
CUSTODIANS AND STEWARDS OF FRANCISCO J. AYALA'S REVOLUTIONARY CONTRIBUTIONS TO HUMAN WELFARE AND HUMAN PROGRESS

*Custodios y administradores de las revolucionarias
contribuciones de Francisco J. Ayala al bienestar y progreso
de la humanidad*

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1. INTRODUCTION

We are here today to celebrate an extraordinary human being whose life's intellectual-cum-humanitarian journey has yielded deep contributions to science harmonized with knowledge derived from artistic and religious experience, philosophical reflections, and other sources.

The most appreciated presence and remarks of Dr. Robert Hauser, Executive Officer of the preeminent American Philosophical Society, endow this event with a very special significance. "Promoting useful knowledge" was the purpose that guided Benjamin Franklin to found, in 1743, this oldest and most distinguished learned society in the United States. The Society is unique in that it honors extraordinary accomplishments in all fields, awarding acclaimed membership to world-renowned scholars from a wide variety of academic disciplines and, thus, excelling—and bettering the world—as an unparalleled venue to bring sciences, arts, and humanities in service to humanity.

A proud member of the American Philosophical Society, Francisco Ayala uniquely embodied the Society's span of scientific, humanistic, and public accomplishments.

In 1994, President Bill Clinton appointed Francisco Ayala to the U.S. President's Committee of Advisors on Science and Technology. On the 12th of June 2002, he was awarded the 2001 National Medal of Science by President George W. Bush at the White House for "his theoretical and experimental discoveries on the origin of species, genetic diversity, and population dynamics that led to a new understanding of biological evolution, and his distinguished contributions to education, the promotion of public understanding of science, and the philosophy and ethics of the scientific enterprise" (National Science and Technology Medal Foundation, 2001).

The Templeton Prize, an annual award that honors a living person "who has made an exceptional contribution to affirming life's spiritual dimension" was bestowed on Francisco Ayala on the 5th of May 2010, by HRH Prince Philip, Duke of Edinburgh, at a private ceremony in Buckingham Palace (Templeton Prize, 2010).

These two honors greatly complement each other in recognizing Francisco's unique ability to build bridges among disciplines and activities that were thought either to be unrelated or, even, antagonistic to one another, bridges denoting a true insight into future possibilities.

It was Francisco Ayala's life-long effort to eliminate contradictions between science and religion on the premise that they concern different matters, that they are like two windows looking at the same world but showing different aspects of that world; yet each is essential to human understanding (Ayala, 2007; Ayala, 2014). At the request of the U.S. National Academy of Sciences, he served as principal author of a publication that articulated the Academy's view of *Science, Evolution, and Creationism* and whose third edition, released in 2008, underscores the utmost clarity with which it can now be established that "needlessly placing them [science and religion] in opposition reduces the potential of each to contribute to a better future" (National Academy of Sciences & Institute of Medicine of the National Academies, 2008).

Francisco Ayala's professional journey did, to a large extent, spur the rise and expansion of the field of molecular evolution. The disclosure that the parasite responsible for the often-fatal Chagas disease reproduces clonally rather than sexually led him—and collaborator Michel Tibayrenc—to formulate the clonal theory of parasitic protozoa, with important epidemiological

and medical consequences (Ayala, 1993). In his writings on the philosophy of biology, a field he helped establish (Ayala & Dobzhansky, 1974), Francisco Ayala argued that ethical behavior came about in evolution not because it is adaptive in itself, but as a necessary consequence of the high intellectual abilities present in modern humans and representing an attribute directly promoted by natural selection (Ayala, 1995; Ayala, 2016). And, as Camilo José Cela Conde highlights, he opened the door to the scientific study of the mind, laying the groundwork for the development of an integral image of “creativity”—the subject that has traditionally belonged to artists, literati, and philosophers (Cela Conde, 2019).

It is most fitting to extol the timeless yield of Francisco Ayala's passion about knowledge and about the unbounded capacity and potential of the human mind on the distinguished premises of Comillas Pontifical University and in adherence to the University's commitment to combine diverse types of knowledge within the search for knowledge that is interdisciplinary and global while striving to encompass the full reality of humankind and the world we live in.

It is most emotional to celebrate the 90th anniversary of Francisco Ayala's birth at this magnificent University, an institution that Francisco and I have been privileged to embrace as our intellectual home. It has been joyous and most rewarding to craft this event's aspiration to project Francisco's scientific, humanistic, and interdisciplinary contribution into the future in collaboration with Professor Jaime Tatay and Professor Sara Lumbreras, Co-Directors of the Center for Science, Technology, and Religion that has honored Francisco and me by bearing our names.

