

# “Plaza del Cielo” Complex: its state of evolution

By N. Camino

Department of Physics, Faculty of Engineering, National University of Patagonia, 9200 Esquel, Chubut, ARGENTINA.

e-mail: nestor@unpate.edu.ar

## 1. Our motivations for the creation of “Plaza del Ciel ”

We consider that one of the most important aspects in the harmonic development of a person is his relationship with the natural environment in which he lives: in that environment he initially trains and enlarges his curiosity and the capacity for astonishment, both innate properties of human beings. It is so much so that we could locate the germ of all creative future activities, scientific or otherwise, in what happens with those characteristics during the years of childhood, that if fully developed will help children to become sensitive and critical adults. So we consider it necessary to generate the mechanisms to reinforce the sensibility, the critical observation and the interaction with natural phenomena, in a systematic way, as we propose in “Plaza del Cielo”.

*Education by means of Astronomy is the principal nucleus of our proposal.* This is especially because we consider that those aspects of Nature studied by Astronomy and the way this science works is a powerful tool to motivate children and adults, that it is one of the best ways to study Nature, and that it brings us as educators new means to show the evolution and full integration among the many ways, not only scientific, Humanity has constructed throughout History in order to comprehend not only the Universe, but ourselves as well.

### 1.1. Geographical location and zone of direct influence

The Plaza will be situated at Esquel, a small city of 23,000 inhabitants, close to Los Andes mountain range in central Patagonia, Argentina (Fig. 1). The zone we have defined as of direct influence has an area of approximately 80,000 square kilometres, with Esquel as the most important city, which includes 65,000 inhabitants; 12,000 of them are primary students, 2,200 secondary students, 950 primary teachers and 450 secondary teachers.

### 1.2. Institutions supporting the Plaza

There are three institutions that bring the main support to Plaza del Cielo Complex: Municipality of Esquel (the project has been declared “of community interest”), National University of Patagonia (for education and investigation reference) and “Educándonos” Foundation (for the economic aspects). Furthermore, the “Social Educational Plan”, a Program of the National Ministry of Culture and Education, which assists nearly ten thousand indigent schools in the whole country (like those in Patagonia), brings its economic, material and human support to this project. We want to thank all of these four institutions for their support, without which this project could not have been developed.

## 2. Synthetic Description of the Project

*The Plaza could be thought of as a huge interactive didactical tool, without any restriction, neither social, economic, nor by age of those who will go to play and to learn in it.* The complex (see Fig. 2) includes many modules designed for the teaching of Astronomy,

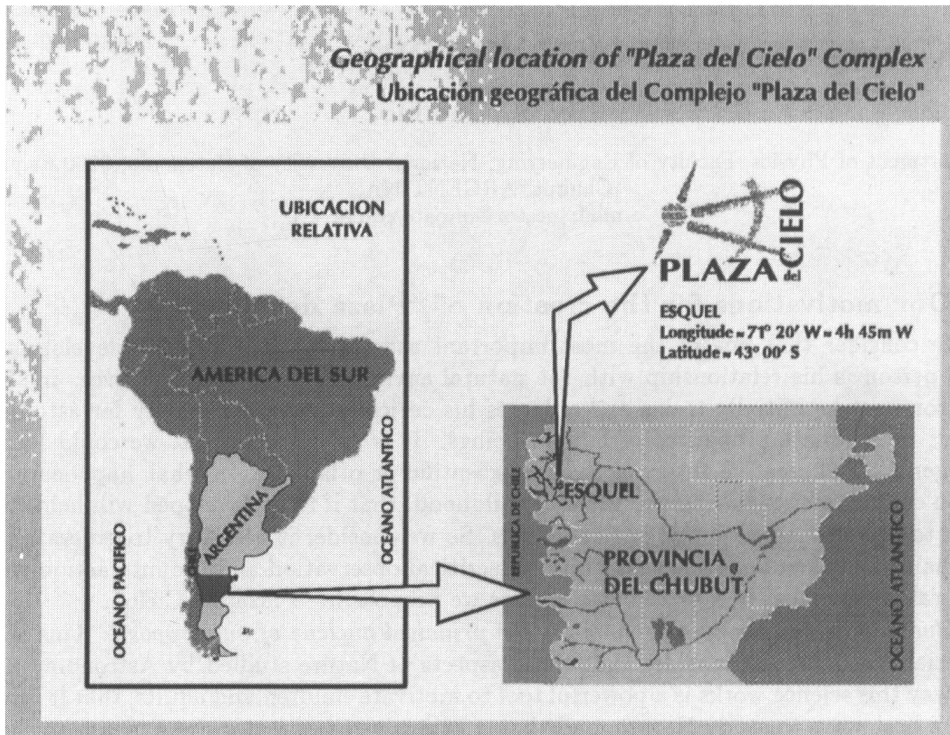


FIGURE 1.

