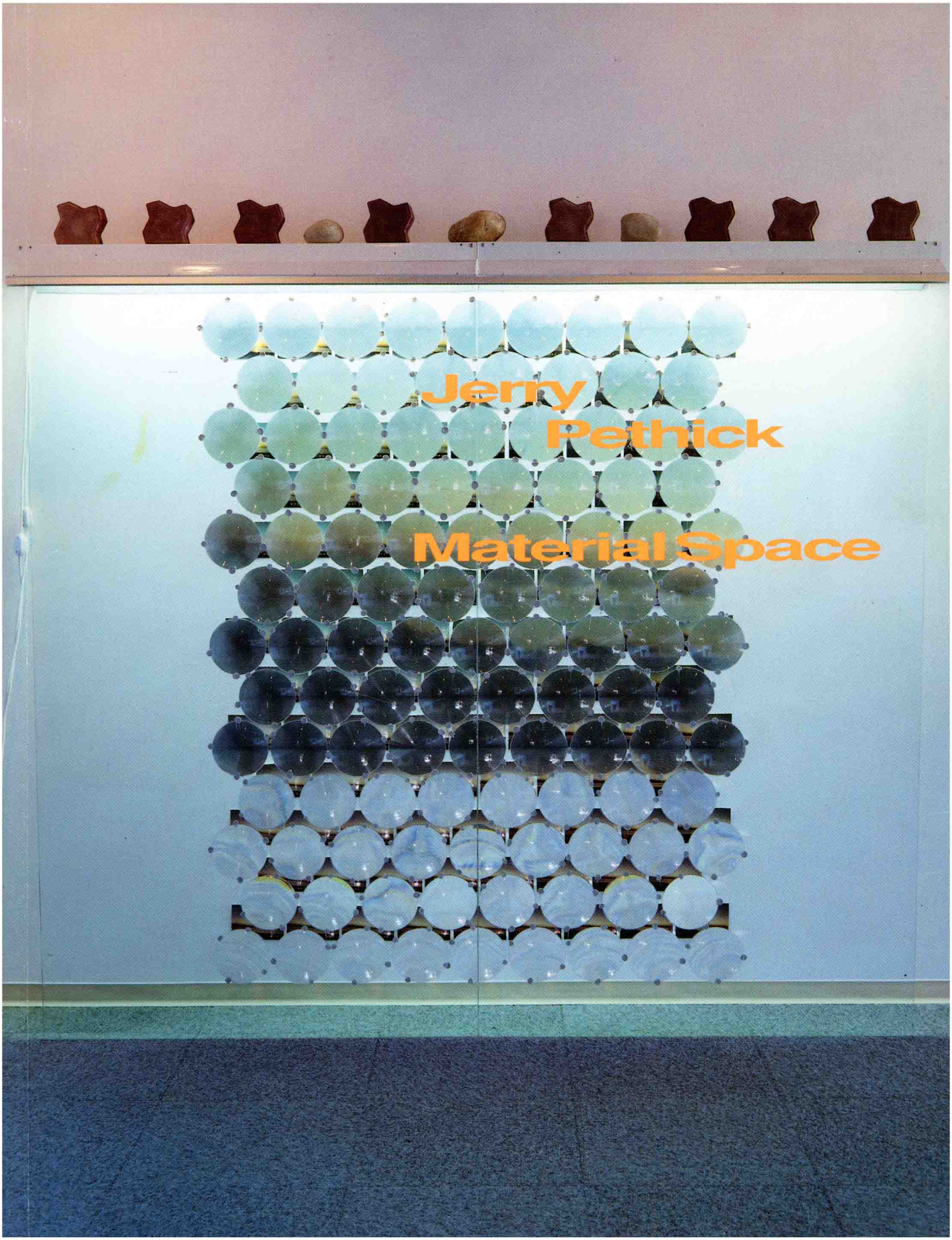

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PETHICK: Material Space

BY: MATTHEW KANGAS

INTRODUCTION

Fig. 2

Jerry Pethick as seen in fly's eye camera, 1987

Courtesy of the artist

The role of the 20th-century artist has often been cast in that of differing identities. Marcel Duchamp and Marcel Broodthaers were *bricoleurs,* playful magicians making art appear and disappear at will. Salvador Dali and Andy Warhol were clowns and society courtiers, as eager to appall as to please patrons. Jerry Pethick could be seen as an inventor. Obsessed by the history of optical perception, the photograph, and the development of sculpture's potential, he has invented different kinds of sculpture which must be seen in the context of scientific developments since 1826 (the invention of photography) in order to be fully understood.

