Lygia Clark and Hélio Oiticica: A Legacy of Interactivity and Participation for a Telematic Future

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The rapid development of the Internet since 1994 and the increasing number of artists working with digital communications technology has brought new attention to the role of interactivity in electronic media and in emerging digital culture. Interactivity in art, however, is not simply the result of the presence and accessibility of personal computers; rather, it must be regarded as part of contemporary art’s natural development toward immateriality, a phenomenon that is evidenced, for example, in the works of Brazilian artists Lygia Clark and Hélio Oiticica.

Concerning itself with the circulation of ideas among artists working in vastly different cultures, this article explores visual and conceptual parallels between Clark’s and Oiticica’s sensorial creations from the 1960s and 1970s—masks, goggles (Fig. 1a), hoods, suits, gloves (Fig. 2a), capes and immersive environments—and early virtual-reality experiments from the 1960s and 1970s, such as Ivan Sutherland’s head-mounted display (Fig. 1b) and the Sayre Glove (Fig. 2b). Although not technologically based, Clark’s and Oiticica’s works are also related conceptually to those of artists pushing interactivity in art into new territories. Both in Brazil and elsewhere, Clark’s and Oiticica’s participatory creations continue to yield new meanings [1].

With the exception of a period spanning the 1970s, when Oiticica resided in New York and Clark in Paris, both artists spent their lives in Rio de Janeiro, where they shared a common theoretical ground based in the Brazilian Neoconcrete Art movement [2]. They also shared a fertile artistic dialogue that lasted throughout their careers. Their complementary trajectories were unique and, in both cases, radical. From different perspectives, they contributed to the development of an original vocabulary of interactivity. Clark, merging the body/mind duality, focused primarily on the subjective and psychological nature of human experience, whereas Oiticica explored the social and political dimensions of art’s role in society.

Fig. 1. (a) Lygia Clark, Mask with Mirrors, 1967. (b) Ivan Sutherland’s head-mounted display, developed at Harvard University, 1968. (Photos courtesy CDOC/Museum of Modern Art in Rio de Janeiro and Ivan Sutherland, respectively) Clark’s mask holds small movable mirrors in front of the eyes, juxtaposing and fracturing reflections of the self and the surrounding world. Sutherland’s pioneering work with virtual reality, developed around the same time, was based on the introduction of stereoscopic head-mounted displays. The visual and cultural parallels between these and other investigations in art and science are as significant as they are unexplored.

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dimensions of sensorial experimentation, while Oiticica engaged in sensorial explorations involving social, cultural, architectural and environmental spaces.

TRANSLATING GEOMETRIC ABSTRACTION INTO A LANGUAGE OF THE BODY

Clark and Oiticica questioned representation in art by examining ideas inherited from modern avant-garde movements—Neoplasticism, Constructivism, Suprematism and Concrete Art—that broke with mimesis and assumptions of realism. In the late 1950s, they reframed modernist notions of universal aesthetics by translating them directly into life and the body. Weaving a web of relationships around the body’s internal and external spaces, they relayed a Modern European geometric abstract tradition to Brazilian vernacular culture. This syncretic process fused two very different traditions—a Western aesthetic canon that privileges vision and metaphysical knowledge, and Afro-Indigenous oral traditions in which knowledge and history are encoded in the body and ritual is profoundly concrete [3]. It must be noted that, in a true syncretic spirit, both traditions have always coexisted in Brazilian society at large, but it was not until Oiticica began working that this synthesis was methodically investigated in the visual arts.

In spite of affinities with late 1950s and 1960s counter-cultural movements that were also subversive of the modernist aesthetic canon, Clark’s and Oiticica’s works, resisting the labels of Body Art, Conceptual Art, Performance and Happening, stressed the meaning of participation as opposed to its form. Their emphasis on meaning emphasized the experiential aspect of viewer participation. Their resistance to assimilation within mainstream art movements was perhaps less a matter of conceptual incompatibility than a way of emphasizing their original development at the margins of cultural centers, independent of international trends [4]. Their rich and complex legacies were not only plastic, but also conceptual and existential, expressed in not easily classifiable oeuvres that embraced hybrid, contingent and often immaterial forms. De-emphasizing visuality, Clark and Oiticica centered their work on the body, exploring haptic space through tactile, auditory, olfactory and kinetic propositions. Their contributions to contemporary art are relevant not only because of their original development in the context of Brazilian art, but also because of the unique universal interactive vocabularies they created and explored with their manipulable objects, immersive environments and experiential propositions based on wearable works.

Probing a language of the body and signifying processes through concrete operations that explored touch, sound, smell and movement, Clark and Oiticica worked with life’s energy and simple matter, merging perceptual and conceptual knowledge in ever-changing forms. In his 1968 book Kinetic Art, London-based critic Guy Brett compared Clark’s work with Takis’s kinetic sculptures, which introduced the magnet in sculpture as the presence of energy:

Actual energy is the subject of both their work. . . . Lygia Clark encourages the spectator to use his own energy to become aware of himself. This is something very unusual, and it seems to be a specifically Brazilian contribution to art, a kind of kinetism of the body [5].

Clark’s and Oiticica’s creations, as they changed the traditional role of the viewer and the status of the artistic object, confronting in the process the function of artistic institutions, rede
Fig. 3. (a) Lygia Clark, *Bicho* (Animal, or Beast), aluminum, 22 × 26 in, 1962. (b) *Hand Dialogue*, 1966, shown with Clark’s and Oiticica’s hands inside the elastic Möbius strip. (Photos courtesy CDOC/Museum of Modern Art, Rio de Janeiro) Clark’s geometric *Bichos* needed to be manipulated by the viewer to reveal their organic nature and unfold their multiple configurations. After 1964, Clark softened her interactive Neocorconcrete sculptures into dialogical propositions made of simple and ephemeral materials. These dialogical works already touched on issues that would later be central to bi-directional telecommunications artworks that explore the exchange (of sounds, images and words) between co-present and remote participants.

