THE WITCH AND THE DEVIL

Robert Schinella
1973
Transmission; projected image
25½" x 37½" 65 cm x 95 cm
Facility: McDonnell Douglas, St. Charles, Missouri
Collection of the artist
EGGHEAD

Michael Foster
1978
(White light) dichromate
8" x 10" 20.32 cm x 25.4 cm
Facility: Artist's laboratory
Collection of Linda Lane

HARMONY

Kazuo Hanano
1979
White light transmission
16½" x 14½" 42 cm x 37 cm
Facility: Holomedia Laboratories
Collection of Holomedia, Inc.
SPACE FACE

Anaït Arutunoff Stephens
1976
White light reflection/pseudoscopic
8" x 10" 20.32 cm x 25.4 cm
Collection of the artist
SPACE DAISIES
Anait Arutunoff Stephens
1978
White light reflection/orthoscopic and pseudoscopic
16” x 15” (12 plates) 40.64 cm x 38.1 cm
Collection of the artist

CREME DE MOTION, #8
Scott Nemtzow
1976
White light reflection/virtual
10” x 18” (3 plates, each 4” x 5”) 25.4 cm x 45.72 cm (3 plates, each
10.16 cm x 12.7 cm)
Facility: Brown University
Collection of the artist
BLACK CARBON

Rick Silberman
1978
White light reflection/projecting
8" x 10" 20.32 cm x 25.4 cm
Facility: Brown University
Collection of the artist
PORTRAIT OF SHARON
Lloyd G. Cross and Sharon McCormack
1979
360° integral hologram (lifesize)
Facility: filmed at Sterling Technology, Los Angeles; printed at
Oudensha Co. Ltd., Kawasaki, Japan
Collection of the artists

THE WAVE
Amy Greenfield
1978
360° integral hologram
10” x 16” diameter 25.4 cm x 40.64 cm diameter
Facility: Holographic Film Company; produced with grants from the
National Endowment for the Arts and the Cabin Creek Center Artist-in-
Residence Program funded by the New York Council on the Arts
Collection of the artist and Mrs. Benjamin Greenfield
CHANGE

Kazuo Hanano
1979
White light transmission
8¾” x 11½” 22.23 cm x 29.21 cm
Facility: Holomedia Laboratories
Collection of Holomedia, Inc.
ALICE'S BLUE BIRD

Hiroyuki Kaji and Fujio Iwata (engineer)
1978
Integral hologram in bird-cage frame
93/4" x 153/4" in cage 27 1/2" x 153/4" 25 cm x 40 cm in cage 70 cm x 40 cm
Facility: Toppan Printing Co.
Technical assistance by Tokyo Institute of Technology and Fuji Photo Optical Co.
Collection of Fujio Iwata, Toppan Printing Co., Ltd.

UNTITLED (Rose Prism)

Donald K. Thornton
1979
Multicolor limited parallax white light transmission/orthoscopic and pseudoscopic
8" x 10" 20.32 cm x 25.4 cm
Facility: Brown University
Collection of the artist
UNTITLED

Michael Long
1978
Dichromate
4" x 5" 10.16 cm x 12.7 cm
Collection of the artist
Núñez Lake

Sam Moree
1979
White light transmission/orthoscopic and pseudoscopic
8" x 5" 20.32 cm x 12.7 cm
New York Holographic Laboratories
Collection of the artist
On loan through the generosity of PARS Corporation

Spatial Frequencies II

Rudie Berkhout
1979
White light transmission
8" x 10" 20.32 cm x 25.4 cm
Collection of the artist
A WOMAN

Harriet Casdin-Silver: Camera people Will Walter, Paul Foley
1979
Integral
Prototype lens used in process courtesy of Dr. Stephen Benton,
Polaroid Corporation
Collection of the artist
A WOMAN

Harriet Casdin-Silver: Camera people Will Walter, Paul Foley
1979
Integral
Prototype lens used in process courtesy of Dr. Stephen Benton, Polaroid Corporation
Collection of the artist
WELKIN

