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FOR: SIXTH ASSEMBLY OF THE FOURTH WORLD: THE NEW ECONOMICS
SYMPOSIUM, FORT MASON, SAN FRANCISCO. SUNDAY SEP. 27 - THURSDAY
OCT. 1, 1987.

DO FOURTH WORLD GROUPS HAVE TO KNOW WHETHER THE
WORLD IS FLAT OR ROUND?
(The strategy of shared coevolution with the Biosphere.)

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EIES I.D.= EARTH
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Abstract

Almost 5000 years ago the evolution of human society reached a bifurcation point at which a widespread system of cooperation between men and women in small agricultural and hunting communities were overthrown by hordes of nomadic herdsmen and horseback-riding warriors from cold and barren steppes. If these cooperative societies had been more curious, and had explored the world to see if it was flat or round, they could have figured out how to bring the warrior hordes into cooperative alliances.

We expect to reach a similar bifurcation point in a few years where widespread starvation from massive crop failures from changing weather patterns can lead to a massive migration toward the equator with destabilization of governments leading to new warrior-hordes taking command of the world. Fourth world activists, if they use their brain power and the available scientific knowledge of the Biosphere can take the leadership in setting world biospheric policies to reforest the world using remineralization techniques for rapid forest growth to reduce the atmospheric carbon dioxide, which in turn could control the climate through modifying the glaciation cycle.

A draft of a developing handbook on the STRATEGY OF SHARED COEVOLUTION WITH THE BIOSPHERE with sample pages for some chapters is presented for discussion. The role of NUTRITION as a coordinating theme is indicated by boxes around pertinent sections. General systems thinking is used throughout the development plans for this handbook. The completion of this handbook could give Fourth World activists the know-how to change the evolution of civilization from a war-like system to a peaceful cooperative system.

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INTRODUCTION

Almost 5000 years ago the evolution of human society reached a bifurcation point at which a widespread system of cooperation between men and women in small agricultural and hunting communities were overthrown by hordes of nomadic herdsmen and horseback-riding warriors from cold and barren steppes. If these cooperative societies had been more curious, and had explored the world to see if it was flat or round, they could have figured out how to bring the warrior hordes into cooperative alliances.

RECENT STUDIES OF THE DEVELOPMENT OF OUR CIVILIZATION

Fred Bernard Wood presented a paper at the Society for General Systems Research in Philadelphia, May 26-30, 1986, on "A Hypothesis on Geophysical Cycles, Techno-Sociological Evolution and World Peace." The abstract follows:

"What are the prospects of both the U.S.A. and the U.S.S.R. developing cooperative concepts of dealing with the glacial cycle to cooperate on the project and to divert military manpower to working on the environment? The role of the Hamaker Thesis in the U.S.A. and the potential role of Moiseev's concept of "Coevolution with the Biosphere" in the U.S.S.R. The prospects of finding a viable constituency of people to work for peace. Understanding of sociological cycles needed for effective shared coevolution. Role of understanding of geophysical cycles of glaciation in providing psychological driving force for international cooperation."

In this paper it was proposed that we consider the matriarchial period as starting about 10,000 years ago, i.e., after the start of the present interglacial warm period (running for 4000 years). The patriarchial period is then assumed to start about 6000 years ago with the beginning of the force epoch. The force epoch is considered as running from 4000 BC to 1660 AD (running for 5600 years). Then the power epoch is placed as going from 1660 AD to 1956 AD (approx. 300 years). The communication epoch is listed as going from 1956 to 1986 (30 years), with a new undefined transitional epoch predicted to run from 1986 to 1989 (3 years). 1990 is targeted as the beginning of a new period -- the Shared-Coevolutionary Period. (Only the abstract of this paper was printed in the proceedings of the conference, copies of the full paper can be ordered from the author.)

Riane Eisler, a former practicing attorney and an international peace and feminist scholar and activist has made a more detailed study of the evolution of human society and published the results in

a book, The Chalice and the Blade: Our History, Our Future (Harper & Row, 1987). She has published a summary in the magazine New Age Journal, August 1987, pp. 34-39, 54, 56-57, "Why Men Dominate Women." A companion article by David Loye, "Who Murdered Peace and Prosperity?", appears on pages 36-39 of the same issue. Riane Eisler and David Loye have established a research group, Center for Partnership Studies, P.O. Box 51936, Pacific Grove, CA 93950.