...defined the identity of the artist and the idea of authorship. Emphasizing viewer participation and material precariousness, their works continue to resist being frozen in museum displays as relics of past actions. Their move from hard to soft and ephemeral materials clearly establishes a historical link to the current immaterial and software-based practices of electronic art. Stressing relational actions, they focused on immaterial exchanges that did not conform to traditional curatorial practices. The challenges still presented by the presentation and presentation of their work relate the issues they explored to those of artists working with new forms of communication through global computer networks.

**Lygia Clark’s Trajectory: From Form to Experience**

In their development from purely optical-formal concerns to participatory and body-based work, Clark and Oiticica explored the body’s multidimensional aspects. Once Clark left one phase of her work, she never returned to it, taking the experience forward into a form that was ever more immaterial than the last. The artistic residue acquired in one phase was always carried into the next, in a process described by Maria Alice Milliet as “traveling with baggage” [6].

In his 1975 book *Art—Action and Participation*, Frank Popper pointed to the new forms of spectator participation as partially responsible for the disappearance of the art object. He named Moholy-Nagy and three others—Israeli artist Yaacov Agam, Roy Ascott and Lygia Clark—as pioneers of the viewer participation movement. Popper described Clark’s work as “perhaps the most telling example of the way in which the discipline of optical/plastic research has led to multi-sensorial participation and a type of aesthetic behavior which reconciles the problem of individual and group activity” [7].

Clark’s participatory creations spanned nearly 3 decades. The rich interactive vocabulary she developed with objects made from very simple materials began with a series of Neocorconcrete geometric sculptures dating from 1960 to 1964. These demanded the spectator’s manipulation to yield their organic meaning. These sculptures developed into a second series of interactive works centered on the body, roughly divided into two parts: *Nostalgia of the Body* and *Organic or Ephemeral Architecture*. Dating from 1964 to 1968, *Nostalgia of the Body* consists of hoods, goggles, masks, suits, gloves and other objects used by the viewer/participant in individual or two-person sensorial explorations. In these works, viewer participation becomes the focus of attention, while the object remains secondary, existing only in order to promote a sensorial or relational experience. After 1968, these works developed into collective body works Clark titled *Organic or Ephemeral Architecture*. In the last phase of her work, lasting from approximately 1979 until her death in 1988, Clark moved even further from traditional definitions of art and artist, employing the whole range of her interactive vocabulary in a form of synesthetic therapy used for emotional healing.

Clark derived the basic defining qualities of her early work from Concrete Art’s emphasis on non-representational space and rigorous explorations of line, plane, color and structure. Her reductive black, white and gray paintings from the 1950s explored the complementary aspects of positive and negative space and the boundaries between virtual and literal planes. In the development of her work from painting to interactive sculp-
Fig. 4. (a) Lygia Clark, Dialogue, 1968, and (b) Baba Antropofágica (Anthropophagic Droles), 1973, collective creation with students at the Sorbonne in Paris. (Photos courtesy CDOC/Museum of Modern Art, Rio de Janeiro. Dialogue photo: Huber Josse.) Clark's Dialogue belongs to her Nostalgia of the Body series, which began in 1964 with individual and two-person sensorial explorations, and developed, after 1968, into collective creations she titled Organic or Ephemeral Architectures. The Dialogue goggles restrict the visual field of the two participants to an eye-to-eye exchange, merging interactivity and dialogism, two of the central concerns in Clark's work. For Baba Antropofágica, a group of participants placed in their mouths a small spool of colored thread which they then unwound directly from their mouths onto another of the participants, who lay stretched out on the ground. The body of the latter was gradually buried under a web of regurgitated threads. These two images illustrate Clark's transition from two-person to collective creations.

ture, the issue of edges between paint-erily illusion and literal space or between the canvas and the frame had a kind of primary importance that was similar to the role that color played for Oiticica. Clark moved into three-dimensional space by way of folding the plane into hinged sculptures that combined geometric shapes and organic movements. This development away from Concrete paintings resulted in a series of Neconcrete sculptures titled Bichos (Animals, or Beasts) from 1959 and 1960 (Fig. 3a). Clark's geometric Bichos needed to be manipulated by the viewer to reveal their organic nature and unfold their multiple configurations. When people asked her how many movements the Bicho had, she answered: "I don't know, and you don't know but it knows...." [8] Despite their interactive aspect, which also introduced time and movement into the work, the Bichos remain formally beautiful objects, and many are displayed today with the attached label "do not touch." Clark, however, emphasizing the importance of viewer's experience, abandoned the production of art objects altogether to enter a sensorial phase of her work with her Nostalgia of the Body series, starting around 1964 (Fig. 4).

When Clark abandoned the production of the art object, she used the Möbius strip as a metaphor for a new start—a new start that was paradoxically without beginning or end, inside or outside, front or back. Shared by other Concrete artists, her interest in the reversible, continuous, limitless space of the Möbius strip expressed her attraction to non-Euclidian geometry [9]. Clark's new works dissolved the hard edges of the Bichos into soft, almost immaterial actions that had no value in themselves, but only in their relation with the participant. She referred to these action-based works as "propo-sitions." The endless fluid space of the Möbius strip symbolized the path she would pursue for the rest of her career.

Clark's work with the Möbius strip contrasts sharply with Max Bill's sculptures employing the same form. Bill pursued the visualization of non-Euclidian ideas using traditional techniques as well as permanent materials with noble associations—marble, stone and bronze—in Möbius-strip sculptures to be contemplated by the viewer. Clark, by contrast, defined the concept of endless space as a succession of paradoxical relationships to be directly experienced in the body. Her propositions acknowledged the coexistence of opposites within the same space: internal and external, subjective and objective, metaphorical and literal, male and female. For Clark, the radical new space of the Möbius strip called for new forms of production and communication impossible to explore within traditional artistic categories and practices. For Caminhando (Trails, or Going), dating from 1964, Clark simply invited the spectator to take a pair of scissors, twist a strip of paper, join it to form a Möbius strip, and cut continuously along the unending plane. Hand Dialogue, from 1966, is an elastic band in the form of a Möbius strip that two people use to connect their hands in a tactile dialogue (Fig. 3b).

