Holographical pictures
–frozen in space and time
Bodo Dorra

"Three-dimensional reality has been of interest to all artists since Velazquez, Picasso's analytical cubism is a trial by modernism to come near to the three dimensions of Velazquez. Thanks to Gabor's genius an artistical renaissance is possible today–for me the door is opening onto a new artistical area of work."

Salvador Dali

The scenographic laser-space structures in the opera "Mind of Universe" by Isao Tomita, visualized during Ars Electronica 1984 are part just like the computer and video art presented and the holograms exhibited in the Nordico Museum–of the so-called "artificial" and "Apparatus-Art".

In his article "Projects of Generative Aesthetics", published in 1965, the theoretician of science, Professor Max Bense, defines the aesthetical products of computer design as "artificial art". As different than "natural art" the artificial arts need an intermediary scheme between the creator and the opus–the program and the programming language. Furthermore the artist uses an apparatus, e.g., a plotter for the production of computer graphics. The laser designer and holographer also uses an intermediary device for his realizations–the LASER, as well as accessories like lenses, mirrors and ray dividers. The difference between "natural" and "artificial" art is evident.

In the following we will not dispute the question of whether these visualization realized by the means of technique may be called art or not. This polemical discussion has been led at least since the invention of photography and answers have been given for years.

We will rather talk about artistic holography of images, which Salvador Dali chose to call the "cubism of our time".

"Pictures–near to be touched", "fascination of the immaterial", "light sculptures of the 21st century", "artificial spectres behind glass", but also "medium between kitsch and art"–these are some other descriptions trying to grasp the meaning of those three-dimensional images. Disconcertedness, but also rejection of those "brilliant jewels" is large, as our traditional visual and spiritual approach is questioned as well as the traditional standards of art.

This is obvious, for to see a thing or a living creature right in front of us, three-dimensional and within our reach–and nevertheless not being able to touch it–this must be a provocation to our visual apparatus. There, where something seems to be–there is nothing. Or is it there? What is holography? The word derives from Greek "holos", meaning whole, total, unharmed, and "graphein", meaning "to write". As the term itself inspires, the object (in contrast to photography) is taken up wholly from all sides and stored with all spatial and optical informations. When seen with the holographic plate or watched through the holographic film coated with a special emulsion the "frozen" object appears in three-dimensional space.

It was too easy to understand, that this medium, the first to allow the three-dimensional reproduction of objects, would be used as a new means of artistical design and expression since the end of the sixties. S. Dali can be numbered among the first holographic artists. In the years 1972—75 he realized–in cooperation with scientists and holographers–among others the

holographic collages "Polyeder", "Sub-marine Fisherman" and "The Shepherd and the Siren". With the above quotation S. Dali characterized together with the Swedish artist C. F. Reuterswärd and the American Bruce Naumann the corresponding and symbiotic relationship between science, art, and technology, which is also the basis of holography. Why so?

For Dennis Gabor, to whom holography was the "opening of the third dimension", for instance, it was necessary to have artists like Dali, artists who create new means of artistical expression, which will not be possible without the "connection of art and the modern sciences and technology".

This means that holography can be defined–in the sense of a corresponding "apparatus art" as a symbiosis of science, technique and art. As is to be seen, holography may also be described as a "technological achievement of kinetic art", as the theoretician of arts, professor Frank Popper once put it.

Viewed in this light, the works of the holographic artists may be described as a provisional optimation of light-kinetical projects and utopias, as envisioned by the pioneers in the twenties and thirties (Baranoff-Rossiné, Raoul Hausmann, Alexander Laszlo, Ludwig Hirschfeld-Mack, Kurt Schwerdtfeger and Laszlo Moholy-Nagy), and which were taken up in the fifties and sixties by Frank Malina and the groups "Zero" and "Recherches d'Art Visuelle".

In the meantime the number of holographic works has increased to an incalculable extent. This multitude can be divided into four categories:
— realistic visualizations
— realistic-abstract visualizations
— abstract visualizations
— holographic collages and montages.

The representatives of realistical holographic art are object-oriented artists using realistic models and materials in order to achieve partially hyper-realistic reproductions of the originals.

Among these rank for instance the English Professor Nick Phillips, the American Rick Silberman, the Soviet-Russian Prof. Denisyuk and from the Netherlands Walter Spierings.