That Pethick's sculpture can be experienced and enjoyed without this understanding of scientific developments is entirely possible and a tribute to the artist's consummate control over materials. But when viewed in the long shadow of the developments of 19th-century optics, its meaning emerges. Just as the Impressionists and Post-Impressionists' awareness of photography permanently altered the way they painted, so his overriding interest in these issues and their relation to the optical perception of the three-dimensional object has changed his own art.

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Background

Born Gerald Thomas Bern Pethick in London, Ontario in 1935, he is the son of a man of many parts as well, a crane builder, carpenter, and tinsmith. As a young man, he worked side by side with Finnish-Canadian miners in the nickel mines of Ontario and marvelled at their mastery over tools and their ability to fashion materials to fit precisely into spaces without measuring in advance.

An early experience deep in the mines set the stage for the artist's curiosity about the flexible nature of light, sound, and space. Chosen to set the explosive charges once the holes are drilled, he was smoking a cigarette at the moment he pressed the detonator. As he watched the curling trail of cigarette smoke, everything shifted sideways in layers during the shuddering explosion. As the dust cleared seconds later, Pethick observed how the cigarette smoke, too, shifted back to exactly the same continuous configuration as if the charges had never happened. Chaos, pattern, and materials seemed closer together than he had ever imagined.

Going on to art school in England in 1957, he studied sculpture at the Chelsea Polytechnic in London with the Dame Elisabeth Frink and Bernard Meadows, later named head of Royal College of Art. After graduating from Chelsea with a National Diploma of Design, he set up his own studio, worked on waxes for bronzecasting, and met other artists from Commonwealth nations, like painter Frank Bowling of Guyana. Active in the Artists International Association and the Young Commonwealth Artists Group, he participated in their group shows and generally enjoyed life in what was soon to become "swinging London".

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When Meadows offered Pethick a scholarship to attend the Royal College of Art, he readily accepted and entered into one of RCA's most fertile and exciting periods, 1961-64. Frink was again a teacher, along with Robert Clatworthy, George Fullard, Michael Kuellman (a former student of Cambridge philosopher Ludwig Wittgenstein) and critic John Berger. Fellow students included Roland Piche, Patrick Caulfield, Nigel Slight, and Allan Jones.

While still a student at the RCA, he heard a young rock 'n roll group, The Rolling Stones, play at a college dance.

It was in the years after the Royal College, 1964-67, that Pethick began to be seriously interested in technology and its application to sculpture. An international plastics exhibition held at Olympia Conference Centre in London in 1965 had an important impact and, before long, he had acquired vacuum-forming equipment, was experimenting with polyethylene, and using hot-air welding tools to bend plastic. To earn a living, he got a job as an art mover and gallery assistant with dealer Victor Waddington.

When Pethick called scientist Dennis Gabor of the Imperial College on the telephone in 1967, he wanted to learn more about Gabor's experiments with three-dimensional images, called holograms. "Maybe you've made sculpture obsolete!", Pethick recalls telling Gabor. "I hope so!", Gabor responded.

Thus ensued a long period of absorption in holograms which took him to New York; Ann Arbor, Michigan; San Francisco; Los Angeles; and back to London. Still immersed in the London art scene, he met and became friends with the painter

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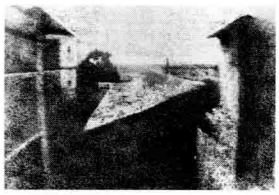

Fig. 3. World's first photograph. Nicephore Niepce: View from Window at Gras, 1826. Courtesy of Gernsheim Collection, Harry Ranson Humanities Research Center, the University of Texas at Austin.

Francis Bacon; playwright Tom Stoppard; American photo-realist Richard Haas; R. B. Kitaj; David Hockney and others.