Head-Mounted and Sensorial Works: Hoods, Masks, Goggles, Gloves, Body Suits

The relational aspect of Clark's work in the series Bichos became even more apparent in Nostalgia of the Body (Fig. 4). Brett describes some of Clark's masks from this period:

Clark produced many devices to dissolve the visual sense into an awareness of the body. The Máscaras Sensorial (Sensorial Hoods), 1967, incorporate eye- pieces, ear coverings and a small nose bag, fusing optical, aural and olfactory sensations. A number of helmets hold small movable mirrors in front of the eyes: one can either look out into the world or back into oneself, or any fractured combination of both. Máscaras-Abismo ( Abyss-Masks), 1967, often blindfolds the eyes. Large air-bags weighted down with stones can be touched, producing the sensation of an
imaginary empty space inside the body, and so on (Fig. 6a) [10].

Clark’s hoods, masks, goggle, gloves, suits and other relational objects made of cheap materials provide viewers with experiences that sometimes constrain and sometimes enhance the various senses to activate new connections between them (Figs 1a, 2a, 4a, 6a). Clark’s gloves, for instance, are made of various materials, sizes and textures. The gloves aim at a rediscovery of touch. Participants use the many combinations of gloves and balls of different sizes, textures and weights, and then hold the balls again with their bare hands (Fig. 2a). A similar sensitizing effect resulting from immersion in virtual reality is described by Jaron Lanier:

There’s this wonderful phenomenon where when you’re inside a virtual world and if you take off the head-mounted display and look around, the physical world takes on a sort of super-real quality where it seems very textured and beautiful, and you notice a lot of details in it because you’ve gotten used to a simpler world. So there is actually a sensitivity-enhancing effect [11].

Clark’s Dialogue goggles from 1968, for instance, restrict the visual field of the two participants to an eye-to-eye exchange, merging interactivity and dialogism, two of the central concerns in Clark’s work (Fig. 4a). Curiously, Ivan Sutherland’s pioneering work with virtual reality, developed around the same time, was based on the introduction of the related concept of head-mounted displays. The visual and cultural parallels between these and other investigations in art and science are as significant as they are unexplored. As Myron Krueger has pointed out, “Many aspects of virtual reality including full-body participation, the idea of a shared telecommunication space, multi-sensory feedback, third-person participation, unencumbered approaches, and the data glove, all came from the arts, not from the technical community” [12].

Clark’s experiences tend to merge the body’s interior and exterior spaces, stressing the direct connection between the body’s physical and psychological dimensions. The pure optical emphasis of her geometric abstract paintings from the 1950s are transformed by Nostalgia of the Body into sensory explorations of texture, weight, scale, temperature, sound and movement. These sensations are the basis of a non-verbal language employed both in processes of self-discovery and collective explorations among a group of participants. There is a significant conceptual link between these collective explorations and the characteristic of telecommunications art Roy Ascott calls “distributed authorship.” Clark’s collective creations became her main focus during the period she lived in Paris.

Collective and Participatory Works

In 1968, as a result of the traumatized public space created in Brazil [13], Clark moved to Paris. From 1970–1975 she taught at the Sorbonne, returning to Rio in 1977. During this period she developed with her students collective body works that she referred to as Organic or Ephemeral Architecture. She called these events “rites without myths.” She titled one of them BABA ANTOPOFÁGICA (translated in English as ‘Dribble’), meaning literally “Anthropophagic Drool” or “Cannibal Spit” (Fig. 4b) [14]. For this work, participants placed in their mouths a small spool of colored thread that they unwound directly from their mouths onto another of the participants who lay stretched out on the ground. The body of the latter was gradually buried under a mottled web of regurgitations. This event was inspired by Clark’s dream of an unknown material endlessly flowing from her mouth to create the loss of her own inner substance. The collective vomiting experienced by the group was described by her as the exchange among the participants of psychological content. She also mentions that this exchange was not pleasurable and that it was about the vomiting of lived experience, which was then swallowed by others [15].

In the last phase of her work, Clark employed a vocabulary of “relational objects” for the purposes of emotional healing. Objects made of simple materials such as plastic bags, stones, air, shells, water, sand, styrofoam, fabric and nylon stockings acquired meaning only in their relation to the participant. Continuing to approach art experimentally, Clark made no attempt to establish boundaries between therapeutic practice and artistic experience, and was even less concerned with preserving her status as an artist. The physical sensations caused by the relational objects as she used them on the patient’s body, communicated primarily through touch, stimulated connections among the senses and awakened the body’s memory. Clark’s use of relational objects in a therapeutic context aimed at the promotion of emotional balance. The material simplicity of Clark’s propositions confront viewers, however, with very complex issues about art, perception and body/mind relations. Considering participants as subjects in process, Clark’s work concerns the restructuring of the self through pre-verbal language preceding the enunciation of sentences. Stressing both the present moment and the flux of time, the work is constantly redefined by each participant. Clark’s apparently simple creations are, in fact, demanding propositions that ask viewers to infuse the work with their lives and energy. Clark was never concerned with self-expression in art, but instead with the possibility of self-discovery, experimentation, invention and transformation. She began with formalist problems about the exhaustion of representation in painting and ended, 3 decades later, in a form of synesthetic therapy. In its unique development, Clark’s trajectory shows an original inventiveness, a conceptual cohesion and a critical rigor rarely seen in Brazilian art.

HÉLIO OTICICA’S 1960S AESTHETIC OF SUBVERSION AND CULTURAL CONTAMINATION

In the late 1950s, in a process both analogous and complementary to Clark’s, Oiticica moved away from optical/pictorial investigations by incorporating time and movement as an active element of his work. His participatory strategies, however, contrast with Clark’s in their engagement of the viewer’s cultural, social, architectural and environmental space. Color had, in Oiticica’s early development, the same importance that edges had for Clark in her transit from pictorial to three-dimensional space. As he explored the relations between color, time, structure and space, Oiticica stated that color frees itself from the rectangle and from representation and “it tends to ‘in-corporate’ itself; it becomes temporal, creates its own structure, so the work then becomes the ‘body of color’” [16].

