24 R.G. Collingwood, *Principles of Art* (Oxford: Clarendon Press, 1938), 223, quoted in Youngblood, *Expanded Cinema*, 76.
25 Youngblood, *Expanded Cinema*, 77.
26 Cf. Nelly Kaplan, *Napoleon* (London: BFI Publishing, 1994).
27 Youngblood, *Expanded Cinema*, 78.
28 Ibid.
29 Marshall McLuhan, *War and Peace in the Global Village* (New York: Bantam, 1968), 13.
30 Siegfried Kracauer, *Theory of Film: The Redemption of Physical Reality* (Princeton, NJ: Princeton University Press, 1997).
31 Henri Cartier-Bresson, 'The Decisive Moment,' in *Photography in Print*, ed. Vicki Goldberg (Albuquerque: University of New Mexico Press, 1981), 384–6; cf. Seth Feldman, '*The Days before Christmas* and the Days before That,' in *Candid Eyes: Essays in Canadian Documentary*, ed. Jim Leach and Jeannette Sloniowski (Toronto: University of Toronto Press, 2003), 31–47.
32 Cf. Gary Evans, *In the National Interest: A Chronicle of the National Film Board of Canada from 1949–1989* (Toronto: University of Toronto Press, 1991).
33 Gerald Graham, *Canadian Film Technology 1896–1986* (Newark: University of Delaware Press, 1989), 189–237.
34 Marc Glassman and Wyndham Wise, 'Interview with Colin Low, Part II,' *Take One* 26 (winter 2000): 32.
35 Wallace Stevens, 'Thirteen Ways of Looking at a Blackbird,' in *The Collected Poems of Wallace Stevens* (New York: Knopf, 1972), 94–5.
36 Ibid., 23.
37 Marc Glassman and Wyndham Wise, 'Interview with Colin Low, Part I,' *Take One* 23 (spring 1999): 29–30.
38 NFB Archives. Minute no. 3, Labyrinth Design Committee Meeting, Saturday, 11 April 1964. Present: Roman Kroitor, Wolf Koenig, Fernand Cadieux, Colin Low, Joan Hensen, Jo Kirkpatrick, Hugh O'Connor.
39 Glassman and Wise, 'Interview, Part II,' 23.
40 Minute no. 3.
41 Northrop Frye, *Fables of Identity: Studies in Poetic Mythology* (New York and London: Harcourt Brace, 1963), 241.
42 *Expo 67 Official Guide* (Maclean-Hunter Publishing, 1967), 56–7.
43 Glassman and Wise, 'Interview, Part II,' 24.
44 National Film Board of Canada Technical Operations Branch, *Labyrinthe Technical Bulletin* no. 8, March 1968.
45 Minute no. 3.
46 Wendy Michener, 'Through a Multi-Screen Darkly,' *Maclean's*, 17 September 1966, 57–8.

47 Glassman and Wise, 'Interview, Part II,' 24.
48 Colin Low, 'Multi-Screens and Expo '67,' *Journal of the Society of Motion Picture and Television Engineers* 77, no. 3 (March 1968): 185.
49 Ibid.
50 Quoted in ibid.
51 Marshall McLuhan, *Counter Blast* (Toronto: McClelland and Stewart, 1969), 24.
52 Low, 'Multi-Screens and Expo '67,' 185.
53 Youngblood, *Expanded Cinema*, 78–80.
54 Reyner Banham, *Megastructure: Urban Futures of the Recent Past* (New York: Harper and Row, 1976), 177.
55 NFB *Bulletin*.
56 *Expo 67 Official Guide*, 67.
57 Youngblood, *Expanded Cinema*, 111.
58 Ibid.

communication between the islanders, and between the islanders and government agencies. The future of the audio-visual revolution, for him, lay in the small screens, the do-it-yourself technologies of video and community-based television that, for a brief time (and arguably to this day), enabled greater citizen participation and democratic expression. This is the model of decentralized communication that defines today's alternative media networks. While the synesthetic multi-screen cinema did not grow into the new revolutionary medium many thought it would, one can see in the expanded-screen experiments at Expo a foreshadowing of the intermedia networks, the mobility of images, the cultures of the Internet, and the concomitant multiplication of screens in everyday life around the world.