A BIFURCATION POINT IN GEOPHYSICAL EVOLUTION THAT CAN BE EITHER THE END OF HUMAN CIVILIZATION OR THE STARTING OF A NEW COOPERATIVE ERA.

GEOPHYSICAL PROCESSES AGGRAVATED BY MAN'S TREATMENT OF THE ENVIRONMENT ARE LEADING TO THE DESTABILIZATION OF CIVILIZATION AND THE PROBABLE DEATH DUE TO STARVATION OF APPROXIMATELY TWO BILLION PEOPLE IN THE NEXT TEN YEARS.

A strategy of SHARED COEVOLUTION WITH THE BIOSPHERE offers hope of saving Human Civilization from disaster.

These nine threats are:

- (1) Acceleration of the Earth's Natural Glacial Cycle by Man-Made Disturbances such as Deforestation & Burning of Fossil Fuels that raise the Carbon Dioxide Level in the Atmosphere.
- (2) Danger of Nuclear War or Nuclear Winter from limited explosion of nuclear weapons.
- (3) Increased Tectonic Plate Displacements with more Earthquakes and Volcanic Activity.
- (4) Agricultural Soil Depletion through loss of Nutrient Minerals and Soil Erosion. Forest Deterioration through depleted mineral nutrients, logging, slash & burn agriculture, destruction of tropical rain forests. Also Acid Rain from coal burning is an important factor.
- (5) World wide climatic changes, shifting of monsoon rains, shortening of crop growing seasons, and desertification. Also depletion of the ozone layer by CFC's is an important factor.
- (6) Impaired human nutrition from the chain of demineralized soil, industrial processing of foods, etc., leading to more unstable behavior of people with poor nutrition.
- (7) Accelerated human aging processes leading to more disabilities like arthritis, cancer, etc., stemming from poorer nutrition.
- (8) AIDS epidemic spreading to populations with poor nutrition.
- (9) Many people who perceive the problems of our civilization and want to take action are inhibited by their subconscious scripts.

The human potential movement has an important role in helping attack the ninth threat, but can be misleading by ignoring the need for a "geophysical consciousness" to deal with the underlying causes of threats one and three to eight.

Extensive use of modern human and machine communications, including computer-communications, is needed to reduce the probability of threat two.

To get at the other threats we need a perspective like General Systems Theory to encompass over twenty-eight fields of science involved in these questions.

We also need a philosophy of humankind coevolving with the Biosphere. This concept of coevolution has been explored for some years by Academician N.N. Moiseev in the U.S.S.R. The prefix "shared" implies that the project must be shared by both men and women.

Since Mankind has become a geologically significant force, we need to understand what our deforestation and burning of fossil fuels are doing to impact the evolution of the Biosphere. There are serious gaps in our scientific knowledge of the role of carbon dioxide in the glacial cycle. These uncertainties are in part due to mismanagement of the allocation of research funds in the United States. Hundreds of millions of dollars have been allocated to the study of the simple greenhouse warming theory, while practically no funds have been allocated during the last ten years to study the process of the change from an interglacial warm period back to glaciation. Many of the temperature measuring stations are located at airports or in cities where the measurements are contaminated by the urban heat island effect. Most rural weather stations in the U.S. show a cooling trend.

THE MOST VISIBLE IMMEDIATE THREAT TO CIVILIZATION IS THE LOSS OF FORESTS. THE SECOND MOST FAR-REACHING THREAT IS THE GLACIATION CYCLE WHICH WOULD LAST FOR 90,000 YEARS. The possibility of the glacial cycle process was first discovered in 1956. The specific cycle of an average of 90,000 years of glaciation followed by an average of 10,000 years of interglacial warmth became reasonably well understood by paleoclimatologists by 1975. The basic concepts of a SOIL NUTRITION THEORY OF GLACIATION were published by Hamaker and Weaver in 1982 (The Survival of Civilization.)