Oiticica’s creations, like Clark’s, became increasingly interactive as he moved from object-based to body-centered works in which viewer participation became the central focus. His Neocorcrete works Spatial Reliefs and Núcleus (1959–1960)—painted wood constructions suspended away from the wall—expanded ideas inherited from Modernist avant-garde movements, par-
ticulously the ideas of Mondrian and Malevitch. These works incorporated color, hue and value in geometrically shaped constructions to be observed from various points as viewers walked around them.

Continuing to expand color, structure and the act of seeing in space and time, Otiticica surrounded the viewer's body with color in a series of immersive, labyrinth-like painted constructions entered by the spectator, which were titled Penetráveis (Penetrables). His series of object-containers, Bólides (the Portuguese word for fireball or flaming meteor), are also concerned with the essence of color. The first Bólides were glass containers and brightly painted boxes with unexpected openings and drawers filled with pure pigments to be opened by the viewers. The Bólides developed from the earliest boxes and glass containers full of pigment, their number expanding throughout the 1960s to reach a total of approximately 50 around 1969. As the Bólides evolved, they varied greatly in scale, form, medium and function. They were both constructed and appropriated: some include words or images, some are of factory, others are homages to people, and some are large structures to be entered and inhabited by the spectator. They all invite perceptual explorations combining, as do many of Otiticica's creations, conceptual sophistication with a raw physicality.

Although Spatial Reliefs, Núcleus, Penetráveis and Bólides increasingly invited the active participation of the viewer in the perception of the works, it was with his series of wearable creations, titled Parangolés, and later on with two installations—Tropicalia and Eden—that Otiticica's work became centered on the body, promoting through interactivity radically new sensorial experiences. From his colorful painted structures, Otiticica derived his first Parangolé, created in 1964. It transformed hard-edged geometric planes into folds of wearable materials made specifically to be danced with. The Parangolés were types of capes inspired conceptually by the Mangueira Samba School [17] to which Otiticica belonged, and they were often made for particular performers. They were, according to Otiticica, "proposals for behavior" and "sensuality tests" (Color Plate B No. 1a). Communicating through experience, the Parangolés emphasize the fluidity of life in opposition to any attempt to fix and systematize the world. With this series of uncanny wearable creations made of cheap and ephemeral materials often found on the streets, work and body merge into a hybrid of geometric and organic forms. The participant wearing the Parangolé dances with it, exploring kinetically its multiple possibilities.

Expanding the Parangolés' architectural origins, Otiticica made two large installations in the late 1960s that he referred to as "experiences." Entitled Tropicalia and Eden, these environments gave a new spatial context to his previous works—Bólides, Penetráveis and Parangolés—by placing them among natural elements such as water, sand, pebbles, straw and plants. Otiticica invited viewers to take off their shoes and inhabit the spaces through leisure activities (such as the simple activity of lying down). The first of these environmental installations, Tropicalia, was mounted at the Museum of Modern Art in Rio de Janeiro in 1967. Tropicalia and Parangolés are seminal works within the history of Brazilian art.

Addressing the possibility of the creation of a "Brazilian image," Tropicalia gave name to the emerging Tropicalist movement and opened a cultural discussion that is still far from exhausted [18]. Among the many complex issues raised was Otiticica's notion that the myth of "tropicality" is much more than parrots and banana trees: it is the consciousness of not being conditioned by established structures, hence highly revolutionary in its entirety. Any conformity, be it intellectual, social, or existential, is contrary to its principal idea [19].

Tropicalia was the product of an aesthetic of cultural contamination that Otiticica expressed by the writing on one of his Penetráveis: "Purity is a Myth." In Tropicalia, Otiticica made an important reference to the role of the media by placing at the center of his tropical environment a TV set. In 1968, he wrote,

Entering the main Penetrable, undergoing several tactile-sensorial experiences . . . one arrives at the end of the labyrinth, in the dark, where a TV set is permanently switched on: it is the image which then devours the participants, because it is more active than their sensorial creations [20].

In this text, also titled "Tropicalia," and in others, Otiticica called attention to the dangers of a superficial, folkloric consumption of an image of a tropical Brazil, stressing the existential life-experience that escapes this consumption [21]. This concern also informed his second large installation, Eden, exhibited at the Whitechapel Gallery in London in 1969 (Fig. 5a). Eden, like Tropicalia, contained different areas for participants to explore in a leisurely way. Eden was, however, more abstract in its architectural references than was Tropicalia's direct allusion to the favela of Mangueira. Avoiding the notion of representation in art, as well as the construction of a tropical image for exportation, the Eden experience, similar to the rebirth of the senses enabled by Clark's objects, invited viewers to rediscover pleasurable ways of inhabiting space. Some facets of the Eden experience are also present in Roy Ascott's Aspects of Gaia, in which viewers placed in horizontal positions within a natural setting playfully explore the conceptual, sensorial and spatial connections of the work (Fig. 5b).

In 1970, Otiticica received a Guggenheim fellowship and built for the Information show at the Museum of Modern Art (MOMA) in New York 28 Ninhos (Nests) that also invited viewer participation in the exploration of space and behavior.

