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LEONARDO THINKS

Opinion: Art for the Solar Age

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In July 1973, UNESCO held a Solar Summit in Paris, at which 600 experts mapped a solar future for our planet. An accompanying book, *Le Grand Livre du Soleil* [1], ended with the prediction that a new era for the sun had already begun. Also at that time, the worldwide oil crisis redefined the Solar Age in a very realistic and dramatic manner. People from industry, politics and science began searching for energy alternatives. This process gave birth to better systems in sustainable energy from sun, water and wind, and biomass, thermal and geothermal sources. Solar technologies advanced but, given the increase in the worldwide consumption of energy, the use of sustainable energy sources was insufficient.

The actual quest for a Solar Age is defined by a changing ecological consciousness and the strong demand of the underprivileged three-quarters of the world for a higher quality of life. This quest cannot be based on traditional, nonrenewable energies. And the 10-billion-person population expected 20 years from now will not be able to live human lives based on our present Western standards of energy consumption. This is far more than a technical problem. If the shift towards a Solar Age is to stabilize our civilizations, the shift must be a cultural one. Ecological stability, which must be our aim at the beginning of the new millennium, must rely on cultural change securely anchored within the different societies of our planet. Art is part of a continuous critical and creative reflection on our life within the biosphere.

Solar symbols and icons appeared in the very beginning of human history. Solar mythology is a common link between cultures from all parts of the world. Today, solar art-artwork directly exposed to and relying on the sun-includes a variety of technical and technological means, instruments and materials. Among other elements, solar art may include photovoltaics, wind and water power as renewable sources of energy. It can include outdoor holograms, mirrors, glass prisms and other reflecting materials. In 1995 and 1996, *Leonardo* published texts on a broad spectrum of solar art, design and architecture in a special section called the SolArt Global Network, which I

edited [2]. Since that time, the scale of solar art has been expanded and new works have been added. Sally Weber created her colorful solar installation, *Matrix*, for the entrance of the public library in Ventura, California. The installation appears similar to stained glass but was fabricated using advanced technology to laminate digital color film within glass panels. With the *Solar Icosahedron* in Geislingen, Germany, I added one more large solar sculpture to my own body of work. The piece has 20 triangular faces; the five upper faces are made out of photovoltaic cells laminated onto glass. The cells produce the energy needed to rotate and illuminate the glass body of the sculpture.

All solar media cause us to experience the fundamental cycle of the sun. James Turrell's magnificent *Roden Crater* isone if not theh ighlight of the recent artistic celebration of cosmic energies. The spaces inside the crater are reminiscent of ancient astronomical observatories. At the same time, they are three-dimensional screens made to receive light from the sun or the moon. Some solar artists include arguments for an environmental strategy in the context of their work. California-based artist Peter Erskine combines large-scale solar installations with social, political and ecological arguments. People visiting his shows participate in an artistic "metaphor for the cultural interaction with Solar radiation and the resulting damage to the Biosphere.... The sun can fry us, but it also sends to Earth 35,000 times the energy we burn in fossil fuels each day. Solar energy is clean, universal and plentiful for the next 4 billion years. It's a big part of the solution that's been ignored" [3]. In the course of the long history of art, it is not an unusual practice to convey a message through the written, painted or sculpted work. Only recently has history opened the playground for *l'art pour l'ar*t. Art for the Solar Age returns us to the basic human understanding of cosmic time and space.

Architecture offers another means to integrate solar art into the structure of a building. The European Charter for Solar Energy in Architecture and Urban Planning, whose signatories included such architects as Norman Forster, Nicholas Grimshaw, Thomas Herzog and Frei Otto, postulates new design concepts that will increase awareness of the sun by means of convincing ideas and examples. Recently I participated in the European Commission research project Development of Bi-functional Photovoltaic Modules for Building Integration (BIMODE). The objective of the project was to create aesthetically attractive modules with solar cells in triangular or hexagonal form, the principal colors being steel blue, blue-green, magenta and gold. The structure, modularity and rhythm of the BIMODE modules were an important operational concept. In this respect, new solar modules, created by artists in close collaboration with the research departments of industrial companies, could relate to the rich, aesthetic pictorial and architectural tradition of the 20th century.

The concept of the Solar City is a crucial one for the present and the near future. Urbanization of the world population is increasing rapidly. Sixty percent of the world's people already live in urban environments. Cities can play a vital role in shifting energy consumption from nonrenewable and toxic energies towards solar, renewable energies. Environmental models for sustainable growth use the annual CO_2 emission per person per year as the universal indicator of the environmental health of a city. Approximately 3.3 tons per person is regarded as the stabilizing level of CO_2 concentration in the far future. Today's emissions are about 30 tons per person in many cities.

Programs for integrating solar energy in the city are under way but are far too rare.

"A single building," writes architect and theoretician CharlesJencks, "can celebrate a better world or signify a change in direction. It has the power to engage the imagination and symbolize the basic truths of the universe" [4]. One aim for the near future would be to build prototype solar houses that incorporate solar energy in a convincing visual and aesthetic expression. The lesson should be: Form follows energy.

Endnotes

[1] R. Christinger, JosephJobe et al., eds., *Le Grand Livre du Soleil* (Lausanne, Switzerland: Edita. Denoel, 1973).

[2] Juirgen Claus et al., Special Section: "SolArtG lobal Network," *Leonardo* 28, No. 2, 143-147; No. 3, 231-236; No. 4, 325-329 (1995); 29, No. 1, 67-71 (1996).

[3] Gretchen Woelfe, "Genesis of Secrets of the Sun. Interview with Peter Erskine," in *Secrets of the Sun*, exh. cat. (Rome: Italian Section of the International Solar Energy Society, 1992) p. 32..

[4] CharlesJencks, *The Architecture of the Jumping Universe* (London: Academy Editions, 1995) p. 21.