Jerry Bedard
1978
Holigraphically embossed axicon on plexiglass
(process invented by Michael Foster)
16½" cube; 5½' on pedestal 41.91 cm cube; 167.64 cm on pedestal

SURROGATE

Al Razutis
1976
White light reflection with torso
16" x 16" x 22" 40.64 cm x 40.64 cm x 55.88 cm
Collection of the artist
COSMIC STORM

Charles Williams and Steve Michael

1977

White light transmission

5" x 8" 12.7 cm x 20.32 cm

Collection of Three Dimensional Imagery, Ltd.
HOLOGRAM (full figure poses)

Bruce Nauman
1969
Transmission
8" x 10" 20.32 cm x 25.4 cm
Collection of the artist
On loan courtesy of the Leo Castelli Gallery

PHOTONICS #1

Ruben Nuñez
1977
White light transmission, mirror-backed to view in reflection mode
Collection of the Museum of Holography
On loan from the Museum of Holography through the generosity of J. Randall Plummer
DIGITAL

Nick Phillips
1978
White light reflection/projecting
23” x 17” 58.42 cm x 43.18 cm
Facility: University of Loughborough
Collection of the Museum of Holography
On loan from the Museum of Holography
LION’S HEAD

NIFKI scientists
1976
White light reflection/pseudoscopic
12” x 16” 30.48 cm x 40.64 cm
On loan from the Museum of Fine Arts
Research and Holographic Center, the T. H. Jeong
collection

SPHERE AND COLLAGE

Anaït Arutunoff Stephens
1975
White light reflection/multi-media collage
8” x 10” 20.32 cm x 25.4 cm
Collection of the Museum of Holography
On loan from the Museum of Holography
PHOTON STUDY #10

Rudie Berkhout
1978
White light transmission
8" x 10" 20.32 cm x 25.4 cm
Collection of the artist
CRYSTAL BEGINNING

Designed by Stephen Benton; produced by S. A. Benton, H. S. Mingace Jr. and W. Walter
1977
White light transmission/projected image
12½" x 12½" 32 cm x 32 cm
Produced at Research Laboratories of Polaroid Corporation
Collection of Polaroid Corporation

RIND II (after M. C. Escher)

Designed by Stephen Benton; produced by S. A. Benton, H. S. Mingace Jr. and W. Walter
1977
White light transmission/projected image
12½" x 12½" 32 cm x 32 cm
Produced at Research Laboratories of Polaroid Corporation
Collection of Polaroid Corporation

OUT OF THE CYLINDER

Lloyd G. Cross and Sharon McCormack
1979
Composite 360° integral hologram (projection)
Facility: Oudensha Co. Ltd., Kawasaki, Japan
Collection of the artists

PLANETOID DIFFRACTION

Jonathan David Klempner
1976
White light reflection/pseudoscopic
4" x 5" 10.16 cm x 12.7 cm
Collection of the artist, ΔQ Studio
SIDEWALK DREAM
Sam Moree
1977-1978
White light transmission/orthoscopic and pseudoscopic
4" x 5" 10.16 cm x 12.7 cm
New York Holographic Laboratories (edition of 20)
Collection of the Museum of Holography
On loan from the Museum of Holography through the generosity of PARIS Corporation

AETHER VANE
Al Razutis
1976
White light reflection
13" x 10" x 16" on plinth 33.02 cm x 25.4 cm x 40.64 cm on plinth
Collection of Jack Hardman, Director, Burnaby Art Gallery

RAINFOREST
Al Razutis
1976
Transmission
14" x 11" x 20" 35.56 cm x 27.94 cm x 50.8 cm
Collection of the artist

LENS IN FRONT
Mac Rugheimer and Larry D. Kirkpatrick
1977
Transmission
7" x 7" 17.78 cm x 17.78 cm
Facility: Department of Physics, Montana State University, Bozeman
On loan from the artists
SHADOWBOX