Otiticica's Leisure Strategies: Crelazer and the Supra-Sensorial Otiticica's contribution to a vocabulary of interactivity expanded upon Clark's paradoxical explorations of aspects of the body's internal/external space. He created interrelations around the sensual body and the many spatial forms it interacts with. His participatory creations were based on two key concepts that he named Crelazer and the "Supra-Sensorial." "Crelazer," one of Otiticica's neologisms meaning "to believe in leisure," was for him a condition for the existence of creativity and is based on joy, pleasure and phenomenological knowledge. The second concept, the Supra-Sensorial, promotes the expansion of the individual's normal sensory capacities in order to discover his/her internal creative center. The Supra-Sensorial could be represented by hallucinogenic states (induced with or without the use of drugs), religious trance and other alternate states of consciousness such as the ecstasy and delirium facilitated by the samba dance. For Otiticica, the Supra-Sensorial created a complete de-aesthetization of art underscoring transformative processes. In his words:

This entire experience into which art flows, the issue of liberty itself, of the expansion of the individual's consciousness, of the return to myth, the rediscovery of rhythm, dance, the body,
the senses, which finally are what we have as weapons of direct, perceptual, participatory knowledge... is revolutionary in the total sense of behavior [22].

Oiticica’s work fused formal investigation with leisure activities, inviting viewer participation in the creation of “unconditioned behavior” [23]. In the cultural context of “the country where all free wills seem to be repressed or castrated” [24], the concepts of Creoleser and the Supra-Sensorial directly defied a pleasure-denying productivist work ethic, subverting it through activities that embraced pleasure, humor, leisure and carnivalesque strategies. Reverie and revolt were never far apart in Oiticica’s work, as Brett has pointed out. Leisure for him was first and foremost a revolutionary anti-colonialist strategy.

Parangolés Samba and Interactive Art

Among the many implications emerging from Oiticica’s fusion of geometric abstraction and samba culture is the return to the mythical, primordial structure of art: a recreation of the self through an initiatory ritual. Oiticica described his relation to the popular samba, making reference to the intense experience provoked by dance:

The rehearsals themselves are the whole activity, and the participation in it is not really what Westerners would call participation because the people bring inside themselves the “samba fe-

ver” as I call it, for I became ill of it too, impregnated completely, and I am sure that from that disease no one recovers, because it is the revelation of mythical activity... Samba sessions all through the night revealed to me that myth is indispensable in life, something more important than intellectual activity or rational thought when these become exaggerated and distorted [25].

For Oiticica, samba was a conduit for the flow of energy and desire. Samba was a relay, a connector. In an article from 1965 entitled “Ambiental Art, Post-Modern Art, Hélio Oiticica,” critic Mario Pedrosa traced Oiticica’s trajectory from purely plastic concerns to the existential, the culturally based and the postmodern. In this process of development from modern to postmodern art, Pedrosa noticed that Brazilian artists participated “this time, not as modest followers but in a leading role” [26]. According to Pedrosa, Oiticica’s aesthetic nonconformism merged with his social/individual nonconformism due to his Mangueira experience. It was the artist’s initiation into samba that dissolved dualisms and expanded his work from being object-based to environmentally based, incorporating in this process the kinetic knowledge of the body, the structures of popular architecture and the cultural environment in which they existed. In Pedrosa’s words,

It was during his initiation to samba that the artist went from the visual experience in all its purity to an experience that was tactile, kinetic, based on the sensual fruition of materials, where the whole body, which in the previous phase was centered on the distant aristocracy of the visual, became the total source of sensoriality [27].

Oiticica’s premature death at the age of 43 left at loose ends the many threads he explored, both as an artist and a thinker, in a meteoric career. His experimental creations assumed a range of forms that have conceptual rather than formal coherence. Ranging from paintings to writings, from sculptures and objects to public actions and events, from constructed immersive environments to found and appropriated objects and from wearable works to ambulatory experiences through Rio’s bohemian, marginal and poor neighborhoods, his creations emphasized sensorial expansion through leisure activities. Oiticica took playfulness seriously, infusing interactivity with what Pedrosa termed “the experimental exercise of liberty” [28].

**BODY/MACHINE HYBRIDS, INTERFACES AND NETWORKS: INTERACTIVITY INTO NEW REALMS**

In general, Neoconcrete artists, among them Clark and Oiticica, did not explore the possibilities of technology for art making. Their trajectory from object-based works to body-centered experiences, from material to immaterial and from hard to soft processes, however,
opened conceptual ground for practices similar to those of electronic performance and telecommunications art, with their emphasis on fluid, intangible exchanges.

The masks, hoods and goggles Clark made between 1965 and 1970, which altered binocular perception, can be compared, for instance, with the helmets and goggles made by Australian artist Stelarc from 1968 to 1972—the starting point for his relentless investigation of the limits and possibilities of the body (Fig. 6b). Stelarc described his series of works titled Helmeets: Put on and Walk as follows:

There were six different helmets structured to split your binocular vision in various ways. Because each eye saw unrelated sets of images, the visual effect was not a three-dimensional solid but a field of superimposed moving images that changed as the person walked around. The fragmentary and fleeting images undermined depth perception and although the person’s vision was saturated with a multiplicity of images (combinations of side, back, up and down), there was no frontal vision, resulting in the person groping forward [29].

As this comparison clarifies, Clark’s works are connected stylistically to virtual-reality head-mounted displays and can be perceived as radical parallels to early prototypes of the new immersive technology, exemplified by Sutherland’s well-known stereoscopic headset [30] (Fig. 1b). Contrary to the suggestions of many advocates of virtual reality and related technologies that virtual reality promotes a disembodied mind, Stelarc, who has been exploring body-machine relations for 3 decades, is concerned, as was Clark, with blurring the body/mind dichotomy. In a recent interview addressing his interactive performances on the Internet, when asked if his work was about a mind/body divide, Stelarc answered,

I get so tired and irritated when people talk about the Internet as a kind of strategy for escape from their bodies. They say that the Internet is “mind to mind” communication. Well! If “mind” means this reductive realm of text with a few images thrown in them, that notion of mind for me is a very reductive concept. Mind for me is smell, sight— all these things generate this notion of a mind in the world. It’s not a mind that should be talked of separately from the body. We’re superimposing old metaphysical yearnings onto new technologies. We have this transcendental urge to escape the body, and we’ve superimposed this on technology [31].