The first step is to embark on a Reforestation Program supplemented by Remineralization of the Soil plus a program to halt deforestation of the tropical rain forests. "Scorecards" need to be kept showing how much has been accomplished by the U.N., national governments, multinational corporations, environmental groups, states, and individuals.

For references and more specific information write or telephone to:

Earth Regeneration Society	or	Computer Social Impact Research
Institute		
1442A Walnut Street, #57		P.O. Box 5583
Berkeley, CA 94709		San Jose, CA 95150
(415) 525-4877		(408) 269-9327

Solar Age or Ice Age Bulletin?
C/O Don Weaver, Editor
P.O. Box 1961
Burlingame, CA 94010

Soil Remineralization
A Network Newsletter
Joanna Campe
152 South Street
Northampton, MA 01060

Computer Bulletin Board, (408) 269-7045, 300 baud, 7E1, start with 2 CR's. Electronic Mail can also be sent to "EARTH" on EIES; and to "CSIRI" on PeaceNet; both via Telenet.

COEVOLUTION WITH THE BIOSPHERE

Academician N.N. Moiseev of the Academy of Sciences U.S.S.R., Moscow, presented a paper in August 1984 at an international seminar in Erice, Italy, "Coevolution: Some Propositions."

To read Moiseev's paper, use a computer with modem and log-on to the Computer Bulletin Board listed above at 408/269-7045. Then respond with:

after carrier signal is received: sent two "carriage returns."

in response to question, reply: SATURDAY

in response to COMMAND? READ ON-LINE-MAGAZINE
 READ COEVOLUTION
 READ MOISEEV.1
 READ MOISEEV.2
 READ MOISEEV.3
 READ MOISEEV.4
 READ MOISEEV.5
 READ MOISEEV.6

In 1985 Moiseev, Alexandrov, and Tarko published a handbook on what scientific knowledge and computer simulation programs exist about the Biosphere, MAN AND BIOSPHERE. The table of contents and preface are reproduced here:

Моисеев Н.Н., Александров В.В., Тарко А.М.
Человек и биосфера. Опыт системного анализа и эксперименты с
моделями. — М.: Наука. Главная редакция физико-математической
литературы, 1985. — 272 с.

Книга написана на основе докладов, которые были прочитаны
авторами на международных семинарах в Финляндии, Италии и
США, посвященных проблемам коэволюции человека и биосферы
и возможным последствиям ядерного конфликта.

Для научных работников в области прикладной математики,
а также для биологов и специалистов в области охраны окружаю-
щей среды.

Ил. 83. Библиогр. 190 назв.

