



Greetings from Vice-President Sam Nilsson

The guest editor for this issue, the President of the European Division of WAAS, Dr. Sam Nilsson, has decided to concentrate on some major efforts of that Division and the May 1987 Plenary Meeting in Lisbon. One is the symposium on paradigm shifts in science and society reviewed below. This covered topics ranging from cosmology to ecol-

ogy, arts and economics, and it is hoped that it will stimulate comments to this Newsletter from humanists, artists and scientists. The other theme is the planning for a travelling exhibition that will eventually provide a focal point for regional symposia revolving around the theme of the Newton Symposium.

New Paradigms: The World 300 Years After Newton

Sam Nilsson—Guest Editor

Few theories have had such a profound influence on society as that of Isaac Newton, published in *Philosophiae Naturalis, Principia Mathematica*. The book was presented to the Royal Society in England on April 28, 1687, i.e. 300 years ago. It represented the climax of an unprecedented creative process which established "the new science" for man.

In the 300 years since Newton, the scientific method has become so powerful a way of thinking that its principles have often been applied elsewhere, leading to new modes of thinking about humanity, society, economy and politics.

Harlan Cleveland says in his contribution to the Lisbon Symposium: "The logic is linear and mechanistic. As we decipher the riddles of Nature, we must naturally give thought to the technologies the new science makes possible; because the new technologies are possible they also must be necessary; if the new technologies enable us to make new machines and processes, we must design, construct and deploy them."

This linear logic is now being put on trial by scientists, artists, spiritual leaders and indeed the public at large.

What could be more natural for a 'World Academy of Art and Science' than to celebrate the tercentennial of Newton's *Principia* by a symposium at which artists, scientists and other scholars would have the opportunity to discuss the 'ending' of the mechanistic paradigm and the emergence of a new logic. The idea of such a WAAS symposium in connection with the assembly meeting was born in June 1986 at President Heden's summer resort, sufficiently far from the urban linearities of Stockholm.



Thanks to the generous understanding of Professor Menano of the Gulbenkian Institute of Science in Portugal and of the Salen Foundation in Sweden, it was possible to attract eminent scientists and artists as speakers to the Symposium which was held at the Gulbenkian Foundation in Lisbon on May 11, 1987, almost exactly 300 years after the public debut of Newton's *Principia*.

The proceedings of the Lisbon Symposium will eventually be published by a commercial publisher.

The urge, the anguish to understand the meaning of his own existence, the demand to rationalize and justify it within some coherent framework, has been, and still is, one of the most powerful motivations in the human mind. This profound urge, which has given rise to all myths and religions of humanity and to the great philosophical concepts, also is at the roots of the discovery of the scientific method.

But, as Jacques Monod pointed out in his famous book *Chance and Necessity*: "While the myths, religions and philosophies did bring positive answers to the problem of meaning, and while it was believed for a long time that Science would bring the final, definite solution, we now realize that the problem of meaning is the one to which no scientific answer ever will be provided."

Since human beings started inquiring into the meaning of their own existence, ethics and values have always been based on some essential relationship assumed to exist between them and the universe. We now know that the only authentic relationship goes through the abstract kingdom, the no-osphere; that Man, the stranger in the cosmos, can conquer the universe only through knowledge.

In the paper by cosmologist **Professor Edgard Gunzig** from Professor Prigogine's innovative research team in Brussels, it is pointed out that we are presently witnessing a new situation in physics in which any improvement in our understanding of the universe leads directly to improvements in our understanding of the fundamental interactions controlling the elementary particle world — and vice versa. For the first time we have a true interplay between the understanding of the macro-cosmos and of the micro-cosmos.