It was another scientist at Imperial College, George Jull, who welcomed Pethick's interest in the three-dimensional photo process and suggested he meet Bell Laboratories' Robert Pole, as well as Roger de Montebello, researcher of integrams. He also met a laser physicist, Lloyd Cross of the Detroit defense contractor, KMS Industries. It was during this period, 1964-67, that he was first introduced to rolux, a lenticular sheeting material which is laminated together to create optical distortion. He made a series of drawings using rolux.

With Cross moving to London on business, Pethick's interest shifted to holography. Cross had brought to Britain a small laser. Pethick's small studio on Walmer Road in the Ladbroke Grove area was set up for laserwork with the idea of making his first holograms.

Combining Ilford spectroscopic plates, chemicals, and front-surface mirrors, Pethick repeatedly exposed plates with the laser. The subject, a real prawn on a white plastic X, was difficult but eventually a holographic image was captured. All of his heroes—photography inventor Nicephore Niepce (fig.3); theorist and painter Georges Seurat; and colour photography inventor Gabriel Lippmann (fig.4)—would have been proud. He had carried their experiments to the next logical step: space.

The following year, Pethick helped organize and was included in the first known holography exhibition at the Cranbrook Academy of Art gallery in Bloomfield Hills, Michigan. One year later, 1969, he was featured in the first holography show in New York, "N Dimensional Space" at the Finch College Museum of

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Art and his work was warmly praised by *Newsweek* art critic Douglas Davis.

After living briefly in Ann Arbor and New York, Pethick settled in San Francisco in 1970. For the next five years until his return to Canada, he pursued a highly fruitful path of teaching, experimentation, and exploration of holograms leading to what he called "integral photography".

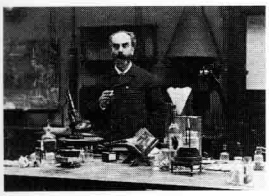

Fig. 4. Gabriel Lippmann in his laboratory at the Sorbonne, Paris, 1894 (note stereoscopic camera at right). Courtesy of Jerry Pethick

As a co-founder in 1971 of the first School of Holography in San Francisco, Pethick oversaw and taught classes which originally consisted of four classes of ten students each. Five major educational institutions in the Bay Area, including the University of California at Berkeley and the San Francisco Art Institute (where he had taught earlier), all agreed to offer academic credit for their students attending School of Holography classes. Several students became class assistants and two, Fred Unterseher and Lon Moore, went on to become well-known authorities on holography.

Pethick took full advantage of the available advanced technology in the Bay Area and experimented with many different lenses from the Optic Science Group, Inc., in San Rafael, California. For his first "integral photo", he took 256 2 1/4-by-2 1/4-inch photographs with Charles Frizzel of nearby Mt. Tamalpais using a Hasselblad camera. He shot through a large gridded sheet of plate glass held in a wooden frame, attempting to approximate a fly's-eye lens.

After processing 25 rolls of colour film, he placed the uncut 2 1/4-inch slides on a large sheet of plastic in rows, slightly altering the intervening spaces between each photograph. These were, in turn, sandwiched between two plastic sheets. A third sheet, held

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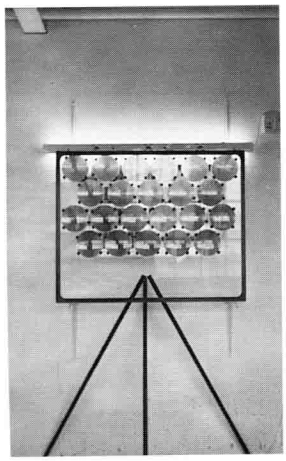

Fig. 5. Jerry Pethick: (detail) Subject and Object, 1990. 22 photos, Fresnel lenses, glass, rubber, silicone, mixed media. Courtesy of the artist

away from the image with spacers, provided the surface for the lenses (fig. 5). Pethick placed one plastic lens over each image. Thus, when the viewer looks through first one lens and, then, two at once, a binocular or stereoscopic image appears to the eye. Stepping back gradually, more and more lenses enter the viewer's field of vision so that, given a distance of five to ten to twenty feet, a large overall image appears to hover *between* the sheets' surface and the viewer's body. As Douglas Davis put it in his *Newsweek* review, "now he is planning exceptionally complex forms that will float in large 'real' scale, perhaps 3 feet by 4 feet before the eye. He is finding his way to a new aesthetic, an aesthetic that preaches solidity while it practices the immaterial and insubstantial: the impossible, in brief, made possible." This is the core and essence of Pethick's "material space" concept, a kind of home-made three-dimensional image, not a hologram, but a viewer-activated visual experience approximating three dimensions. His next task would be to combine the "integral photos" with adjacent sculptural elements to complicate the visual field even more. His mature phase as a sculptor would occur where his life began: in Canada.

