

ELECTRONIC THEATRE



Welcome to the SIGGRAPH '91 electronic theatre. We received an unprecedented 440 entries from 18 countries, nearly 20 hours of material. The extraordinary achievements described in the following pages deserve the utmost respect.

We also sincerely thank the following individuals for their efforts on behalf of this production.

Dick Adams
Susan Amkraut
Charlie Athanas
Michael Bailey
Jim Bartolomucci
Forest Baskett
Rick Beach
Kenneth Beckman
Lois Blankstein
Dave Bonner
Maxine Brown
Rob Burgess
Carol Byram
Leona Caffey
Jeff Callender
Loren Carpenter
Rachel Carpenter
Toni Pace Carstensen
Mathews Cherlan
Huguette Chesnais
George Coates
Conrad Coffield
Ian Daniel Tanaka DeFanti
Tom DeFanti
Mike Dennis
Raymond Drewry
James Duesing
Digital Equipment Corp. mail room

Ritch Fahrnam
Jim Fahrney
Phyllis Finnemore
Beth Fralkorn
Lisa Fremont
Donald Gaubatz
Branko J. Gerovak
Bill Gibson
Deborah Gibson
Rich Gold
Andrew Goodrich
Philip Hack
Stephen Harrison
Robin Hathaway
Larry Henley
Pierre Henon
Christopher Herot
Brian Herzog
Doug Hesseltine
Jeff Heusser
Greg Hopwood
Malcolm Miguel Horn
Doug Hunt
Kim Hunter-Em
Hirofumi Ito
Joichi Ito
Penn Jillette
Michael Keeler
Breene Kerr
Jean H. Kim
Scott Kim
Nicholas Koenig
Robert Kushner
Jeffrey Lane
Tony Levy
Bruce Lilly
Betty Lynch
Richard Mandenberg
Lisa Masciarotte
Ed McCracken
Ian McDowall
Frank McLanis
Ladd McPartland
Jody Miller
Molly Morgan-Kuhns
Michael Naimark
Jim Nevin

Kathy Nilles
Mark Ober
Timothy Parker
Carol Peters
Lucy Petrovich
Stuart Pettigrew
Rob Pike
Donna Plepys
Tom Rieke
Macey Rosenthal
Nancy Rosenthal
Sylvie Rueff
Joan Ruppert
Dan Sandin
Adam Schadle
Don Schreiter
Monica Schulze
Lance Scott
George Shapiro
Jo Ann Shapiro
Karl Sims
Joel Slayton
Raymond Snow
Cindy Stark
Beau Takahara
Masaru Tamamoto
Kathy Tanaka
Marlene Tepper



This is a stereo pair of images. For optimum 3D effect, use the stereo viewer in the back of this catalog. The viewer should also be used with the stereo images on pages 2, 11, 18, 19, 52, 53, and 55.

Sally N. Rosenthal

Sally N. Rosenthal
Digital Equipment Corporation
Chair

Johnie Hugh Horn
Big Research
Director

Opening Sequence

00:40

Produced by:

Eurocitel

Wild ideas are visualized using custom particle system software. The PartAnim system combines language and WYSIWYG interactive capabilities to provide artists with immediate feedback.

Director:

Nicole Croiset

Story Board:

Gerald Gorridge

Scenario:

Nicole Croiset

Graphic Design:

Gerald Gorridge

Modeling:

Nicole Croiset, Bruno Cappello

Head Sculpture:

Lassaad Hammar

Body & Head Animation:

Frederic Nagorny

Particle Animation:

Alain Chesnais & Nicole Croiset

Head Laser Scan:

Institut National de l'Audiovisuel

Calculation:

Sun Microsystems France

35mm Output:

Eurocitel

Score:

Studio Mergithur

4 Track Digital Sound:

LC Concept

Special thanks to the French Ministry of Culture and Communication, Centre National de la Cinematographie for financial support of this project, as well as Sun Microsystems France for the use of their full network of Sparcstations for the final calculations and the staff of l'Ecole d' Art d' Angouleme for their enthusiastic support.

Hardware:

Macintosh, PC,

Sparcstation

Software:

Modeling — Zoom (Abvent)

Particle system — PartAnim

(Alain Chesnais)

Body animation — Procede RELIEF

(Raymond Perrin)

Contact:

Alain Chesnais

Studio Base 2

121 Route de Bordeaux

16000 Angouleme France

tel 33-45-928-411

fax 33-45-958-730





**The Ancient World Revisited
(excerpt)**

00:45

Produced by:

Taisei Corporation

This animation was originally produced for the NHK documentary series "The Treasure of the British Museum." It aims to reproduce as accurately as possible the architecture and cityscapes of ancient civilizations such as Ur, Ab-simbel, and Tinochtitlan, based on archaeological and architectural data. Produced in HDTV. NHK, NHK Enterprises

Hardware:

VAX8530

Symbolics

IRIS 4D/25TG & IRIS 4D/240S

Software:

GDS, Symbolics, Links, Explore

Contact:

Makoto Majima

Taisei Corporation

Design & Proposal Division

25-1, Nishi-Shinjuku

1-Chome, Shinjuku-ku

Tokyo 163 Japan

tel 81-3-3348-1111

fax 81-3-3345-6256

The Astronomers

03:45

Produced by:

Kleiser-Walczak Construction Co.,
in association with Santa Barbara
Studios.

Cosmic phenomena are
visualized for KCET's series, "The
Astronomers."

Directed by:

Jeff Kleiser and Diana Walczak

Technical Directors:

Richard Baily

John Grower

Hardware:

Tektronix XD88

Hewlett-Packard 835

Apollo DN1000

Software:

Santa Barbara Studios proprietary

Wavefront Technologies

Contact:

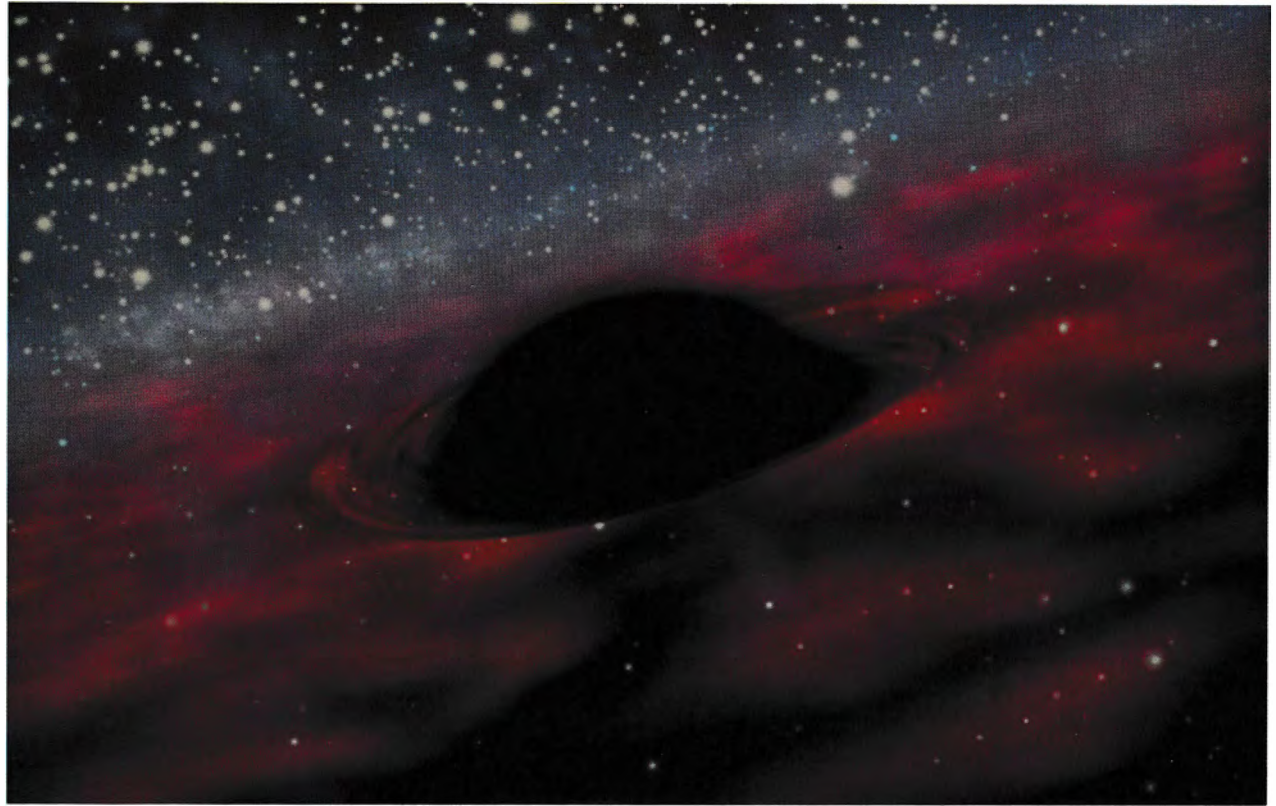
Jeff Kleiser

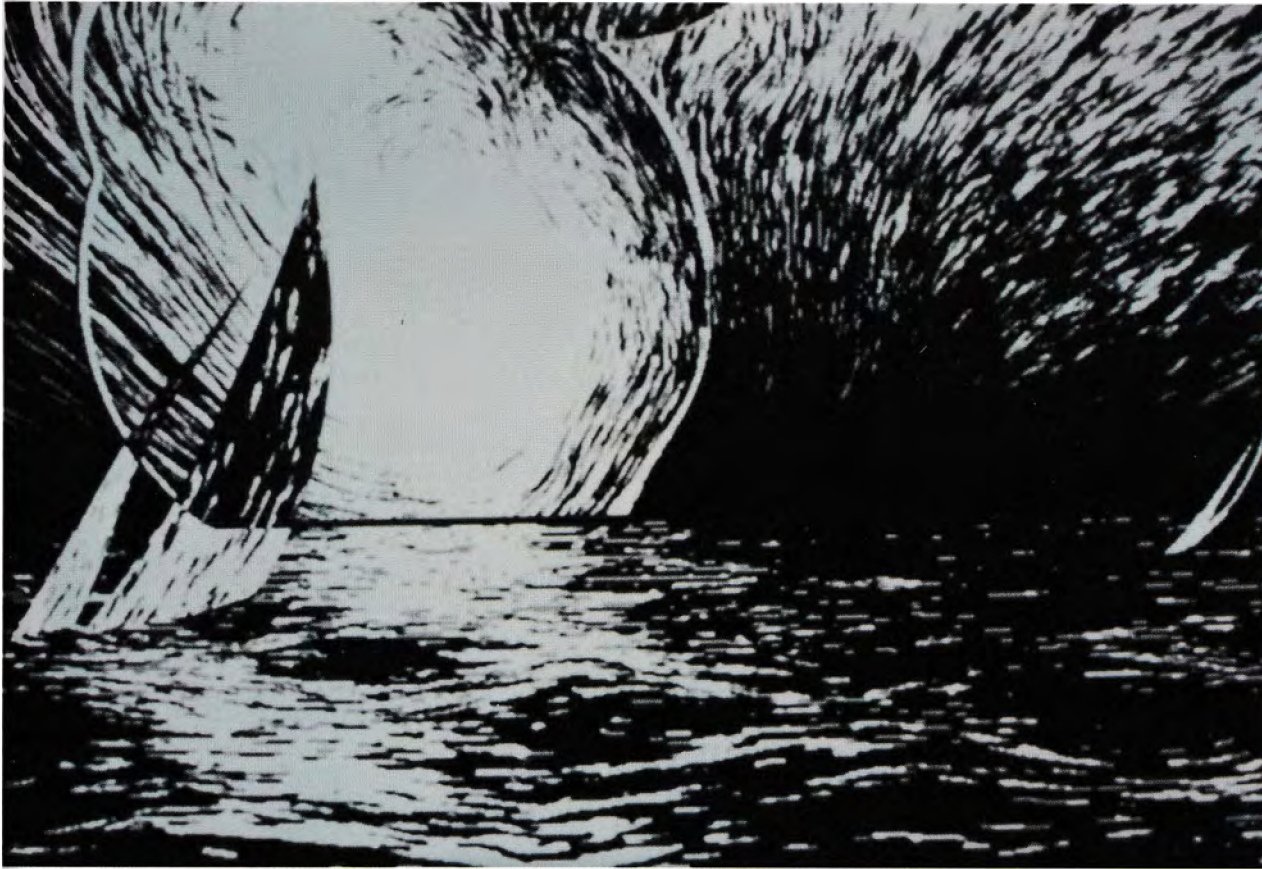
6105 Mulholland Highway

Hollywood, CA 90068 USA

tel 213-467-3563

fax 213-467-3583





**Broadcast Designers
Association Open**

00:25

Produced by:

Xaos Inc.

Completely synthetic imagery is used to create a black and white animated woodblock effect.

Design, Art Direction & Animation:

Michael Tolson

Hardware:

Silicon Graphics workstation

Abekas A60

Software:

Xaos proprietary

Contact:

Helene Plotkin

Xaos Inc.

350 Townsend Street, #101

San Francisco, CA 94107 USA

tel 415-243-8467

fax 415-243-9562

Clear Mind & Kooshball

00:50

Produced by:
MetroLight Studios, Inc.

Clear Mind

Fluidity of head shape in Clear Mind is achieved by moving various wave patterns through a geometric database. Particle system effects are used to create illusions including smoke, aerosol spray, and waterfalls.

Executive Producer:
Dobbie Schiff

Producer:
Paul Hettler

Assistant Producer:

Gayle Reznik

Art Director:

Steve Martino

Senior Technical Director:
Tim McGovern, Tom Hutchinson
& Jerry Weil

Technical Director:
Mark Lasoff

Illustrator:
Cliff Iwai

Modeler:
Eduardo Batres, Con Pederson,
Bill Kent

Software Designer:
Rob Rosenblum, Yun-Chen Sung

Client:
Golden Era Productions

Art Director:

Alan Battino

Director:

Mitchell Brisker

Producer:

Karen Priori

Hardware:

Alliant FX40-4

Solbourne 5-604

A 60 Abekas

Celco Film Recorder

Silicon Graphics workstation

Software:

MetroLight Propriety Software

Kooshball

Kooshball was created as an experimental piece to demonstrate strand dynamic simulation.

Programmer & Technical Director:

Robert Rosenblum

Hardware:

Silicon Graphics Personal Iris

Software:

MetroLight Propriety Software

Contact:

Dobbie Schiff

MetroLight Studios, Inc.

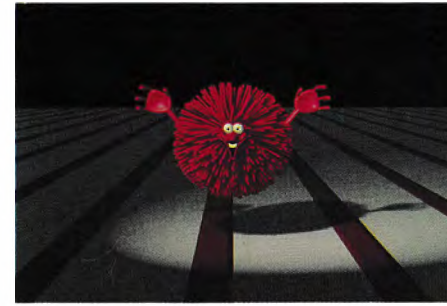
5724 West 3rd Street

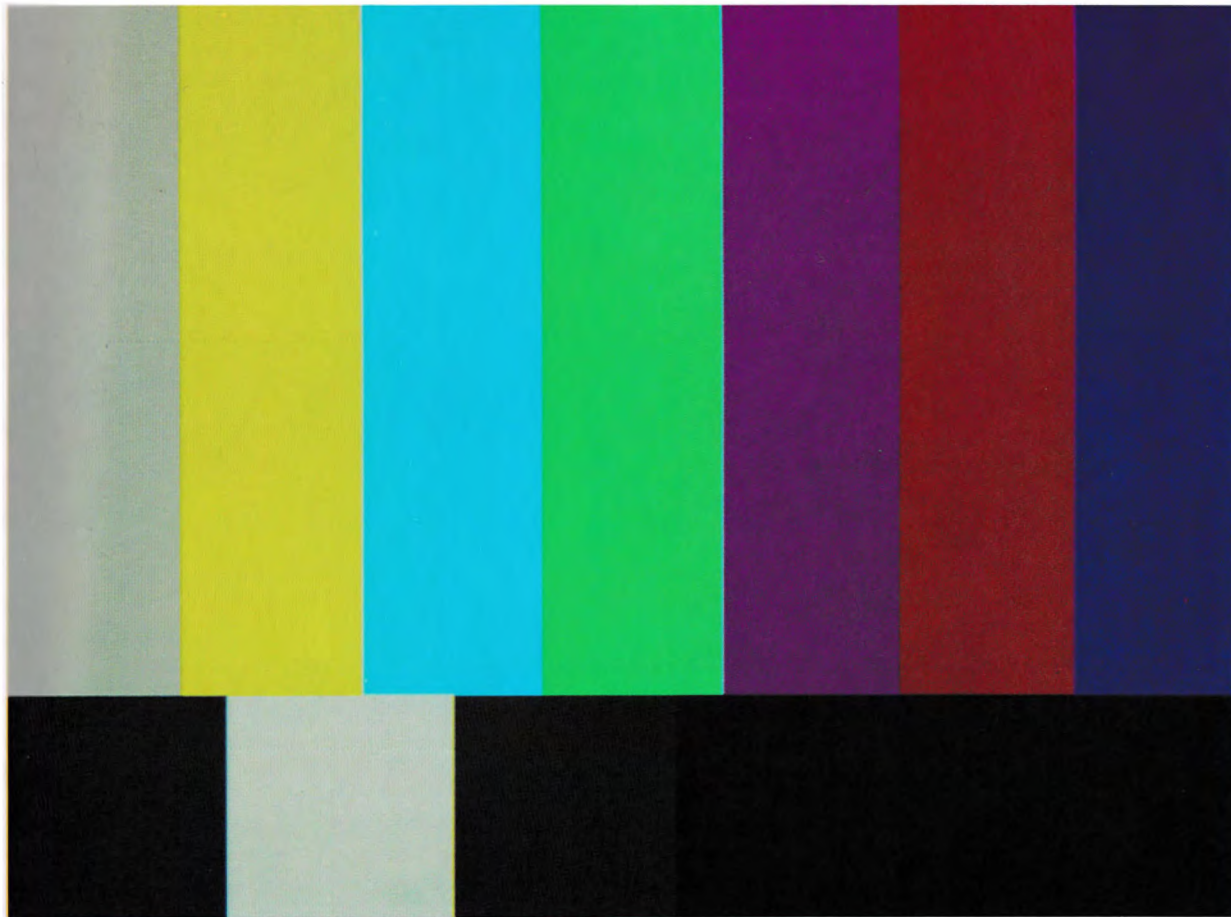
Suite 400

Los Angeles, CA 90036 USA

tel 213-932-0400

fax 213-932-8440





Color Bars

01 00

Produced by:

Michael Keeler, Kubota Pacific
Computer

Muscular Color Bars:

Producer:

Polygon Pictures, Tokyo

Designers:

Takashi Fukumoto, Takashi Kubota

Flush Bars:

Intelligent Light, Fair Lawn, NJ

Production Manager:

Jeanne Mara

Animator/Technical Director:

John Chekan

Modeler/Assistant:

Shane Wagner

Animator/Technical Director:

Gordon Acocella

Monkey Bars.

Douglass Turner, Advanced

Technology Group, Apple

Computer, Inc.

Helga Thorvaldsdottir, Kubota

Pacific Computer

Rendered Fat Bars:

Mike McKinney

John Ashlee

United AshMac Megacorp,

Portland, OR

Color Bar Improvisation.

Vibeke Sorensen, CalArts

Software:

Wavefront Advanced Visualizer

Custom Software:

Phil Mercurio

Produced at:

SDSC/AVL

Wet Bars:

Computer Animation:

Xaos Inc., San Francisco, CA

Animator:

Ken Pearce

Produced by:

Colossal Pictures, San Francisco,

CA

Color Bars:

Richard Childs, Colossal Pictures

Music:

Mark Mothersbaugh

Created for:

MTV's Liquid Television

Contact:

Michael Keeler

Kubota Pacific Computer

2630 Walsh Avenue

Santa Clara, CA 95051 USA

tel 408-748-6314

fax 408-748-6301

Cosmological N-Body Simulations

00:45

Produced by.

Massachusetts Institute of
Technology

Cosmological N-Body Simulations model the formation and clustering of galaxies, using large numbers of particles representing clouds of dark matter, which move according to Newton's laws in an expanding universe.