Developing his work through direct actions on the body, Stelarc celebrates a fusion of the body and technology—the cyborg hybrid of “wet” and “hard” ware. His explorations of the body’s limitations have included sensory deprivation performances; 24 body-suspension performances with insertions into the skin (in different situations and locations); amplified brain waves, heartbeat, blood flow and muscle signals; and films made inside his lungs, stomach and colon. His strategies to enhance the body’s capabilities have included prosthesis—such as an artificial hand activated by electromyograph signals of the abdominal and leg muscles—and computer technologies promoting body/machine interfacing. In his latest performances involving the Internet, his body became a host for interactions with remote agents. Stelarc’s remote explorations with the body both contrast with and recall Clark’s collective works, in which the body was a host for interaction with local agents.

The affinities between Oiticica’s creations and the participatory paradigm in telematic art are evidenced in the “cyber Parangolés” created by the New York–based X-Art Foundation, a nonprofit art-making organization that involves individuals and groups at the intersections of art, cultural studies and information technologies. The Parangolés (after Oiticica) was presented as part of Blast 4: Bioinformatica, an issue of Blast named after a corresponding exhibition that showed at Sandra Gering Gallery in New York in December 1994 (Color Plate B No. 1b) [32]. Exploring alternative editorial practices, cross-disciplinary hybrids and open-ended relationships with readers, each issue of Blast is presented in a boxed container called a “vehicle.” The issues contain printed matter, computer programs, sound works and objects. They also incorporate live, online elements that, in the words of editor Jordan Crandall, “disrupt and augment the publication’s physical presence. A tension is maintained in this way between its ‘inside’ and ‘outside,’ and the editorial content is deflected into that tensional field” [33]. Crandall continues, “One of the ‘pages’ we experimented with in Blast, is the Parangolé (after Oiticica). This structure is worn on the body and it changes in direct relation to bodily movements” [34].

For the Bioinformatica show, the X-Art Foundation created new, colorful Parangolés worn by participants both at the physical space of the Sandra Gering Gallery and in the virtual space of their MOO (Multi-User Object-Oriented Dimension) on the Internet. In the Parangolés’ “pockets,” both in the gallery and on the Internet, participants could find fragments of texts and maps that were assembled and reassembled through body movement. Participants accessed these texts and maps in different ways in both virtual and real spaces. In the MOO, the user produces action by means of a typed set of codes in order to “reach” into a pocket. Keyboard commands locate a virtual body in telematic communication space, while in the gallery the body sitting at the computer terminal finds texts, maps and computer diskettes in the pockets of the Parangolés he was invited to wear. A double play was produced between the movements of the virtual body and the experiences of the “real” body visiting the gallery. The ambiguity between bodies and Parangolés and between material and immaterial exchanges added new meanings to Oiticica’s work by expanding the Parangolés’ interactive nature in analogy to digital interfaces. Crandall observed:

Like the flat surface of the computer interface, the Parangolé is softened and deepened through interaction: it draws the participant into the space of the artwork similar to the way the interface draws the participant into an alternate, hybrid space or situation. To “put on” the Parangolé or the computer interface (or the environment that seemingly lies behind it) is to merge body and technology, in order to alter or extend body and sociality and to integrate subjects, bodies, and social formations in a process of constructing and inhabiting space [35].

The Parangolés recreated for the Bioinformatica show regained the conceptual fertility they once had by virtue of their direct involvement with viewers, who were invited to wear the brilliantly colored cloaks. Expanding the meaning of these works across cultures and disciplines, the X-Art Foundation revisited the radical, subversive experience of the Parangolés created by the samba dancers at Manguere in the mid-1960s. Thirty years later, their experience was recreated in the streets of New York by the Merce Cunningham company dancers (Color Plate B No. 1c). A video of the experience was also shown at the Bioinformatica exhibition.

Contrasting with the X-Art Foundation’s dynamic exchange with Oiticica’s Parangolés are the curatorial choices that document Oiticica’s work and thereby relegate its participatory aspects to a past event. In Oiticica’s retrospective exhibition at the Walker Art Center in 1993, for instance, the Parangolés hung in the gallery space as lifelessly as skins
shed by an animal long ago. The only reference to their participatory nature was, unfortunately, a video documentary of the exuberant performance of some sambo dancers, twirling, holding and dynamically manipulating Oiticica’s materials, fusing the body and space through movement and rhythm. In this case, viewers, paradoxically, were distanced further from the experience of the Parangolés by being encouraged to locate these uncanny creations in the past as expressions of a distant culture’s “exotic” dance.

Curatorial challenges presented by the ephemeral and participatory nature of Clark’s and Oiticica’s works are shared today by artists working with the immateriality of the Internet. In a recent lecture titled “The Digital Museum” presented at the Total Museum Conference held in October 1996 at the Art Institute of Chicago, Roy Ascott, one of the pioneers of telematic art, suggested the obsolescence of museums in relation to new creative spaces opened by telecommunications technology [36]. His criticism of the museum’s curatorial limitations is based on the participatory nature of art as experience and event and on new notions of authorship and of collective creativity that share elements with the work of both Clark and Oiticica. According to Ascott,

To engage in telematic communication is to be at once everywhere and nowhere. In this it is subversive. It subverts the idea of authorship bound up within the solitary individual. It subverts the idea of individual ownership of the works of imagination. It replaces the bricks and mortar of institutions of culture and learning with an invisible college and a floating museum the reach of which is always expanding to include the possibilities of mind and new intimations of reality [37].

Ascott envisions a museum with imagination—one that can grow and evolve to permeate all systems, a new museum for a new perception he terms “cybereception.” He sees the traditional museum as an institution of outdated curatorial practices in need of radical reinvention. According to him, new World Wide Web site designs, interactive guides to collections, rearrangements of the exhibition apparatus and reinventions of the museum’s archi-
tecture are simply not enough [38]. He sees museums as outdated metaphorical cages—museum pieces themselves—and states that "the old museum colonized the world" [39]. Continually championing a new architecture of connectivity, Ascott calls for spaces that enable the emergence of new realities. He envisions a museum that is adaptive to complex and increasingly immersive systems. "With computer-mediated systems of perception, memory, intelligence and communication," he states, "we are redescribing and reconstructing the world; we inhabit increasingly what is essentially a dataspace, a telematic environment, a virtual reality." [40].