Development

Recycling was a way of life for Pethick when he moved to remote Hornby Island off the British Columbia coast in 1975, both as a settler and as an artist. It was the crucial influence on his first mature phase as a sculptor and one which continues to affect him to this day. Pethick drew from the cast-offs at the Hornby

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Island Recycling Depot for his sculptural materials: porcelain-enamel appliances, tires, washing machine agitators and tubs.

In this way, Pethick combined low-technology materials with high-technology optics. During the mid-1970s, he had intensified his inventor's researches into the later developments of early photography. Whereas Nicephore Niepce created the first fixed photograph in 1826 and later collaborated with Daguerre whom he met through their common lensmaker, Chevalier, it was a Sorbonne scientist, Gabriel Lippmann, who developed a full-colour photography process in 1891, for which he was awarded a Nobel Prize.

Fig. 6. Jerry Pethick: (detail) Margaret and Yana and the Century Plant, 1972. Black-and-white photograph Courtesy of the artist

Germane to Pethick's interests, Lippmann had hypothesized that an array of slightly altered images of the same scene would reconstruct itself into a single image with depth, as Douglas Davis described above. This was scientifically proven by a Russian researcher in 1931 and by Pethick's friend at Bell Labs, Robert Pole, in 1961. The implications of all these breakthroughs became significant for Pethick's art.

They proved that, as Pethick put it, "space is the most important part of sculpture and vision is not a hierarchical sense."

Working away in a succession of studios on Hornby Island and subsequently in Paris, London, and Montreal, he has been able to retain an open, improvisatory flair in the appearance of his finished sculptures. They appear as objects in the process of being invented, without beginning or end. This has confounded many viewers and critics, accustomed as many of us are to more conventionally completed-looking types of sculpture, but this raw and often slapdash look is crucial to conveying the quality of

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open-ended laboratory experimentation, what Pethick titled his Vancouver Art Gallery exhibition, "Traces of Discovery."

Glass began to play an important role in his art once he moved to Hornby Island and especially after his first of three visits to Pilchuck Glass School in Stanwood, Washington where he was resident artist at the invitation of director Dale Chihuly. He had already met experimental filmmaker and glass artist Paul Marioni in 1974 during his San Francisco sojourn, but it was the availability of recycled glass such as light bulbs on Hornby Island and the possibility of having anything he wished made in glass at Pilchuck that freed up Pethick to use glass in accentuating its transparency, optical properties, and liquid qualities.

Fig. 7. Jerry Pethick: (detail) Composite Portrait, *1989* *Black and white photograph* *Courtesy of the artist*

This material development coincided with his renewed and growing preoccupation with early 20th-century optics. He adapted Auguste Fresnel's invention of a flattened glass lens for use in lighthouses to his own "integral photos" and dedicated a piece to the Frenchman, *The Lighthouse Invites the Storm/Charting Undulation* (1982). Fresnel's lenses, now widely used in theatre lighting and often manufactured in plastic, compressed and intensifed light in the same way that Pethick wished to abruptly channel the way the viewer traditionally perceives an image. From 1986 on, the grid of Fresnel lenses placed a few inches over the rows of photo images would become a repeated, essential hallmark of his most ambitious sculptures.

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MATURITY

No one in the world is making sculptures quite like Jerry Pethick's. His particular concatenation of objects, perceptual goals, and historic allusions combine in an absolutely unique experience at once challenging, frustrating, and ultimately enjoyable and humourous. It has taken nearly 30 years to bring together all the diverse activities and the results are among the most intriguing artworks of the present decade. They combine an early-modernist preoccupation with the unreliable aspects of optical vision seen in the anti-realist representation of, say, Cubism or Futurism, and the distinctly postmodern concerns with what critic Rosalind Krauss called sculpture's "expanded field" of non-unified materials, placement, and ecological issues such as recycling.

