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# LEGACY AND NEW HORIZONS: WHAT LIES AHEAD FOR FRANCISCO J. AYALA'S LIFEWORk AND THE CENTER FOR SCIENCE, TECHNOLOGY, AND RELIGION

*Legado y nuevos horizontes: lo que le espera a la vida de Francisco J. Ayala y a la Cátedra de Ciencia, Tecnología y Religión*

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Ladies and gentlemen, colleagues, students, and friends of science, today we gather to celebrate the continuing legacy of Francisco J. Ayala on the date that would have been his 90<sup>th</sup> birthday.

It fills us with pride to be able to celebrate Francisco from the Center that carries his and his wife's name, Hana. Indeed, we are the Hana and Francisco José Ayala Center of Science, Technology, and Religion. Since father Javier Leach founded the Center 20 years ago (this year we celebrated our twentieth anniversary) we have been dedicated to research, teaching, and dissemination on science and technology and their implications for humanity.

Beyond his empirical research in evolutionary biology, Francisco contributed deeply to the dialogue between science and faith. In a world where the tension between positions often escalates, Francisco, armed with a PhD in both biology and theology, was the perfect mediator, showing that science and religion are independent domains that must coexist ad different ways of looking at the world. The Center's fundamental objective is to foster dialogue between these two perspectives.

Science is humanity's fundamental window to understanding the world. However, it cannot endow the human experience with meaning, which is

one of our most intense needs as human beings. The conversation between Science and Religion encourages mutual enrichment, where scientific discoveries can inform ethical considerations and spiritual beliefs can inspire a sense of wonder and responsibility towards the natural world.

Science and Technology also enable improvements in living conditions across all aspects of life. They are among the most visible manifestations of the great beauty and creativity of the human mind. Actually, one of the informal definitions of engineering that we love the most in the Engineering School that is our home is that of "the discipline that solves problems and improves quality of life by applying scientific principles, mathematical analysis, and practical experience."

However, being products of freedom, science and technology are not neutral; from inception to completion, they involve various intentions and possibilities that require an ethical framework to ensure they serve the human good in all its dimensions. Reflecting on ethics (and in particular on the ethics of technology) is one of our core missions, and one that is at the heart of our identity as Comillas. We have several subjects that all students must complete, which include deontological ethics, or the Church's social doctrine. At this Center, we contribute to this project by focusing on the cutting edge aspects of ethical reflection, bringing light to the topics that are still obscure.

Francisco distinguished himself through his commitment to the ethics of science, for instance advocating for Ethics research getting 3% and then 6% of the total budget for the human genome project, something that was unheard of at the moment and that started unprecedented programs in the humanities.

Another aspect of our work that echo's Francisco's approach to science is multidisciplinary. We aim to contribute in a diverse yet rigorous manner to our understanding of humanity and the world. We aim to create a forum where not only a rich dialogue can be established but also long-term collaborations emerge. In the same way that Francisco created a network across his disciples that would not only survive but also grow to this day, we aspire to create long-lasting networks of collaboration within the university and beyond. In this respect, we are privileged to be a part of the Engineering school but be close to the schools of philosophy, theology or management, and to the very different collectives that form Comillas. In addition, the creation of different Chairs makes it evident that one of the elements of the identity of this university is the intense collaboration with the private sector and the intense

focus on having a social impact. We hope to contribute to this network that is growing before our eyes to bring the most value to society.

One key aspect here is the careful selection of our research topics to maximize social impact. Francisco focused not only on the underpinnings of natural selection but also on practical health challenges such as Chagas Disease, where understating the reproductive mechanisms of *Trypanosoma* led to improved tools for tackling the disease's spread and treatment resistance. At the Center, we have identified several research lines where we believe our social impact can be maximized. The two of them that I will mention today are the reflection on Artificial Intelligence and Integral Ecology. AI has surprised us with admirable developments in recent times, and we still need to understand their impacts, as well as to develop ethical guides for a humanizing use. At the engineering school and the Institute for Research in Technology, we are leading experts on these technologies and are therefore in a privileged position to reflect from a place of deep understanding of their mechanics. Our permanent seminar: "Reflecting on AI," open not only to scholars but also to the general public, is a testament of our commitment to this goal, and in particular to understanding the broader ramifications that AI will have in our societies.

We are also experts in sustainability at the technical level (for instance, in energy systems) and our contribution to integral ecology can be key. This will be shown in Jaime's speech this afternoon. We aim to collaborate on innovative projects like Pangea World, which we will have to pleasure to hear about from Hana Ayala herself, which leverages evolutionary and ecological knowledge to promote global sustainability, diplomacy, and conservation.

In addition, Francisco was a powerful advocate for evolution education, arguing for its centrality in understanding biology and the natural world. He was particularly interested in refuting the claims of creationism and promoting the teaching of evolution in schools as foundational to biological sciences. Through his efforts with the National Academies and his own writings, he worked to affirm the importance of evolution and its practical value. We are similarly committed to education not only among our students, but also within society at large. The Center's commitment to education will remain central. We will continue and expand our participation in university programs, high-school activities and massive open online courses, which allow us to bring the Science and Religion dialogue to an ever-increasing audience. Dissemination is a core activity for us, specifically in Spanish. We will continue producing and translating seminal works into Spanish, in our singular collection of books on Science and Faith, alongside our centenary journal *Razón y*

*Fe*. This, together with the organization of public events, will articulate our presence in society to create meaningful conversations around these topics.

On this special day we will be witnesses of how much Francisco could accomplish with passionate dedication. He is said to have accustomed himself to sleep only four hours a day to be able to achieve more in each day, and it really seems like he lived more than can possibly fit in an ordinary life. In our conference, we will have the opportunity of listening to some of the most successful of Francisco's students, having the privilege of hearing directly from his academic offspring.

Hesley Machado Silva, with his profound knowledge in teaching evolutionary biology in Latin America and his analysis of regional, religious, and political discourses, promises to further enrich our understanding of scientific education.

The perspective of Julius Lukeš in parasitology and the study of unicellular eukaryotes will offer a fascinating window into the challenges and advancements in this field.

Meanwhile, Andrés Moya will share his valuable research in genetics, evolution, and the philosophy of biology, opening a dialogue on the role of the microbiome in our understanding of life.

Amparo Latorre will take us through her exciting work on symbiosis, showing us the importance of relationships between different forms of life.

Finally, Michael T. Clegg, with his extensive experience in population genetics and molecular evolution, will close the event, connecting all these fields into a cohesive vision of current science.

This will be complemented by the perspective from Robert Hauser, no less than Executive Officer of the American Philosophical Society. We feel deeply grateful to have with us these phenomenal speakers.

Their conferences will show that Francisco's legacy not only persists but continues to evolve. It emphasizes the critical necessity of fostering ongoing discussions among the realms of science, technology, and religion. Our goal through these conversations is to ensure that advancements in science and technology are pursued with a commitment to ethical principles, social justice, and environmental care.

Let us enjoy this event as renewed motivation to engage in exploration, inquiry, and discovery. Many thanks.