**"Plaza del Cielo" Complex – Esquel – Argentina**  
**Complejo "Plaza del Cielo" – Esquel – Argentina**

*General Objective: Education by means of astronomy*  
*Objetivo General: Educar a través de la astronomía*

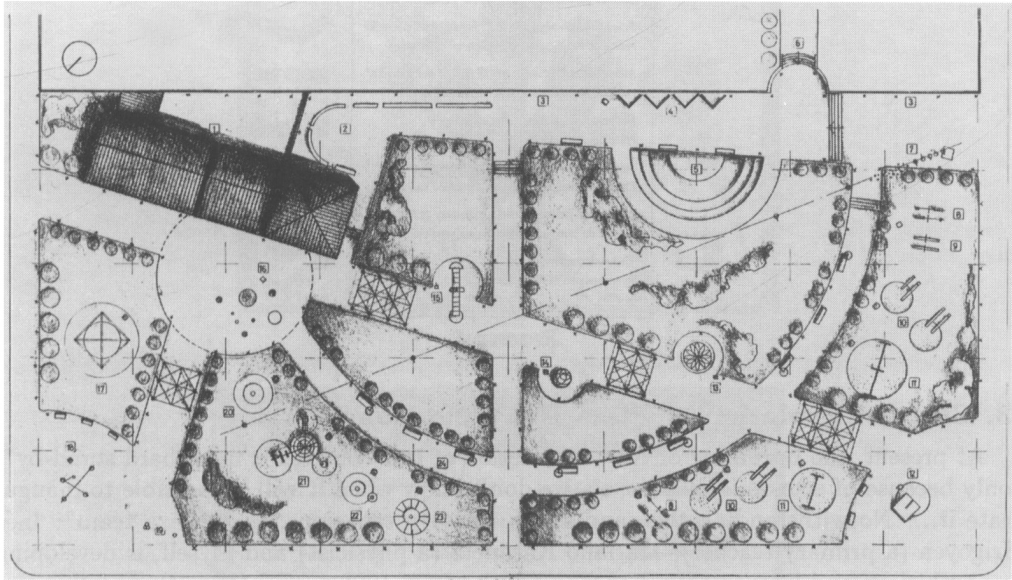


FIGURE 2.

capable for their utilization outdoors or even indoors, which could be built with simple, low cost and low maintenance materials. In the design of all the modules we kept in mind two aspects: the educational and the ludic, the two foundations of the proposal.

The Plaza modules have been organized in four main "conceptual streets" (Fig. 3): the "Sun's diagonal", to understand the relative motion of the Sun with respect to our topographical location; the "South's street", in order to understand our southern location on a planet with a definite rotational movement; the "History's street", to understand that science, and particularly Astronomy, is a cultural product, dynamically

"Plaza del Cielo" Complex – Esquel – Argentina  
 Complejo "Plaza del Cielo" – Esquel – Argentina



SAENZ PENA

FIGURE 3.

changing during time, a human tool to describe the Universe in which we live; and the "Culture's street", a connection with cultural aspects in a young and active community like Esquel and Patagonia. Furthermore, there are two kinds of square games: the "Gravitational" ones, to "live" consciously our relation with the Earth's gravitational field; and the "Planetary" ones, in order to dramatize, by playing with them, the gravitational relations among Solar System bodies, natural or artificial.

The modules included in each street and set of games are the following ones.

*Sun's diagonal*: equatorial sundial, climbing armillary sphere (not indicated in Fig. 3), parallel Earth globe, Solar System traverse board game, Solar System distances mock-up, Solar System sizes mock-up.

*South's street*: Southern Cross mock-up, Foucault's pendulum (now inside the building).

*History's street*: statues of those astronomers that gave humanity a transcendental cosmic vision, considered each of them as the "convergence of an epoch"; they are, in our personal epistemological conception (we can talk about it...), Aristarco, Tolomeo, Copernico, Galileo, Newton, Einstein, and there will be an empty bench, waiting for who will sign the next cosmic vision, the next convergence.

*Culture's street*: cultural center (with the Foucault's pendulum and a planetarium, and specific audiovisual media, library, etc., conference room, and a classroom), an artisans fair, an open theatre, and the Poplar's mall.

*Gravitational games*: see-saws for one child, see-saws for two children, slides of different heights and equal inclinations, slides of Earth-Mars-Moon, swings of different longitudes.

*Planetary games*: climbing Voyager mock-up, asteroids' round, Earth annual movement merry-go-round, Earth-Sun-Moon system merry-go-round.



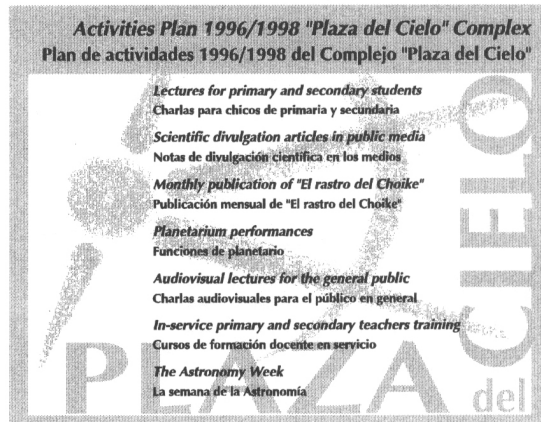


FIGURE 4.