At the same time, autobiography, psychology, and subjectivity also are significant aspects of Pethick's art. With the multipartite nature of a Pethick sculpture often confusing the viewer, he or she is thrown back on his or her own resources, forced to look inward for possible recognizable references drawn from prior experience, and gently led outward to confront the realization that the perception of the artwork is inextricably tied to the presence and physical position of the viewer's own body.

Terribly resistant to photographic reproduction, Pethick's art is itself a scientific and artistic conundrum. If the meaning of the work resides in the viewer's gradual awareness of his or her own relationship to the three-dimensional floating "material space", how could this internal, retinal phenomenon possibly be captured by a camera? Thus, the one contemporary artist most

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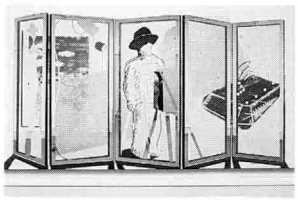

Fig. 8. Jerry Pethick: The Seventh Screen/ Returning You to Regular Programming *(1984), enamel, steel, mixed media, 58 by 106 by 2 in. City Light 1% Portable Works Collection, Seattle Arts Commission. Acc. CL84.051.*

obsessed by the implications of photography cannot fully benefit from photography's recording power of his achievements.

Given this caveat, we arrive at another facet of Pethick's contributions. He has returned the art experience to the individual viewer, taking it away from the pervasive mediations of technology in the form of the photographic art reproduction. To borrow the subtitle of his 1980 *Seventh Screen* (fig. 8), he is "returning you to regular programming", not the reassuring drone of passive television viewing but the unusual experience of seeing three-dimensional objects in a perspective relationship to a floating, stereoscopic image. Radically subversive in the sense that this makes us question profoundly what we think we are seeing the rest of the time, Pethick's 1960s sensibility has triumphed in the opposite, conformist and consumerist 1980s and 1990s. His art is both a tonic and a warning that we must question everything (beginning with empirical vision) as well as contemplate the results of a throwaway society.

The final years of the 1980s saw a succession of major sculptures which operate on a number of different levels: ecological, personal, perceptual, historical.

After exhibitions in Victoria, Vancouver, and Seattle, he proceeded to refine the dominant image in each tableau or installation into something more simplified and recognizable: a dog, a cat, a wheelbarrow, a treasure chest. These objects—often created out of accretive, repetitive materials like cardboard tubes or glass balls—became the foreground in the complicated experience of "material space". That is, when first encountering a double-part sculpture, i.e., floor object and wall-mounted integral photo, the floor object (dog, wheelbarrow, boat, etc.)

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dominates our vision because of its size. Upon approaching and "locking into" the binocular image of the "integral photo", it enlarges as one steps backward from the wall. At a certain point, the floor object complicates the field of vision by acting as a second, intruding element. This real 3-D object echoes the "unreal" material space image in our eye and the experience of seeing both at the same time becomes our whole visual record of the work: figure and ground are merged into one view.

All of this is tied to Pethick's early interchange with Dennis Gabor about the advent of holography making sculpture "obsolete". Far from rendering sculpture obsolete, in his hands, the implications of manufactured, evanescent three-dimensional images led to an art which simulates the electronic event of holography. Instead of a machine, he has conceived of ways for the unaided human eye to accomplish the same thing. Maybe it is Pethick who now deserves the Nobel Prize—or at the very least an O.B.E.

Dismantling Pethick

The temptation with Pethick is to discuss, as most commentators have, the context for his sculptures, their allusions to scientific history, for example, instead of their formal properties and attendant meaning. In this essay, I share some of the blame. Nevertheless, I have tried to stress the necessity of physically experiencing his sculptures. Walking all around one, looking at it from every possible angle, is basic and essential. After all, it is not

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only the control of the viewer in the 2-D/3-D pattern described above which will enhance enjoyment and understanding.