Professor Gunzig calls his paper "Why is there something rather than nothing — for instance a universe?" A cosmological history is proposed in which the traditional singular big-bang event is replaced by an instability of the vac-

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uum. This vacuum makes a transition to a first "inflationary exponential space-time stretch" during which the cosmological constituents are created from the vacuum. After some 10^{-37} seconds the production mechanism stops and this primordial stage shifts to a usual expansion law which lasts up to the present stage of the universe, i.e. about 15 billion years. The universe and the vacuum appear therefore as two phases of one and the same subtract. From this very recent theory of the universe, it appears that this universe will undergo a cyclic history on a cosmological scale.

The question "How long will this primordial vacuum last before it blows up suddenly?" is thus invalidated. By this new approach to the sequence of events, we are just the protagonists and observers of *one* particular cosmological cycle among an *infinite sequence* of identical cosmological histories!

Professor Paul C W Davies, in his paper "The New Physics and World Paradigms", touches upon the same basic question as Professor Gunzig: the question of the initial conditions of a physical law. In Professor Davies' case, Newton's laws of gravity and motion.

He points out that scientists are happy to believe in mathematical statements that describe laws, but until recently they have turned away completely from any statements about ultimate initial conditions, claiming that such conditions lie outside the scope of science.

Davies is referring to some very recent work by James Hartle and Stephen Hawking in England, who have made the first serious attempt to formulate a "law of initial conditions". It is the same work that Professor Gunzig refers to in his paper. Thus Hartle and Hawking solve the problem of cosmic initial conditions by abolishing the origin of the universe altogether! In this system *time* is still finite and bounded in the past, but space-time has no boundary, no event that corresponds to an act of metaphysical creation.

Their approach results, says Davies, in a form of expanding space and matter which is entirely consistent with what is observed by experiments today. Davies believes that, however refined the new science of creation becomes, it will never resurrect the old world view of the clockwork universe. Newton's fa-

mous laws do indeed uniquely determine subsequent states of a system once the initial conditions have been given. But there are now many reasons for rejecting this mechanistic Newtonian paradigm.

The existence of the complex systems — physical or biological — we observe today is *not* fixed by the initial state of the universe. The particular form of a complex system, according to the new theories, is something that arises purely spontaneously, without any underlying lawful reason. According to this viewpoint, there is nothing inevitable about the existence of living matter: it is a fortuitous accident of nature.

These new additional laws and principles of nature explain — for the first time — the rather extraordinary innate tendency of matter and energy to undergo 'self organization' — to leap spontaneously into states of even greater organization and complexity. How nature possesses such amazing creative power has always been a mystery.

All these topics point towards a post-Newtonian paradigm in which complex organization is recognized as a primary phenomenon and not an obscure derivative of the physics of elementary particles plus initial conditions fixed aeons ago. Professor Davies finishes by stating that the world paradigm of Newton, which served so well to advance physical science for three centuries but inadvertently inculcated an obsession with reductionism, has now run its course.

"Three hundred years on, Man and Mind are once again emerging as central aspects of Cosmic reality."

Professor Peter M. Allen, another scientist from the Brussels school, presented a paper called "Ecodynamics: Life beyond the Newtonian paradigm", which extends the new theory and concepts to the bio-social world. Professor Allen is probably the scientist who more than anybody else has applied Prigogine's theory to real world problems.

He begins by pointing out that when the laws of Newtonian physics, and thermodynamics, were applied to fields such as economics, biology and anthropology the 'understanding' was based on assumptions of 'equilibrium' and the

search for the 'appropriate' potential function which *governed* the evolution of these systems — utility, fitness, etc.

However, the equilibrium hypothesis is tenacious, mainly because it avoids all the real difficulties of life, and can lead to elegant theorems and lemmas which are the very stuff of Ph.D.s, professional appointments and honorary degrees. Despite enormous investments in research into economic, ecological and social systems, the equilibrium concepts have failed to provide satisfactory models, and our understanding of the evolution that we observe remains essentially based on 'experience'.

The fundamental reason for this, says Allen, is that the basic paradigm — our whole way of thinking about such things — is wrong. The complex systems which we see around us are neither *at* nor on their way, necessarily, to equilibrium. All living things have evolved in a situation of *non-equilibrium*! Professor Allen then goes on to give extensive and very pedagogic examples of how non-equilibrium systems become 'creative', generating new structure and complexity. The price we pay for this is a loss of 'predictability'.