NOTES

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1 Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, 1962); Marshall McLuhan, *Understanding Media: The Extensions of Man*, ed. W. Terrence Gordon (Corte Madera, CA: Gingko Press, 2003); Raymond Williams, *Television: Technology and Cultural Form*, 2nd ed., ed. Ederyn Williams (London: Routledge, 1990).

2 Expo '67 was held in Montreal from 28 April to 27 October 1967. Sixty-one countries participated. Library and Archives of Canada has an excellent website that brings together many of the original documents and photographs of the event: http://www.collectionscanada.ca/expo/.

3 Tom Gunning, 'The World as Object Lesson: Cinema Audiences, Visual Culture and the St. Louis World's Fair 1904,' *Film History: An International Journal* 6, no. 4 (1994): 423.

4 Dean Walker, 'After Expo, Movies Won't Be the Same,' *Canadian Industrial Photography*, November–December 1966, 32–3, 38.

5 André Bazin, 'The Myth of Total Cinema,' in *What Is Cinema?* vol. 1, trans. Hugh Gray (Berkeley: University of California Press, 1967), 17–22.

6 See Peter Weibel, 'Expanded Cinema, Video and Virtual Environments,' in *Future Cinema: The Cinematic Imaginary after Film*, ed. Jeffrey Shaw and Peter Weibel (Cambridge, MA: MIT Press, 2003), 110–25. Such experiments are tied to an important history of the media, as Weibel has argued, that is so often overlooked in accounts of the language of new media.

7 Expo reports that almost one million school children attended the fair through school trips, mostly from central Canada. Expo is still influencing school curriculum. The Archives of Canada is embarking on a new project which features instructional material on Expo '67 available to Quebec teachers. The project is geared to students from the third year of elementary school to the fifth year of secondary school. One of the most interesting sections concerns 'simulation' and media experiments at Expo. http://www.collectionscanada.ca/education/expo/index-e.html.

8 Marshall McLuhan, *The Mechanical Bride: Folklore of Industrial Man* (New York: Vanguard, 1951), 3.

9 Judith Shatnoff, 'Expo 67: A Multiple Vision,' *Film Quarterly* 21, no. 1 (1967): 2.

10 Cf. Ben Highmore, 'Machinic Magic: IBM at the 1964–1965 New York World's Fair,' *New Formations* 51 (2004): 128–48.

11 Jacob Siskind, *Expo '67 Films* (Montreal: Tundra Books, 1967).

12 'Expo 67: An Experiment in the Development of Urban Space,' *Architectural Record*, July 1966, 169–73.

13 Gunning, 'The World as Object Lesson,' 423.

14 'Expo 67,' *Architectural Record*, 170.

15 For more on the Explorations Group, see Janine Marchessault, *Marshall McLuhan: Cosmic Media* (London: Sage, 2005), chap. 5.

16 McLuhan, *Understanding Media*, 52.

17 Ibid.

18 Ibid., 55.

19 R. Buckminster Fuller, Introduction to *Expanded Cinema* by Gene Youngblood (New York: Dutton, 1970), 35.

20 Yale Joel, 'A Film Revolution to Blitz Man's Mind,' *Life*, 14 July 1967, 2, 8.

21 Robert Fulford, *This Was Expo* (Toronto: McClelland and Stewart, 1968), 87.

22 Siskind, *Expo '67 Films*, 10; cf. Jeffrey Stanton's impressionistic account in 'Experimental Multi-Screen Cinema' at Expo '67, http://naid.sppsr.ucla.edu/expo67/map-docs/cinema.htm, and interview with Michael Naimark, 'Interval Trip Report: World's First Interactive Filmmaker, Prague' (1998), http://www.naimark.net/writing/trips/praguetrip.html.