Little discussed have been the works' formal properties: colour, form, texture, and shape. Sadly, except for the case of ceramic sculpture, colour is usually seen as a superfluous or applied aspect of sculpture, an afterthought. In Pethick's case, Isaac Newton is responsible for determining his colour sense. Newton's discovery of the spectrum influenced a number of artists and theorists in succeeding centuries: M. E. Chevreul, author of *The Principles of Harmony and Contrast of Colours and Their Applications to the Arts* (1839), posited relationships between complementary hues; Georges Seurat's Divisionism and Post-Impressionism broke colour down into separate adjacent modules; and, in our own century, Josef Albers also stressed in his 1963 book, *The Interaction of Colour,* the intrinsic qualities of colours which, when placed next to one another, tended to expand or contract, advance or recede.

At first, colour does not seem a critical part of Pethick's sculptures either. The black and white colouring derived from the recycled appliances has struck some critics as icy, northern, and Canadian. The advent of the integral photos combined with the adjacent floor objects, however, reintroduced colour in a subtle, secondary way. Viewed separately, the colour photographs insure that the stereoscopic image of "material space" is in colour, like "real life". Examining the floor objects, one notes their bright industrial colour, as in *Drawbridge Dilemma* (1990), which places colour in a central role. Finally, the introduction of spectral colour with prismatic plastic taping, produced a virtual signature material for Pethick, strongly influencing his American followers like

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Buster Simpson. Truly Newtonian, diffraction grating tape (as it is also known) splits up the spectrum of colour to give a rainbow effect and lends a chromatically dynamic surface depending upon the proximity of light. At the same time, strictly observable aesthetic choice seems avoided whether by the introduction of spectra-tape or in the use of found or readymade, pre-coloured objects.

Form is baroque and elusive in Pethick's work. Considering the very presence of "material space" manages to make the term seem a contradiction of terms, volume in its traditional sculptural sense does not really exist in this case. Yet again, as the recent pieces attest, form can inhabit volume and coexist with the literally intangible form of the "material space". In fact, in order to fully appreciate the complicated perceptual battlefield he sets up in each work, the bulky forms of the floor objects are absolutely essential to the success of the hovering, immaterial 3-D image. In this way, he has redefined sculptural form in the late 20th century, extrapolating the Futurists' notion of exploding forms into the dispersed, renewed "figure/ground" relationship in his current work.

Texture is less elusive but equally key to unravelling the appeal of Pethick's art. For a sculptor so preoccupied with the evanescent, the intangible, the purely optical, it would be easy to forego the tactile. If we disregard our plan to experience a Pethick sculpture all at once, floating image and all, it is possible to isolate the various textures he has used to strengthen the physical character and believability of the floor components: smooth, sleek, sticky, rough, and possibly wet. The use of silicon gel as a binding agent, surrogate drawing or painting element, and general fix-it material is an important part of texture in Pethick's studio

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procedures. Porcelain-enamel often acts as a pristine white ground for the skeleton of a work: shiny, durable, reusable, and with hints of a previous "life" as refrigerator, washing machine, or stove. Glass also has its own changeable texture and he has employed the entire range of glass' flexible properties as texture: liquid-appearing, broken and jagged, opaque and mysterious. Other hardware-store concoctions such as tar, duct tape, rubber, and glue also lend a variety of textures which, in their generally colourless or monochromatic character, serve as foils for the rainbow hues of the spectra-tape.

Overleaf:

Jerry Pethick:

Snake Deletion,

Haystack and Sunrise

(detail), *1991.*

Photograph:

Daniel Smith

Shape is the outline of form. With Pethick, the perception of shape is the dawn of vision. Just as form in his work is eccentric and baroque, so its sister, shape, mixes straight lines with curved, circles with squares. To begin with, the circular shape of the human eye and, then, the optical lens, is the leitmotif shape in his art. Repeated circles comprise the integral photo gridwork; the fly's eye lens camera he made; and the car tire or ends of the cardboard tubes in *Let Sleeping Dogs Lie* (1989). It is an elemental shape, "easier" on the eye than straight lines or spiky outlines.

Much of Pethick's attitude toward shape involves an effort to recapture basic recognizable shapes which human experience has imprinted upon our memory at an early age. The kitty; the dog; the full-figured *Replica of Willendorf* (1981-82) (as mother?), these are outlines of recognizable images accessible to all. Rather than delineating them clearly, the artist has depended upon the mind's power to identify such shapes quickly, thus using shape as a shorthand for sculptural volume or form. Taken along with colour and texture, form and shape assemble together neatly in a

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Pethick sculpture after repeated viewing. In fact, dismantling them and then recomposing them in our field of vision not only describes the way we experience his sculpture; it describes how we first encounter any unfamiliar setting in the world at large.