James M. Gelb and Edmund Bertschinger, Dept. of Physics, M.I.T.

Hardware:

IBM 3060 600J Supercomputer

Software:

Particle-Mesh N-Body code by Ed Bertschinger and Jim Gelb

Contact:

Peter Richards

Massachusetts Institute of
Technology

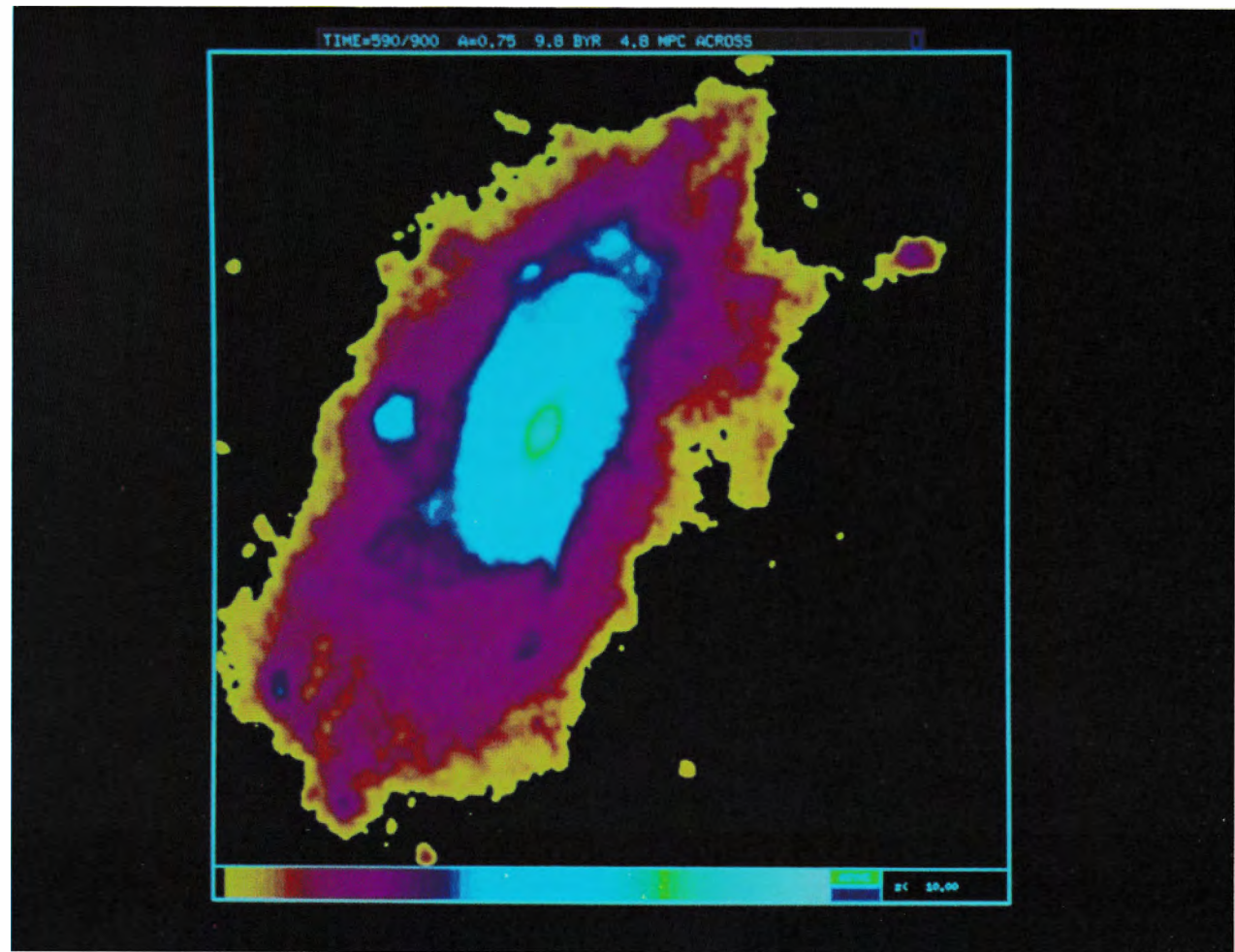
Technology Licensing Office
Building E 32-300

28 Carleton Street

Cambridge, MA 02139 USA

tel 617-253-6966

fax 617-258-6790





Digitaline

01 30

Produced by:

Edem Production/AGAVE S.A.

Finger games — Naughty games

Script, Animation and Computer

Graphics:

J.F. Matteudi

Music:

G. Fournier

Hardware:

Apollo and Hewlett-Packard

workstations

Software:

Synthetic Video

Contact:

Jean Francois Matteudi

Agave S.A.

67 Rue Robespierre

CAP 108

93558 Montreuil Cedex France

tel 33-1-48-57-89-06

fax 33-1-48-57-93-32

Don Quichotte

02:20

Produced by:

Videosystem

In the famous episode of the battle against the windmills, Don Quichotte demonstrates the ability of computer graphics to animate a hero of mankind's collective imagination, linking a long-standing myth to state-of-the-art technology.

Script and Computer Graphics:

Francois Garnier

Animation:

Bruce Krebs, Xavier Duval,
Pierrick Brault, Alain DeHoe,
Francois Garnier

Music:

Alain Le Douarin

Hardware:

Silicon Graphics 4D-25,
4D-380VGX

Polhemus Tracker

Software:

Explore TDI

Contact:

Alain J. Guiot

Videosystem

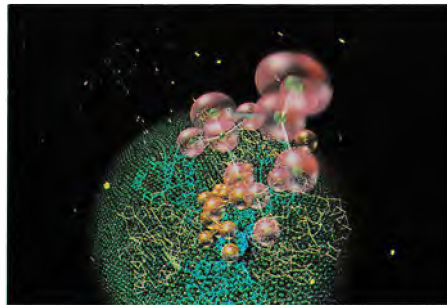
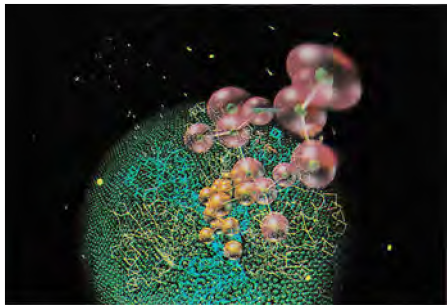
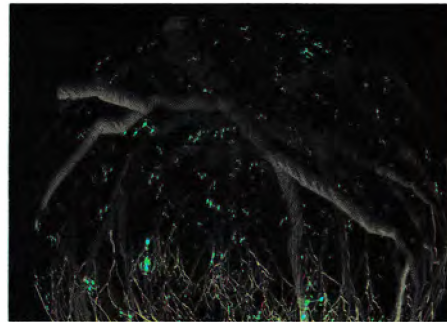
107 Rue du Fg. St. Honore

75008 Paris France

tel 33-1-42-56-42-33

fax 33-1-45-63-68-35





**Echoes of the Sun
(excerpt, stereoscopic)**

06:00

Produced by.

Imax Systems Corporation and
Fujitsu Ltd.

This film shows the production of
sugar in plants, using water from
the roots, carbon dioxide from the
air, and energy from the sun, and
its use to make human muscles
move. Originally produced in
IMAX SOLIDO format for alter-
nate-eye stereo dome projection.

Producers:

Roman Kroitor, Fumio Sumi,
Sally Dundas

Directors:

Roman Kroitor & Nelson Max

Original Concept:

Nelson Max

Technical Director:

Doug Lerner

Staff:

Takayuki Ohguchi, Hideki Okano,
Shinji Santoh, Nobuhiko Hayashi,
Takushi Fujita, Akihiko Ueda,
Toshiaki Shiozawa, Kouichi
Murakami, Keiichi Kameda

Hardware:

Fujitsu UP-200 Supercomputer
CAP-250, S-family

Software:

Specially designed in-house mod-
eling, rendering animation, simu-
lation, and system software.

Contact.

Fumio Sumi

Fujitsu Limited

Computer Graphics Systems Dept.

1-17-25, Shinkamata, Ota-Ku

Tokyo 144 Japan

tel 81-3-3730-3229

fax 81-3-3734-4691

Enter the Elgin

02 09

Produced by:

Alias Research, Inc. and Design
Vision, Inc.

An architectural fly-through of the
Elgin Theatre was created for the
galas of the 1990 Toronto Interna-
tional Film Festival.

Executive Producer:

Art Bell, Alias Research, Inc.

Design and Production.

Design Vision, Inc.

Senior Producer:

George Hughes

Creative Director:

Semannia Luk Cheung

Producer/Technical Director.

William Wright

Computer Graphic Designer:

Semannia Luk Cheung, Mary Lynn

Machado, John Coldrick, Mark

Jamieson, Gary Mundell, William

Wright

Music:

Rosnick Convery Productions

Post Production:

Corporate Vision, Inc.

Producer:

Charles Easler

Editor:

Bruce Griffin

Opticals:

George Furniotis

Hardware:

IBM RS 6000

Silicon Graphics

Software:

Alias

Contact:

Pat Hunter

Alias Research, Inc.

110 Richmond St. East

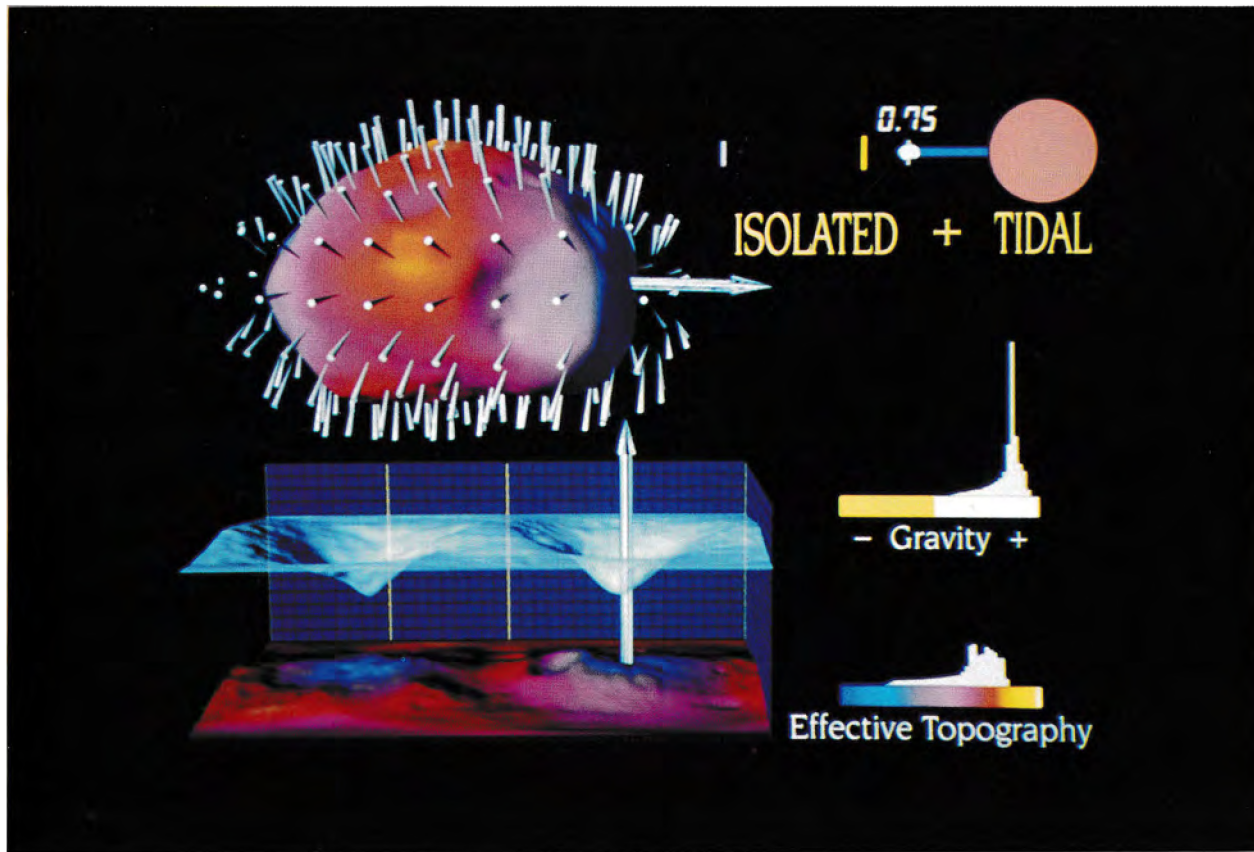
Toronto, Ontario

M5C 1P1 Canada

tel 416-362-9181

fax 416-362-0630





Evolution of Gravity and Effective Topography on Phobos

02:50

Produced by:

Wayne Lytle

Using data collected by Viking spacecraft, this visualization depicts the effects of Martian tidal forces on Phobos, the larger of Mars' two moons. Phobos is approximately the size of Manhattan.

Data:

Peter Thomas

Narration:

Bruce Land, Judy Warren, Catherine Devine, Chris Pelkie, Martin Berggren, Sally Moore, and Amanda Mace

Hardware:

Tek XD88/30 (set-up)

IBM RS6000 (rendering)

Software:

Rendered with Wavefront

Advanced Visualizer

Contact:

Wayne Lytle

Cornell National Supercomputer Facility

619 Theory Center Building

Cornell University

Ithaca, NY 14853 USA

tel 607-254-8793

fax 607-254-8888

Festival (excerpt)

02:00

Produced by:

Yoichiro Kawaguchi

The motion of the creatures in the brilliant world were generated for the future universe. These images were rendered for HDTV (1920x1080 pixels).

Artist:

Yoichiro Kawaguchi

Operation:

Shinji Sasada, Nippon Electronics College

Hardware:

IRIS 4D/70

Software:

New Growth model with

Meta-ball

Contact:

Yoichiro Kawaguchi

Nippon Electronics College

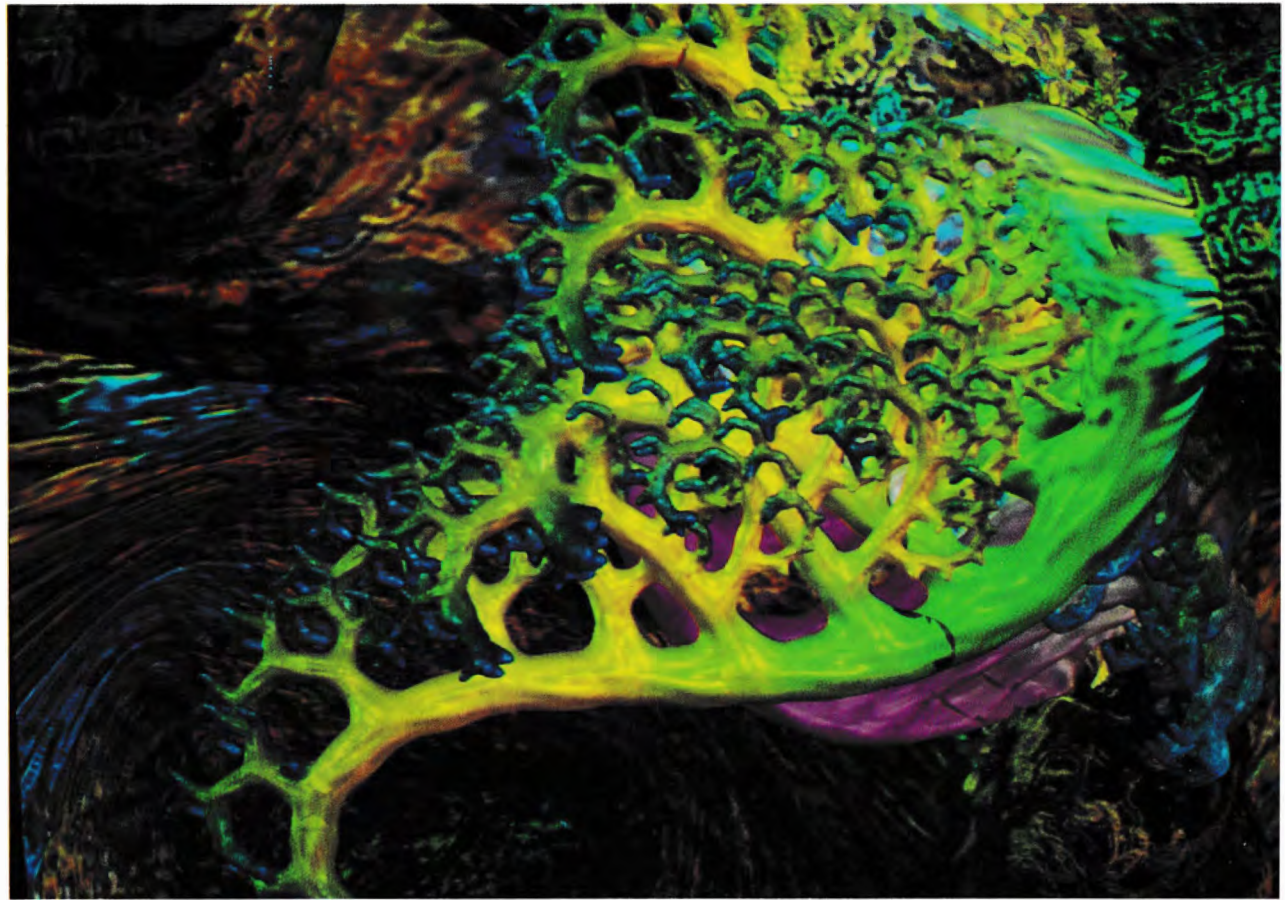
1-25-4, Hyakunin cho.

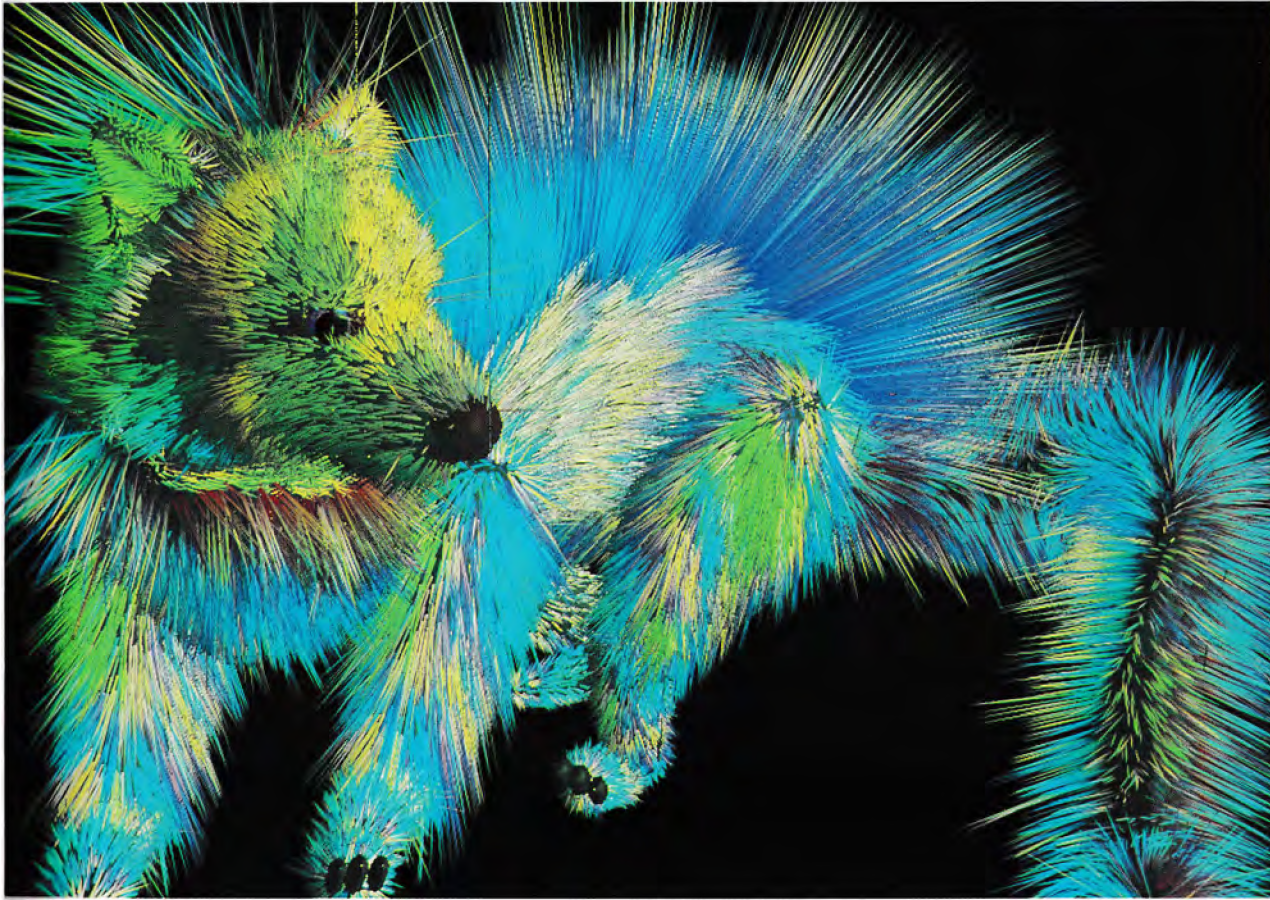
Shinjuku-ku

Tokyo 169 Japan

tel 81-3-3369-1995

fax 81-3-3363-7685





Fire Beast

00 45

Produced by:

Ryoichiro Debuchi, High Tech Laboratory Japan Inc.

