

**CosmoCaixa, the Science Museum of "la Caixa" Welfare Projects in Madrid, proposes a journey through time by means of an exhibition that compares the technology of the past with that of today and the future**

## ***Technology: without time limits***

**Science and Technology are two forms of knowledge with the same methodology but with different objectives. The former aims to understand the world, the latter to change it. Technology (in transport, housing, communications, industry and agriculture...) is an essential part of our lives and has had an enormous impact on society. Since time immemorial mankind has had the need to adapt to nature and invent with the aim of improving the quality of life and meeting his needs: food, clothes, healing, the love of art, trade, remembering...**

**The exhibition comprises of 750 unique precolumbian pieces of diverse cultures such as Chavín, Vicus, Cupisnique, Recuay, Mochica, Chimú, Paracas, Nazca, Huari, Lambayeque and Chancay that are part of the Art and Techniques Collection of Acervo Leistenschneider, located in Lima, Peru (<http://www.acervoprecolombino.org/>).**

**CosmoCaixa, the Science Museum of "la Caixa" Welfare Projects in Madrid, invites the public to delve into a surprising journey through the hidden technological treasures from 2,500 years ago until the present day. It is a route that will take the visitor from the artistic, scientific and technical legacy of the pre-Columbian cultures to the most cutting-edge technological objects of today, among which feature the ReacTable, a latest-generation instrument that produces sound on moving objects over a luminous sign, or intelligent fabrics capable of changing colour with the temperature or which even iron themselves.**

**Structured into an introduction, ten studio settings that cover subjects ranging from music through to fabrics and including medicine, agriculture and art, and an epilogue, the "Technology compared: two thousand years transforming the world" exhibition, produced by "la Caixa" Welfare Projects with the support of the Acervo Leistenschneider, can be visited in CosmoCaixa from the d 17 of October 2007 until the end of 2008. The exhibition was also supported by the National Institute of Culture (INC) of the Government of Perú.**

**Madrid, 17 of October 2007-** Millions of years ago, the first settlers changed the shape of stones and bones to make tools. Centuries after, during the Iron and Bronze Ages, man obtained new materials by combining other existing ones (alloys, ceramics, plastics...). For several decades now, human beings have been inventing matter from new atomic and molecular structures. What will the next step be?

The exhibition sets off on the journey between the technological past, present and future by means of an enigma. These are the Nazca Lines (Peru), a series of mysterious figures which were drawn **between 2,500 and 1,500 years ago** by the settlers of the area in massive dimensions –up to 270 metres long- in a desert area covering more than 300 square kilometres. The magnitude of their size means that they are only visible from the sky. What was their purpose? The representation of them is the start of a journey that also includes a selection of more than 700 pre-Columbian pieces related to Art and Technology (belonging to the Acervo Leichtenshneider Collection of the Institute of Peruvian Culture) and which ends in some of the most modern technological prototypes of our times, such as the Elevator 2010, a real space lift, the design of which is being worked on by NASA in California.

"Technology compared: 2,000 years transforming the world" proposes a journey through the passionate history of progress through investigating ten basic fields:

- **The human figure.** Throughout history, anthropomorphic representations have been constantly used in art, rituals, religion... Pre-Columbian civilisations imitated the human physique. Technology has advanced so much today that it is possible to represent our sensorium. The appearance of robotics contrasts with the art of symbolising the human being in pre-Columbian cultures. If in pre-Columbian Peru "cuchimilcos" were commonplace (small anthropomorphic ceramic figures), today robots are beginning to become essential in our lives, whether for doing cleaning tasks, deactivating explosives or space exploration. Will they surpass human beings?