23 Youngblood, *Expanded Cinema*, 136.

(3) enrichment of image by juxtaposition of several elements of the same event or location;
(4) possibility of a kind of visual metaphor or simile; and
(5) representation of two or more events converging and merging into a single event or a single event fragmented into several images.[49]

The principle aesthetic quality of the multi-screen cinema was simultaneity. It is this 'single quality' which calls up memory (sometimes 'long-forgotten') and imagination to make sense of the stimuli. Multi-screen, according to Roman Kroitor, 'is to single-screen what the language of poetry is to the language of prose.'[50] As McLuhan, who was no doubt referring to *Labyrinthe*, noted: 'Multi-screen projection tends to end the story-line, as the symbolist poem ends narrative in verse. That is, multiple screens in creating a simultaneous syntax eliminates the literary medium from film.'[51] Multi-screen cinema as a synesthetic medium was understood by the *Labyrinthe* producers as a new language capable of accessing the unconscious mind and releasing new kinds of associations deeply buried in the human psyche. A multi-channel soundtrack helped to create focal points in relation to the 'total image.' Indeed the multi-image was conceived as sound, that is, as boundless, simultaneous, multi-directional. Sound liberates the image from the constraints of the single screen as 'images are merged in the same way it is possible to merge sounds.'[52]

The image in the multi-screen cinema is liberated not only from the screen but also from the constraints of traditional forms of drama, story, and plot. For Youngblood, this represents the natural evolution of the cinema. Synesthetic cinema transcends the old languages just as television transforms the earth into software. It is the reflexivity of television that brings everything, including the act of viewing, into view as a world of simultaneous becoming.[53]

The *Labyrinthe* theatre had all the spatial attributes of the mega-city as Reyner Banham described Expo, replete with 'mechanical movement, a multiplicity of levels, emphasis on fun or ludique experiences, people in complex environments, and information saturation.'[54] Traffic flow was strictly controlled by a master programmer who oversaw the flow in a time sequence organized 'like a sausage machine.'[55] One may wonder how the *Labyrinthe* theatre functioned as a space of drift aimed at exercising areas of the brain generally not used[56] if the movement was so orchestrated. Yet it was the space between the images of the theatre, the arrangement of the screens and mirrors, their multiplicity, and

the extensive range of documentary information that created an open space for audience participation. It is here that the senses were invited to wander across possible paths, which required an act of both memory and imagination. This is precisely where the synesthetic cinema and the act of *flânerie* come together in the future city as Youngblood explained it:

> We have learned that synesthetic cinema is an alloy achieved through multiple superimpositions that produce syncretism. Syncretism is a total field of harmonic opposites in continual metamorphosis: this metamorphosis produces a sense of kinesthesia that evokes in the inarticulate consciousness of the viewer recognition of an overall pattern event that is in the film itself as well as the subject of the experience ... A mythopoetic reality is generated through post stylization of unstylized reality.[57]

The design for *Labyrinthe* did not simply include multiple screens but, rather, a fluid space for viewing as a transformative 'artistic' activity. Low spent much time designing the mezzanine area, which included several dramatic displays of labyrinths throughout time. The material space of viewing and the very act of viewing are very much part of the films. This is the temporal dynamic that is included in *Labyrinthe* as a theatrical performance of expanded screens and intermediality – the merging of screen and architecture. The pavilion was designed so that audience members would exit with a view of the St Lawrence River. In keeping with the humanist spirit of *Labyrinthe*, the final view also included Safdie's utopian vision of community living, Habitat.

The Labyrinth Project can be read as the sensory training ground for the new global citizen, where simultaneous information inputs create not confusion which numbs the senses but a new 'oceanic consciousness.'[58] This represents the world in all its plurality, which in NFB style, in the Canadian Liberal government's style, was read as the mythological cultural mosaic of humankind that was the basis for Pierre Trudeau's new plan for Canadian federalism.