Conclusion

The link between perceiving Pethick's art and how we perceive the unfamiliar world in general underscores the profundity of his achievement. His concept of "material space", which I have tried to explain and which is also expanded upon in his own accompanying artist's statement, is a combination of craftsmanship and aesthetic content. Both properties, making and meaning, are tightly though often cumbersomely connected in his art, just as the cumbersome size of the early camera was necessary to get the first ineffable, dematerialized images of the world.

The camera and the photograph, the laser and the hologram, all these technological developments are extensions of the human eye and brain and all have changed the nature of our vision. In so doing, as Jerry Pethick's art reminds us, they have altered the basis of our perception of the world around us.

By making us aware that "vision is not a hierarchical sense", that it is readily dependent upon how objects are presented before us, he is telling us how uncertain our optical vision is, thus undermining any smug beliefs we may hold about the world.

Therefore, such a challenging stance renders him radically subversive and significant because, once we accept his challenge about our precarious visual hold on the world, we must begin to question everything. At the same time, perhaps paradoxically, he

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has done this through reasserting the autonomy of the art object, a very conservative, modernist, or "post/prehistoric" (as he would say) thing to do.

Spanning ideologies, preserving one status quo (art) while demolishing another (vision), Pethick is an important artist because this is what great artists have always done: subtly question our beliefs, raise hopes about greater possibilities, and convey this challenge through the crafting of an object which offers us a new vision of an old world.

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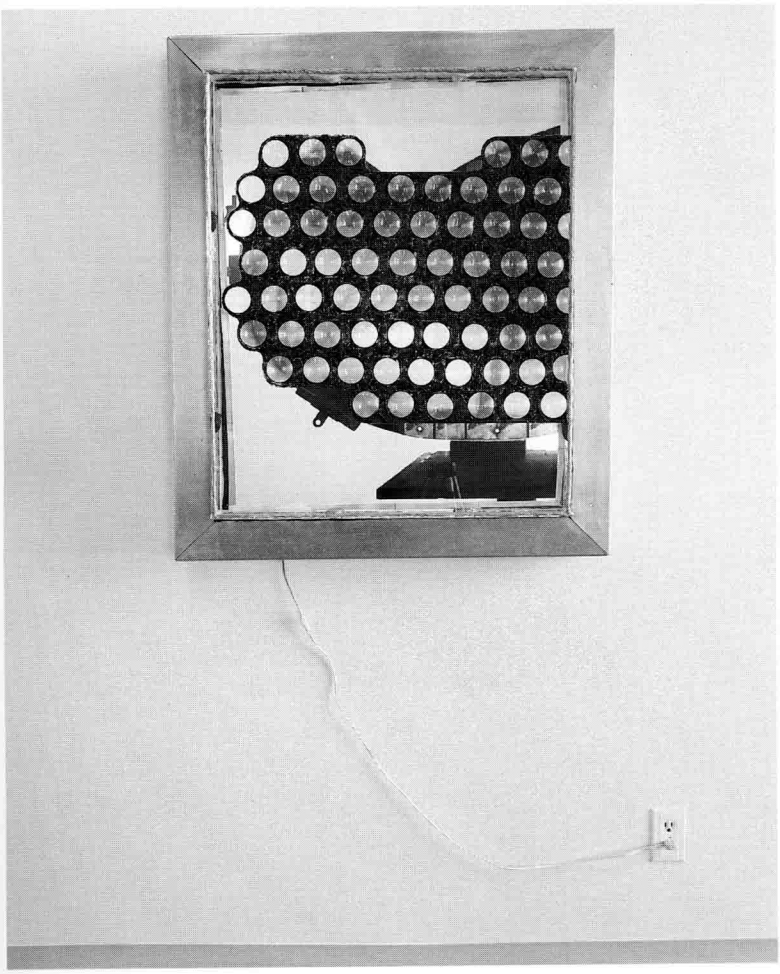

Jerry Pethick:

Armchair

Traversе,

1987.

Photograph:

Daniel Smith

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Jerry Pethick: Material Space. Alberta: Southern Alberta Art Gallery, 1992.