For instance, symmetry-breaking transitions can occur spontaneously and so truly 'new' structures can be created. In this fact lies the source of innovation in the physical, biological world.

When we come to human systems the same principles apply. If all individuals were identical, and had the same 'values', there would be no choice of behavior offered. The whole population would 'lock on' to a single behavior pattern, and there would be no information as to what it would be like to do something else. Such a system would not possess any adaptive capacity.

Any simple model constructed in terms of averages, supposing a deterministic link between environment and behavior, misses the essential nature of the evolutionary process. The fundamental point raised in Professor Allen's paper is that discovery and innovation in biological and human systems can only be achieved by going 'beyond' the present system. In human systems we need what he calls 'stochasts' who, for whatever reason, do not respond sim-



A Thought-Provoking Awards Initiative

The development of the WAAS Awards programme largely owes its success to the tireless efforts of Professor Emily H. Mudd to trigger a series of individual expressions of generosity. The need for a more continuous, self-propelling activity based on dedicated friends and managed in cooperation with specialized organizations was, however, evident. As indicated by the following information extracted from the Lisbon records, such an initiative has now been taken and might well serve as an example for Fellows who consider making bequests aimed at recognizing achievements in tune with the Academy's goals. It might also serve as a catalyst for additional suitable agreements between WAAS and other international associations.

Continuation of Stuart Mudd Award for "Outstanding Contributions on the Social Implications of Advances in Microbiology".

At the Lisbon Executive Committee meeting of May 10, 1987, the possible continuation of the Stuart Mudd Award was discussed in detail. It was felt that there was considerable confusion about the current relationship for this Award between the International Union of Microbiological Societies which meets every four years and WAAS. A Stuart Mudd Award has been given at the following of these meetings: Munich in 1978, Boston in 1982, Manchester in 1986. A motion was passed by the Executive Committee suggesting that the new Chairman of the Awards Committee, Dr. Horácio Menano should confer with members of the Executive Committee of IUMS who will meet in Lisbon May 17, 1987. This motion stated that if suitable arrangements could be made by the WAAS and IUMS, the sum of \$25,000, \$5,000 from the Treasurer of WAAS, \$20,000 from Dr. Emily Mudd, would be given to the IUMS as an endowed sum for continuation of the Stuart Mudd Award every 4 years by the IUMS. Professor Menano presented this suggestion to the Executive Committee of IUMS at their meeting in Lisbon on May 17, 1987. On June 8, Professor Menano

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Dr. Lorenz Ng, President of the American Division of WAAS, Professor Eleonora Masini WAAS Fellow and Speaker on September 26, 1987 to the American Division Fellows and their Guests, Carl Gorän Hedén, President of WAAS and Dr. John Proctor WAAS Secretary General.

Professor Eleonora Masini Addresses The Executive Committee

President Carl Gorän Hedén introduced WAAS Fellow Eleonora Masini to the American Fellows and guests as the luncheon speaker in the historic College of Physicians building in Philadelphia, September 26th, 1987. Professor Masini is a sociologist and lawyer teaching social forecasting at the Gregorian University in Rome. She has been Secretary General, and for the past seven years, President of the World Futures Society. She is active in the Club of Rome and an appreciated expert at UNESCO and the United Nations University. "I know few people," said President Hedén, "who can compare with Professor Masini in the extent and trans-disciplinary depth of her network of contacts with resource people and significant organizations."

Professor Masini's talk, "Experience in Transdisciplinary International Cooperation" was specially prepared at the invitation of the American Division. There is strong evidence of the inter-relatedness of environmental and social factors operating at different levels and the difficulty of coping with their consequences or impacts, noted Professor Masini. The implications, are that transcultural disciplinary linkages are

becoming absolutely essential to identify, nominate, and communicate solution nominations.