Inspired by the Japanese tale "Kaguya-hime," this piece enhances the tale's fire beast with iridescent fur. The fur renderer is an application of Digital Differential Analyzer. (DDA)

Artist:

Ryoichiro Debuchi

Music:

Yasuhiro Kawasaki

Hardware:

IRIS-4D 70GT

IBM Power Station 540

Software:

Limage, Digital Dynamation System

Wavefront

Contact:

Ryoichiro Debuchi

Court-Setagaya-101

1-15-11, Mishyuku

Setagaya-ku

Tokyo 154 Japan

tel 81-3-3711-5111

fax 81-3-3711-5110

IGT (Inter Galactic Travel)

04:20

Produced by:

LINKS Corporation

This film was produced for the people's motion simulator ride system "Conceptor," of Fujita Corporation in Tokyo.

Client:

Fujita Corp.

Production Supervisor:

Masaaki Taira

Producer:

Katsuyuki Sugimura

Director:

Takahiko Akiyama

Assistant Producer:

Makoto Sasao

Planning:

Kimihiro Abe (Fujita Corp.);

Kuniyasu Baba (Kunix Corp.);

Masaya Fukuyama (Imigica Corp.);

Hiroyasu Sakaguchi

(Imagica Corp.)

CG Designer:

Syouko Kitamura, Tadasi

Sugawara, Hiroyuki Sesita,

Kouichi Hirata

Technical Director:

Yosihisa Hirano, Kouichi Noguchi,

Tetsu Miyaki, Noriko Kurachi

SFX & Film Processing:

Akira Takimoto (Imagica Corp.),

Atuki Satou (Imagica Corp.)

Music Production:

Akira Okamoto (Fuji Pacific Music

Inc.); Jyouji Kakizaki (Fuji Pacific

Music Inc.)

Music Composer:

Michiaki Kathou

Sound Effects:

Hideki Matutake (M.A.C.)

Recording Mixer:

Tamotu Yosida (Sound Magic

Corp.)

Hardware:

LINKS-2 (original custom made)

SUN-4/280

Silicon Graphics IRIS-4D

SONY NWS-3860

Software:

LINKS Proprietary

Contact:

Masaaki Taira

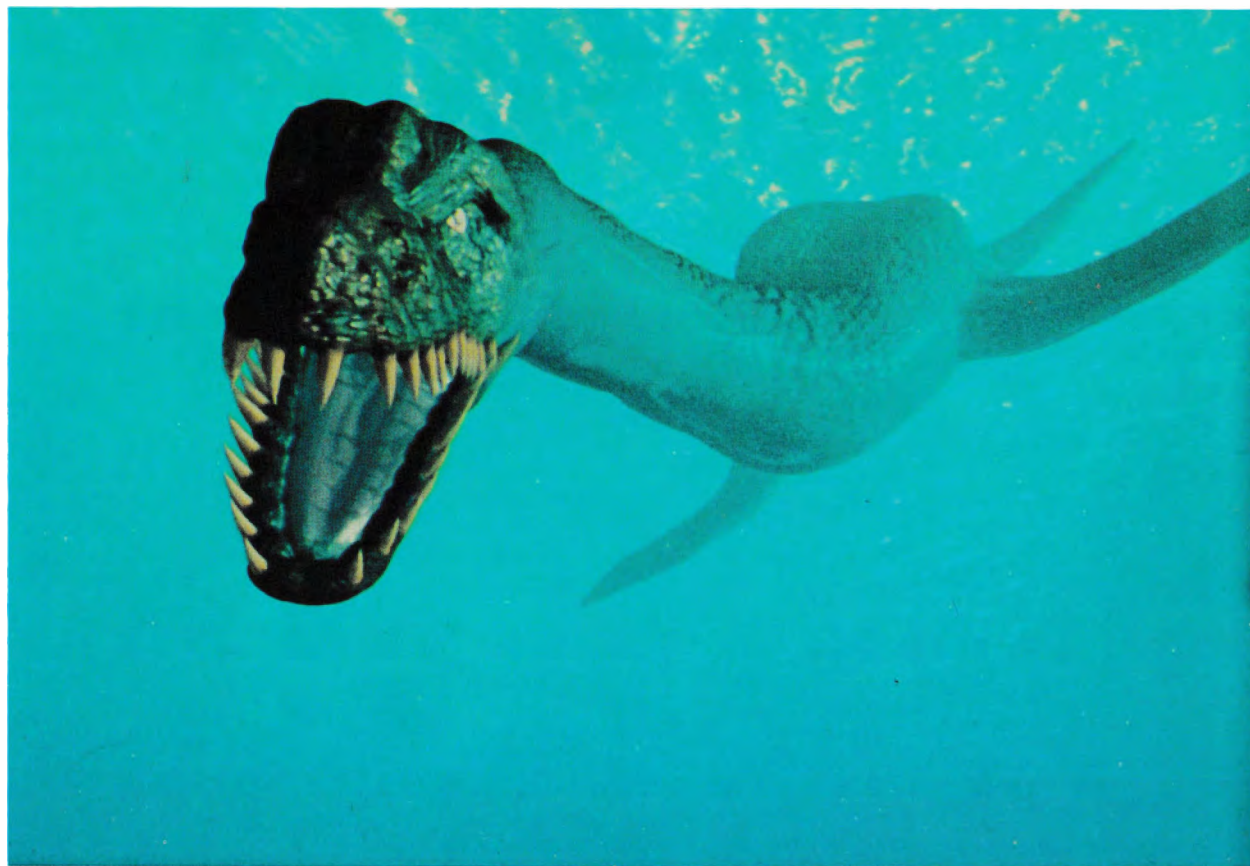
3-13-6 Higashi-Shinagawa

Shinagawa-Ku

Tokyo 140 Japan

tel 81-3-3450-8181

fax 81-3-3471-2607





The Invisible Man in Blind Love

04:30

Produced by:

Eurocitel

*Script, Animation, and Computer
Graphics:*

Pascal Vuong

Music:

Point Final

Hardware:

Silicon Graphics 4D/25

Software:

Explore TDI

Contacts:

Georges Pansu

Eurocitel

1 Quai Gabriel Peri

94340 Joinville le Pont France

tel 33-1-4397-2525

fax 33-1-4397-1923

Pascal Vuong

10 Place du Theatre

92310 Sevres France

tel 33-1-4626-7606

fax 33-1-4293-5344

**Into the 4th Dimension
(stereoscopic)**

04:30

Produced as a theme park attraction involving motion-based seats, 12-channel stereo sound, twin 70-mm projection, and in-theater lasers. The SIGGRAPH presentation is in a reduced film format (twin 35-mm with two-channel stereo sound).

Executive Producer:

Gary Goddard

Produced & Directed by:

Rick Harper

Co-Produced & Written by:

Robert W. Anderson

Computer Animation Unit

CGI Supervisors:

Michael Wahrman & Brad deGraf

Production Design:

Jim Shaw, Dan Goozee & William Stout, Inc.

Art Direction:

Rick Harper, Kerry Colonna, Cliff Boule

Production Illustrators:

Ed Eyth, Adolph Schaller, Shawn McManus, Donna Tracy

Post Production Supervisor:

Joshua Pines

Line Producer:

Maija Beeton

Production Manager:

Liz Ralston-Bugge

Scene Technical Directors:

Kevin Bjorke, Jim Hillin, Liza Keith, Larry Malone, Marc Scaparro, Phil Zucco

Additional Technical Direction:

John Adarnczyk, Ken Brain, Greg Ecolano, Dean Foster, Joseph Goldstone, Jim Goodman, Adrian Iler, George Karl, Andy Kopra, Craig Reynolds

Modelers:

Ken Cope, Tom Betts

Puppeteering:

Trey Stokes

Editorial

Ladd McPartland

Assistant Rendering:

Joaquin Gill, Jim Guyton

Production Assistants:

Eve Valentina, Carter Potter, Carl Syberg, Anne-Marie Sircello-Spargur

Special computing equipment:

Silicon Graphics Computer Systems

Other computing by:

Ray Feeney, RFX, Inc.

Rendering Software:

PIXAR RenderMan: MAX, Purgatory, Music World, Light and Dark

World; Symbolics S-Render:

Intro, Finale, Math World, Fragments, Vortex/Galaxy/Rosette

Performance Animation

Software:

deGraf/Wahrman, Inc.

Animation Software:

Symbolics S-Dynamics

Modeling Software:

Symbolics S-Geometry, deGraf/Wahrman MMaker

Hardware:

Silicon Graphics 4D series Symbolics 36XX series Film Recording, Celco, Solitaire

Film Recorder:

CELCO

Accounting Services:

Don Rhodes, CPA

Live Action Unit

Production Manager:

Matthew Geer

3-D Consultant:

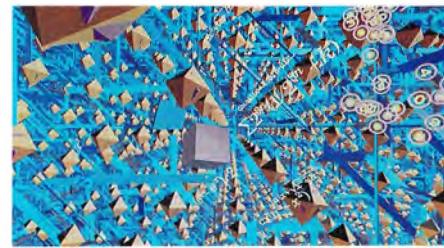
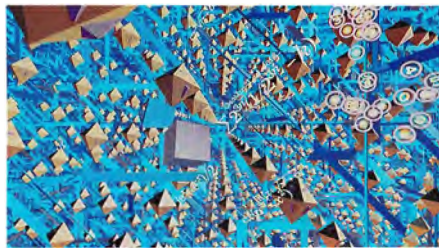
Stephen Hines

Pre-Production:

Antoine Compin & Charis Horton

Production Coordinator:

Gail Sanders



Production Accountants:

Theresa Enzer, Diane Kehrl, Ann Harper

1st Camera Assistant:

Steve Slocomb

2nd Camera Assistant:

Todd Slyapich

Helicopter Pilot:

Craig Hosking

Location Coordinator:

B.J. Griffith

Helicopter Mount:

Tyler Camera

Panavision Camera Technician:

Don Earl

Optical Effects

Optical Supervisors:

R. William Dorney &

Rob Yamamoto

Optical Cameraman:

Cosmas Paul Bolger, Jr.

Assistant Cameraman:

James Seltenreich

Light Art:

Jerry Morawski

Effects Animators:

John A. Petteys III & Kathleen

Quaife-Hodge

Post Production

Editors:

Robert W. Anderson & Rick Harper

Supervisors:

Rick Gordon & John A. Petteys III

Color:

CFI

Prints:

Deluxe

Laboratory Consultant:

Chris Bushman

Negative Cutting:

RPG Film and Video, Inc.

Sound Design:

Soundelux

Music

Composer:

Gary Guttman

Orchestrator & Conductor:

William Kidd

Music Performance:

The Toronto Symphony Orchestra

Special Additional Music:

James Gabriel

Music Producer:

Ted King

Recording Mix-Down Engineer:

Gary Gray

Soundtrack Production Manager:

James Fielden

Assistant Sound Editor:

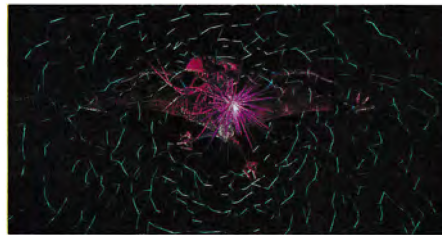
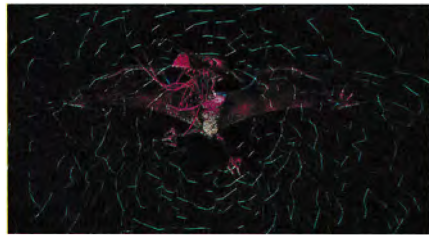
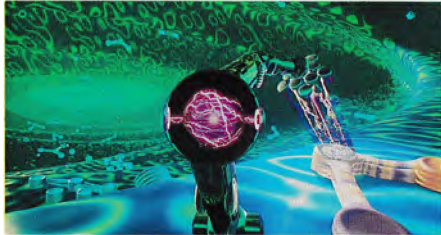
Mark Lanza

Technical Audio Advisor:

Keith Klawitter

Re-Recording Facility:

Meridian Studios, Inc.



Re-Recording Mixers:
Ken Teaney, Scott Gershin, Dan Wallin
Recordists:
Tom Sherlock, Mark Macrina

Sound

Sound Supervision:
Scott Martin Gershin, M.P.S.E. & Wylie Stateman, M.P.S.E.

Post Production

Sound Editors:
Scott Wolf, David Baldwin, Jay Richardson

Additional Sound Effects

Creation:

Nic Iacovetti, Tim Hosman, David Schober

For Landmark Entertainment Group

Executive in Charge of

Production:

David Thornton

Production Manager:

Deborah Hemela

TMOD Show Supervisor:

John Rust

Images © 1990 Sanrio Co., Ltd./
Landmark Entertainment Group

Special Thanks To:

Graham Nash, Cole Gilburne Fund II, Elliot Smyrl, Tony Apodaca, Ed McCracken, Keith Seto, Kevin Hunter, Jim Ryan, Anne Adams, Richard Taylor, Rand Wetherwax, Mickey W. Mantle, Paul Yarmolich, Dave Bagshaw, Tim Heideman, Cyberware Labs, Sally A. Syberg, Lance Williams, Steve Kehrl, and Jim Etchison

"Into the 4th Dimension"
Based on a concept by Gary Goddard

Production Services:

Harper Films, Inc.

Computer Animation Services:
deGraf/Wahrman, Inc.

A Landmark Entertainment Production

Contacts:

Gary Goddard

(Executive Producer)

Landmark Entertainment Group

5200 Lankershim Boulevard

North Hollywood, CA 91601 USA

tel 818-753-6700

fax 818-753-6767

Rick Harper

(Producer/Director)

Harper Films, Inc.

2027 Montrose Avenue

Montrose, CA 91020 USA

tel 818-249-2630

fax 818-790-3305

The Key is Light

02:55

Produced by:

Hewlett Packard Company T.V.
LeCorbusier's famous Chapel at
Ronchamp is recreated using
radiosity and ray tracing
techniques. A slow walk from a
side chapel, through the nave,
and ending behind the main altar
reveals the forms of light used by
Le Corbusier.

Modeling:

Paul Boudreau, Keith Howie, &
Eric Haines

Rendering:

Eric Haines

Hardware:

Hewlett-Packard Apollo DN
10000

Hewlett-Packard Apollo Series
9000 Model 720

Software:

HP Advanced Rendering Technol-
ogy and proprietary software

Hewlett-Packard ME30

Contact:

Becky K. Naqvi

Hewlett-Packard Company MS 74

3404 East Harmony Road

Fort Collins, CO 80525 USA

tel 303-229-4503

fax 303-229-6649





Leaf Magic

01:15

Produced by.

IBM T.J. Watson Research Center
A group of wind-blown leaves
cavorts in a playground. Realistic
leaf motion is generated using a
physically-based aerodynamic
model.

K. Arva, R. Bacon, D. Haumann,
A. Khorasani, A. Norton,
P. Sweeney, J. Wejchert

Hardware:

RS/6000

Silicon Graphics 240 GTX

Software:

Physically-based simulation and
ray tracing-proprietary (T. Kay)

Contact:

Alan Norton

IBM T.J. Watson Research Center

P.O. Box 704

Yorktown Heights, NY 10598 USA

tel 914-784-7195

fax 914-784-6273

Lifesavers:

The Good Times Roll

00:35

Produced by:

Topix Computer Graphics and Animation Inc.

A Lifesavers roll proves its musicianship as it careens across a piano, guitar, and drums to a "Jerry Lee Lewis meets Stevie Ray Vaughn" sound track. The right hand movements of the studio pianist were converted from MIDI to drive the animated piano keyboard.

Director:

Harold Harris

Producer:

Stephen Price

Animators:

Harold Harris, Bob Munroe, John Mariella, & Paul Griffin

Hardware:

Silicon Graphics Computer Systems

Software:

Wavefront Technologies

Contact:

Chris Wallace

Topix Computer Graphics and Animation Inc.

217 Richmond Street West

2nd Floor

Toronto, Ontario

M5V 1W2 Canada

tel 416-971-7711

fax 416-971-6188





The Listener

01:25

Produced by.

Christopher Landreth &
Robin Bargar

Parameterized facial animation
and sound mapping techniques
are used to tell a fable of frustra-
tion, realization, and self discov-
ery

Director and Animator:

Christopher Landreth

Written by

Christopher Landreth and Robin
Bargar

Sound Composer:

Robin Bargar

Post Production:

Robert Patterson

Voices by:

Mark Enslin and Jeff Glassman

Special thanks to.

Donna J. Cox and Vincent

Jungens

Produced at:

The Renaissance Experimental
Laboratory, National Center for
Supercomputing Applications

Post Produced at.

Media Services, National Center
for Supercomputing Applications

Audio Produced at.

The Experimental Music Studios
and Computer Music Project,
University of Illinois at Urbana-
Champaign

Hardware:

SGI 4D/240 GTX Server
Personal Iris Workstations

Software:

Wavefront and proprietary
software

Contact:

Christopher Landreth
North Carolina

Supercomputing Center

P.O. Box 12889

Research Triangle Park, NC 27709

USA

tel 919-248-1141

fax 919-248-1101

Lost Animals

03:00

Produced by:

HD/CG New York for ENCOM
High definition computer
graphics recreate animals that
have become extinct.

"Steller's Sea Cow" sequence

Concept, design, and direction.

Noriaki Kaneko

Rendered by:

"RAY"

Written by:

Hiroyuki Miyoshi

2D Shima Seiki electronic paint.

Carol Hayden

Special thanks to.

Larry Barnes and David Whistler,

Natural History Museum of Los
Angeles County

"Macrauchenia" sequence

Concept, design, and direction.

Noriaki Kaneko

Rendered by.

"RAY"

Written by:

Hiroyuki Miyoshi

2D Shima Seiki electronic paint.

Carol Hayden

"Dino & Luis" sequence

Concept, design, and direction,

Dino sequence:

Allen Edwards

Concept, design, and direction,

Luis sequence:

Phillippe Billion

Project Supervisor:

Phillippe Billion

Landscape:

Debbie Pashkoff

2D paint.

Carol Hayden

3D software:

TDI Explore

Special Thanks to:

S. Christopher Bennett, the
University of Kansas

Produced by.

HD/CG New York, a partnership
of NHK Enterprises USA and
SHIMAX

Executive Producer:

Hirofumi Ito

Producers:

Kohei Nakada (ENCOM), Beth
Fraikorn

Director of Operations/

Production Manager:

Jean Kim

HD/CG Technical Director.