Ascott’s criticism of the museum’s role at the end of the twentieth century echoes Clark’s and Oiticica’s attitudes of the late 1960s and early 1970s toward artistic institutions. In fact, all three have tried to banish the very notion of spectatorship from their works, which stressed the experimental and experiential. After the Éden experience, Oiticica wrote and spoke of the "impossibility of experiences in galleries and museums," opting for a more marginal mode of working that he termed "subterranean" [41]. Clark’s similar criticism of museums’ limitations in relation to viewer participation has been described by Yve-Alain Bois, a witness to her dramatic confrontation with a museum curator in Paris in 1973 [42].

The abandonment of an aesthetic of closure and completion for one that stresses relations across different modalities, disciplines and dimensions, privileging what is relative and dialogical rather than absolute, identical and monological, opens multiple connections across heterogeneous forms, spaces and cultures. These concepts are, however, not related exclusively to technological approaches. They are tied vicariously to the continuing development of a new aesthetics beyond the fixed immovable object. As Clark’s and Oiticica’s interactive legacies so poignantly illustrate, a participatory art endlessly merges conceptual and perceptual material and immaterial, embodied and disembodied experiences.

References and Notes

1. Although Clark and Oiticica did not focus on technology as a medium for art making, they ventured into it; either conceptually (Clark’s Four Propositions of the late 1960s) or experimentally (Oiticica’s explorations with drugs and audiovisual media in the mid-1970s). Clark’s Four Propositions, two involving film and two involving magnets, remained unrealized. See Ligia Clark, Lygia Clark (Rio de Janeiro: Fundarte, 1989), p. 32; and Lygia Clark, "Nostalgia of the Body," October 69 (Summer 1994) pp. 107-108. Her film proposition "Man at the Center of Europe," very similar to Gary Hill’s video work Crux (1983-1987), in which five cameras were attached to a walking man and the recorded images were processed into a shape of a cross. Clark’s second film proposition, "Invitation to a Voyage," involved the relation between real and virtual events that were to take place on the screen and in front of it, in an early form of virtual reality. The project is analogous to Jeffrey Shaw’s The Legible City (1988-1989), in which a stationary bicycle is placed in front of a large screen that projects the roads the cyclist explores. Oiticica’s experimentalism with Super-8 film and photography was developed in the mid-1970s, when he lived in New York, mixed art and life, and more radical way, further enhancing his leisure strategies. See Ligia Camanoglia, Quase Cinema (Rio de Janeiro: Fundarte, 1981), pp. 20-25.


5. Guy Brett, Kinetic Art (London: Studio Vista/Reinhold Art, 1968), p. 65. In another article entitled "In Search of the Body," Brett further emphasized Clark’s and Oiticica’s roots in Naïve art in culture, underscoring a special dimension of the body in Brazil: "Like most such generalizations about naïve art and ‘original’ character, perhaps the special nature of the body’ exists both as a stereotype and a truth. It is what makes it possible to read a phrase ‘Brazilian school of body’ as a challenge within the field of international art and not as a rejection of it."

6. See Milllet (1) p. 179; and also Maria Alice Millet, O Abra do O Trajeto, "MAC Reino, No. 1 (Museu de Arte Contemporânea de Universidade de São Paulo, April 1992) p. 37.


9. In a discussion between Chloé Nelly Richard and Briton Guy Brett, Brett illustrated the traditional hierarchical gap between South American Modernist/Latin American Oiticica and the Brazilian artist struggled to overcome: "There was an interesting comparison to be made between the exhibition of Hélio Oiticica, a Brazilian artist, which took place in London at the White Chapel Gallery in 1969, and an exhibition of Robert Morris, the American artist, which were roughly the same time at the Tate Gallery. Both exhibitions had a participatory element for the public, and the differences between the two approaches were very fascinating...but it was very unlikely at the time that such comparisons would be made because of the immensely greater prestige enjoyed by American artists in London. To have suggested a comparison on equal terms between a famous American and an unknown Brazilian artist would have been somehow "improper," to Brett. Nelly Richard’s use of the notion of propriety: For a Brazilian artist to have made claims for Oiticica in direct comparison with Morris would have seemed the height of naiveté, and perhaps, for the Modern Art of Rio de Janeiro, Cento de Documentacao, Museu de Arte Moderna do Rio de Janeiro, Av. Infante Dom Henrique 198, 222-2, 402-241-09, Museu de Arte de São Paulo, Av. Ipiranga, 231, 01220-000, Brazil, CEP 0231-1-140. Tel: (021) 210-2188 extension 212; Fax: (021) 240-6553; contact: Anna Maria Ferracini. On Hélio Oiticica, see also Waly Salomão, Hélio Oiticica: Que é o E a Pássaro? (Rio de Janeiro: Relume Dumará, 1996); Celso Faroetra, A Invenção de Hélio Oiticica (São Paulo: Edusp, 1995). Beyond "the Frame," Framing Art (Cleveland, OH: Cleveland Museum of Art, 1989), and Brett, "Reveirer and Revolt." See also Brett, "The International Mov- en escene de Latin American Art," Witte de With Cahier, No. 2 (June 1994) p. 85; Nelly Richard, "Point Modern Disalignments and Realignments of the Center/Péripoles," Art Journal, No. 51 (Winter 1992); Mari Carmen Ramírez, "Between the Lines," Papeles de Arqueología, No. 1 (January 1994) pp. 90. For further discussion, see Nelly Richards, "Art in Latin American Art," Art Journal, No. 51 (Winter 1992); Simone Osthoff, "On the Inside," Nell and Carmen Miranda in Hollywood: Missing Chicken with Bananas," Blum 83 (Spring 1996).