Рецензент

доктор физико-математических наук Ю.М. Сеуретте

09/26/87

Page 0-5

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ОГЛАВЛЕНИЕ

Предисловие	5
Глава 1. Исходные методические позиции	7
§ 1.1. Ноосфера Вернадского и принцип коэволюции	7
§ 1.2. Представление о глобальном эволюционном процессе	13
§ 1.3. Дарвиновская триада и механизмы эволюции	24
§ 1.4. Эскиз программы исследований	32
Глава 2. Модели климата	36
§ 2.1. Что такое климат?	36
§ 2.2. Энергобалансовые модели климата	37
§ 2.3. Статистические модели	40
§ 2.4. Радиационно-конвективные модели	42
§ 2.5. Модели общей циркуляции	44
§ 2.6. Пределы возможностей климатических моделей	45
Глава 3. Климатическая модель Вычислительного центра АН СССР	48
§ 3.1. Модель общей циркуляции атмосферы	48
§ 3.2. Модель океана	91
§ 3.3. Модель морского льда	101
Глава 4. Эксперименты с моделями климата	108
§ 4.1. Среднегодовой климатический режим	108
§ 4.2. Увеличение концентрации CO ₂ в атмосфере	113
§ 4.3. Влияние тропосферного аэрозоля	116
§ 4.4. О статистической значимости результатов численного моделирования	118
§ 4.5. О климатических последствиях ядерной войны	120
Глава 5. Модели глобальных биогеохимических циклов	138
§ 5.1. Концепция биосферы и глобальные биогеохимические циклы	138
§ 5.2. Моделирование продукционного процесса наземных растений	145
§ 5.3. Модель глобального круговорота углерода в системе атмосфера — растения — почва (АРП I)	153
§ 5.4. Модель глобального круговорота углерода в системе атмосфера — растения — почва с учетом географического распределения экосистем (АРП II)	160
§ 5.5. Модель глобального круговорота углерода и азота в системе атмосфера — растения — почва (АРП III)	166
§ 5.6. Модель глобального круговорота углерода и азота в системе атмосфера — океан (АО). Синтез модели глобального круговорота углерода и азота в биосфере (АРПО)	170
Глава 6. Исследование реакций биосферных систем на антропогенные воздействия	177
§ 6.1. Аналитическое исследование реакций системы атмосфера — растения — почва. Принцип Ле-Шателье	177
§ 6.2. Машинное исследование циклов углерода и азота в системе атмосфера — растения — почва (модели АРП I и АРП III)	191
§ 6.3. Машинное исследование цикла углерода в системе атмосфера — растения — почва с учетом географического распределения экосистем (модель АРП II)	203
§ 6.4. Машинное исследование системы атмосфера — океан (модель АО)	215
§ 6.5. Машинное исследование циклов углерода и азота в биосфере (модель АРПО)	219
Глава 7. Возмущающее воздействие человеческой активности на биосферу	224
§ 7.1. Характеристика проблемы	224
§ 7.2. Примеры простейших конфликтов моделей экологии	232
§ 7.3. Компромиссы в условиях экстремальных нагрузок на биосферу	241
§ 7.4. Заключительные замечания	248
Заключение	252
Список литературы	261
Предметный указатель	270

ПРЕДИСЛОВИЕ

В основе этой книги лежат доклады, которые были подготовлены авторами для семинара Международного института жизни, проходившего в сентябре 1983 г. в Хельсинки. В книге приводятся некоторые результаты многолетней работы, которая ведется в Вычислительном центре Академии наук СССР и имеет своей целью развитие математических методов исследования процессов, протекающих в биосфере. Мы стремимся рассматривать биосферу как единое целое и изучать ее эволюцию в современных условиях; тогда основным фактором изменения характеристик биосферы становится человеческая деятельность.

Эти работы мы начали в середине семидесятых годов в двух направлениях. Была начата разработка моделей, описывающих процессы изучения климата (руководитель В.В. Александров), и глобальных моделей биоты (руководитель Ю.М. Свирижев). Для замыкания этих моделей необходим еще блок, описывающий человеческую деятельность. Но именно это направление оказалось наиболее трудным. Опыт работ Римского клуба показал со всей очевидностью ущербность чисто экономических моделей балансового типа и попытки включить в них некоторые экологические факторы (модели демографических процессов и т.д.). Поэтому вместо моделирования человеческой активности в экспериментах с моделью биосферы мы ограничились рассмотрением отдельных сценариев. Лишь в самое последнее время нам, кажется, удалось "нащупать" рациональные подходы к анализу тех тенденций, которые определяют сценарии человеческой деятельности.

В результате десяти лет работы в ВЦ АН СССР была создана первая версия глобальной модели биосферы. Поскольку в ней описываются только процессы геофизической и биологической циклиды, ее естественно было назвать системой Гея. В начале восьмидесятых годов мы начали использовать эту систему для анализа конкретных сценариев. Особое значение имеет анализ сценария ядерной войны, предложенного К. Саганом, проведенный летом 1983 г. Система Гея к тому времени была единственной системой, которая позволила провести анализ климатических последствий ядерной войны и увидеть, как в течение года после ядерной катастрофы меняются климатические параметры, возникает и постепенно просветляется ядерная ночь.

Мы старались информировать научную общественность о ходе наших работ. В журналах "Вестник АН СССР" и "Природа" в период 1979 — 1982 гг. было опубликовано около десяти статей.