Hiroyuki Miyoshi

NHK Enterprises HDTV Facilities

Director:

Philip Hack

© 1991 ENCOM

Hardware:

Silicon Graphics, 4D25, Power
Series 380

Software:

TDI

Contact:

Jean H. Kim

NHK HD/CG New York

34-12 36th Street

Astoria, NY 11106 USA

tel 718-361-1118

fax 718-361-1758





**Luxo Jr. in "Light & Heavy"
and "Surprise"**

01:30

Produced by:

Pixar Animation Production Group
for Sesame Street

Luxo Jr. returns to help children
understand the difference be-
tween "light" and "heavy" and
the complex meaning of the word
"surprise."

Co-Directors:

John Lasseter, Andrew Stanton

Animation:

John Lasseter, Andrew Stanton

Technical Direction:

Yael Milo

Sound:

Gary Rydstrom/Skywalker Sound

Film Output:

Don Conway

Producer:

Craig Good

Executive Producer:

Ralph Guggenheim

Hardware:

Silicon Graphics workstations

Software:

Pixar

RenderMan

Interface

Contact:

Ralph Guggenheim

Pixar

1001 West Cutting Boulevard

Richmond, CA 94804 USA

tel 415-236-4000

fax 415-236-0388

Image © 1991 Children's Televis-
ion Workshop

Courtesy Sesame Street

Magellan at Venus

01:30

Produced by:

Solar System Visualization Project at the Jet Propulsion Laboratory — California Institute of Technology Digital Image Animation Laboratory (DIAL), JPL Multi-mission Image Processing Laboratory (MIPL), JPL National Aeronautics and Space Administration.

Computer animation techniques create a simulated flight over the surface of Venus using radar mapping data recorded by the Magellan spacecraft during September and October of 1990. Simulated color approximates hues which might be seen by the human eye, based on color images from the Soviet Venera 13 and 14 spacecraft. The 3D map of the surface was produced by combining Synthetic Aperture Radar (SAR) images, altimetry data, and radarclinometry.

Directed by:

Eric M. DeJong

Animation:

Jeffrey R. Hall, Eric M. DeJong

Image Processing:

Myche McAuley & IDPT

Elevation Map:

Randy R. Kirk (USGS)

In collaboration with Steve Saunders, Ellen Stofan, and the Magellan Flight Team

Hardware:

Solbourne 5E/900

DEC Vax 8650

DEC MicroVax 3800

Software:

VICAR, JPL's image processing software and in-house 3D and rendering software

Contact:

Betsy Hall

Jet Propulsion Laboratory

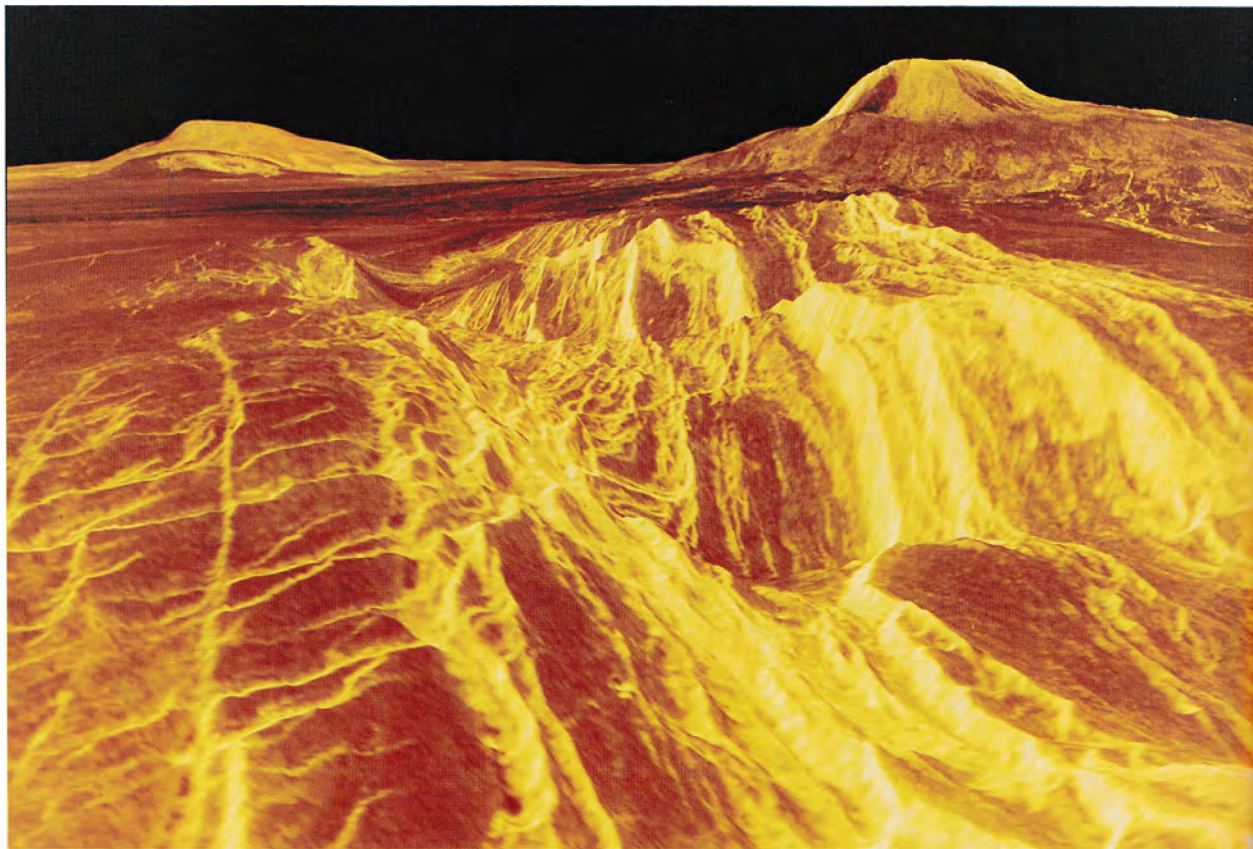
4800 Oak Grove Drive

M/S 168-522

Pasadena, CA 91109 USA

tel 818-354-0225

fax 818-393-6962





Match Light "One Match"

00 35

Produced by:

Rhythm & Hues, Inc.

An advertisement for Match Light charcoal. 100% computer graphics hyper-realism.

Credits:

Everyone at Rhythm & Hues

Hardware:

Silicon Graphics workstations

Software:

Rhythm & Hues proprietary

Contact:

Charles Gibson

Rhythm & Hues, Inc.

910 North Sycamore Avenue

Hollywood, CA 90038 USA

tel 213-851-6500

fax 213-851-5505

Maxwell's Demon

07:09

Produced by:

James Duesing

When the world shifts to being information and service-based, tourists visit polluted sites to reminisce about their heritage. This is the story of a fish suicide and a large-scale chemical fire.

Produced at:

The University of Cincinnati,
DAAP Computer Graphics Center

Hardware:

IBM PCAT with Cubicomp

Software:

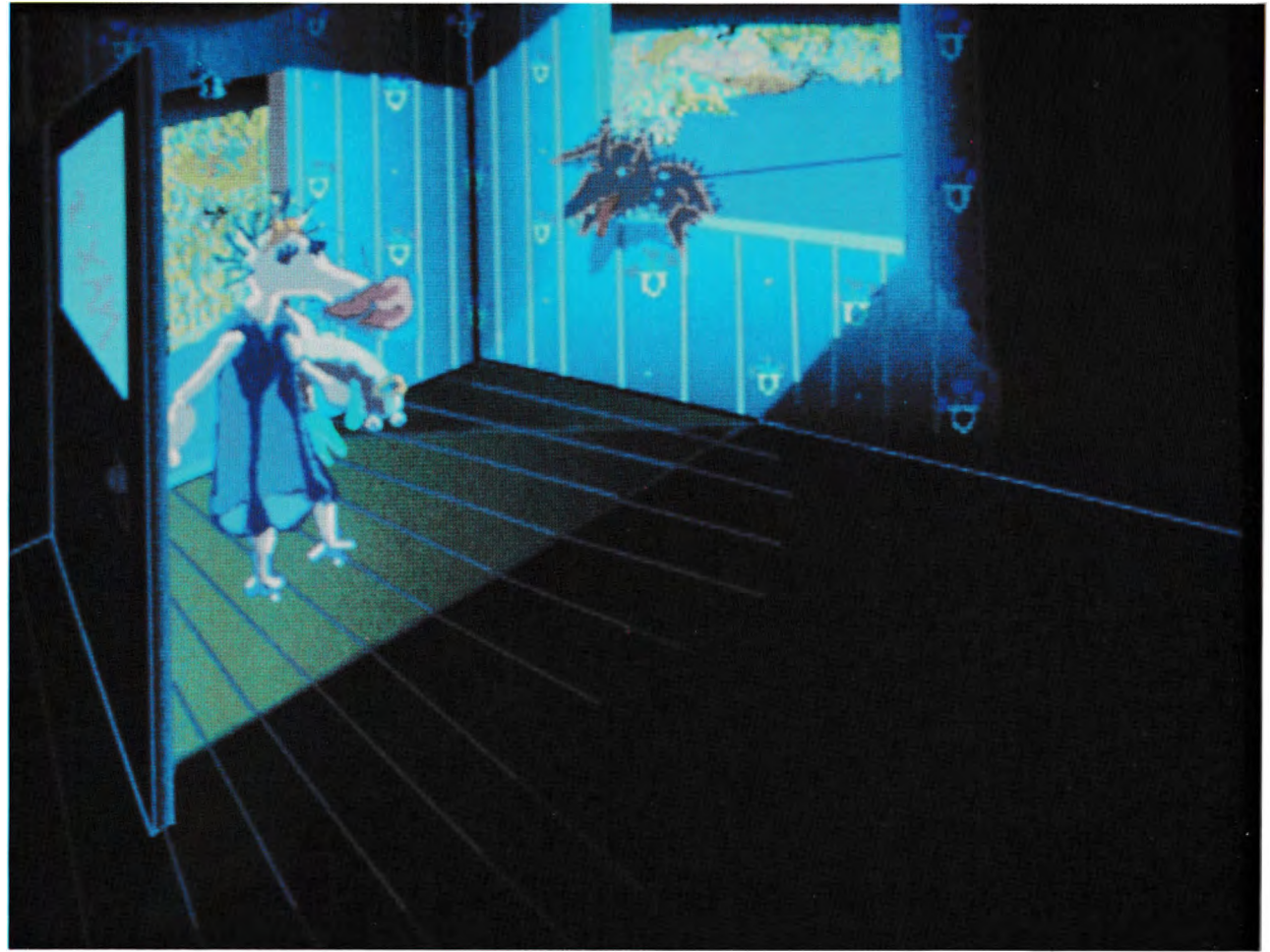
True Color Animation

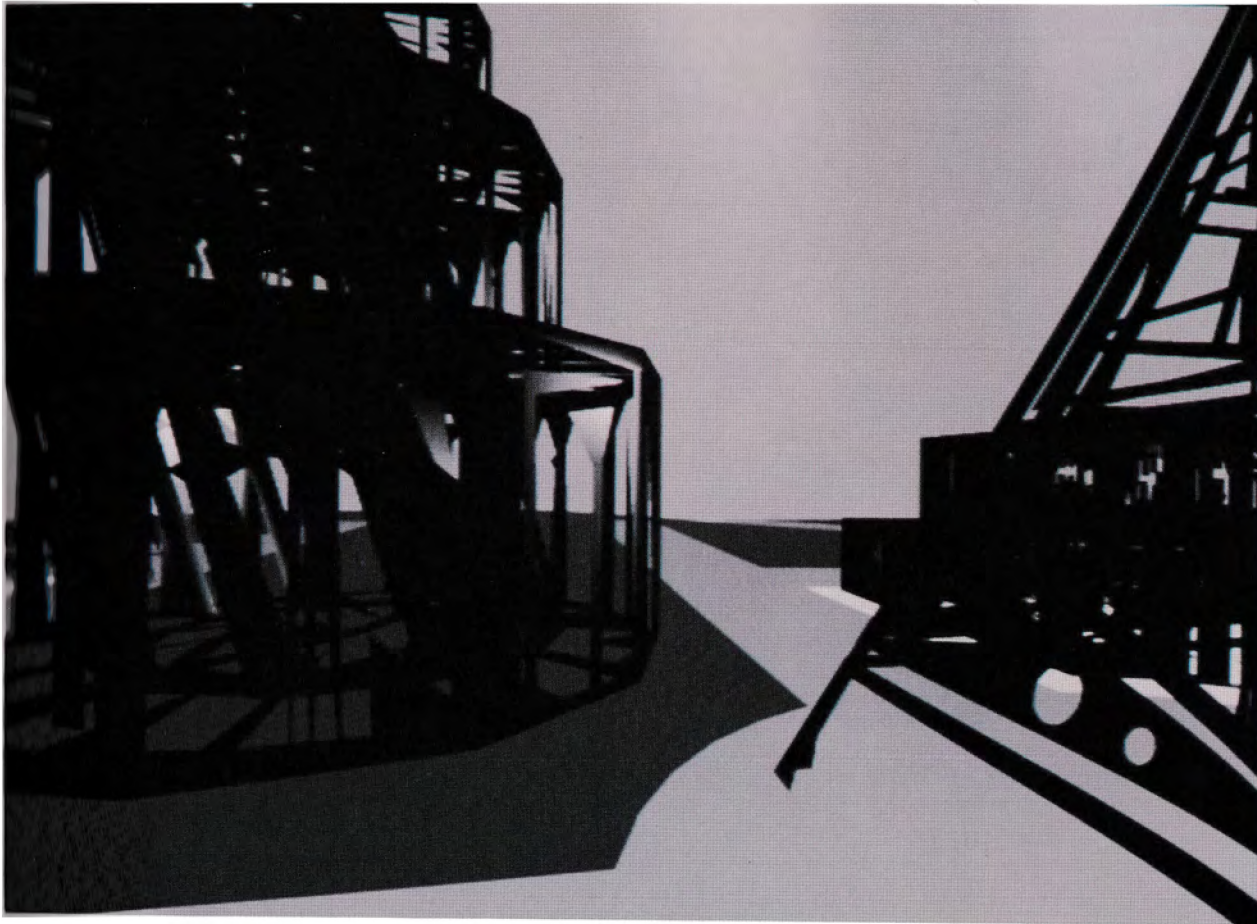
Contact:

James Duesing

ML #16

University of Cincinnati
Cincinnati, OH 45219 USA
tel 513-556-0288
fax 513-556-3288





**Memory of Moholy-Nagy
(excerpt)**

00 45

Produced by:

John Halas, Educational Film
Center (London)

An animated journey through the
abstract colors, compositions,
and constructions of the Hungar-
ian artist Lazlo Maholy-Nagy.

Storyboard:

John Halas

Design and Animation:

Tamas Waliczky

Music:

Llaszlo Kiss

© Educational Film Centre and
Halas & Batchelor (London)

Hardware:

IBM 386/286, VISTA board,
VISION 16 board, SONY BVU-950

Software:

TOPAS, TIPS

Contact:

Tamas Waliczky

H-1011 Budapest

Markovits Ivan Utca 4 V/21

Hungary

tel 36-1-202-0061

fax 36-1-131-5307

**NASA Ames Virtual
Windtunnel**

01:30

Produced by:

Steve Bryson and Creon Levit
Computational fluid dynamics
techniques are used to simulate
a virtual environment for the vis-
ualization of 3D fluid flow struc-
tures.

Hardware:

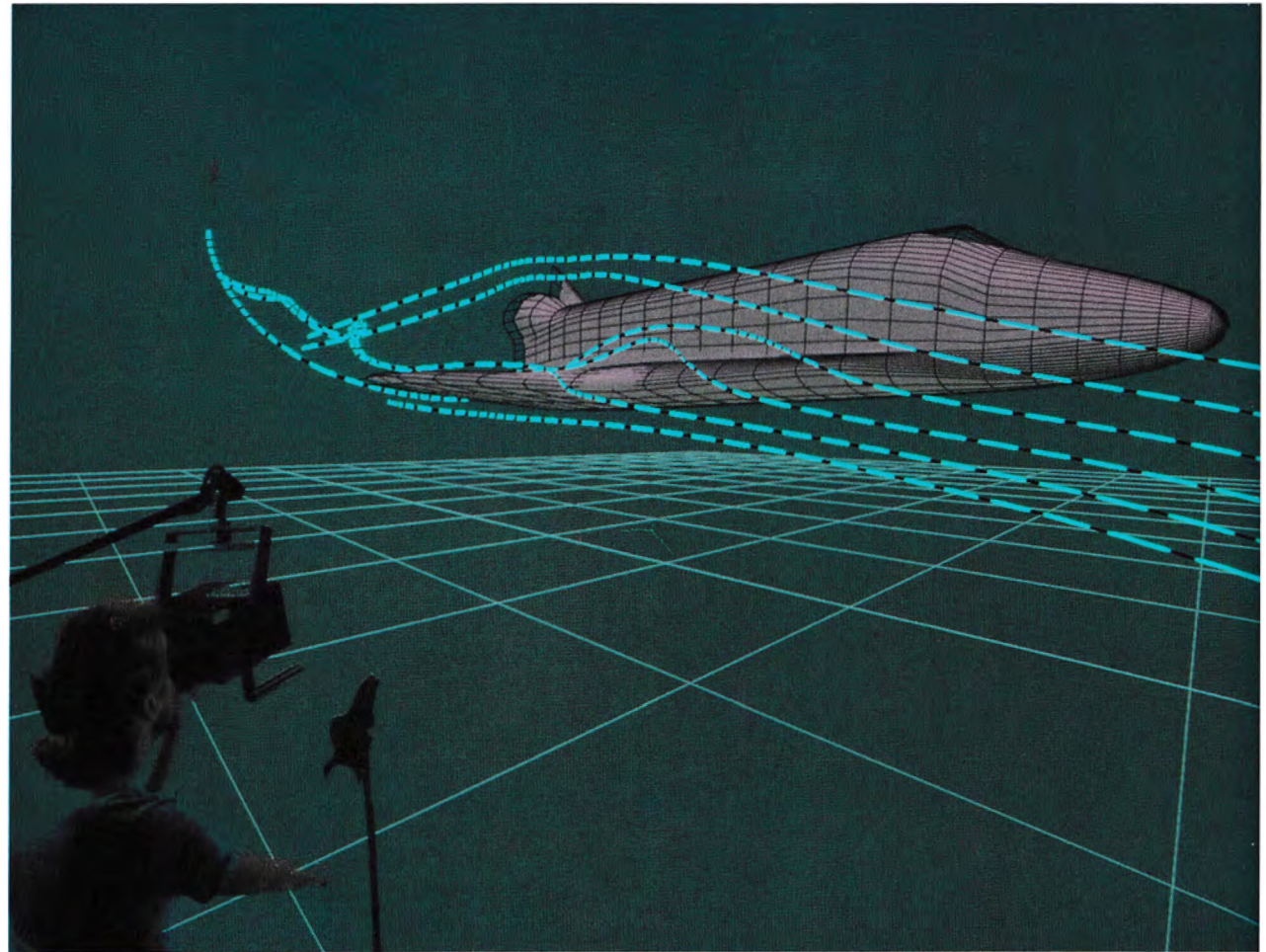
Boom — Fake Space Labs
Glove — VPL Research
Rendering — Silicon Graphics

Software:

Proprietary

Contact:

Steve Bryson
MSTO45-1
NASA Ames Research Center
Moffett Field, CA 94035 USA
tel 415-604-4524
fax 415-604-3957





Nintendo Dragon

00:15

Produced by:

Studio Productions, Hollywood
Using the organic modeling features of SCENIX proprietary software, Angel Studios created a fully-detailed, organic model intact with subtle surface qualities and body articulations for unique, fluid movements. SCENIX also synchronized the particle-system fire to the dragon dynamics. The lifelike representation of this fantasy dragon exemplifies the future of computer entertainment technology.