"Awareness trends are really irreversible", said Professor Masini. These global, interrelated trends can be manipulated. For example, the growing awareness of the rights of women. The role of nongovernmental organizations such as the World Academy of Art and Science is important in two areas: First, the articulation of these forces at all levels from intercultural to interpersonal, and second, providing forums for the identification and communication of new emerging principles.

Dr. Lorenz K.Y. Ng, American Division President, presented Professor Masini with a Certificate of Appreciation plaque on behalf of all American Division Fellows.

Holiday Greetings
to all
WAAS FELLOWS
and their Families



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ply to the information which exists about the *present* returns on effort. However, we also need 'Cartesians' who are the backbone of the system and its conservation. The success of the overall system will be determined by the balanced existence of these two types, and the manner in which the *new* information is channelled into the system.

Traditionally, science has accepted as 'explanation' of behavior a description of the internal functioning of an object considered in isolation. Here, however, we see innovation and change as part of an evolving whole, and the explanation of history reflects the inherent unity of the living world. Allen appropriately finishes by saying that 'life begins beyond Newton'.

The extrapolation of Allen's paper leads directly and naturally to the two socially oriented papers presented at the Lisbon Symposium: Professor Harlan Cleveland's paper on the "Information Society" and Dr. Calestous Juma's paper on "Non-equilibrium Economics".

Professor Harlan Cleveland begins by stating that in the 300 years since Newton, Science has elbowed the church aside—all the churches, reformed and orthodox—to become a kind of secular religion. It was not, he says, until Newton had pictured the universe as guided by precise laws of motion tending to harmonize the forces of nature, that John Locke found in 'laws of nature' the foundation for human society, Adam Smith discovered an "invisible hand" to guide trade and industry according to the (natural) law of supply and demand (in equilibrium), and James Madison wrote that a balance among "factions" might, like the counterpoise of heavenly bodies, provide a democracy with built-in self-control.

The Jeffersonian model for a republic, with its reasonable, self-reliant citizens, its orderly and effective institutions and its 'mild' government, was thoroughly Newtonian in spirit and conception. Cleveland eventually arrives at the conclusion that the convergence of two separate lines of the powerful science-and-technology — faster computers and more reliable wide-band telecommunications — is creating societies where *the dominant resource is information*,

the dominant activity no longer the production and exchange of things but the production and sharing of symbols.

Information-as-resource (unlike land and other 'natural resources'), he says, can expand as it is used, can be transported at the speed of light, is much harder than tangible resources to hide or hoard. Information can not be *owned*.

The one thing we can not do, in the Age of Information, is to keep people ignorant or quiet about things that are going on in the world around them.

Cleveland presents an interesting model for the ethic of ecology as an interlocking system of human self-control, a creative combination of human limits and human opportunities. He concludes by saying that, 300 years after Newton, we have come to a new watershed in the unfolding story of humankind. What we now decide to do to the natural environment may, for the first time in world history, be even more significant than what Nature does to, and for, its human species.

The purpose of science and technology—of unleashing curiosity and harnessing the human urge to invent and innovate—is to contribute to the fulfillment of basic needs, material and spiritual, of humanity. A new socio-ethical paradigm is emerging.

Calestous Juma from Kenya argues in his very extensive paper "Non-equilibrium Economics: Alternative Paradigms and Technology Policy" that part of the failure of the policies in Africa is to be attributed to the extensive dependence on Newtonian metaphors used in the analysis of the economic and ecological problems. Most of the proposed solutions for Africa, he says, are based on reductionism and static Weberian institutional mechanisms.

What is needed is an analytical framework that recognizes the fact that economies are open systems which evolve and are constantly reorganized through the introduction of new information and technology.