Кроме того, В.Ф. Крапивиним, Ю.М. Свирижевим и А.М. Тарко была опубликована монография "Математическое моделирование глобальных биосферных процессов" с изложением состояния вопроса о моделировании процессов, протекающих в биоте. В 1982 г. в издательстве "Наука" Н.Н. Моисеевым была опубликована небольшая монография "Человек, среда, общество", в которой обсуждались методологические проблемы математического моделирования процессов взаимодействия человека и окружающей среды.

Несмотря на эти публикации, предлагаемая коллективная работа является первым более или менее подробно документированным изложением системы Гея. Кроме того, в ней описаны основные крупномасштабные эксперименты с моделью и впервые изложена та концепция анализа процессов общественной природы, которая начала разрабатываться в последнее время в ВЦ АН СССР.

Книга состоит из семи глав. Главы 2 — 4, посвященные изложению климатической модели и соответствующим экспериментам, написаны В.В. Александровым, главы 5, 6, посвященные биологическим моделям, написаны А.М. Тарко. Глава 1, содержащая методологическое введение, и глава 7, посвященная простейшим моделям компромиссов, написаны Н.Н. Моисеевым.

Завершение работы над моделью и книгой в значительной степени обязано внимательному отношению к нашим исследованиям со стороны Е.П. Велихова и А.А. Дородницына, которым авторы выражают искреннюю благодарность.

OUTLINE OF PROPOSED HANDBOOK ON
THE STRATEGY OF SHARED COEVOLUTION WITH THE BIOSPHERE.

A draft of a developing handbook on the STRATEGY OF SHARED COEVOLUTION WITH THE BIOSPHERE is presented for discussion. This philosophy has been developing over the last ten years indirectly through the discussions in the magazine "COEVOLUTION QUARTERLY," Sausalito, California, and more specifically by Academician N. N. Moiseev in Moscow, U.S.S.R. The qualifier "SHARED" has been added to indicate the process is intended to be shared by men and women. The basic strategy is to develop an understanding of the evolution of the biosphere, take note of how humankind has now become a geologically significant force on our planet. We then proceed to examine how our actions are disturbing the natural evolution of the Biosphere. Then we proceed to determine what things we can do cooperatively with nature so that we share in the future evolution of our planet. If we are doing things that change or disturb the natural processes, we must establish a completeness test to determine whether we are providing an adequate substitute for processes that we are replacing. If we cannot confirm that a plan of action meets such a completeness test, we can at least restore conditions to what existed historically. I.e., if we cannot agree on the trends in the climate cycle, we can at least agree to reforest the world to restore known satisfactory conditions for holding down the carbon dioxide level in the atmosphere. We must also provide discussion of what can be done on all levels of society, so that the individual, or group frustrated by governmental inaction, can take specific steps to do their share (see SEC. 8: SCORECARDS).

THE PLANNED SECTIONS ARE AS FOLLOWS:

- | | |
|--|------------------|
| 1. INTRODUCTION TO SHARED COEVOLUTION
WITH THE BIOSPHERE. | 6. QUESTIONS |
| 2. ENERGY SOURCES. | 7. BIBLIOGRAPHY. |
| 3. PHYSICAL BASE OF THE BIOSPHERE. | 8. SCORECARDS. |
| 4. LIVING SYSTEMS. | 9. INDEX . |
| 5. CIVILIZATION. | 10. SUPPLEMENTS. |

Anyone knowing of an alternative theory on the evolution of the biosphere not already covered, is invited to submit a one page supplement to this report for inclusion with future distributions.

CONTENTS AND PROTO-MATRIX FOR HANDBOOK ON COEVOLUTION WITH THE BIOSPHERE STRATEGY

KEY STEPS IN DEVELOPMENT OF COEVOLUTION WITH THE BIOSPHERE

DIFFERENT APPROACHES ----->

SEGMENTS OF PROBLEM ! ! V	SCIEN- TIFIC RESEARCH	ENGINEER- ING SYN- THESIS	PHILOSOPH- ICAL OVER- SIGHT	EDUCATION- AL DEVEL- OPMENT	DECISION FACILI- TATORS	EMER- GENCY ACTION
	A	B	C	D	E	F

1. INTRODUCTION TO THE STRATEGY OF COEVOLUTION WITH THE BIOSPHERE.

*1.1 WHY COEVOLUTION WITH THE BIOSPHERE ?