Produced by:

Studio Productions, Hollywood

Directed by:

Jay Jacoby

Animation production:

Angel Studios, San Diego

Design:

Studio Productions, Albert Co

Animator:

Jill Hunt

Animation support:

Michael Limber

Programmer:

Brad Hunt

Sound:

Albert Co

Hardware:

Silicon Graphics workstations

Software:

SCENIX proprietary

Wavefront

Contact:

Jill Hunt

Angel Studios

5677 Oberlin Drive, Suite 101

San Diego, CA 92121 USA

tel 619-452-7775

fax 619-452-8073

Not Knot (excerpt)

03:55

Produced by:

The Geometry Supercomputer Project

An introduction to the fascinating world of knots, as seen from a mathematician's perspective. Relying on visual imagery rather than technical language, it takes the viewer to the edge of current research, culminating in a pioneering fly-through of hyperbolic space.

Written by:

David Epstein, Charlie Gunn, Scott Kim, Silvio Levy, Stuart Levy, Delle Maxwell, Tobias Orloff, John Sullivan, William Thurston

Technical Director:

Charlie Gunn

Artistic Director:

Delle Maxwell

Modeling, Animation &

Rendering:

Tobias Orloff, Delle Maxwell, Stuart Levy, Charlie Gunn, Scott Kim

Narrator:

Chery Hays

Grateful acknowledgement of software used in this movie:

Softimage (Softimage, Inc.,

Montreal, Canada)

Renderman (Pixar, Inc., Richmond, CA)

Mathematica (Wolfram Research, Champaign, IL)

Rayshade (Craig Kolb)

Segment editing and video recording:

Robert Patterson NCSA, Champaign, IL

Post Production:

KTCA, Champaign, IL

Video Editor:

Jerry Lakso

Audio:

Joe Demko

The Geometry Supercomputer

Project was funded by the National Science Foundation and the University of Minnesota.

Hardware:

Silicon Graphics 4D workstations

Software:

Softimage

Renderman

Mathematica

Rayshade

Contact:

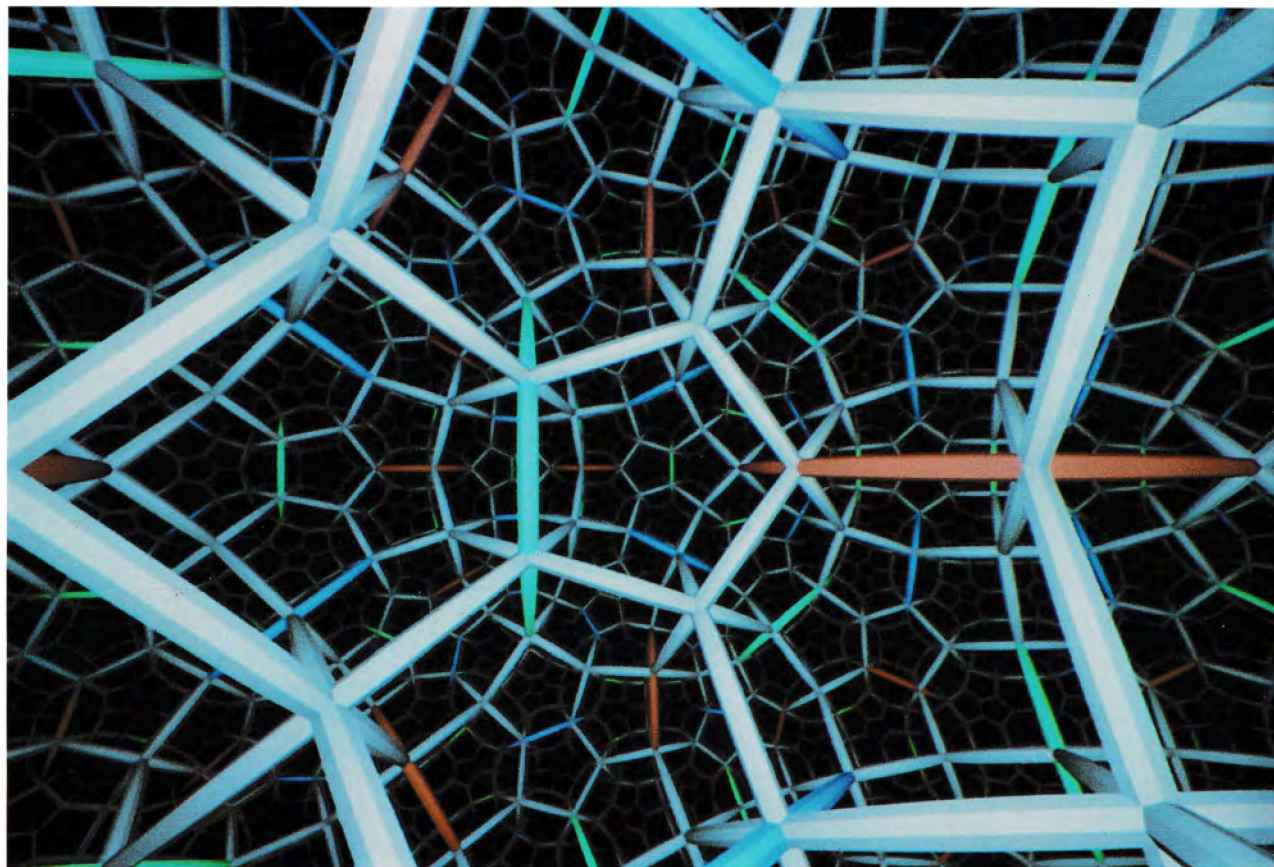
Charlie Gunn

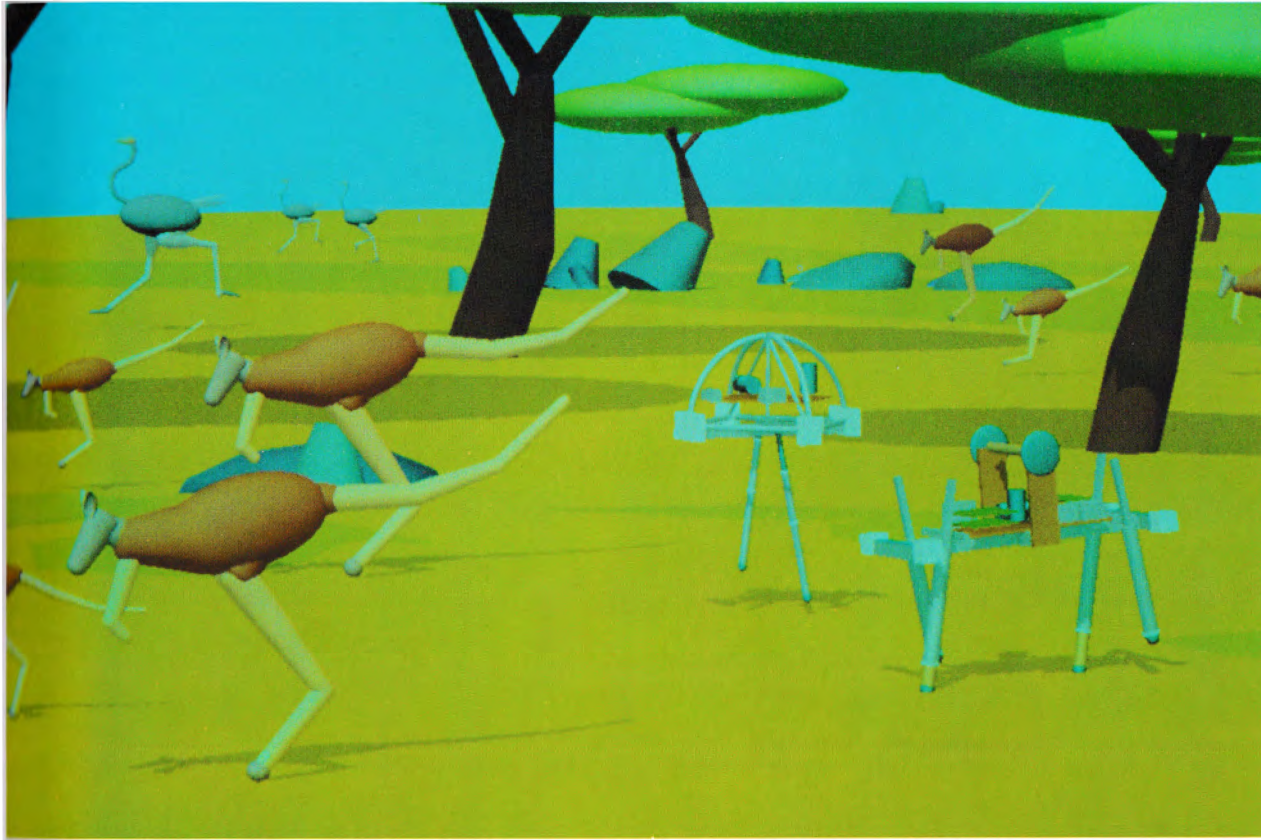
1300 South 2nd Street

Minneapolis, MN 55454 USA

tel 612-624-5058

fax 612-626-7131





On The Run

02:00

Produced by:

Leg Laboratory, MIT
Control algorithms and physical models are used to create computer animations of legged locomotion.

Marc Raibert, Lance Borvansky, Robert Playter, Lee Campbell, Robert Ringrose, Adam Crane, Dave Evans, Jessica Hodgins (IBM), Marie Lamb, Leg Laboratory, MIT

© 1990 Leg Laboratory, MIT

Hardware:

Silicon Graphics IRIS
IBM RS6000

Contact:

Marc Raibert
545 Technology Square
Cambridge, MA 02139 USA
tel 617-253-2478
fax 617-258-8682

Operation C

00 25

Produced by:

Lamb & Company, Inc.
An action-packed, character-oriented work developed for computer game manufacturers.
Bob Born, Paul Churchill, Keith Cormier, Marcia Dietrich, Scott Gaff, Nina Hale, Doug Kingsbury, Larry Lamb, Pamela Lehn, Mark Mariutto, Diane Murphy, Dave Novak, Ron Pitts, Jim Russell, Julie Smith

Hardware:

Silicon Graphics IRIS 4Ds
Abacus A60

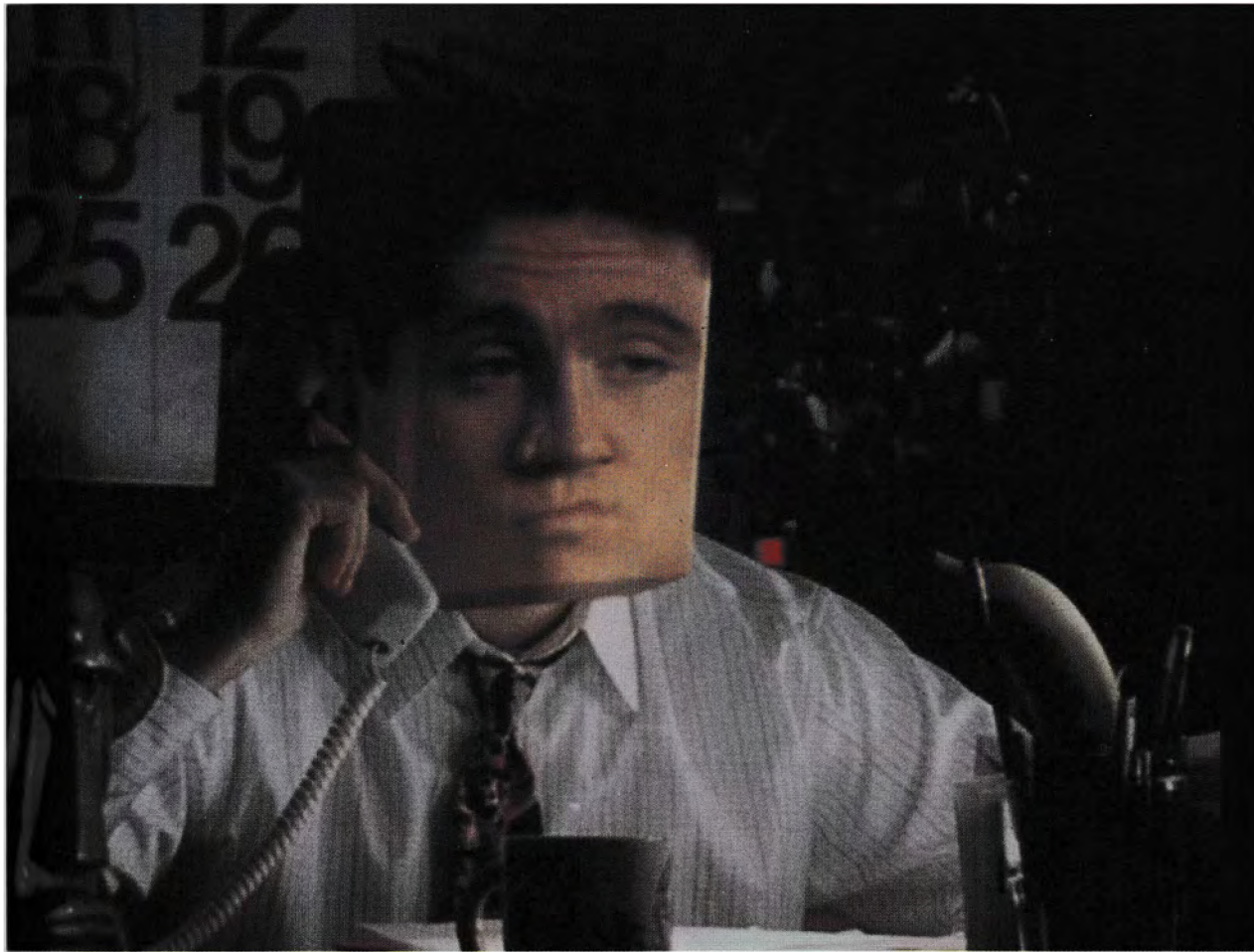
Software:

Wavefront Technologies
Lamb & Company proprietary

Contact:

Larry Lamb
1010 South 7th Street, Suite 600
Minneapolis, MN 55415 USA
tel 612-333-8666
fax 612-333-9173





PDI Morph Reel

02:00

Produced by.

Pacific Data Images
A compilation of new pieces featuring PDI's morph technique. Shoshana Abrass, Carlos, Arguello, Susan A. Bentley, Ken Bielenberg, George Bruder, Sharon Calahan, Richard Chuang, Michael Collery, Jane DeKoven, Les A. Dittert, Jamie Dixon, Grace Elliott, Theresa Ellis, Terry Emmons, Glenn Entis, Debbie Gaeta, Ray Giarratana, Julia Gibson, Rex Grignon, John Gross, Todd Heapy, Beth Hofer, Raman Hui, Les Hunter, Nick Ilyin, Tim Johnson, Mary Keenan, Larry Lessler, Brad Lewis, Rebecca Marie, Sheri Martin, Shae McClory, Glenn J. McQueen, Michael Necci, Shawn Neely, Joe Palrang, Kevin P. Rafferty, Janet Rentel, Carl Rosendahl, Karen Schneider, Tod Snook, Mark Sorensen, Lucy Torres, Dick Walsh, Graham Walters, Jim S Ward, Arda Warrior, Patty Wooton

Hardware.

Silicon Graphics Personal Iris
Software:

Pacific Data Images proprietary

Contact:

Deborah Giarratana
Pacific Data Images
1111 Karlstad Drive
Sunnyvale, CA 94089 USA
tel 408-745-6755
fax 408-745-6746

Poems of Ernst Jandl

(Gedichte V.E.)

02:05

Produced by:

Eku Wand

Poetic visions from the work of poet Ernst Jandl are transformed into computer images, creating a relationship between the computer and the human mind. The purely systematic and analytic nature of a computer is appropriate for this study, as these are the methods used by Ernst Jandl. A talking screen is created by applying Dadaist principles to Jandl's work.

Ernst Jandl

Script, Animation, Computer

Graphics, Design:

Eku Wand

Vocals:

E. Janol, C. Diehl, E. Wand

Hardware:

Amiga 2000

Software:

Deluxe Paint II

Digitizer

Contact:

Eku Wand

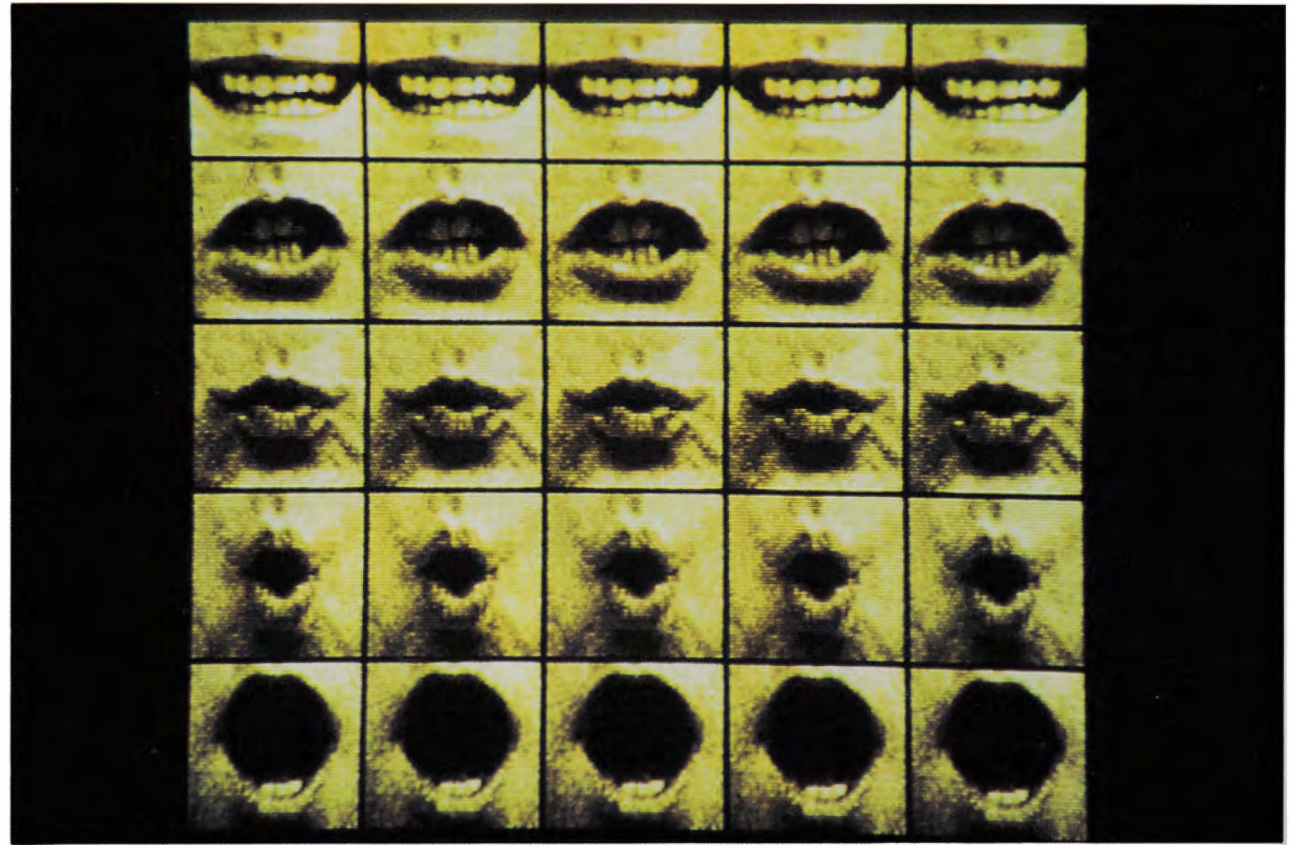
Pixel Park GmbH

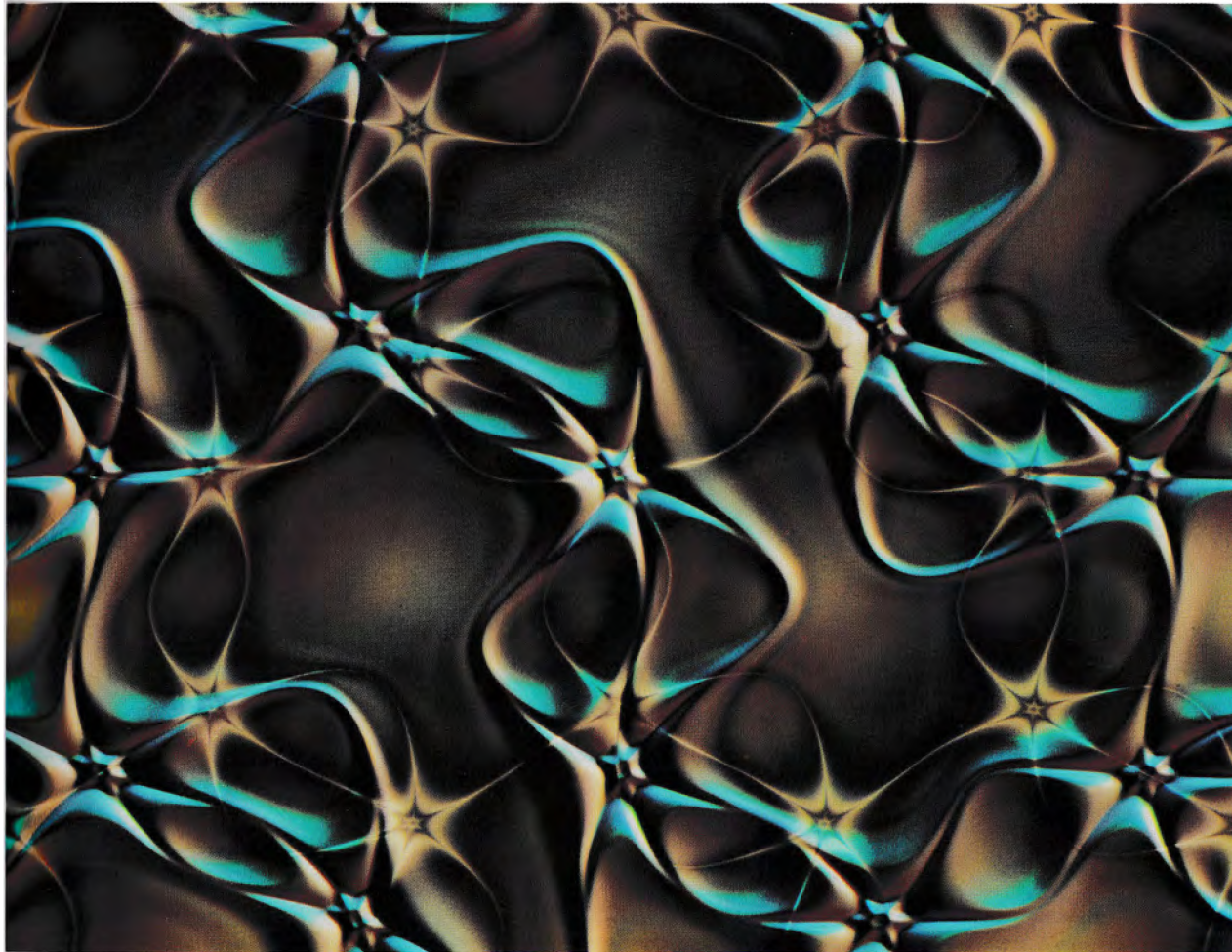
Reuchlinstrasse 10-11

W-1000 Berlin 21 Germany

tel 49-30-344-9061

fax 49-30-345-5493





Primordial Dance

01:50

Produced by:

Karl Sims, Thinking Machines Corporation

Images and animations are generated by sequences which emerge from interactively "evolving" equations.

Animation Support:

Peter Schröder

Thanks to:

Lew Tucker, Jim Salem, Gary Oberbrunner, Matt Fitzgibbon, Dave Sheppard

Sound:

David Grimes, Target Productions

Drums:

Jim Salem, Abbi Spinner, Ken Schachat, Seth Goldstein

Hardware:

Connection Machine System, CM-2

Software:

Data Parallel Image Evolution software written in Starlisp

Contact:

Karl Sims

245 First Street

Cambridge, MA 02142 USA

tel 617-234-1000

fax 617-234-4444

Reaction-Diffusion Textures

01:05

Produced by:

Andrew Witkin and Michael Kass
Reaction-diffusion equations are used to synthesize and animate textures.

Hardware:

Silicon Graphics Iris 4D workstations

Software:

Modeling and animation —
in house

Rendering — Photorealistic

RenderMan

Contact:

Andrew Witkin

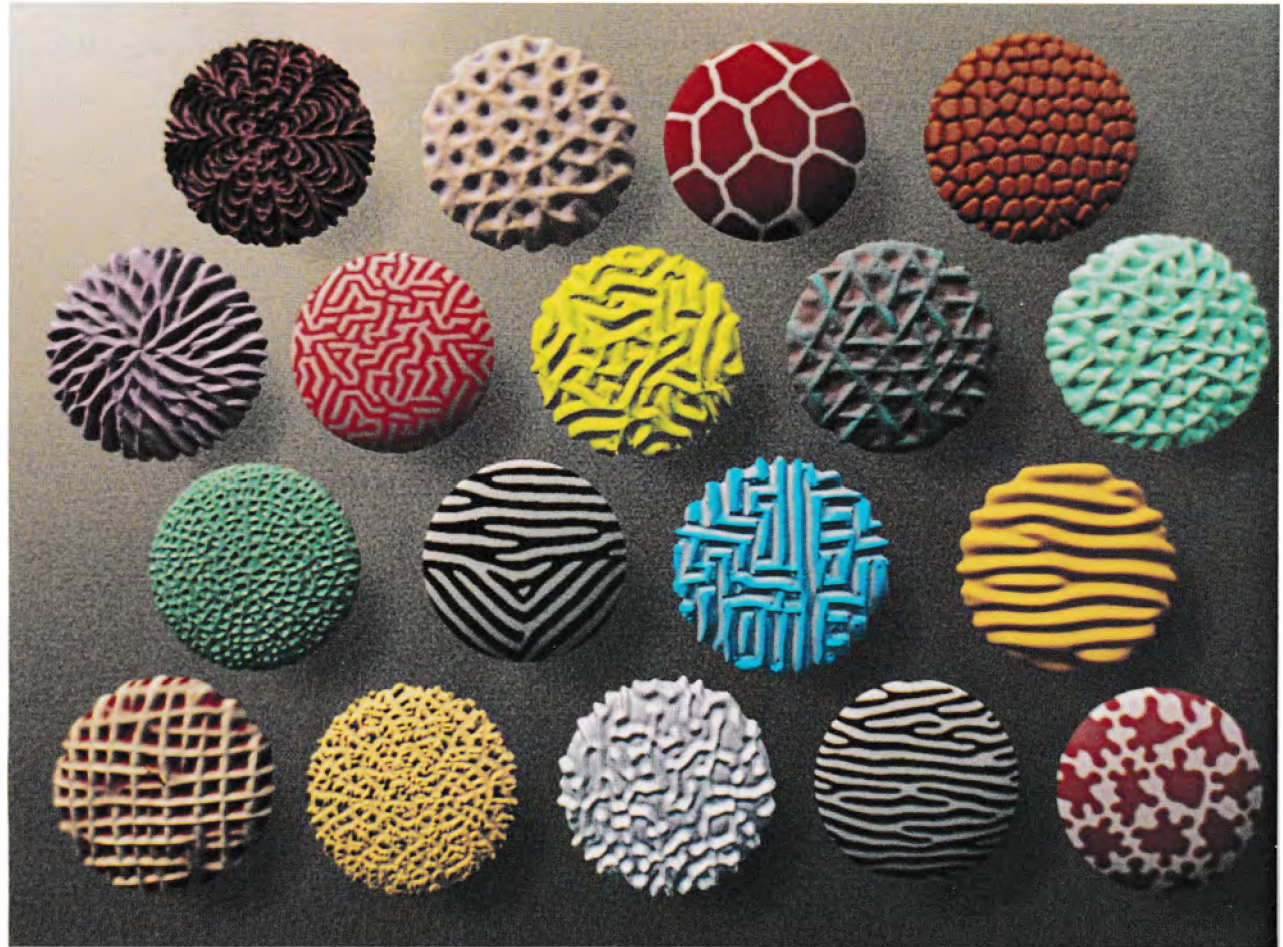
School of Computer Science

Carnegie Mellon University

Pittsburgh, PA 15213 USA

tel 412-268-6244

fax 412-681-5739





"Terminator 2" Computer Graphics Effects

03 00

Produced by:

Industrial Light and Magic
Excerpts from the motion picture "Terminator 2" illustrate computer graphics special effects.

Produced & Directed by:

James Cameron

Co-Produced by:

B.J. Rack and Stephanie Austin

Visual Effects Supervisor:

Dennis Muren, A.S.C.

Assistant Visual Effects Supervisor:

Mark Dippe

Computer Graphics Animation Supervisor:

Steve Williams

Computer Graphics Shot Supervisors:

Jay Riddle, Doug Smythe, Lincoln Hu, George H. Joblove, Scott E. Anderson, Thomas A. Williams, Stefen M. Fangmeier

Visual Effects Producer:

Janey Healy

Visual Effects Art Director:

Doug Chiang

Visual Effects Editor:

Michael Gleason

Computer Graphics Animators:

John Andrew Berton, Jr., Geoff Campbell, Richard L. Cohen, Jonathon French, Christian Hogue, Elizabeth Maxwell Keith, John Nelson, Joseph M.

Pasquale, Stephen Rosenbaum,

Andrew Schmidt, Alex Seiden,

Annabella Serra

Computer Graphics Software Developers:

Eric Enderton, Carl Nai Fredrick,

Michael J. Natkin, Angus Poon,

John F. Schlag, Tien Truong

Scanning Operators:

Randall K. Bean, George

Gambetta, Michael Cooper

Scanning Supervisor:

Joshua Pines

Digital Supervisor:

Stuart Robertson

Computer Graphics Technical Assistants:

James D. Mitchell, Rachel Falk,

Diana Ace, Alice Rosen

Computer Graphics Department Manager:

Douglas Scott Kay

Scanning Software:

Jeff Light

Optical Photography Supervisor:

Bruce Vecchitto

Visual Effects Coordinator:

Gail Currey

Computer Graphics Coordinators:

Judith Weaver, Ginger Theisen

Computer Graphics Systems Support:

Jay Lenci, Ken Beyer

Production Assistant:

Leslie Schor

Digital Artists:

Barbara Brennan, Jim Hagedorn,

Gordon Baker

Digital Transfer Operator:

Greg Maloney

Roto Supervisor:

Tom Bertino

Rotoscopers:

Terry Molatore, Jack Mongovan,

Joanne Hafner, Sandy Houston,

Rebecca A.P. Heskes

Hardware:

Silicon Graphics 4D/340VGX, 4D/

240GTX, and 4D/25TG work-

stations, Apple MacIIFX work-

stations

Software:

Modeling, animation, rendering,

and image-processing — ILM

proprietary, Renderman, Alias 2,

Photoshop

Contact:

Douglas Kay

Industrial Light and Magic

P.O. Box 2459

San Rafael, CA 94912 USA

tel 415-258-2000

fax 415-454-4768

20 Begonias

01:30

Produced by:

Laboratoire de Modelisation du
CIRAD

Observations of begonias by
botanists at the Laboratoire de
Modelisation du CIRAD are con-
verted into statistical laws to
create 3D images of the
measured plants.

Hardware:

Silicon Graphics Iris 4D25

Software:

AMAP

Contact:

Pierre Dinouard

Laboratoire de Modelisation du
CIRAD

B P. 5035

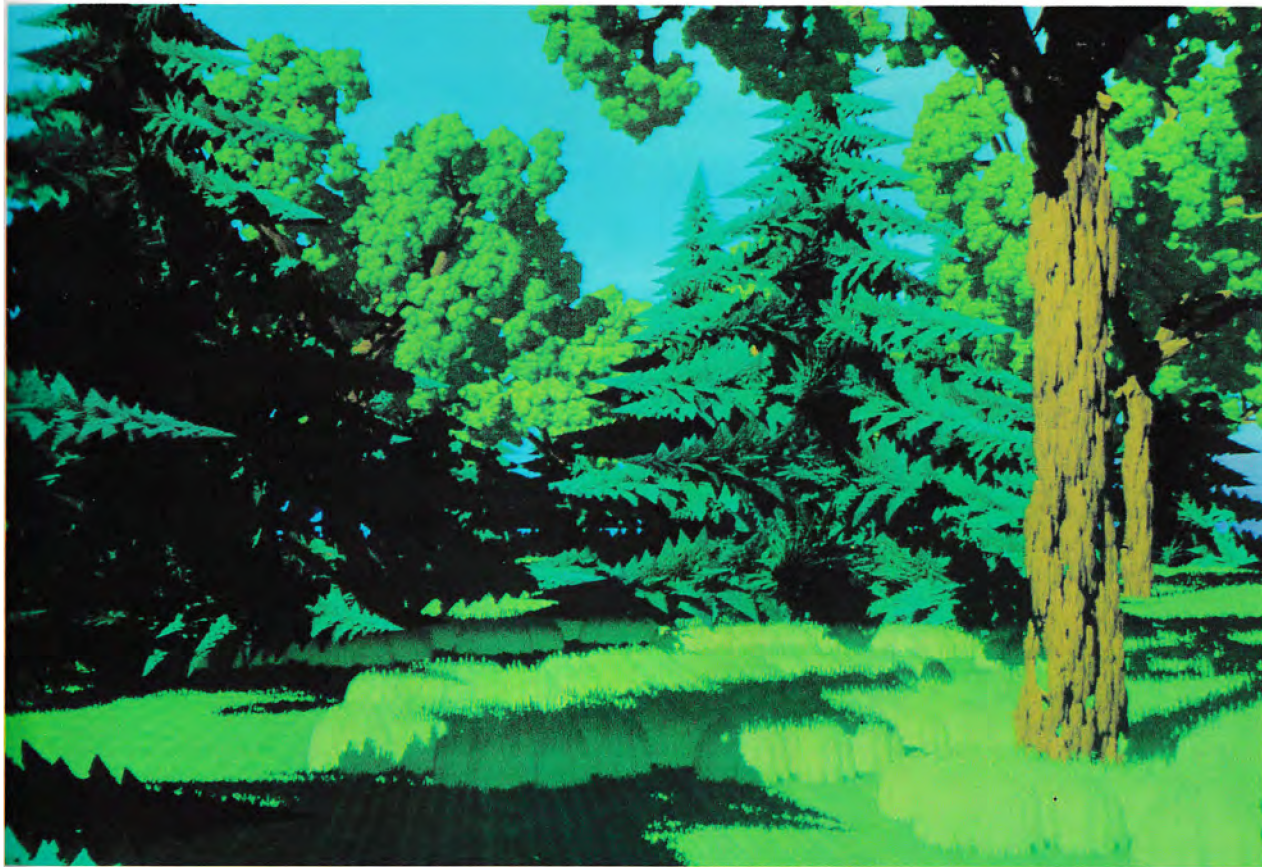
34032 Montpellier Cedex 1

France

tel 33-67-615-995

fax 33-67-615-820





unNatural Phenomena

01:47

Produced by:

John C. Hart

The parameter space of 3D linear fractals is explored via continuous interpolation from a forest of elms, spruces, and twindragon grass, to massless fractal extensions of Pluto's solids, such as Menger's Sponge and Von Kosh's Snowflake-a-hedron.

Background images:

Gordon W. Leschsky

Hardware:

AT&T Pixel Machine 964dX

Sun 4 and Truevision Vista board

Software:

Proprietary modeling and rendering "C" code

DEV tools

Stage

Contact:

John Hart

Electronic Visualization Laboratory

EECS Dept. M/C 154

University of Illinois at Chicago

Chicago, IL 60680-4348 USA

tel 312-996-3002

fax 312-413-7585

Virtually Yours

02:30

Produced by:

Matt Elson

A slice of life in virtual reality.

Produced and directed by:

Matt Elson

Art Direction:

Matt Elson, Dean Foster

Character Modeling and

Animation:

Matt Elson

Environments and Lighting:

Craig Reynolds

Written by:

Matt Elson, Scott Nyegaard

Story by:

Scott Nyegaard

Music Composed and Performed

by:

Haze Greenfield

Technical Supervisor:

Marc Scaparro

Lip Sync and Voice Analysis:

Larry Stead

Assistant Animator:

Edward Quirk

Graphics Support:

Andrea Lackey

Intern:

Al Arthur

Hardware Support:

Charlie Bergen

High Definition Video and Film

Transfer:

Courtesy of SONY High Definition
Facilities

SONY HDDF-500

SONY HDD-1000

SONY Electron Beam Recorder

V-LAN Compatible Animation

Controllers

Courtesy of Videomedia Inc.

Also sponsored by:

Nihin Symbolics

Cast:

Lotta Desire — Natalie Alixander

Arturo — as himself

Dedicated to Carol Chiani

A generous spirit knows no
bounds.

Special Thanks:

Symbolics Inc.

Bruce McDonald

Jack Walker

Jay Sloat

Copyright 1991 Symbolics Inc.

Hardware:

Symbolics XL 1200 NTSC/HDTV
systems

Software:

All animation created entirely on

Symbolics XL Animation Series

Computers using PaintAnim

Software. Boolean Modeling

Software by Charybda

Contact:

Matt Elson

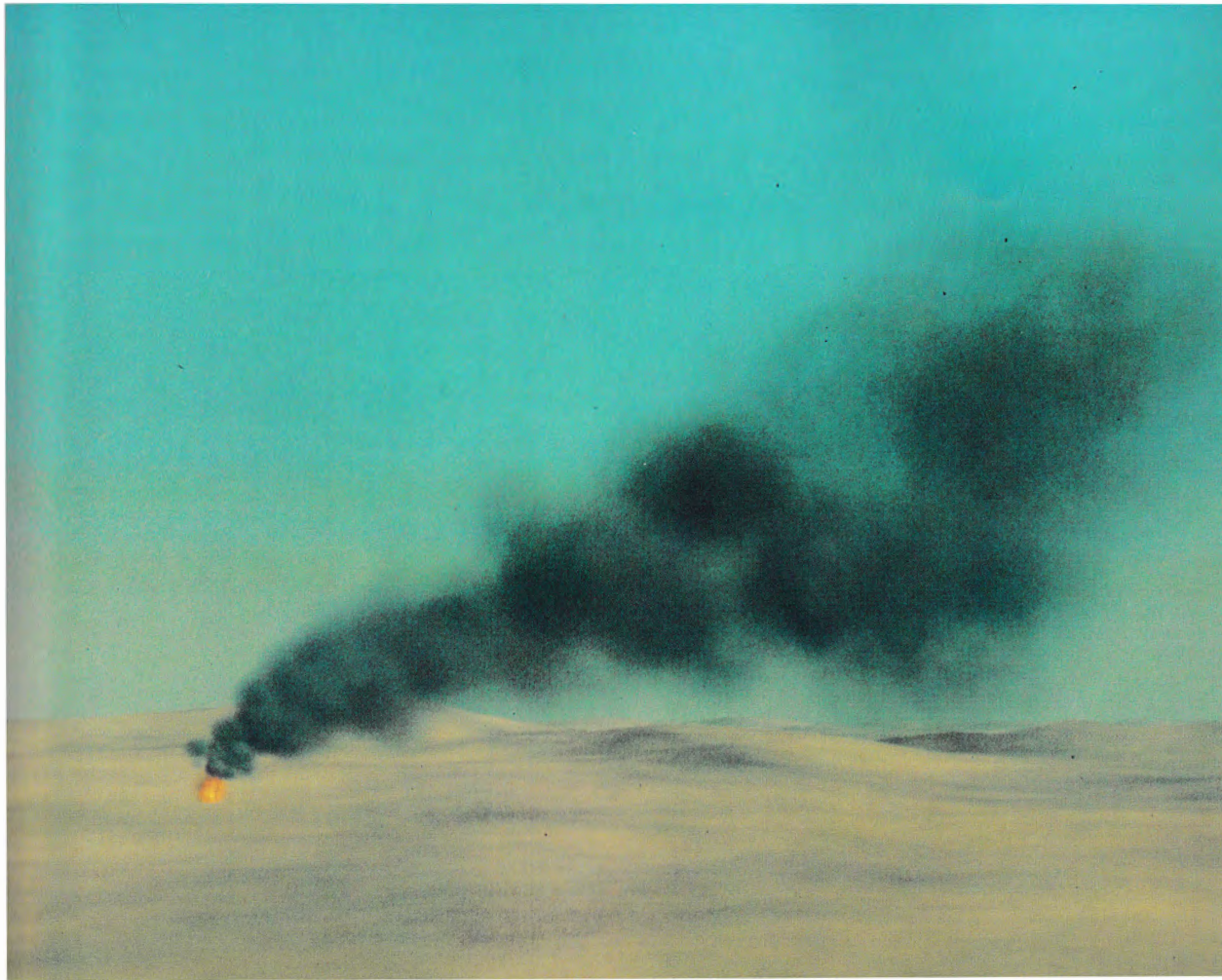
1401 Westwood Boulevard

Los Angeles, CA 90024 USA

tel 213-478-0681

fax 213-478-1346





Visualization of Battlefield Obscurants

01:10

Produced by:

Geoffrey Y. Gardner

Textured ellipsoids are used to visualize time histories of a variety of battlefield obscurants generated from a U.S. Army physical model.