A non-mechanistic approach would lead to alternative policies which are not preoccupied with the restoration of economic equilibrium, but instead emphasize the accumulation of technological capability, organizational flexibility, social experimentation, recognition of

diversity and autonomy. In other words, the same innovative adaptability that Allen spoke of. It is indeed interesting to see how close the arguments of Juma and Allen are. Juma points out that it was Marshall—not Marx—who first argued that economics was like biology because they both deal with "a matter, of which the inner nature and constitution, as well as the outer form, are constantly changing." For Marshall, the subject matter of economics was "human beings who are impelled, for good or evil, to change and progress."

Juma states in his conclusion that the 300-year grip that Newtonian concepts have had on economic thought is starting to wane. *Mainstream economic thought has not come to terms with the philosophical and practical implications of non-equilibrium notions.* The reason for this, says Juma, is that economics in his opinion is one of the most Newtonian of the social sciences. As in the Prigoginian world, change will involve a long-term process of moving *from being to becoming.*

Two papers from the Arts side were also presented at the Lisbon symposium: one by the Swedish architect and artist Professor Hans Nordenström, the other by art historian Professor Florence Hetzler from the USA.

Professor Hans Nordenström discussed the similarities and differences between the arts and sciences, and especially their relations to ethics and the contemporary human condition. He felt that the relationships between these two sides of human creativity should be strengthened. *There is a need,* Nordenström claims, *to re-create the connection between the useful and the beautiful—a new ethic.*

Professor Florence Hetzler concentrates her paper more on the influence that Newton's theories and philosophy have had on the arts and on literature. She refers, for instance, to Einstein, who once said about Newton:

"In one person he combined the experimenter, the mechanic and, not least, the artist in exposition. He stands before us strong, certain, and alone, his joy in creation and his minute precision are evident in every word and in every figure."

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Einstein thus makes Newton not only one who influences artists, as he did in his *Opticks*, but he makes Newton a literary figure and a writer of literature.

A common denominator of all papers presented at the Lisbon Symposium is spontaneous *creativity*, whether in cosmos or human systems, creativity that results in deviation from the average and in innovative adaptability, and creates alternatives to what exists.

It is ironic, perhaps, that we are now asking for alternatives to that mechanistic world view which is so much attributed to Newton's work, while at the same time we all recognize that Newton represented an enormous creative power far from the 'linear averages' of his time. He was a man of great imagination and creativity, concepts which are not different in science from what they are in art.

Dr. Augusto Forti and myself say in our opening paper that the new vision of the world which is gradually emerging from the work of Heisenberg, Einstein, Popper, Picasso, Salam, Prigogine, and many other scientists and artists, is more stochastic and less deterministic, but it gives back to man a sense of *more freedom*, the sense of hazard and adventure. This, in our opinion, is the most important feature of modern science and modern art — it gives back to Man his ethical and spiritual dimension.

Secretary Generals Objectives:

Dr. John Proctor Secretary General

In addition to supporting the President and Executive Committee to prepare for, conduct and follow-up meetings, I believe the Secretary General should encourage communications between Fellows and sustain established relations with other organizations to continue our outstanding programs of awards, conferences, and publications. A smoothly functioning general secretariat needs a budget and part-time paid assistance in addition to a high level of volunteer assistance. One of my objectives will be to work with

the Executive Committee in designing and establishing such an office to meet the present and future needs of WAAS.

Second, for several years the World Academy has explored the possibilities of an Asian Division. Currently some 29 fellows reside in this vast region. A first step is to have "country coordinators" provide items for the Newsletter, nominate new Fellows and arrange local meetings of Fellows. The next step is to establish a provisional steering committee. A third step could be a Far East WAAS meeting perhaps in Hong Kong in 1988. Any Fellow interested in this initiative, please contact any member of the Executive Committee. I will contact all Fellows in the Far East shortly. Please let me know how the World Academy can be more meaningful to you and more effective in pursuing its objectives.