### 3. State of Evolution of Plaza Del Cielo Complex

At present, the beginning of the construction of this complex is in a "hard stand-by", only because of economic reasons; so, we don't know when it will be possible to inaugurate it.... Notwithstanding this, and as we are very tenacious, the "Plaza team": Inés Irigoyen (a primary teacher), Mariano Kasanetz (a physicist) and myself, is developing an ambitious and intense activities plan for the 1996-1998 period (Fig. 4), as follows.

*Lectures for primary and secondary students:* many lectures and activities are developed each year, indoors and outdoors, observational, etc., in schools of the region, as required by teachers or even by the students.

*Teacher training program:* activities or courses to train primary and secondary teachers in those astronomical concepts included in the curricula, with a strong focus on the observational aspects.

*"El rastro del Choike":* a monthly publication in the local newspaper, directed to the general public, but especially to children and teachers. Its name is a homage to those ancient Tehuelches, native people of central Patagonia, who used to name in that way the group of stars we, nowadays, call the Southern Cross. The "Choike" is a big bird, an American ostrich (ñandú), and this native constellation means "its footsteps (el rastro) in the night sky" (Fig. 5). The "main" section has the objective to explain many phenomena or events, focussing on their local observational aspects; the "children's questions" answering those questions produced in the planetarium performances or in the lectures; "I ask you..." in which children answer our questions; "Astronomy and Expression" to show connections between our science and the Arts; "shooting news" is astronomical news in order to show the present and future evolution of Astronomy. "El rastro del Choike" is being reedited by the "Social Educational Plan" in order to extend this educational effort on the teaching of Astronomy to other geographical regions.

*Scientific communication articles:* many articles in radio, TV, and newspapers, related to phenomena, news, etc.

*Planetarium program:* GOTO Mfg. Co. has donated an EX3 planetarium for the development of Plaza del Cielo Complex (we want to thank them very much, because it was a real lift-off for us). We have developed two performances: "Below the Southern Cross", oriented to know the sky of Esquel and Patagonia, to learn how to determine cardinal points and to know some constellations (Orion, Taurus, Southern Cross, Scorpius); and "The Zodiac, the path of the Sun among the Cultures", oriented to discuss

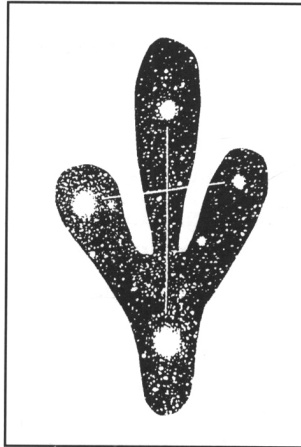


FIGURE 5.

Credits of "Plaza del Cielo" Complex Equipo del Complejo "Plaza del Cielo"	
Author / Director	Lic. Néstor Camino
Permanent staff / Equipo permanente	Prof. Inés Irigoyen Lic. Mariano Kasanetz Est. Esteban Arrúa
Arquitectural and conceptual design Diseño arquitectónico y conceptual	Arq. Alberto Teszkiewicz Ing. Eduardo Averbuj
Arquitectural design of the Cultural Center Diseño arquitectónico del Centro Cultural	Arq. Ricardo Lerchundi
Graphical design / Diseño gráfico	Dis. Silvia R. Capurro
Mock-up of the Plaza / Maqueta de la Plaza	Prof. Jorge Piedrabuena

FIGURE 6.

both the astronomical explanation of the Zodiac and how we can know past Cultures by learning about the mythology of those constellations. Weekly, three performances for primary schools and one for the general public are held. The planetarium was inaugurated in May, 1995, and at present approximately 2,500 persons had come to participate in them, 90% primary students, which means an intense response to this activities program.

*Audiovisual lectures:* lectures held once a week for the general public, in which, after a video or slides, an informal talk is developed, related to the interests of the public.

*The Astronomy week:* the 24th of October is Astronomy day in Argentina, so we have planned an intense week, full of activities : audiovisual lectures; planetarium performances; special issue of "El rastro del Choike"; observational activities; expositions of stamps, photographs, instruments; astronomical puppets (by Horacio Tignanelli, an astronomer and an Astronomy educator, specializing in puppets and an author of many books); primary childrens' drawings exposition; and a talk about "how to become an astronomer" designed for secondary students.

#### CREDITS OF PLAZA DEL CIELO COMPLEX

The staff of the Plaza is the one we describe in Fig. 6; without them all, the Plaza could not be working like it is actually now. But there are many other credits, especially these:

Arq. Alberto Teszkiewicz and Ing. Eduardo Averbuj, specialists in the architectural and conceptual design of interactive places for the teaching of Science, for they made possible the materialization of a dream; Prof. Nicoletta Lanciano, for she is a strong source of inspiration and of learning; Lic. Horacio Tignanelli, for he is a natural creative person who helped me to respect my fantasy; Lic. Hilda Weissmann, for she motivated me to create the Plaza; and my family, for they are a living support.