Galaxie Cygnus-A

Sunday, September 26, 1982, 8:00 p.m., Austrian Broadcasting Corporation, Regional Studio of Upper Austria, Linz, Franckstraße 2 a

GALAXY CYGNUS-A

Premiere Idea and entire concept: Michael Weisser Performance: Robert Schröder, music Michael Weisser, visualization LP-realization: Robert Schröder Video-realization: Michael Weisser The project has been accomplished with the kind support of the Max-Planck Society for Radio Astronomy in Bonn and the technicians at the 100m radiotelescope at Effelsberg /Eifel. We want to thank the staff of the ERNO-RAUMFAHRT (space technology) Bremen for their technical advice.

GALAXY CYGNUS-A

For two years the project "Galaxy Cygnus-A" had been on the desk of its author as a science fiction short story before being adapted for live performance at this year's Ars Electronica within an international Science Fiction Symposium in Linz.

The photo-designer and writer Michael Weisser from Bremen has conceived the idea and is responsible for the coloured projection of this unusual 55-minute piece.

Images and sounds originate in the radiation of the radiogalaxy Cygnus-A which belongs to the constellation Cygnus, 1050 million light-years from our planet Earth.

The radiation of Cygnus-A is received by the world's largest pivoted telescope at Effelsberg/Eifel and transformed into audible frequencies. The resulting so-called "white noise" stimulates the listener's imagination by its monotonous drone. Continuous exposure to this white noise of Cygnus-A creates a meditative mood; sounds can be heard, images can be seen. The audience can perceive the images of their own imagination.

The photo-designer Michael Weisser and the musician Robert Schröder have transformed their visions into colour-slides and into electronically produced sounds and together have achieved a synchronization of these two media.

Image and sound have been tuned by a tenth of a second and the special technique of soft fading from one large-scale projection to the other produces striking blends of highly aesthetical colour and shape patterns. Out of 1200 individual exposures 160 slides were selected to be transmitted to a screen by two projectors in accordance with the different musical moods.

The spectators are seated close to the 12 square-meter screen and through the unusual size of the projection they are incorporated into the realms of the visionary pictures.

Like the music, the pictures are open to diverse interpretation: they are novel and unusual, they alternate between harmony and disharmony, between order and disorder, and they are part of a comprehensive dramaturgical design. The audience has the opportunity of participation by individual interpretation of the pictures and sounds.

The aesthetic event is to offer stimuli, to inspire the imagination of the participants, and to exemplify that the "voice" of a distant galaxy far from our solar system is at the same time "alive" in every individual part of the universe.

The project "Galaxy Cygnus-A" will be recorded on an LP by IC/Winsen and a stereophonic colour-videocassette in a limited edition.

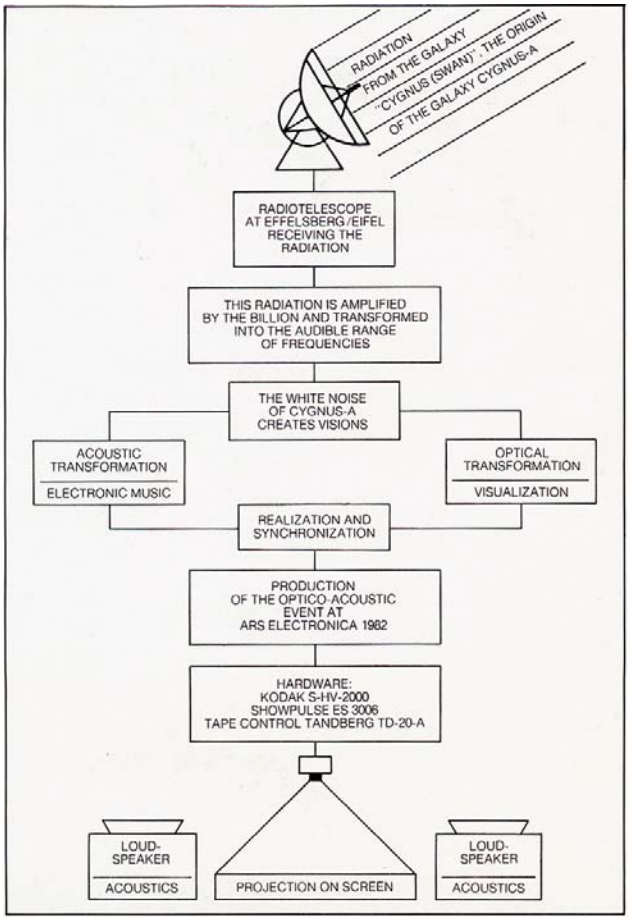
PREAMBLE

The idea for the optic-acoustic event "Galaxy Cygnus-A" originated in the literary science fiction repertoire of the writer and photo-designer Michael Weisser who has found a congenial partner in the electronics engineer Robert Schröder.

The visions underlying the project fuse the two creative spheres of art and science.

"Galaxy Cygnus-A" is beyond human sensory perception: it can neither be seen nor heard, neither smelled, tasted nor felt … and yet elaborate technology enables us to perceive an "apparition" of this radio source 1050 million light years off our planet:

The white noise … reaching our ears like a distant whispering: … Do you hear the voices of Cynus-A In our minds there lives Cygnus-A We are part of Cygnus-A … In the white noise of wavering chants Are embedded colours and shapes and sounds As we listen to standards we feel enhanced And hear words and songs from beyond our bounds … Do you hear the voices of Cygnus-A Out of distant space of Cygnus-A Out of our dreams emerges Cygnus-A Do you hear the voices …



THE OPTICO-ACOUSTICAL EVENT

The white noise of the radiogalaxy Cygnus-A becomes the basis of an optico-acoustical event to be first performed at Ars Electronica 82.