Dr. Donald Hoock developed the Army model.

Hardware:

Silicon Graphics Personal Iris

Software:

Fortran 77

Grumman proprietary

Contact:

Geoffrey Y. Gardner

Grumman Data Systems

MS D12-237

1000 Woodbury Road

Woodbury, NY 11797 USA

tel 516-682-8417

fax 516-682-8022

Voyager

00:30

Produced by:

Valkieser Group

Two parts of an antique map rise from a globe of the world and melt together into a ball, which rolls through a timeless museum-like space.

Client:

European Media Support

Hardware:

IRIS 4D/Harry paintbox

Software:

Wavefront

Contact:

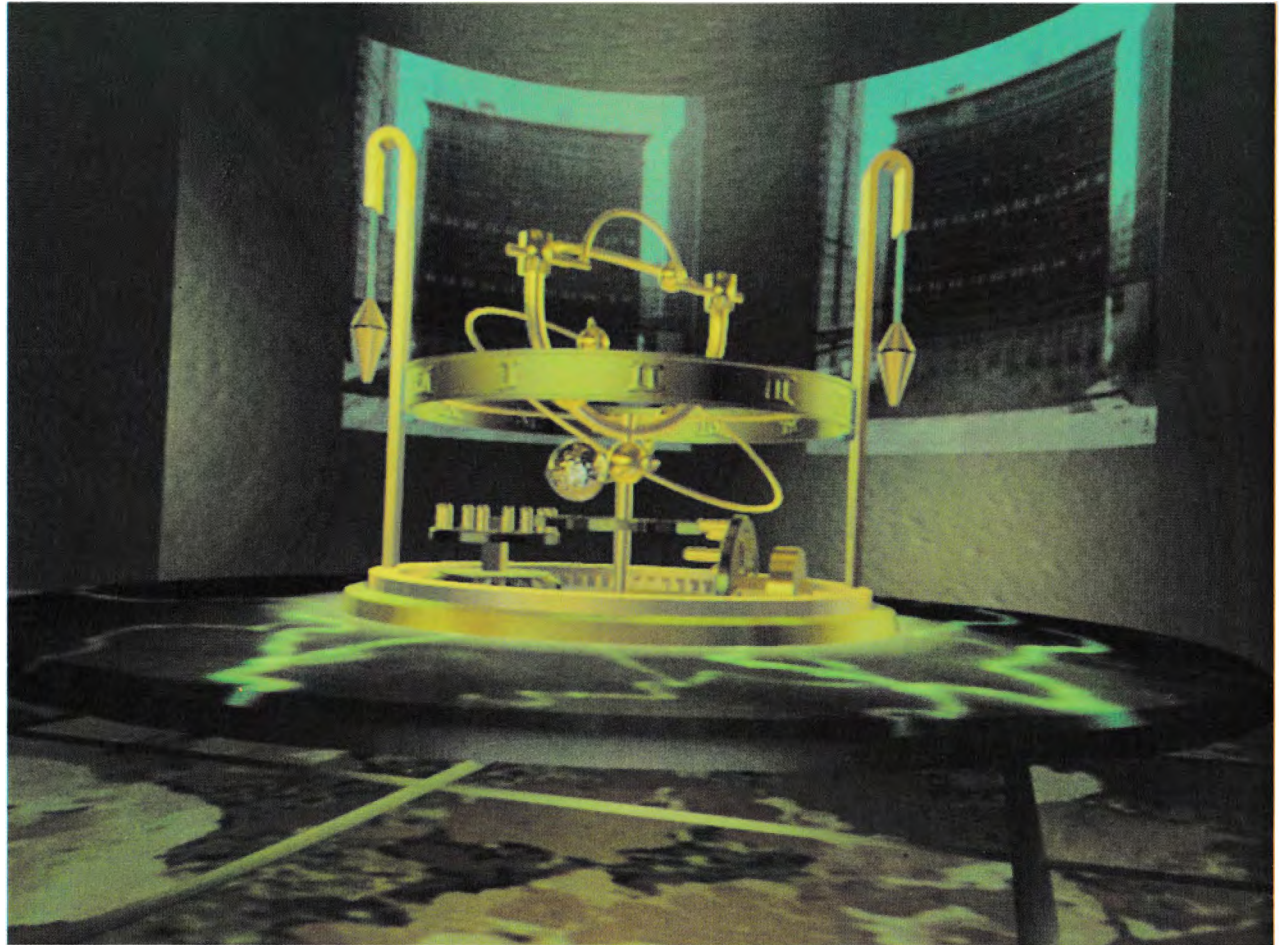
Anne Van Ogtrop

Valkieser Group B.V.

S'Gravelandseweg 100 a
1217 EW Hilversum Holland

tel 31-35-234-858

fax 31-35-232-711





Wack

00 20.

Produced by:

Harold Buchman

Animation:

Harold Buchman

Sound:

Kim Segel

Hardware:

Silicon Graphics 4D-280

Software:

Rhythm & Hues

Contact:

Harold Buchman

Rhythm & Hues, Inc.

910 North Sycamore Avenue

Hollywood, CA 90038 USA

tel 213-851-6500

fax 213-851-5505

Wanting for Bridge

05 15

Produced by:

Joan I. Staveley

A requiem for those who have died at the hands of others.

Procedural Animation and Sound:

Jeffrey T. Faust

Editing and Titles:

Black Cat Graphics

Photography:

Ted Rice

Motion Control Software:

John C. Donkin

Rendering Software:

D. Scott Dyer

Video Recording:

Barb Dean

Supported by:

The Ohio Supercomputer Center,

Director — Charles F. Bender

The Ohio Supercomputer

Graphics Project, Project

leader — D. Scott Dyer

The Ohio Visualization Laboratory,

Manager — Barb Dean

and:

The Advanced Computing Center

for the Arts and Design

The Ohio State University, Direc-

tor — Wayne Carlson

Dean, College of the Arts —

Donald Harris

Associate Dean — Judith Koros-

cik

Special thanks.

Leslie Bishko, Wayne Carlson,

Pete Carswell, Barb Dean, J.

Ronald Green, Donald Harris,

Judith Koroscik, Phil Ritzen-

thaleu, Bob Shay, Chitra Shriram,

Ernest and Dorothy Staveley, The

Ohio Supercomputer Graphics

Project, and Steve Anderson,

John C. Donkin & D. Scott Dyer of

Black Cat Graphics.

This animation would not have been possible without the support of Jeff Faust and Scott Dyer, THANKS!

Hardware:

Sun Microsystems Sparcstation

Software:

John C. Donkin — motion control and animation software

D. Scott Dyer — rendering

Contact:

Joan I. Staveley

OSC/ACCAD

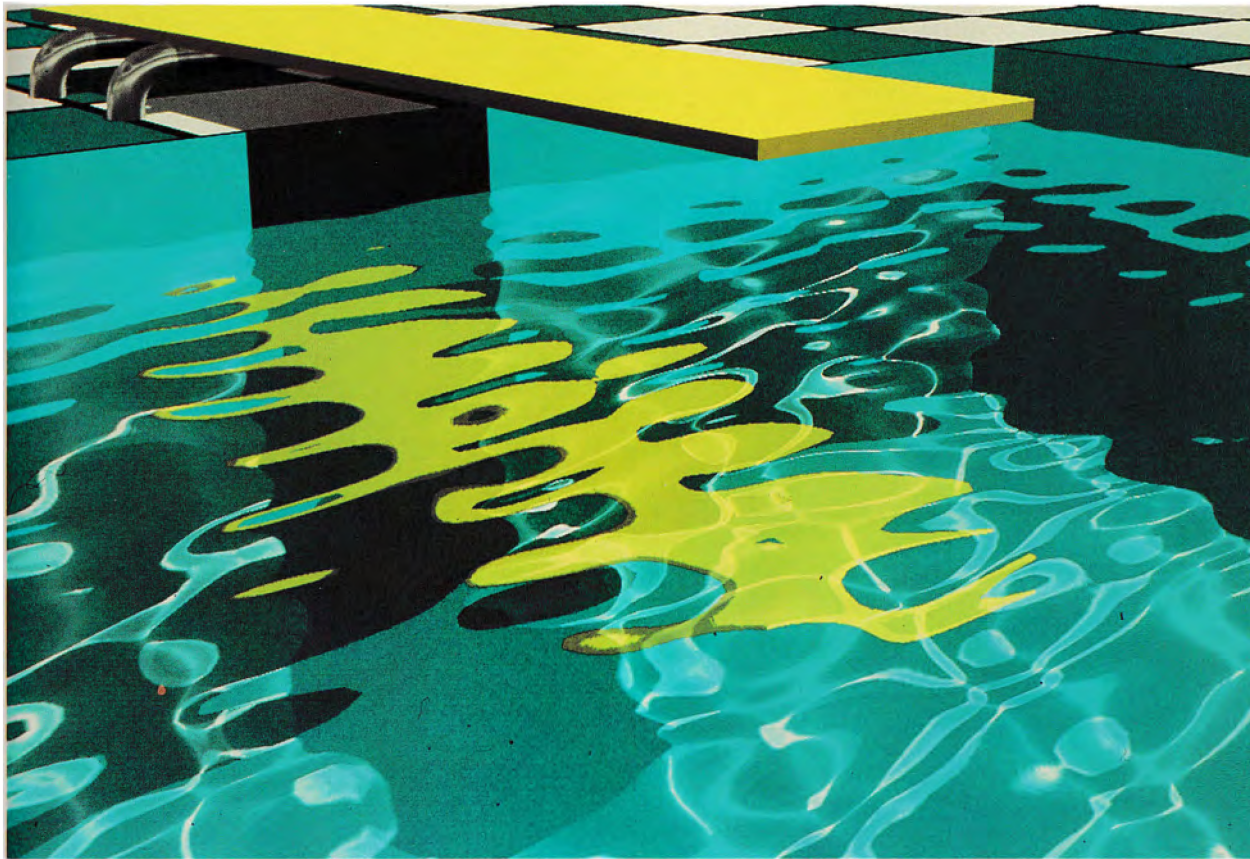
1224 Kinnear Road

Columbus, OH 43212 USA

tel 614-292-3274

fax 614-292-7168





Water Caustics

00:30

Produced by:

Digital Pictures

Two short sequences which illustrate the pattern light makes when refracted through water.

Animation and Design:

Mark Watt

Hardware:

Silicon Graphics

Software:

Digipix

Contact:

Mark Watt

22 Rue Hegeippe-Moreau

75018 Paris France

tel 33-1-4387-5858

fax 33-1-4387-6111

Wet Science

02 55

Produced by:

Xaos Inc.

A moving collage of swirling color and animated organic surfaces demonstrates custom software techniques.

Xaos Inc., Michael Tolson, Ken Pearce, Mark Malmberg

Hardware:

Silicon Graphics workstations

Abekas A60

Software:

Xaos proprietary

Contact:

Helene Plotkin

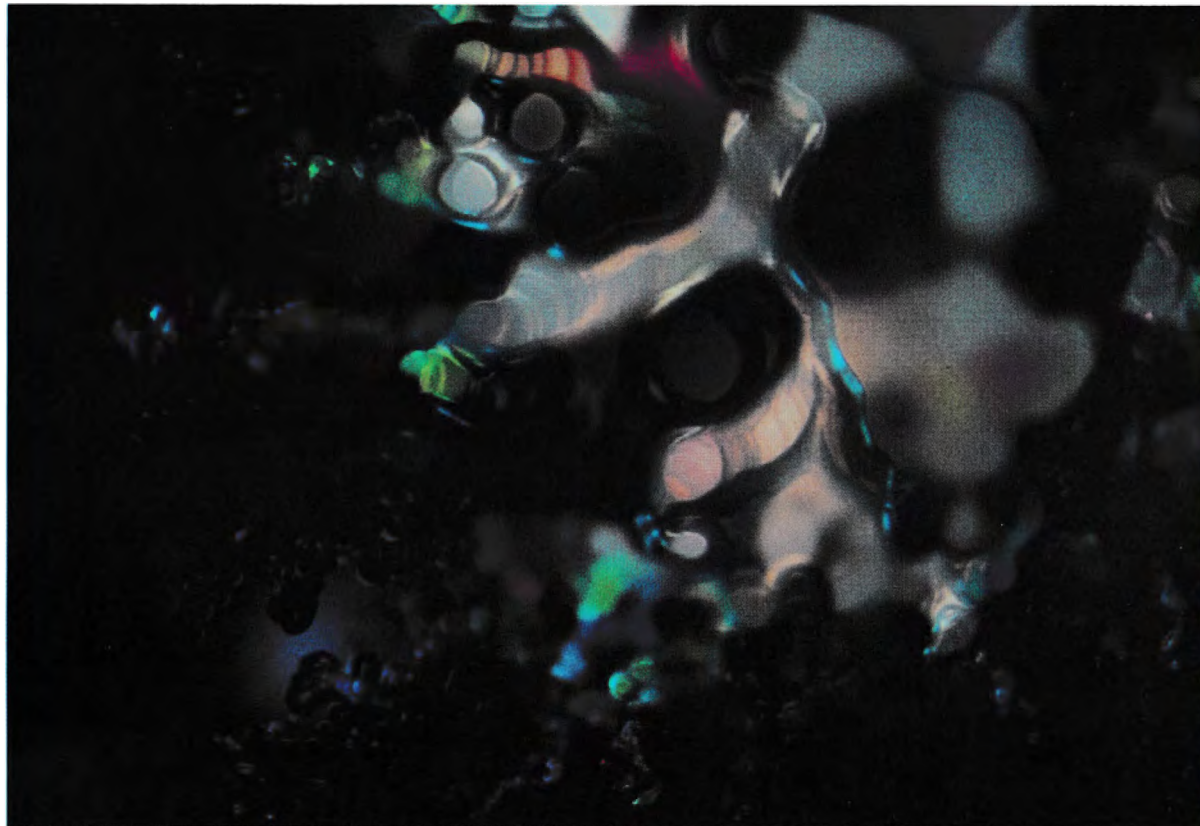
Xaos Inc.

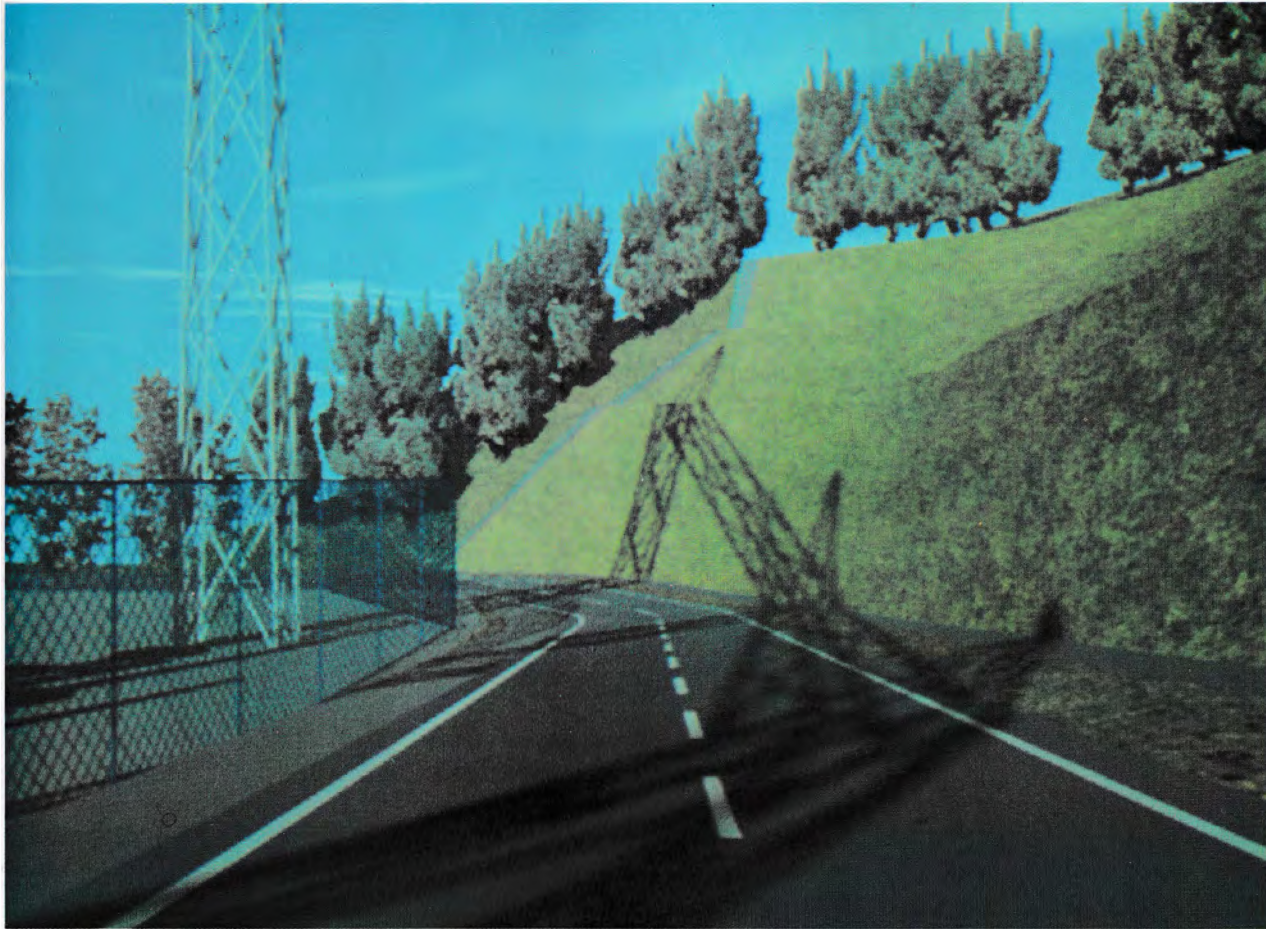
350 Townsend Street, Suite 101

San Francisco, CA 94107 USA

tel 415-243-8467

fax 415-243-9562





The Works of a Landscape Painter

01 00

Produced by

Electric Machinery Laboratory,
Hiroshima University
Diffraction effects, atmospheric
scattering models, solar
penumbra, and water color simu-
lation are used to render photo-
realistic landscape images.

Hardware:

Sequent S81
Silicon Graphics IRIS 4D

Software:

In-house

Contact:

Eihachiro Nakamae
Faculty of Engineering
Hiroshima University
4-1, Kagamiyama 1 Chome
Higashi-Hiroshima 724 Japan
tel 81-8-2422-7111 (ex 3445)
fax 81-8-2422-7195

Les Xons "Crac-Crac"

00:40

Produced by:

Ex Nihilo — Mac Guff Ligne

Les Xons, the tribe of little monstrous skeletons, dance and play tricks on each other on their hell planet.

Les Xons — Cecile Babiole

© Ex Nihilo — Mac Guff Ligne

Hardware:

Silicon Graphics

Software:

Explore TDI

Contact:

Mac Guff Ligne

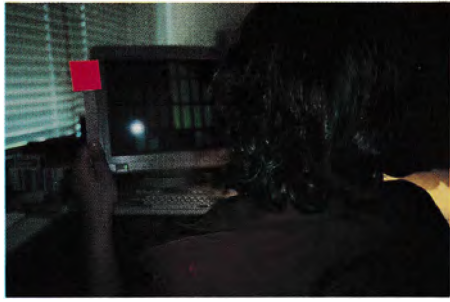
4 Passage de la Main d'Or

75011 Paris France

tel 33-1-4338-4455

fax 33-1-4700-1014





Audience Participation

Now's your chance to be a pixel in a crazy, first time anywhere experiment, consisting of you, reflectors, lights, video cameras, frame grabbers, computers, and lots o' software.

