

THE INCREDIBLE CHILPANCINGO SUNDIAL

"HE WHO FOLLOWS his vocation does not sin," said Shakespeare.

So as we approach the end of the year and my fellow citizens make promises for the future, I, as it is up to the historians, am not thinking about 2013. I return, however, to the past, around 1913 or 1813. Both dates remind me of the same corner of the world: the Mexican population of Chilpancingo, in the state of Guerrero. There, in 1813, José María Morelos convened the first major constitutional assembly of the Mexican independence; there, the same year, was decreed the abolition of slavery in Mexico. Also there, in the Cathedral of the Assumption, were agreed the famous 23 Feelings of the Nation, guaranteeing fundamental freedoms for Mexicans and proposing social justice: the abolition of privileges, equality before the law, "moderation of opulence" and improvement to the conditions of the poor. Right there, in 1913, to commemorate the centenary of those heroic and exciting moments, a key episode of the Mexican revolution happened, the taking over of the site by Emiliano Zapata and the forces of the peasant movement.

Now, on the eve of such inspiring centennial events, Chilpancingo has a monument worthy of their commemoration. Or at least has half a monument and I do not know if the local, regional and national authorities have enough courage --or maybe enough money-- to complete it. In 2007, members of the state government decided to commemorate the Mexican bicentennial with a structure of exceptional splendor and public value for promoting education, tourism and culture. Through various consultations with artists and federal authorities, they agreed to add a global and cosmic dimension to the cry of the people, erecting an enormous sundial, of the new type designed by the great scientific instruments builder, the English William Andrewes, known as a scholar in the sciences and arts practitioner. It was not, of course, just any sundial. Traditional sundials work through the concept of latitude, which determines

the elevation of the sun in the sky; Andrewes' sundials are unique for being longitude dials and including a world map that allows the viewer to see the relationship between the meridian of the place in which they are located and the rest of the planet. The seventeenth century cosmographer, Franz Ritter, was the first to outline the concept of longitudinal gnomon, but without achieving it. Inspired by the text of Ritter, Andrewes spent a dozen years in making the concept a reality.

In the Chilpancingo Sundial, as designed by Andrewes, the whole history of the city, especially in relation to the independence and revolutionary movements, will be narrated with the passage of the gnomon through the face of the dial, illuminating during each moment inscriptions and scenes engraved in relation to historical events that took place there on a date and time in the past.

Furthermore, Chilpancingo will be placed in a huge global context, as a giant map will indicate each moment the time in various parts of the world and the events developed there alongside the great achievements of the history of Chilpancingo.

In each of the sectors of the open vault, shaped as an armillary sphere that will crown the work, come engraved the names of the constituent states of Mexico, with the motto: "Equity in Justice".

Bronze statues of Morelos and Hidalgo, accompanied by the cosmographer Fray Andrés de Urdaneta, explorer of the route to Mexico through the Pacific, would preside the ensemble.

The aesthetic quality of the monument would be classic, but the design includes discreet allusions to Indigenous heritage, to remember the great tradition of pre-Columbian astronomers. On the world map, made of granite and embossed --which, if completed, will be the largest of its kind-- oceans would be represented with running water, turning the set into a huge mirror that would flash sun sparkles. The sundial will be the largest sundial in the world, incorporating the biggest armillary sphere that has ever been built. The project, when approved by the state government and federal authorities in 2010, was to be ambitious and promising --and I guess quite expensive-- but it would be worthwhile for its technical audacity, its educational

value, its tourism potential, symbolic depth and artistic beauty. In 2010 the budget was approved and construction began earnestly. Now, however, what can be seen on the hill intended for this work are incomplete columns and a half done monument in a sad state of neglect. I do not understand why the work is stalled, but I see it as a tragedy. A monument more worthy to celebrate the country's history in the bicentennial of its independence declaration cannot be conceived. Andrewes is perhaps the most original artist of our time, whose creations will endure for centuries, attracting more and more admiration. And the Chilpancingo Sundial promises to be his masterpiece.

I KNOW the quality of Andrewes' skill because we have one of his sundials --more modest, of course, and less comprehensive than that of Chilpancingo-- on the campus of my university, Notre Dame. The vast and opulent confection of bronze and marble --rather gabbro, a very fine type of stone, preferred by the engravers of memorial monuments-- faces the departments of Astronomy and Physics, to manifest the consistency of wisdom and faith, art and science. Every day, lots of tourists congregate around the sundial to admire and learn. They feel before an unprecedented work, forging a link between space and time, regaining the sense of belonging to a vast and immanent universe. Indeed, a sundial created by Andrewes is a kind of *summa artium et scientiarum*, as if St. Thomas Aquinas worked in three dimensions. There you will see combined the craftsman's skill, the imagination of an artist, the knowledge of a scholar, the cosmic vision of science and the technical skill of a great engineer.

Andrewes brought together the skills of a polymath in a curious career, which led him from design professor at Eton to director of the Museum of Scientific Instruments at Harvard, before turning to the creation of new tools that reflect the tradition of sciences of the past. Andrewes does not sin as he follows his vocation. A sundial responds to the rhythm of nature. Its heart is eternal. It is a piece that brings together all the accuracy of industrial engineering with a universal technology that works perfectly without using mechanisms or spending energy resources. It does

not move, rather measures the movement of the universe. The only thing that could stop its pace would be a change in the direction of the Earth through space, or a detour on the planet's axis. "If a sundial stops working --Andrewes observes-- do not scold the watchmaker, but God."

Mexico is a country of heroism and frustration, always condemned to long for the glory of his past without reaching it, to feel on the threshold of greatness without experiencing it. In a letter to the authorities of the state of Guerrero last year, Linn Hobbs, professor of Materials Science and Nuclear Engineering at the Massachusetts Institute of Technology, said that

"Chilpancingo has an unparalleled opportunity to show the world the importance of the Mexican Revolution, which launched the path of the nation in their pilgrimage for independence toward the creation of a great democracy and a vibrant culture." It seems fair. I hope that when the bicentennial celebration of the Congress of Chilpancingo, in a few months, something of that glory, a spark of that greatness, will be unveiled between the columns to honor the place, commemorate the history, enlighten the science, and improve the world.