The beam of signals is received by the radiotelescope at Effelsberg /Eifel to set off an unprecedented artistic project: Rumble … Currents flow … Forces act…

3200 tons of steel construction are being moved. A perfect technology obeys the commands of a computer program. The world's largest pivoted radiotelescope reaches the coordinates of the constellation "Swan", the position of the galaxy "Cygnus-A".

á 50–19h.57m.44s.4

ä 50 = 40°.35'.45"

From a distance of 1050 million light-years the rays meet the 100 m reflector.

The white noise sounds like the eternal rolling of the sea out of which life has emerged, it sounds like the enthusiastic applause of an audience in praise of creation.

The white noise of Cygnus-A comprises the opportunities and limitations of life, it bears vision as well as reality.

The white noise irradiates the infinity of the universe at light velocity, it is the chorus of life singing of the birth of the planets, of the heat of the suns, of the forces of gravitation and of burnt-out slag shells. The cosmic voices tell of Red Giants and White Dwarves, of black holes, of dying stars und pulsars … and we listen to the chants, strange and yet familiar, until we see the images, the colours …

THE TRANSMITTER

Cygnus-A, also called 3C405, is a radio source in the constellation "Cygnus-Swan".

With a power of 10^{38}, Watt Cygnus-A is one of the most powerful radio sources registered hitherto in the whole universe.

Having discovered the optic phenomenon in the range of Cygnus-A in 1946, radio astronomers took some 5 years to detect two exceedingly powerful radio sources within the visible phenomena of the giant D-type galaxy.

At the 5 km radiotelescope in Cambridge a powerful radio structure was registered on the 6 cm wavelength at an observation frequency of 4750 MC/s: It was the radiation of Cygnus-A, now constituting the source of this artistic event.

THE RECEIVER

With a reflector diameter of 100 m the radiotelescope at Effelsberg is not only the largest fully-pivoted receiver but it can also be used for the minimal wave length of 7mm due to the reflector's high surface precision. The radiotelescope is connected to the Max-Planck Institute/Bonn which is concerned with practically all problems arising in the field of observing radio astronomy.

For data reduction, the radio observatory at Effelsberg is connected to the CYBER 172 computer in the Bonn Institute.

Technical data of the radiotelescope: Reflector diameter 100 m Antenna surface 7850 m^2 Tolerance ±1 mm

Focal distance 30 m Diameter of auxiliary (Gregory) reflector 6.5 m Reception range at 6 cm wave length 2.5' 1.2 cm wavelength 35" Diameter of railtrack 64 m Adjusting tolerance ±0.2 mm Pivoting range ±360° Radius of gear rim 28 m Tipping angle from 7° to 94° Total weight 3200 t Construction period 1969-1971 Start-up 1972 Position coordinates towards the galaxy Cygnus-A: Azimuth 118°4'56" Elevation 72°50'48" Polarisation LHC Lobe 2,5 AZM 2,35 ELV Receiver 6 cm-FIX secondary focus

THE MESSAGE

The radiation of the radio source Cygnus-A has covered a distance of 1050 million light-years before reaching the surface of our planet Earth. Meeting the reflector of the 100 m radiotelescope at Effelsberg, the radiation is amplified a billion times by powerful electronics and transformed into the range of sound frequencies. During this transformation the signal heterodynes the noise produced by the amplifier itself and thus modifies the acoustically perceivable phenomenon in a special way. The signal from Cygnus-A provokes a special form of communication established only by the immediate interaction of transmitter impulse and receiver electronics. The content of this message has not yet been explained! Transformed acoustically, the signal of Cygnus-A consists of densely packed non-periodic oscillations combining into a single compact sound: the white noise. The question as to the meaning of this open message must be put by the listener himself … he will find the answer in the images and sounds revealing themselves to him. The event Cygnus-A is nothing but an inspiration!

MICHAEL WEISSER Born 1948 Worked in a research laboratory of the chemical industry/Bonn. Studied experimental painting, design und photography/Köln. Studied history of art, sociology, communication sciences, and pedagogy/Marburg and Bonn. Art exhibitions. Artistic multivision-shows. Concerned himself with art in the public sphere (exhibition, catalogue, article). Edited various books on the topic "Aesthetics of Everyday Life–Documents on the History of Design". Occupied with visionary photography. Author of science fiction novels (Syn-Code 7 and DIGIT, Suhrkamp edition).

THE TEAM OF ARTISTS

The photodesigner Michael Weisser and the electronic music composer Robert Schroder drew their inspiration from the white noise of the radio source Cygnus-A. They concentrated on the non-periodic oscillations which combine into a single noise and have captured their visions in images and sounds. The acoustic part of the project has been recorded on an LP, edited by IC in Winsen/Aller. The complete opus is presented as a synchronous composition of image and sound on an artistic colour video-cassette.

ROBERT SCHRÖDER Born 1955, guitar lessons at the age of 11. First band at the age of 13. Interested in electronic production of sounds since 1970.1974 studies in information technology. 1979 first LP "Harmonic Ascendant". 1980 second LIP "Floating Music". 1981 third LP "Mosaique". Author of the book "Sequencer–A Music-Computer?" (1980). Work on sound track music. Studies in computer technology. Digital-electronic compositions.