

REGAINING OUR RIGHT TO OBSERVE THE STARS

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The sky, our common and universal heritage, is an integral part of the environment perceived by humanity, as it was perfectly outlined in the document of Proclamation of 2009 as International Year of Astronomy, presented in 2005 at the 33rd Session of the UNESCO General Conference: “Humankind has always observed the sky either to interpret it or to understand the physical laws that govern the universe. This interest in astronomy has had profound implications for science, philosophy, religion, culture and our general conception of the universe”. Still its contemplation is increasingly difficult to the point that it is becoming unknown for new generations. An essential element of our civilization and culture that we are losing at a fast pace, and whose loss would affect all countries in the world.

Since the oldest ages, night sky observation was a basic dimension in all cultures worldwide. From Aristotle to Galileo, from Ur to Mesa Verde, astronomy has marked the pace of science history and of the cultural perception of the world. Several peoples’ identities were based on cultural expressions related with stars. Major exploration and trade routes have been traced using stars as references. But we are nowadays facing a new situation, where we risk limiting our astronomical culture to a closed and threatened area only available to few researchers in distant technological spheres. Nevertheless, the study of astronomy allowed humankind creating calendars, navigating offshore through sky mapping, making substantial changes in science as a transversal language. Today as yesterday, night skies are able to wake up our imagination and help us finding our place in the cosmos. “We are children of clay, but also of the starry sky” is an ancient Nahuatl saying that definitely resumes this perception.

But a few decades ago, just an instant in time if we take into account the whole history of the universe and of the humankind, human progress stopped considering star observation as a basic source of wisdom and inspiration. Through the study of big civilizations and their fusion with the cosmos it is clear that none of them could ignore this learning to forge their knowledge, the feeble light of stars being often a site where art and science marvellously met. Nowadays we seem arrogant sorcerer’s apprentices, endowed with the capacity to forget the immensity of the universe, actors in a world made at Orwell’s world image, creating every day their small history and forgetting to look at the stars.

A quotation about salt by Predrag Matvejevic, a Mediterranean poet, could nowadays be applied to starlight: “ancient wise men said that white salt had to be saved to prevent

dark times”. The parallelism is overwhelming. Nowadays almost nobody talks of these white lights that are hanging in the sky. In several country and cities around the world it would really be surprising seeing an old person showing a child where the Milky Way is, either because it is very difficult to see it or because at that time of the night it is more normal sitting in front of a screen looking at a virtual world. Today more than ever we should assume how important it is preserving starlight to avoid dark times.

A right is in danger, and not the resource itself. For several reasons, for the first time in the humankind history, a large part of world population is living without any contact with the beauty of a starry sky. Suddenly we forgot the magnificence of the universe at night and its powerful aesthetic emotional impact that has been pervading the development of arts, music, poetry, dance, knowledge and science over the centuries. We are rapidly losing the incredible sensation defined by Omar Khayyam as “the heavenly solitude of the stars and roses”.

Only astronomy and dreams, fruit of the imagination awakened by stargazing, can make us rediscover this huge scientific and cultural heritage that humankind has been accumulating through the observation of clear night skies. UNESCO’s thematic initiative “Astronomy and World Heritage” shows us the tight relationship existing between the observation of the firmament and many, still existing sites and monuments which were reference points of cultures and civilizations. They are places of mystery and wisdom based on the “knowledge of stars”. Teotihuacán, Stonehenge, Giza, Carnac, Chichen Itza, Delos, and Jaipur are only a few examples symbolizing this legacy made up of an infinity of artistic and ethnographic manifestations conserved at all latitudes. If we consider stars as a common resource and heritage, we will see that their observation allowed humankind making impressive leaps in its advancement. Time measurement, celestial navigation and the interpretation of the apparent movement of firmament to obtain abundant crops are clear examples of that.

Nowadays nobody doubts of the scientific and cultural values that astronomy and the observation of universe brought us through the ages. But, differently from previous ages, today most people do not have a precise idea of the benefits they bring at present. Several big advances related to communication development, advanced optical technologies, novel materials, infrared technology and even advanced medical image projection systems have to be attributed to modern astronomy development. We know that the universe is a laboratory hoarding an infinity of still undiscovered knowledge, and that day after day new scientific achievements and technological benefits come out from its observation. Therefore we should have a wider perspective of the role of observatories, taking into account that preserving the best sites for astronomical observation that are still available worldwide is not only a need for the development of big science, but also a progress opportunity.