So, for instance, Nick Spierings realized a hologram, astonishing through its well-balanced simplicity. The hologram shows a simple water-tap in a milky shade of green light and standing out of the picture's frame, so that whoever watches it, is tempted to grasp for it. If he tries to, there is nothing. But mostly the artistical pretension of the immensely numerous works of this category is rather modest. The validity of critics, stating that these works are in the danger of too simple and commonplace a reproduction of objects, cannot be denied. Although the hyper-realistic reproduction of objects in the sense of a total visual tautology may be seducing, it is limited in most of the cases–partially by the choice of the motives–to cheap sensationalism.

Among the artists of a realistic-abstract holographic visualization integrating concrete and objectless elements in their work, rank, for instance, the German Harald M. Mielke, the Americans Dan Schweitzer and Michael Wenyon and the Canadians Marie-Andrée Cossette, David Hylnsky and Michael Sowden.

Very impressive is the use of real and abstract elements in Dan Schweitzer's hologram "The Seed", consisting of 16 different holograms. Depending on the angle of view and the standpoint of the observer, the latter gets continuously changing information and views. So, for instance, in the depths of the holographic space, the observer can identify Einstein's portrait emerging from abstract shapes. The whole of the separate holographic elements of the image are nevertheless in direct connection to each other, they are corresponding to the holographic system "The Seed". This maybe most remarkable hologram of the past few years reminds us of what the nuclear physicist Fritjof Capra once said: "There are no isolated basic elements in nature, but nature is a complicated network of contexts between different structures, thus forming an inseparable entity".

The abstract holographic visualizations sometimes show a network of spiralled interlaced lines of symmetrically-asymmetrically placed areas or solids seeming to float in the depths of space. Partially they show configurations generated by a computer. Hence it is possible to produce so-called computer-generated "fractalia" in the form of areas or solids, which in reality do not exist. Here we have to place the utopian-abstract visualizations by R. Berkhout and the flat colour areas by the German Dieter Jung. The latter represent transformed energy, condensed to give immaterial structures, while space–filled with energy–serves as a projection body. The constant efforts of the holographers and holographic artists to integrate pictorial, sculptural and holographic elements by using techniques of collages and montages, have led to interesting results in the last years. At the international holographic exposition "Licht-Blicke" of the German Film Museum in Frankfurt/Main (June 6th through September 30th, 1984) these tendencies of artistical collage and montage holography (of which S. Dali is a pioneer), are illustrated with impressive examples. Some of the realizations, reminding one partially of the Object Art of the sixties, combine holograms or holographic environments with real objects and pictorial techniques to complete or alienate them.

Some of the exponents of this holographic school are (among others) Brigitte Burgmer, Jean Gilles, Setsuko Ishii, Adrian Lines, Andrew Logan and C.F. Reuterswärd.

Here we could only sketch the broad spectrum of artistical holography. International exhibitions all over the world document the artistical value of this fascinating medium.

Nevertheless holography is relatively unknown to a larger public, although the number of those who deal with it is constantly increasing. One of the reasons may be, that the observer does not yet have the necessary capacity of reception, i. e. the recipient must get rid of many restraints and habits in order to be open for this "art without an historical safety-handle".

And the critics? If it is their duty among others to inform critically and clarify new media in the arts, they will not help holography to a break-through by sentences as idly reactionary as "Holograms will be out of date before holography even has come of age". They may (or will) not understand, that artistical holography has meanwhile achieved what has been utopian in art for centuries: The fixation of the illusionary, the realization of visions, suspended in the air like a Fata Morgana. The border line between reality and imagination is wiped out, a moment of metamorphosis is reached, when an object, a line or an image is right on the point of transforming itself into something different. Besides, holography has stimulated the spiritual potential to enlarge the creative potentials of reception.

C. F. Reuterswärd, who sees in holographic art (and in slumber) one of the few possibilities to overcome earth-bound gravitation, says about the three-dimensional freezing of reality:

Where was the simultaneous absence of past and future? Where was time? Where did light lose its age and time its shadows? Where did eternity go out for a rest? In the HOLOGRAM."

Holographic pictures–Frozen in Time and Space–Fascination of the Immaterial–Fascination of Light.

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