13. The year 1968, a historic milestone in many Western countries, marks in Brazil the beginning of an era of state terrorism. The military government in power since 1964 issued the AI-5 (Fifth Institutional Act) signed by military President General Costa e Silva on 13 December 1968. The AI-5 closed Congress and suspended all political and constitutional rights, initiating a period of political oppression and persecution, youth revolt movements and cultural protests. The period is one of the most dramatic in the Brazilian military dictatorship. The suspension of human rights opened the way to political persecution, torture and censorship, making it extremely difficult for artists to work. According to Zuenir Venturin, 10 years after the AI-5 was declared, approximately 500 films, 450 plays, 500 books, dozens of radio programs and more than 500 music lyrics, along with a dozen soap opera episodes, had been censored. See Venturin, 1968 O Ano que Não Terminou (Rio de Janeiro: Nova Fronteira, 1988, p. 285). The AI-5 was responsible for an artistic and intellectual diaspora (Oticeca and Clark included) and for the fragmentation and isolation of artistic production in Brazil. Cultural production in the 1970s became mostly marginal, isolated from the public and hermetic, communicating only to a small elite. During the 1980s, the country slowly returned to democracy, and little of the irreverent experimentalism of the 1960s survived.

14. "Anthropophagia" literally means cannibalism. As employed by the Brazilian avant-garde of the 1920s (the "Anthropophagic Manifesto," by Oswald de Andrade, was published in 1928), anthropophagia called for a cannibalization of European culture in Brazil. It highlighted Afro-Indigenous myths and traditions as superior to the Christian ones, for they were without the double standards of morality and repressed sexuality that artists saw in the patriarchal Catholic behavior. The Anthropophagic movement pointed to the "out of place" of European ideas in Brazil using inversion, humor and parody as subversive anti-colonialist strategies.


17. Manguiería is the name of one of the oldest and most famous favelas (hillside slums) in Rio de Janeiro. The mangueira Samba school is among the most popular in Rio. See Alina Guerrini, Samba (New York: Vintager Departures, 1990). Guerrini, the producer of the film in the year 1969 in the favela of Mangueira. In Samba, she gives an account of this experience while examining the history and culture of black Brazilians and the social and spiritual energies that inform the rhythms of samba. For a complete history of Rio de Janeiro's samba schools, see Sérgio Cabral, As Escolas de Samba de Rio de Janeiro (Rio de Janeiro: Lumiari Editora, 1996).

18. Adopting an aesthetic of mixing and contamination, the Tropicalist movement of the late 1960s aggressively combined high and low forms and industrial and rural cultures, merging political nationalism with aesthetic internationalism and rock and roll music, poetry, visual arts and popular Brazilian music (especially the works of Caetano Veloso, Gilberto Gil, Gal Costa and Maria Bethania). It also inaugurated the "aesthetic of garbage," explored by the second phase of Cinema Novo. It represented a return to carnivalesque strategies in the arts, leaving behind the more austere "esthetic of hunger," with its simplistic Manichean opposition between pure popular nationalism and the alienation of international mass culture. An interesting parallel between Oticica and the Brazilian filmmaker Glauber Rocha, who became the spokesperson for the New Latin American Cinema, is made by Katherine Davis in "The Great Labyrinth," in Brett et al., Hélio Oiticica [1] pp. 248–259.


34. Crandall [33].


38. Illustrating Ascott's argument (although unwillingly, see recent film), Lee Rosenbaum addressing the plans for the expansion of MOMA in New York, which was explored by the lecture series "Imagining the Museum of Modern Art in the 21st Century." The idea of a new exhibition design put forth by Terence Riley, chief curator of architecture and design, aims at substituting for a linear narrative one that is more flexible and multiple. Rosenbaum explains, "Gone will be the tidy delineation of a single, coherent saga of modern art's progress from post-Expressionism to Cubism to abstraction." He concludes the article by noting that "today's diversity of artistic and curatorial sensibilities may have rendered the old articles of modernist faith obsolete." MOMA's director and curators are endorsing Bill Viola's suggestive metaphor of the World Wide Web site with lateral and vertical choices across time and space as a desirable model for the museum space of the next century. This may give the new MOMA a cyber-inspired flavor, but with the exception of videos, the museum continues to ignore electronic art per se and the artistic immersive exchanges that use the Internet itself as a site for aesthetic explorations. Whether with linear or non-linear narratives, judging from these initial plans, the MOMA will continue to define art for the twenty-first century with a canonical object-based aesthetic. See Rosenbaum, Art in America (February 1997) p. 21.


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Color Plate B No. 1.
(a, top left) Nildo, of the Mangueira samba group, wearing one of Hélio Oiticica's Parangolés, Rio de Janeiro, 1964. (Photo courtesy Centro de Arte Hélio Oiticica, Rio de Janeiro) (b, bottom left) The X-Art Foundation’s Blast 4: Bioinformatics exhibit at the Sandra Gering Gallery, New York, 1994. (Photo courtesy Sandra Gering Gallery) (c, top right) Video still of a Merce Cunningham company dancer dancing in a Parangolé (after Oiticica) in the streets of New York as part of X-Art Foundation’s Blast 4: Bioinformatics exhibit. (Photo courtesy Sandra Gering Gallery) Oiticica’s radical experience of the Parangolés with Mangueira samba dancers, initiated in 1964 in Rio de Janeiro, was revisited 30 years later by the X-Art Foundation in New York City. The X-Art Foundation recreated many colorful Parangolés that could be worn by participants both at the physical space of the Sandra Gering Gallery and in the virtual space of Blast’s MOO (Multi-User Object-Oriented Dimension, a text-based form of virtual reality located on the Internet). As participants wore the virtual Parangolés in the MOO, the computer screen was projected on the gallery wall, displaying the interaction between gallery visitors and remote participants. This exhibit added new meanings to Oiticica’s work, as it expanded the Parangolés’ interactive nature in analogy to digital interfaces. (See article by Simone Osthoff.)