The right to star observation has several other dimensions which directly affect other facets of life. The mere possibility to observe the firmament is without any doubt an important element of citizens’ quality of life. In this sense we should recall that the European Landscape Convention recognizes the need to protect landscapes for their heritage value and as characters of cultural identity, but also as a right of citizens. This rule is

absolutely applicable to nocturnal landscape related with the sky, “natural lightscapes”, as they have been called by the US NPS Night Sky Team. It is rather contradictory that one of the biggest shows in the world, and of the few still available for free, is threatened and so very little valued.

In the last years the scientific community sent the first alerts on the negative effects derived from the loss of clearness and quality of the night sky on biodiversity and on the risk to disturb the habitats of several species. Darkness is indispensable for the healthy functioning of organisms and ecosystems. We usually forget that life lives 24 hours a day and that ecosystems adapted themselves to the natural rhythms of moon and stars during millions of years of evolution.

Unfortunately we still know very little of the actual reach of the disturbance caused by the growing proliferation of irresponsible lighting and the increase in atmospheric pollution. But new researches slowly start supplying us with more precise data on insect and bird mortality, migratory species disorientation, alteration of reproductive habits and cycles, and even new effects on plankton are under study, a heap of unpredictable factors that will surely and decisively influence the biosphere equilibrium. We should be conscious that, if we insist in hiding the stars, we will end losing a substantial part of our natural heritage on Earth. Therefore, the night sky quality dimension should be at least included in the management and conservation of protected areas and critical habitats. Ramsar wetlands, natural areas declared World Heritage Sites, Biosphere Reserves, National Parks, marine sanctuaries, and other protected areas have to face up to a new responsibility: saving life at night.

Among all factors affecting night sky quality, light pollution apparently is the meaningless one. In the last decades a culture based on light wasting has been consolidated. Pointing the largest part of the outdoor lighting flow toward the sky is a supreme act of ignorance, in the same way as believing that over-illumination gives more security or is a symbol of progress. Why, having reached the present state of knowledge and technology, we still insist in glaring a starry sky?

Today we have the technological ability to light intelligently and with a higher level of energy efficiency. It would be enough not to illuminate what does not need being illuminated, using appropriate luminaries and bulbs, or to be able to design lighting using common sense, avoiding the generation of another kind of noise. This would be feasible at a cost which is not a lot higher than conventional systems. Is it any reason to generate sky glow over our cities? During the last years the experience carried out in several areas of our planet, supported by bylaws or pioneer laws such as the Sky Law in the Canary Islands, promoted by the IAC in 1987, showed that it is possible to “light up the night in a different way”. And if we also take into account that 19% of the world energy consumption is attributed to the electricity used to produce light at night, we can easily deduct that protecting night sky is part of the same battle that we fight against climate change. Preventing stars being stolen involves the mitigation of one of the causes of global warming.

Regaining our sky is also opening new windows to sustainable development. The fragile light of stars can become the development engine for several local communities

over the world, through the creation of new tourist destinations and products based on starlight. Without any doubt a starry sky has been and can always be a powerful attraction for many tourist destinations based on the new 3 S's defended by Dr. Iwand: Stars, Skies and Sustainability.

This and other reasons favoured the arising of the Starlight initiative, conceived as an international campaign in defence of the night sky quality and the general right to observe the stars. It is open to the participation of all scientific, cultural, environmental, and citizens' organizations and associations, directly or indirectly related with sky defence. A common effort that aims to strengthen the importance of clear skies for humankind, introducing and emphasizing the value of this endangered heritage for science, education, culture, technological development, nature conservation and tourism, and as a quality-of-life factor.

The first legacy of this initiative has been the Declaration in Defence of the Night Sky and the Right to Starlight, fruit of the effort of several people, organizations and institutions, approved during the Conference of La Palma in April 2007. The general adoption of this Declaration is one of the main objectives of the Initiative, demonstrating that it is possible to turn the defence of the right to Starlight into a permanent commitment, as it says in its first paragraph: "An unpolluted night sky that allows the enjoyment and contemplation of the firmament should be considered an inalienable right of humankind equivalent to all other environmental, social, and cultural rights". This idea of future will be better appreciated after the consolidation of Starlight Reserve proposals worldwide.

Rafael Arozarena, a writer from my homeland, an islander from the middle of the ocean, achieved to synthesize the whole spirit of the Declaration in a beautiful, short poem: "My inheritance was a handful of earth / but of sky / all the universe".