2. TOWARDS NEW FRONTIERS OF A MONUMENTAL LEGACY

What a challenge it has been to select from the countless brilliant minds who were guided and inspired by Francisco Ayala and now are taking his core visions and achievements to a new level of world-changing impact and benefit. In today's Morning Session, we feature four prominent scholars who emblemize the vigor of Francisco's intellectual progeny and whose work fuels further evolution of his gifts to humanity.

Professor Hesley Machado Silva carries on Francisco Ayala's central focus on the confluence of science and religion, confronts the rise of creationism in Brazil, champions the teaching of evolution in Latin America, and fights mis-

information about climate change. The timeliness and global relevance of his work are underscored by a recent article in the journal *Science* that discloses a growing opposition to evolution in India and its harmful effects on that country and on societies worldwide (Shashidhara & Joshi, 2023). I am moved to quote from a letter Hesley wrote to me: “he [Francisco] marked my life for having reached out to an unknown researcher from a small Brazilian town.”

Professor Julius Lukeš has taken his expertise in phylogenetics and evolutionary biology—and the inspiration from Francisco’s work on parasitic protozoa—into the world’s oceans, demonstrating how evolutionary research of protozoa in the oceans will play crucial role in solutions for combatting climate change. He is also pioneering new evolutionary hypotheses for the origin and dispersal of species, particularly parasitic protozoa, with important medical implications. I wish to mention, with gratitude, Professor Lukeš’ patronage of Francisco Ayala’s Doctor Honoris Causa degree bestowed on him by the University of South Bohemia in May 2010, and the Professor Honoris Causa recognition awarded to him in May 2022.

In the words of Professors Andrés Moya and Amparo Latorre, included in a note they sent me last year: “being students of Francisco has definitely and positively marked our personal and professional lives.” In turn, they beautifully marked Francisco’s life, as the sponsors of his Honorary Doctorate from the University of Valencia in November 2000, as co-editors of *The Evolution of an Evolutionist* (Latorre & Moya, 2006)—a collection of selected writings that define Francisco Ayala’s trajectory as a scientist and philosopher—and in many other ways. Their distinguished careers, which continue to yield formidable contributions spanning philosophy and science and revolutionizing the scope of evolutionary thought, are exemplary of Francisco Ayala’s formidable contribution as a teacher and mentor.

The Afternoon Session will extend the potential of Francisco Ayala’s masterful symphony of science, philosophy, religion, and the arts into new realms and to a transnational scale. The title of Professor Jaime Tatay’s address, *The Sacredness of Nature as a Transnational Bridge Across the World’s Cultures and Religions*, offers an intriguing preview of the novel angle of his globally scaled research. The great inspiration that Francisco lavished on me during the precious 38 years of our life together will radiate from my revelation of the daring ambition to “harness evolution’s gift of borderless wonder to open new economic frontiers for global sustainability.” This ambition to bring to light—and blend with art—the “economic might of evolution” propels my professional journey across geographies and political boundaries. It also fuels my aspiration to make this journey ever more synergistic with Francisco’s,

and ever more worthy of such joint recognitions as was the simultaneous award of an Honorary Doctorate to Francisco and of a Gold Medal to me by Masaryk University in the Czech Republic in 2003. I am honored to recognize the champion of this cherished twin accolade, Professor Milan Konečný, who is with us today.

It is a privilege to announce that, subsequently, Dr. Hauser will return to the podium to expand on the global significance of the American Philosophical Society's collections, including via a preview of the Society's upcoming major research and training center for the history of science. His remarks will take the meaning of being a "custodian" of Francisco Ayala's giant legacy to an entirely new level of importance and perpetuity while contributing a potent synergy towards this event's aspiration to shape a transnational path towards making knowledge a truly universal opportunity for humanity.

The keynote address will not inaugurate but culminate today's event and its testimony to the immortal progeny of Francisco Ayala's intellect and humanism. It will be delivered by Dr. Michael Clegg, Donald Bren Professor Emeritus of Biological Sciences at the University of California, Irvine, (former) Chair of the Council of the International Institute for Applied Systems Analysis in Vienna, Austria, former Foreign Secretary of the United States National Academy of Sciences in Washington, DC, and man of many other accolades. His deep friendship and professional bond with Francisco spanned more than 50 years. I know that he will want to make a special mention of Francisco's many students around the world who, no doubt, are the engines of the perpetuity of Francisco's giant impact.

The event-closing act by Rector Enrique Sanz will go beyond closing remarks; it will inaugurate a novel dimension of the perpetuity of Francisco Ayala's extraordinary legacy.

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