dr. M.S. Swaminathan

M.S. SWAMINATHAN's mission in life has been to increase biological productivity on an ecologically sustainable basis. One of the world's most eminent agricultural scientists, Dr. Swaminathan has single-mindedly devoted himself to research in genetics and breeding to discover genetically superior strains of wheat, rice and coarse grains to enhance the productivity and stability of food crops in India and other parts of the Third World. While searching for methods to achieve higher production, he has been sensitive to the need for populous, land-hungry countries like India to protect forest land from being destroyed and to adopt "land saving agriculture."

Dr. Swaminathan pioneered continuous advances in biological productivity. His search for genetic improvements in food species started at the Indian Agricultural Research Institute, New Delhi, in 1947. Combining genetics and applied botany, Dr. Swaminathan identified barriers to high yields in wheat and initiated the dwarf wheat breeding program. He improved the quality and stability of wheat, rice and potatoes. The yield per hectare of land in India tripled, earning him a reputation as the scientific leader of the "Green Revolution." In 1964, Indian farmers produced 12 million metric tons of wheat from 14 million hectares of land; in 1990, the farmers produced 55 million metric tons of wheat from 23 million hectares of land. More than any other single individual, Dr. Swaminathan helped India overcome the largest food deficit in the world and create a self-sustaining nation.

A world leader in environmental conservation, Dr. Swaminathan recognized very early in his career the need for the preservation of biological diversity. His doctoral work at Cambridge University focused on the Commonwealth potato collection; and, in 1952, he helped organize work at the Inter-regional Potato Introduction Station at Sturgeon Bay, Wisconsin. Returning to India, he started assembling genetic material for wheat and rice in 1954. This work led him to launch a plant collection expedition in Northeast India in the early 1960's, in association with Drs. S.V.S. Shastri, S.D. Sharma, and E.A. Siddiq, to assemble and preserve the many genotypes of wild rice that were threatened by the spread of shifting cultivation in the region. This assemblage of over 6000 strains, known internationally as the "Assam Rice

Collection," has proven to be a goldmine of genes resistant to rice pests and possessing other valuable economic traits.

Extending his commitment to biological diversity, Dr. Swaminathan proposed the organization of the International Board for Plant Genetic Resources (known as the IBPGR) in 1971 and played a pivotal role in its creation. Later, during his tenure as Director General of the Indian Council of Agricultural Research, he established the National Bureau of Plant Genetic Resources for his homeland and later stimulated the development of similar National Bureaus for Animal and Fish Genetic Resources.

Serving as Director General of the International Rice Research Institute in the Philippines from 1982 to 1988, Dr. Swaminathan reorganized the rice gene collection, retitled it the "International Rice Germplasm Center," and launched an intensive drive for the collection and conservation of wild rices. More recently, he has organized a Community Biodiversity Conservation Movement in India; and, as Honorary Director of the Centre for Research on Sustainable Agricultural and Rural Development in Madras, he is organizing a Genetic Resources Center for Adaptation to Climate Change. This unique center will assemble species and strains possessing genes for tolerance to sea water intrusion as well as to flooding and drought, in anticipation of the possible long-term effects of global warming.

Dr. Swaminathan just completed his terms as President of the International Union for the Conservation of Nature and Natural Resources (IUCN) and as President of the National Academy of Sciences of India. He continues as President of the World Wide Fund for Nature - India (WWF-I) and as President of the National Academy of Agricultural Sciences of India. In recognition of his great scholarly distinction, Dr. Swaminathan has been inducted into the Royal Society of London and the National Academies of Science in Bangladesh, China, Italy, Sweden, the United States, and the USSR. He also is a founding Fellow of the Third World Academy of Sciences.

Secretary General of the United Nations, Javier Perez de Cuellar praised Dr. Swaminathan on the occasion of his receipt of the first World Food Prize in 1987, declaring, "By any standards, he will go into the annals of history as a world scientist of rare distinction."

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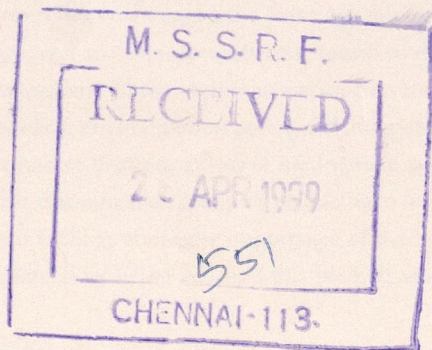
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ROBERT M. WHITE

*Tyler Laureate and
former President of
the National Academy
of Engineering.*



M. S. SWAMINATHAN AND C. EVERETT KOOP INTERVIEW SCHEDULE

Thursday, April 4, 1991

9:15 a.m. Four Seasons Hotel Lobby
Dr. Walker to introduce Drs. Swaminathan and
Koop to Nancy Pearlman ("Environmental
Directions")

9:30 a.m. Four Seasons Weatherly Terrace
M.S. Swaminathan/Nancy Pearlman interview

10:30 a.m. C. Everette Koop/Nancy Pearlman interview

12:15 p.m. Four Seasons Lobby
Koop and Swaminathan to meet Ms. Rachel Rosen
and Ms. Terri Morgan in Lobby

1:00 p.m. KNX News Radio Station, Sunset Blvd., L.A.
Koop and Swaminathn interviews

1:30 p.m. Return to hotel

3:00 p.m. Koop depart hotel with Ms. Rosen and Morgan.

3:30 p.m. Diane Glazer interview (local cable T.V.)

4:00 p.m. Return to hotel

Note: There are at least two times during the day that would be appropriate time for lunch. Please advise Terry Morgan and Rachel Morgan as to the time you prefer.

Friday, April 5, 1991

8:20 a.m.

Four Seasons Lobby

Rachel Rosen and Terry Morgan will
meet you in Lobby

9:00 a.m.

Voice of America interview

9:30 a.m.

Return to Hotel