*1.1.1 WHY SHARED COEVOLUTION ?

*1.1.2 PRIORITIES OF WORLD PROBLEMS.

*1.2 A GENERAL SYSTEMS VIEW OF THE BIOSPHERE.

1.3 THE NECESSITY FOR DIFFERENTIATING BETWEEN SCIENCE, ENGINEERING, AND ACTION.

*1.3A SCIENTIFIC RESEARCH

1.3B ENGINEERING SYSTHESIS

1.3C PHILOSOPHCAL OVERSIGHT

1.3D EDUCATIONAL DEVELOPMENT

1.3E DECISION FACILITATORS

1.3F EMERGENCY ACTION

*1.4 AN EXAMPLE OF THE SOIL NUTRITION THEORY OF GLACIATION AS A * COORDINATING PRINCIPLE IN THE BIOSPHERE. *

2. ENERGY SOURCES

2.1 ENERGY FROM SUN

2.1.1 ELECTROMAGNETIC WAVES

2.1.2 NEUTRINO STREAMS

2.2 ENERGY FROM CORE

2.2.1 RADIOACTIVE DECAY GENERATED HEAT

2.2.2 NATURAL RADIOACTIVE FISSION REACTORS.

2.2.3 MINERALS IN MAGMA FLOW THROUGH RIDGES.

2.2.4 VOLCANIC DUST FROM VOLCANOES.

2.2.5 MAGNETOHYDRODYNAMIC WAVES FROM CORE.

2.3 ENERGY SOURCES NEAR EARTH'S SURFACE.

2.3.1 BURNING OF BIOMASS

2.3.2. BURNING OF FOSSIL FUELS.

2.3.3 HYDROELECTRIC POWER.

2.3.4 WIND POWER.

2.3.5 SOLAR ENERGY.

2.3.6 NEW ENERGY MACHINES.

2.3.7 IMPACT OF NUCLEAR TESTING ON ENVIRONMENT.

2.4 MATTER FROM SPACE

3. PHYSICAL BASE OF BIOSPHERE

3.1 CORE

- 3.2 MANTLE
- 3.3 LAND SURFACE.
- 3.4 OCEANS
- 3.5 GLACIERS.
- 3.6 ATMOSPHERE
 - 3.6.1 GREENHOUSE GASES
 - 3.6.1.1 CO/2
 - 3.6.1.2 OTHER GASES
 - 3.6.2 DUST
 - 3.6.3 CCF'S
 - 3.6.4 CLOUDS.
 - 3.6.5 COMPUTER SIMULATION OF CLIMATE.
 - 3.6.5.1 STATUS OF TOP-DOWN SIMULATION OF CLIMATE.
 - 3.6.5.2 STATUS OF BOTTON-UP SIMULATION OF CLIMATE.
 - *3.6.6 MATRIX OF CLIMATE THEORIES VS. EVIDENCE.
 - *****
 - #B: SOIL NUTRITION THEORY OF GLACIAL CYCLES *
 - *****
- 3.6.7 ACID RAIN.
- 4. LIVING SYSTEMS.
 - 4.1 VEGETATION
 - 4.1.1 FORESTS.
 - 4.2 ANIMALS.
 - 4.2.1 HUMANKIND
 - *****
 - 4.2.1.1 NUTRITION *
 - *****
 - 4.2.1.2 SUBCONSCIOUS SCRIPT
 - 4.2.1.3 COMMUNICATION
- 5. CIVILIZATION
 - 5.1 EVOLUTION
 - 5.1.1 COSMOLOGICAL
 - 5.1.2 PHYS-CHEM
 - 5.1.3 BIOLOGICAL
 - 5.1.4 CULTURAL
 - 5.1.5 TECHNOLOGICAL
 - 5.1.6 COMMUNICATIONS.
 - 5.2 PRESENT SUBDIVISIONS
 - 5.2.1 FIRST WORLD
 - 5.2.2 SECOND WORLD
 - 5.2.3 THIRD WORLD
 - 5.2.4 FOURTH WORLD
 - 5.3 CHARACTERISTICS
 - 5.3.1 PEACEFUL-WARLIKE-PEACEFUL
 - 5.3.2 MATRIARCHIAL-PATRIARCHIAL-COOPERATIVE.
 - 5.4 COORDINATING PRINCIPLES
 - 5.4.1 GAIA HYPOTHESIS
 - *****
 - 5.4. 2 NUTRITION *
 - *****
 - 5.4.3 GLACIAL CYCLES
 - 5.5 DIVERSITY
 - 5.6 SYSTEMS PERSPECTIVE OF HIERARCHIAL LEVELS.
- 6. QUESTIONS.
- *7. BIBLIOGRAPHY