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Planning for a Travelling Exhibition on Art and Science

The joint initiative concerning a travelling exhibition that might serve as a focal point for constructive discussions among WAAS' Fellows and other interested individuals (cf. 12-1985-Newsletter) was strongly influenced by the thoughts expressed at the Newton Symposium. This underlined that the word "planning" in this connection should reflect a dynamic and creative process evolving through many steps that help to consolidate the interaction between the artists and scientists concerned. In preparation for the funding and launching of a full-blown global scheme a first target would have to be the creation of a regional demonstration case. In preparation for such an exercise eight mini-sessions led up to two roundtable discussions convened by Professor Hans Nordenström. One took place on the island of Gotland (August 2-4, 1987) and the other in Gothenburg (September 18th).

The participants in the former meeting (P. Kowalski—electronic creations, C.A. and M. Dominique—music, S. Lindblom—sculpture, S. Nilsson—physics, and I. Lind—art critic) zeroed in on a visual, aural and theatrical experiment, providing for improvisa-

tions within a given theme and structure. There was an emphasis on human thought and action ("art is a non-consensus activity"—"art is to show freedom, to choose and to create freedom"—"art is an active agent of social change") at the expense of achievements in science and technology ("Away from chrono—and ethnocentric blinkers/let us become cosmocentric"—"unpredictability is the most certain thing"—"the law-bound predictable systems of Newton and Marx are out").

Such ideas led to the concept of a pictorial, sculptural, structured framework ("four dimensions in space with coinciding elements") around a voided center for a continual, dynamic changing and interacting performance firmly guided and connected.

Thoughts about a humorous "Opera Buffa of Science" for instance, emerged as one component of this "Festival of Diversity" and were further elaborated at the meeting with business and media experts in Gothenburg. They are now exploring if a first concrete effort might financially "piggy-back" on an inter-Scandinavian cultural activity ("Nordic Life") which is planned for Gothenburg in August/September 1989.

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Deceased WAAS Fellows

Prince Nivat Dhani, Bangkok, Thailand
Prof. John Franklin Enders, Brookline, MA 02146, U.S.A.

Prof. Gilberto deMello Freyre, Recife, Brazil
Dr. Dennis G. Howell, Ontario, Canada
Prof. A. Edward Hudson, Jackson, TN U.S.A.

Prof. Henryk F. Infeld, Jerusalem, Israel
Mr. Philip C. Jessup, Norfolk, CT, U.S.A.

Prof. Ervand G. Kogbelliantz, Paris, France
Prof. Gunnar K. Myrdal, Sweden

Prof. Telaravathy Nayudamma, Madras, India

Dr. Homer E. Newell, Alexandria, VA, U.S.A.

Prof. John H. Northrop, Univ. California, Berkeley, CA, U.S.A.

Prof. John F.V. Phillips, Hekpoort, South Africa

Lady D. Rama Rau, Bombay, India

The Honorable General Carlos P. Romulo, The Philippines

Prof. Antal Tarczy-Hornoch, Hungary



Five Year Plenary Meeting in Lisbon, Portugal

Some three dozen Fellows and friends assembled in Lisbon, Portugal May 10, 11 and 12 for the Five Year Plenary meeting and Executive Committee meetings. The symposium, "New Paradigms — The World 300 years After Newton," under the Chairmanship of Dr. Sam Nilsson, President WAAS European Division, Dr. Augusto Forti, European Division Fellow, and Dr. Horácio Menano, Fellow, and Executive Director of the Gulbenkian Institute of Science, was well attended the evening before the Symposium, a *Fellows Dinner* was graciously arranged by the National Board for Science and Technology of Portugal.

At the Plenary Meeting, President Carl Gorän Hedén honored Dr. Emily H. Mudd, retiring Treasurer for her many years of unselfish service to the Academy on behalf of all Fellows throughout the World. Dr. Mudd, USA, and Ronald St. J. Macdonald, Canada, past President, were elected Honorary Vice-Presidents for Life, also elected were Dr. John H. Proctor, USA, Secretary General, and Richard W. Palmer, Esq., USA Treasurer, both for a five year term.