- **Agriculture and fishing.** Since time immemorial, in order to eat land has had to be cultivated or fish to be caught. This basic rule of survival explains that man has historically strived to perfect his farming tools to the point that we are surprised by the great similarity we find between pre-Columbian tools and those we use today, even the materials used, among which copper has always had a prominent role. In a display the exhibition compares pre-Columbian agricultural equipment made with copper with modern tools made with the same material. The technological feats accomplished in agriculture, moreover, would not have been possible without the techniques learnt to make full use of the rough Andean land that the Incas employed or without the organisation of a road network capable of suitably storing the resources already harvested and distributing them all around their territory.
- **Metallurgy.** Did you know that the blade of a knife contains information about the technological evolution of metallurgy over thousands of years? The pre-Columbian "tumis" (knives) reveal curious details about our past. The discovery of iron meant that knives were more resistant and longer-lasting. And today the most common material is stainless steel, which is combined with other elements to give it specific properties. Thus, the addition of molybdenum improves its resistance to impact, chrome increases resistance in high temperatures and avoids corrosion, and vanadium improves resistance to wear and tear; stainless steel knives are putting an edge on the present.
- **Medicine.** The contribution of technology to the development of medicine could not have been more significant. Trepanation is a medical practice that was carried out in the past and which consisted of making a hole in the cranium in order to remove brain diseases. The contrast between a selection of photographs of pre-Columbian trepanated craniums and a video of a modern surgical intervention cannot be clearer. Today, microsurgery allows the repair or reconstruction of small anatomical structures. From the art of trepanation to the development of surgery. Different eras, distinct ways of working, but with similar goals.
- **Fabrics.** Today we can find fabrics that iron themselves, T-shirts that give off light, jerseys that change colour... In fact, artificial fibres, the popularisation of which dates back some 40 years with the invention of nylon, currently represents 70% of the textile market. It is a long time since the first attempts to manufacture artificial fabrics around the mid-17th century, and even longer going back to the pre-Columbian fabrics conserved for more than 1,000 years, such as the pre-Columbian piece that can be seen in the setting at the exhibition dedicated to the evolution of fabrics.

- **Music.** One of the latest technological innovations in music is undoubtedly the REAC Table, a multimedia system that consists of a screen over which special counters are placed and moved around to create complex musical pieces. Pre-Columbian cultures were not so sophisticated –they used drums, flutes, whistles...-, but the result was not bad at all. A display with more than 50 musical instruments shows the wide use that pre-Columbian civilisations made of music.
- **Money.** Throughout most of their history, human beings have organised their lives around bartering, that is the exchange of goods. The indigenous peoples, for example, exchanged gold for bead necklaces of the Spanish colonisers. Nevertheless, this did not stop them from undertaking large-scale public works in their cities. As a counterpoint, the show looks at the evolution of stock markets, the first of which was created in Amsterdam in 1604. Since then, this institution has become a central element in capitalist countries. Considered by some as the “thermometer” of the economy, throughout their history stock exchanges have incorporated the latest advances in communication technology.
- **Memory.** Traditional storage systems, based on paper (books), celluloid (photos) and vinyl (music), gave way in the 1940s to optical, magnetic and electronic supports and, today, it seems unthinkable living without USB, CDs or DVDs. There were also memory storage systems thousands of years ago, however: less sophisticated but just as effective. In Andean society the “quipu kamayuq” or “keepers of the quipu”, (quipu were accounting instruments) were dedicated exclusively to recording data based on a complex system of knotted strings of which the exhibition has some interesting replicas.
- **Beauty.** Art and fashion cannot be understood without referring to technology. On these lines, just as Impressionism was possible thanks to the availability of oil paints, so modern fashion is closely dependent on the latest advances in fabrics, pigments and techniques for creating colour. The exhibition shows a selection of items of pre-Columbian jewellery, the natural colours of which contrast with the results obtained from today from the combination of colourimetry and electronic technology.
- **Spheres.** In the Costa Rica, on the East Pacific, the indigenous people made hundreds of spherical stone sculptures between 400 and 1550 AD. Some of them measured 250 cm in diameter. How did they achieve this perfect curvature with the technology they had available? Today the most perfect spheres are found in the NASA Gravity Probe 2. Why? Nothing less than putting Einstein’s theory of relativity to the test. The variation that NASA

hopes to detect with them is extremely small: it would be the equivalent of measuring the thickness of a sheet of paper 150 kilometres away.

And to complete this journey through technological progress, the Space Elevator International, a space elevator project that has the short-term aim (2010) of making a viable prototype capable of lifting several kilograms of goods more than one kilometre up in the air. The long-term aim is the modest task of building a permanent lift, which will enable goods to be transported through space at a fraction of the cost of conventional rockets.

The exhibition ends by posing questions around the enigmatic starting point: Will we ever know the reasons behind the Nazca Lines? Will technology reveal more to us about the past? To answer in the negative would be of the greatest temerity after taking the journey around the CosmoCaixa exhibition.

**TECHNOLOGY COMPARED:**

***Two thousand years transforming the world***

From the 17 of October 2007

**CosmoCaixa Madrid**

Pintor Velázquez s/n  
28100 Alcobendas. Madrid

**Opening times:**

Tuesday to Sunday and public holidays, from 10 a.m. to 8 p.m.  
Closed on Mondays, except when public holidays.

**General entry to the museum:** 1 - 3 euros

**Information service:**

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**For more information on the Acervo Leistenschneider:**

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