Dan Schweitzer
1978
White light transmission
6½” x 4½” 15.5 cm x 11.5 cm
New York Holographic Laboratories
Collection of the artist
On loan through the generosity of PARS Corporation

PUM III

Designed by Will Walter; produced by S. A. Benton, H. S. Mingace Jr. and W. Walter
1976
Achromatic white light transmission
9½” x 9½” 24 cm x 24 cm
Produced at Research Laboratories of Polaroid Corporation
Collection of Polaroid Corporation

MOTHER EARTH

Zush
1978
120° integral hologram
Collection of the artist, courtesy of Jason Sapan Holographic Studies and Sapan Engineering Company
Coherence—light is said to be coherent when it is composed entirely of waves of a single wavelength, which proceed evenly from a single source. Laser beams are both spatially and temporally coherent.

Spatial coherence—light is spatially coherent when the waves are all in phase at a given distance from the light source.

Temporal coherence—light is temporally coherent when the waves are all of the same frequency. Temporally coherent light is monochromatic (that is, of the same color).

Continuous wave (CW) laser—a laser that emits waves in an uninterrupted beam.

Dichromate hologram—a type of (usually reflection) hologram recorded on film made of dichromatic gelatin. Dichromate holograms are very efficient and can be viewed by ordinary daylight; thus they are used for jewelry.

Fringe(s)—pattern(s) of light and dark bands caused by interference of coherent waves of light.

Helium-neon laser—a continuous wave laser which uses excited helium and neon gases to produce coherent light; the laser most commonly used by holographers.

Integral hologram—a holographic “movie,” which creates a sequence of virtual images viewable with an incandescent light bulb.

Interference—the process by which two coherent light waves combine to produce a pattern of fringes.

Constructive interference—when the two waves are in phase, they “add” and produce a light band.

Destructive interference—when the two waves are out of phase, they cancel each other out to produce a dark band.

Laser—acronym for Light Amplification by Stimulated Emission of Radiation; a laser produces light that is both temporally and spatially coherent—a very regular beam of a single color.

Mercury arc lamp—a lamp that produces light by exciting mercury atoms; with a color filter, an alternative to a laser for illuminating transmission holograms.

Object beam—during the holographic process, the laser beam is split. The object beam is the portion that illuminates the object being holographed. The beam is changed by the object before it interferes with the reference beam in the holographic film or plate.
Orthoscopic image—the reconstructed image that maintains the same spatial relations between objects that they had when they were holographed; an orthoscopic image is usually located behind the hologram.

Parallax—the observed shift in position noticed between a close object and a distant object as the observer changes his/her viewpoint.

Phase—light waves are in phase when they have their crests together.
Antiphase—light waves are in antiphase when the crest of one coincides with the trough of the other.

Phase hologram—a hologram that refracts light by means of varying the index of refraction of a transparent substance. Also known as a bleached hologram.

Pseudoscopic image—a reconstructed image that reverses the spatial relations objects had when they were holographed; usually the pseudoscopic image appears in front of the plane of the hologram.

Pulsed-ruby laser—a laser that emits light intermittently; often used when holographing a living or other moving subject because of its short burst of high energy coherent light.

Real image—an image projected on a screen or other surface.

Reference beam—during the holographic process, the laser beam is split. The reference beam is the part that is aimed directly at the film without being affected or changed by the object being holographed.

Reflection hologram—a hologram in which the object beam and reference beam interfere from opposite sides of the holographic film or plate. Reflection holograms are viewed by reflecting a (usually white) light source toward the viewer from the hologram.

Transmission hologram—a type of hologram in which the object beam and reference beam interfere from the same side of the holographic film or plate. Transmission holograms are viewed by light (frequently coherent, although white light is sometimes used) transmitted through the hologram toward the viewer.

Virtual image—an image that is directly viewable by the eye without a screen or other projection surface.
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