8. INDEX

9. SCORECARDS: RECORD OF ACTION ON LEVELS FROM UNITED NATIONS THRU STATES THRU INDIVIDUALS.

10. SUPPLEMENTS

GRADE OF PROBLEM VS. TIME TO GO CRITICAL

Platt's 1969 table of world problems (10) is updated and reviewed in Table I to find the status of the most important world problems. Second after the dangers of Nuclear War and the Nuclear Winter problems, we have a cluster of climate related problems including greenhouse gases, glaciation, drought, crop failures and world hunger. These related problems are enclosed by a heavy line in Table I. The projections of different scientists and science committees show a considerable divergence. The earlier reports of paleoclimatologists discussed the question of when will the transition to the next glacial period come. (5, 6, 14) The engineering analysis by Hamaker developed a qualitative theory of the glacial cycle. (2, 3, 4) Then the U.S. NRC and the U.S. EPA came out with reports emphasizing warming and possible melting of polar ice. (1, 9)

There is a question as to whether the 100,000-year glaciation cycle will predominate, or whether the rising atmospheric carbon dioxide will override the glacial processes and move our planet to a new equilibrium point of warmer climate. The resolution of this CO₂-climate problem is essential, if we are to make progress in establishing the coevolution with the biosphere proposed by Moiseev in 1984. (8)

Reference numbers are in 1987 Budapest Proceedings.

TABLE 1 : MAJOR WORLD PROBLEMS.
Classification of problems and crises by
estimated time and intensity.

Estimated crisis intensity: Numerical & Descriptive (number of affected times degree of effect)		Estimated time to crisis		Estimated time to crisis		Grade
		-5 to 0 years...	1 to 5 years....	5 to 20 years...	20 to 50 years. 50 to 1000 years	
1.	10 Total annihilation		Nuclear or RCRM escalation	NUCLEAR OR RCRM ESCALATION	*(solved or dead)	1.
1----	79999 123456789101112131415161718192021222324252627282930313233343536373839404142434445464748495051525354555657585960616263646566676869707172737475767778798081828384858687888990919293949596979899		NUCLEAR WINTER	NUCLEAR WINTER Famines	Economic structure and political theory Population and ecological balance Patterns of living	2.
2.	10 Great destruction or change (physical, biological, or political)		ENG('85) Hamaker Drought, famine & death in Africa. We can still influence cycle with re-mineralization & reforestation.	ENG('82) Hamaker Critical point of glaciation process 1984.	ENG('84) Hamaker Temperate zone gone in 1990, few people alive in 1995.	SCI('77): Kukla et al: New cooling data. SCI('72) Kukla et al: End of interglacial a few 100 yr. SCI('79): Woillard Abrupt end of last interglacial (20 y).
			ACIP RAIN	Rich-poor gap	Universal education Communications-Integration Management of world Integrative philosophy	
3.	10 Widespread almost unbearable tension		Administrative management Need for participation Group A racial conflict Poverty-rising expectations Environmental degradation	Poverty Pollution Racial wars Political rigidity Strong dictatorships	COMPUTERIZED DESTRUCTION OF WESTERN CIVILIZATION	3.
4.	10 Large scale distress		Transportation Diseases Loss of old cultures WOMEN'S RIGHTS	Housing Education Independence of big powers Communications gap NEED FOR GENERAL SYSTEMS LEARNING AT ALL LEVELS	CARBON DIOXIDE, CLIMATE WARMING, SEA LEVEL RISE. (NRC'83) (EPA'83)	4.
5.	10 Tension producing responsive change		Regional organization Water supplies OCEAN FLOOR MINING UNEP UNITED NATIONS LAW OF THE SEA			5.
6.	Other problems--important, but adequately researched		Technical development design Intelligent monetary design			6.
7.	Exaggerated dangers and hopes				Eugenics	7.
8.	Monocists problems being "overstudied"		Man in space Most basic science			8.
		-5 to 0 years	1 to 5 years	5 to 20 years	20 to 50 years 50 to 1000 years	