All of the following Fellows were elected to serve as chairpersons for a five year term. Dr. Mahnoush H. Ar-

sanjani, USA, Chairperson Nominations Committee, Mr. Frederick H. Gloeckner, USA, Chairperson of the Publications and Public Relations Committee, Dr. Horácio, P.R.C., Menano, Portugal, Chairperson of the Awards Committee, and Prof. Michael Reisman, U.S.A. Chairperson of the Advisory Committee on Legal Affairs.

Fellows Elected September 1987

The Officers, Members of the Executive Committee welcome each new Fellow. If present Fellows are acquainted with any new Fellow welcome him or her with a phone call or letter.

Robert Ballagh, Dublin, Ireland — Lincoln Bloomfield, Cambridge, MA, U.S.A. — Ian Burton, Toronto, Ontario, Canada — Mrs. Gelia T Castillo, Laguna, Philippines — Lars Ernster, Stockholm, Sweden — José Augusto França, Paris, France — Dennis James Greenland, Manila, Philippines — Mary Hall, Birmingham, England — Pontus Hultén, Venice, Italy — R Martin Lees, New York, U.S.A. — Yasuhiro Okudaira, Tokyo, Japan — Yasuaki Onuma, Tokyo, Japan — Ilya Prigogine, Bruxelles, Belgium — Gisbert zu Putlitz, Heidelberg, FRG — Giuseppe Santomaso, Venice, Italy — Bertrand Schneider, Paris, France — Wang Tieya, Beijing, China — G. H. von Wright, Helsinki, Finland — Claes Wirsén, Stockholm, Sweden

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received the following letter from Dr. Stuart W. Glover, Secretary General of IUMS.

"The Executive Board, at its recent meeting resolved to accept the endowment of US \$25,000 offered by Dr. Emily Mudd and WAAS for the Stuart Mudd Award.

It was agreed to use the interest to provide an Award of approximately \$3,000 and to cover the travel and other expenses of the awardee in the sum of \$2,000.

The President of IUMS will present the Award at a ceremony in conjunction with the interdivisional Meeting of the Union every 4 years.

In 1990 this will take place in West Berlin and the awardee will be asked to deliver a lecture which will be repeated at the subsequent Divisional Congresses in Osaka.

It was agreed to prepare a commemorative plaque which will be presented to the winner on each occasion.

The Executive Board established an Awards Committee of the persons charged with responsibility to advertise the award, seek nominations and select the winner. The Committee comprises Prof. S. Sasaki (Chairman Bacteriology Division), Prof. J. Shadomy (Vice Chairman Mycology Division and Convenor), the Vice Chairman of the Virology Division and a representative of WAAS."

Following receiving a copy of Dr. Glover's letter to Dr. Menano, the Treasurer of WAAS, Richard Palmer, Esq., conferred with Dr. Emily Mudd concerning the transfer of funds to IUMS. Because of certain tax considerations, it was agreed that Dr. Mudd transfer \$10,000 of this pledge to WAAS in October and that WAAS Treasurer forward in November 1987 the sum of \$15,000 from WAAS treasury to Dr. G.G. Stewart, Treasurer of IUMS. The remaining \$10,000 will be given to WAAS by Dr. Mudd in January 1988 and immediately forwarded by WAAS Treasurer Richard Palmer, Esq. to Dr. G.G. Stewart, Treasurer of IUMS.

Dr. Horácio P.R.C. Menano
Chairman of the Awards Committee

ACADEMIE MONDIALE DES SCIENCES ET
DES ARTS

ACADEMIE EUROPEENNE DES SCIENCES
DES ARTS ET DES LETTRES

PROTOCOLE D'ETABLISSEMENT
DE RELATIONS D'INFORMATION
ET D'ASSOCIATION ENTRE LES
DEUX ACADEMIES

Article un - Les deux Académies échangeront des informations concernant leurs activités.

Article deux - Chacune des deux Académie invitera l'autre à se faire représenter aux réunions importantes qu'elles organisent.

Le Président de l'Académie Mondiale

Le Président de l'Académie Européenne