Produced by:

Loren Carpenter

Special thanks

Don Schreiter, for his PC patience.

Ed Catmull, for providing Loren with the time to do this project.

Jack Pfeiffer of GESI for help finding a camera. Steve Browning of Truevision for help in genlocking to it. Raymond Snow of Reflexite Corporation, New Britain, CT, for donating retroreflective material. Reflexite Corporation is committed to the development, manufacture, and marketing of retroreflective products that enhance recognition and safety, particularly for applications in which this technology can contribute to safety, by increasing the visibility of objects and people.

Hardware:

486 PC, SGI IRIS Vision, Truevision AT-VISTA

Software:

Custom

Contact:

Loren Carpenter

Pixar

1001 West Cutting Boulevard

Richmond, CA 94804 USA

tel 415-236-4000

fax 415-236-0388

Invisible Site

George Coates Performance Works

A live multimedia performance with projected stereoscopic and real-time computer imaging *Invisible Site* is performed twice nightly, Tuesday through Thursday, in the Artemus W. Ham Concert Hall at the University of Nevada Las Vegas.

George Coates Performance Works (GCPW), a San Francisco-based non-profit arts ensemble, is internationally known for its innovative applications of emerging technologies in live music theater. The GCPW production *Invisible Site*, which premieres at SIGGRAPH '91, is an outgrowth of GCPW's Science Meets Arts Society — SMARTS. SMARTS' mission is to provide an ongoing link between emerging technology professionals and multimedia artists, and to develop a new model for artist/industry collaboration.

Invisible Site is the result of a collaborative effort of artists and software engineers, who created a multimedia production in which performers interact with projected stereoscopic and real-time computer animation. The animation was produced on the Silicon Graphics 4D/210 VGX, Digital's DecStation 5000 model 200, and Macintosh IIx workstations.

Founded in 1977 and recognized as one of America's most outstanding multimedia performing ensembles, GCPW is comprised of artists drawn from many different disciplines and cultural backgrounds. Over the past fourteen years GCPW has created original live art productions, through a unique collaborative process that celebrates individual artistic

achievements and uses emerging technologies as instruments of creative human expression. In collaboration with its various industry partners, GCPW is currently positioned to develop and perform the next generation of three-dimensional, live presentation whether it be called theater, multimedia, trade show, or spectacle.

Tax deductible contributions to SMARTS of underwriting support, equipment, software, and personnel enable GCPW's non-profit multimedia ensemble to develop creative applications for emerging technologies. GCPW welcomes inquiries concerning SMARTS and the SMARTScenter.

Major support for George Coates Performance Works' production of *Invisible Site* has been supplied by Silicon Graphics, Inc., SIGGRAPH '91, and Sally Rosenthal. Additional support provided by Apple Computer, Inc., Digital Equipment Corporation, Intel Corporation, Kubota Pacific Computer Inc., and Esprit Projection Systems.

Other SMARTS participants include Barnyscan, Cayman Enterprises, Criswell Communications, Dynaperspective, Edison West, Kinetic Effects, MacroMind, Media Sense, NeXT Computer, Inc., Opcode Systems, Paracomp, Multimedia Computing Corp., and RasterOps.

Director/Text:

George Coates

Composer:

Marc Ream

Visual Coordinator:

Joel Slayton

Production Manager:

Dan Corr



Stage Manager:

Christian Wilson

Assistant Visual Coordinator:

Janet Ramage

Stereographic Imaging:

Roger Mulkey, Charles Rose

Multi-Image Programmer:

Frank Craig

Lighting Designer:

Gregory Allen

Computer Image Effects:

Phred Sharples

Assist. to the Director/Costumes:

Traci Robinson

Special Film Effects:

John Scarpa

Cinematic Effects:

Jeff Stringer

Sound Design:

Troy Gimbel

Sound Technician:

Adam Kopald

Music Direction:

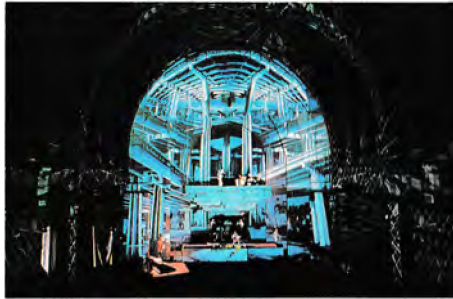
Sue Bohlin

Assistant Director/Text:

Robert Keefe

Script and Continuity:

Jennifer Roy



Storyboard Artist:
Filip Konieczny
Lab Photographer:
Tom Pitts
Seamstress:
Hannah Carlisle
Technical Director:
Jim Segura
Master Electrician:
Terry Mullen
Stage Carpenter:
George "Lobo" May
Stage Technicians:
Elias D'Elia, Robbin Schreiber

Cast

Regional Sales Rep.:
Robert Keefe
Gamer:
Gamall A
Isabel's sister:
Susan Volkan
Ashurbanipal:
Aurelio Viscarra
Isabel's sister:
Eileen Hunt

Musicians

Guitar:
Chris Halaby
Saxophone:
Sheldon Brown, Nik Phelps,
Steve Deutsch, Jamison Smeltz
Trumpet:
Doug Morton
Trombone:
Charley Seavey, Ross Wilson
Horn arrangements:
Doug Morton, Larry Schneider,
Marc Ream

Electronic Artists

Software Engineers, SGI:
Tim Heidmann, Paul Haeberli, Tim
Wiscinski, Dave Tristram, Peter
Broadwell
Musician/Programmer, SGI:
Roger Powell
Computer Animator:
Erik Bryan
Computer Imaging:
Scott Kim
Computer Facilitator:
Chris Leith
Computer Graphics:
Amie Slate
Software Engineers, DEC:
Stephen Harrison, Rafael Reich
Classicist, DEC:
Raymond Drewry
Software Engineers, NASA
Ames:
Creon Levit, Steve Bryson
Hardware:
Mac II, RasterOps board, IRIS VGX
4D/210, PC, NeXT, DecStation
5000/125 PXGT Turbo, Opcode
Systems Studio 3
Software:
Opcode Vision, MacroMind Direc-
tor, Swivel 3D, Screenplay, Cus-
tom software developed by NASA
Ames Research Center, Silicon
Graphics Inc., and Digital Equip-
ment Corporation

Staff

Executive Director:
Beau Takahara
General Manager:
David Hurd
Associate Producer:
Eric Bernhard
Development Director:
Brooke Boynton
Administrative Assistant:
Emily Cronbach

Advisors

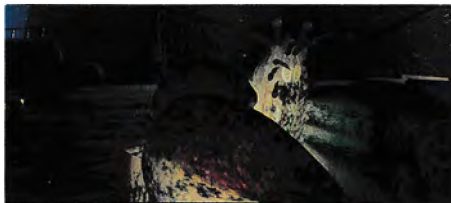
Sally Rosenthal, Digital Equip-
ment Corporation, SIGGRAPH '91
Electronic Theatre Chair
Johnie Hugh Horn, Big Research,
SIGGRAPH '91 Production Liaison
John Perry Barlow, Cognitive Dis-
sident
Carol Peters, Silicon Graphics,
Inc.
Leslie Doyle, Silicon Graphics,
Inc.

A special thank-you to Rob
Burgess, Fred Silverman, Jeff
Lane, Donald Gaubatz, Betty
Lynch, Mathews Cherian, Dave
Bonner, Frank McLanis, Jack
Sculley, Michael Naimark,
Kenneth Beckman, Michael
Wahrman, Andrew Goodrich,
Susan Endrizzi, Liz Gebhardt, Bill
Catsell, Bill Knowland, Jennifer
Tait, Wilson Farrar, and Audio Vis-
ual Headquarters Corporation.

Contact:
Beau Takahara
George Coates Performance
Works
110 McAllister Street
San Francisco, CA 94102 USA
tel 415-863-8520
fax 415-863-7939

Computer Graphics Screening Rooms

Producers from all over the world entered a total of 440 films and video tapes for the computer graphics screening rooms. Ninety-two works from 13 countries were selected for presentation from 9:00 am to 7 00 pm Wednesday and Thursday and 9:00 am to 2 00 pm Friday in theatre-style large-screen projection environments with high-quality stereo sound. The programs are shown in S111, S112/13, and S26, Las Vegas Convention Center. A stereoscopic 3D video program is featured in S111, and an HDTV program is featured in S112/13. Program schedules are available in the registration area, the electronic theatre office (S205), and at all computer graphics screening room venues.



Deep Sea Adventure
Produced by.
Omnibus Japan CG Center, Tokyo,
Japan



Green Movie Movie
Produced by:
Green Movie, Milan, Italy



The House That Radiosity Built:
An Introduction to the Radiosity
Method
Produced by.
Daniel R. Baum and Kevin P.
Smith, Silicon Graphics, Inc.,
Mountain View, CA, USA



Jaguar Moon

Produced by:

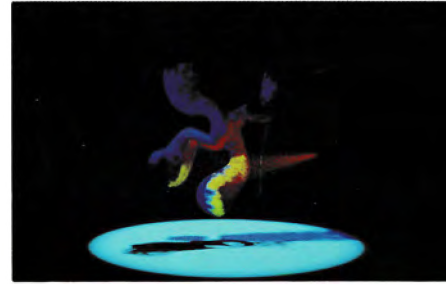
Apple Computer Advanced
Technology Group, Cupertino, CA,
USA



Mutations

Produced by:

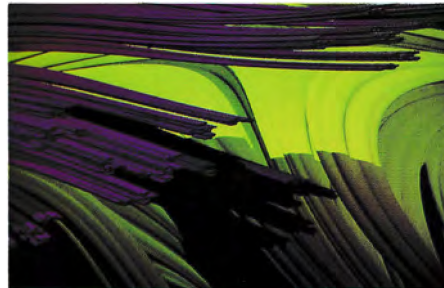
IBM UK Scientific Centre,
Winchester, UK



In Search of Performing Axis

Produced by:

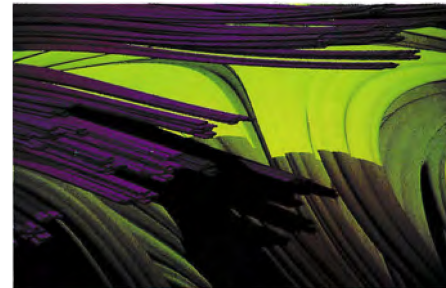
Polygon Pictures, Tokyo, Japan



A Volume of Two-Dimensional
Julia Sets (stereoscopic)

Produced by:

Dan Sandin, Electronic Visualiza-
tion Laboratory, University of
Illinois at Chicago, Chicago, IL,
USA



Supported by a SIGGRAPH
Special Projects research grant,
this piece, mastered in dual-tape
Betacam SP, may be seen in S111,
along with a collection of other
stereo 3D work that was mas-
tered on film and transferred to
videotape

Details

The video portion of the electronic theatre was mastered on and is presented in D1, from source NTSC and PAL formats including 3/4-inch U-matic SP, Betacam, Betacam SP, one-inch, D2, D1, and HDTV. Video editing services were donated by Editel Chicago and Editel SF. D1 video playback equipment was donated by Sony Corporation of America, Business and Professional Group

The film portion of the electronic theatre is presented in 35mm motion film, in a variety of formats: monoscopic and stereoscopic, 30 frames per second, 24 frame per second, with optical and magnetic sound; and in aspect ratios of 1.33, 1.66, 1.85, and 2.20 anamorphic. Film was edited by Ladd McPartland. Source formats included IMAX SOLIDO, VistaVision, and conventional 70mm, with 2-track, 4-track, and 6-track surround sound.

Stereo 3D glasses were manufactured and donated by Theatric Support, compliments of Kubota Pacific Computer Inc. Polarizer for the lenses was donated by Polaroid Corporation.

Custom software for "Audience Participation" was written by Loren Carpenter of Pixar to filter the retroreflective red/green matrix from overhead video images of the audience. This matrix is computer-processed in real time and projected onto a giant screen. Each audience member controls a pixel in the image.

Retroreflective material for "Audience Participation" was donated by Reflexite Corporation, New Britain, CT. Reflexite sheeting is composed of cube-corner micro-prism retroreflective elements integrally bonded to a flexible, smooth-surfaced tough and weather-resistant UV stabilized polymeric film. It is virtually the brightest reflective sheeting commercially available.

George Coates Performance Works' production, *Invisible Site*, is a rare example of a collaborative corporate, governmental, and personal effort to materialize a non-profit artistic vision. Major support was provided by Silicon Graphics, Inc. and SIGGRAPH '91. Additional hardware, software, and funding were provided by Apple Computer, Inc., Digital Equipment Corporation, Intel Corporation, Esprit Projection Systems, and Kubota Pacific Computer, Inc. We appreciate the contributions and cooperation of AudioVisual Headquarters Corporation, Barnyscan, Big Research, Cayman Enterprises, Criswell Communications, Dynaperspective, Edison West, Kinetic Effects, MacroMind, Media Sense, Multimedia Computing Corporation, NASA Ames Research Center, NeXT Computer, Inc., Opcode Systems, Paracomp, and RasterOps.

The HDTV computer graphics screening room program was mastered on 1/2-inch SMPTE 240M. HDTV editing services and equipment were donated by HD/CG New York and NHK Enterprises USA, Inc. All other computer graphics screening rooms programs were mastered on Betacam SP by Dana Plepys at the Electronic Visualization Laboratory of the University of Illinois at Chicago.

The SIGGRAPH Video Review volumes that contain material from the computer graphics screening rooms, issues 73, 74, 75, and 76 (one hour each), are available at the conference boutique, located in the lobby of the Las Vegas Convention Center. Material from the electronic theatre will appear in issues 71 and 72. These tapes may be ordered in the boutique, for shipment 9 September 1991.

This catalog was designed by Quorum Incorporated, Ann Arbor, MI, and printed by Conceptual Litho Reproductions, Inc., New York.

SIGGRAPH is a non-profit, volunteer-run organization.

SIGGRAPH '91 Electronic Theatre

Chair

Sally N. Rosenthal
Digital Equipment Corporation

Director

Johnie Hugh Horn
Big Research

Administrators

Robin Hathaway
Big Research

Timothy L. Parker
Interstitial Media Design

Audience Participation

Loren Carpenter
Pixar

Computer Graphics Screening Room

Lucy Petrovich
Savannah College of Art & Design

Kathy Tanaka
Independent

Database Processor

Ian McDowall
Fake Space Labs

European Liaison

Huguette Chesnais
Studio Base 2

Film Editor

Ladd McPartland
Independent

Jury

Susan Amkraut
Stichting Computeranimate

Loren Carpenter
Pixar

Karl Sims
Thinking Machines Corporation

Big thanks to the following organizations, whose contributions set a precedent for art and science collaborations in the computer graphics community.

Audio Visual Headquarters Corporation, Inglewood, CA
Breene Kerr Productions, Mountain View, CA
Conceptual Litho Reproductions, Inc., New York
Digital Equipment Corporation, Workstations Business Unit and UNIX Software and Systems Group, Palo Alto, CA
Editel, Chicago

Editel SF, San Francisco
Esprit Projection Systems
George Coates Performance Works, San Francisco
HD/CG, New York
Intel Corporation, Santa Clara, CA
Kubota Pacific Computer Inc., Santa Clara, CA
NHK Enterprises USA, Inc.
Opcode Systems, Menlo Park, CA
Polaroid Corporation, Norwood, MA

Quorum Incorporated, Ann Arbor, MI
Reflexite Corporation, New Britain, CT
Silicon Graphics Computer Systems, Mountain View, CA
Sony Corporation of America, Business and Professional Group
Theatric Support, Studio City, CA

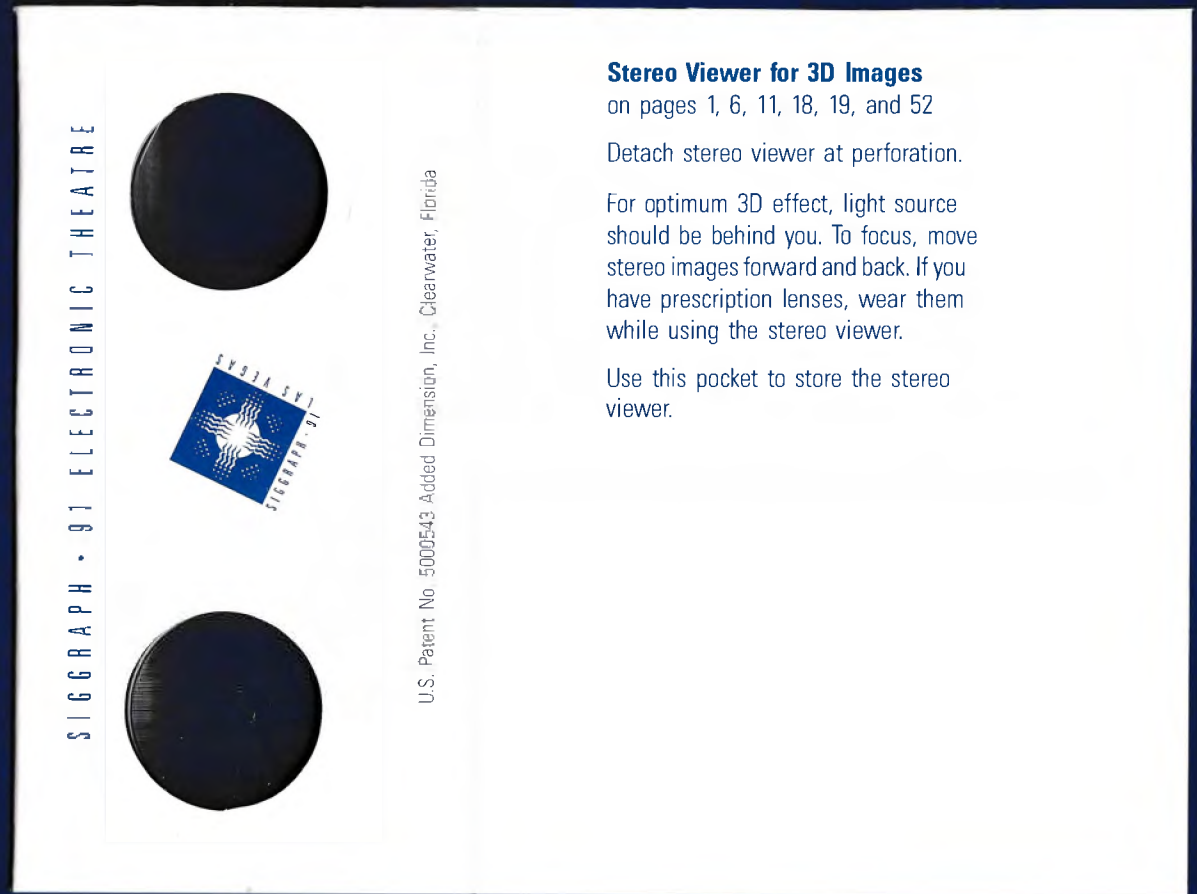
Very special thanks to Jeffrey Lane of Digital Equipment Corporation for his extraordinary support.

SIGGRAPH '91 Co-chairs
Michael Bailey
San Diego Supercomputer Center

Carol Byram
Sony Microsystems Company

SIGGRAPH '91 electronic theatre
tel 415-321-2143
fax 415-321-2189

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Stereo Viewer for 3D Images
on pages 1, 6, 11, 18, 19, and 52

Detach stereo viewer at perforation.

For optimum 3D effect, light source should be behind you. To focus, move stereo images forward and back. If you have prescription lenses, wear them while using the stereo viewer.

Use this pocket to store the stereo viewer.

U.S. Patent No. 5000543 Added Dimension, Inc., Clearwater, Florida