SCORECARDS

It is proposed "SCORECARDS" be maintained to show how each group, by geographical location, level in the hierarchy, and segment of the problem is doing. If individuals and small groups do their proportionate part of say, reforestation, then they can put pressure upon the higher levels of organization to do their part.

A=North America
D=Soviet Union
G=Africa

B=South America
E=China

C=Europe
F=S.E. Asia

...	REFOREST -ATION	REMINERAL- IZATION	STOPPING FOSSIL FUEL BURNING	ALTERNATIVE ENERGY SOURCES	
UNITED NATIONS					A B C D E F G
NATIONS					A B C D E F G
MULTI- NATIONAL CORPORATIONS					A B C D E F G
STATES					A B C D E F G
INDIVIDUALS					A B C D E F G

WHAT IS THE FOURTH WORLD

The following definition is from the announcement for the assembly in San Francisco, September 27- October 1, 1987:

Too many ways of running our affairs have become too big; as a result our situation, locally, nationally and globally, is out of control. Giant forms of government and giant economic organizations are themselves creating problems beyond anyone's capacity to solve; we need now, urgently, to cry halt! to these forces which are rushing us to disaster.

The need to scale down these overlarge structures to a human scale, one where most decisions are taken at the base rather than at the top, is now imperative if we are to prevent the continued disintegration of civilisation. This is why The Fourth World is concerned above everything with the problem of scale.

It really does not matter how conscious governments become of the many dangers that now confront us, and not least that of global war, for it is governments themselves, because of their size, which are creating these dangers; it is they and their structures and presumptions which must change if our threatened civilisation is to survive.

Hence THE FOURTH WORLD is a drive to affirm the inalienable rights of rural villages and urban neighbourhoods to make their own decisions about their own lives; a drive to affirm the right of distinct ethnic groupings (of which there are thousands) to rule themselves; a drive to break down all big powers into their ethnic or bio-regional areas, and a drive to promote such forms of wider cooperation as are needed on a strictly separate and functional basis which will avoid the obvious dangers of world government and similar dead-end fatalities.

THE FOURTH WORLD is neither capitalist nor socialist, neither 'left' nor 'right', its concern for the human scale transcends such confrontational forms of mass politics in a quest for a style of politics based on the local community consensus.

Rather than continuing to suffer the dominance of a few great powers it seeks a world of thousands of small nations each having non-centralised forms of economic and political management so that power, instead of being concentrated in a few hands, is safely dispersed among many. In this way we shall be able to diminish, if indeed we do not abolish, the dangers of global war, global forms of economic mismanagement, ecological disasters and much else besides.

THE FOURTH WORLD — The Politics of Tomorrow.

The World Of Small Nations,

Small Communities

And The Human Spirit.

CONCLUSIONS

It is necessary for Fourth World Groups to know whether the world is flat or round. Even more is necessary for the success of the Fourth World Program. The leaders of small decentralized groups have a greater burden of responsibility to maintain knowledge at the forefront of geophysical research, so that they can anticipate the geophysical crises that are coming to disturb human civilization.

When equipped with valid knowledge of the geophysical processes they can take the leadership in setting the future path for humanity. If each individual and small group does their share in controlling the level of carbon dioxide in the atmosphere, they can apply political pressure to the establishment political system to get into action. If many Fourth World Groups can say to the existing political system that they have planted a hundred trees, remineralized an acre of soil, replaced their hot water system with a solar energy system, and invested \$1000 in a group developing a new energy machine, then they can say that we are doing our share, how about the rest of you?