Colin Low did not continue to work on the project with Roman Kroitor, who was able to develop it into a new technology called IMAX. He left the project just as it was being redevised as a commercial technology. Instead, he went to work on the anti-poverty program at the NFB called *Challenge for Change*. A citizen's action media experiment that began on the Fogo Islands in Newfoundland, this community-based project used 16 mm, Super 8, and video to foster inter-community

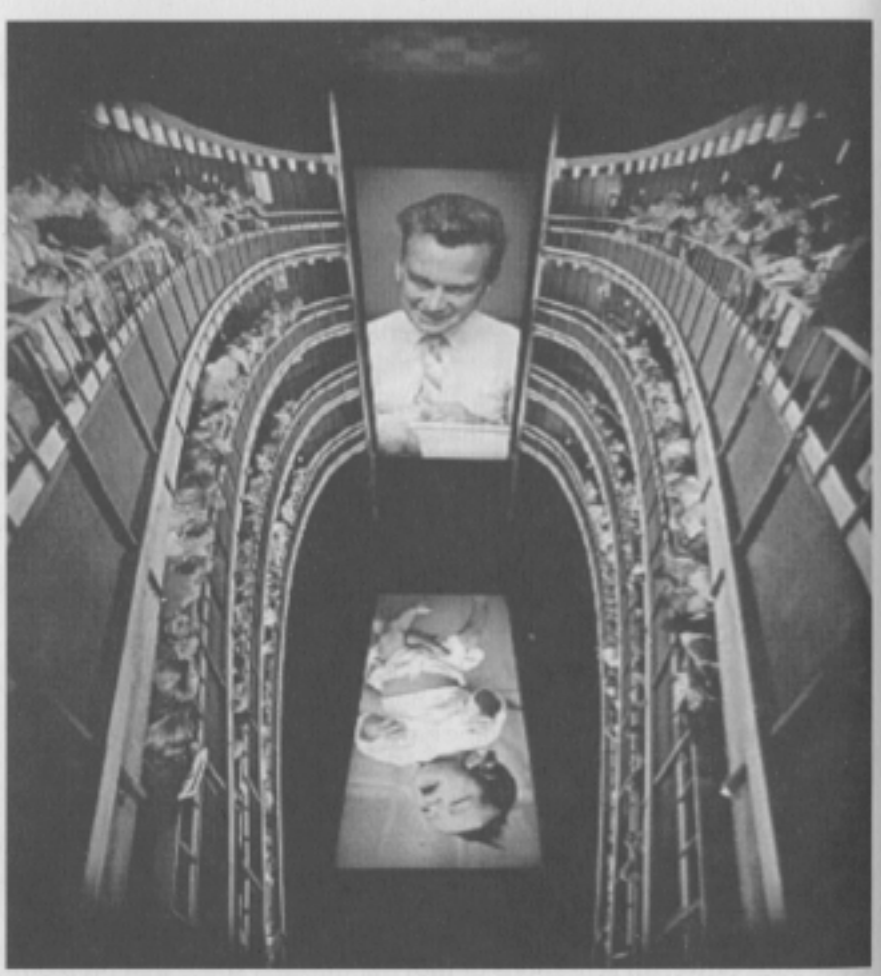

Fig. 1.4 Chamber 1, vertical and horizontal screens. *In the Labyrinth*, 1967, National Film Board of Canada.

> walls, floor and ceiling. The prisms were made of partial-silvered glass so when the lights were on the audience, it would be the audience reflected back to itself, and when the lights went off the audience and came on in the prisms, it made an infinity of stellar lights. A cosmos.[47]

It was a zigzagging passageway of mirrored glass that both reflected

and transmitted a multiplicity of different flashing lights that were triggered by an experimental soundtrack combining electronic and animal sounds. The installation was meant to enhance the sense of disorientation, to break down boundaries between identities, human and non-human, creating an endless, acoustic, decentred space. When the light caught a person in the mirror, the image was dissipated across an infinity of spaces. Once the audience had walked down the intimate corridor, they entered the final phase of their journey.

Chamber 3: Death/Metamorphosis (35 mm × 5)

The last chamber resembled a standard theatre with seats. An arrangement of five screens in cruciform shape, meant to reference the tree of life, created a visual climax. Both films produced for Chambers 1 and 3 were close to twenty minutes in length and contained images shot in half a dozen countries including Cambodia, Japan, Ethiopia, Greece, and Russia. The films included all ages and genders and focused on cultural rituals and everyday gestures in these different countries: a crocodile hunt in southern Ethiopia, baptism in Greece, childbirth in Montreal, a ballet lesson in Russia, a traffic officer, train commuters, Montreal streets during a snowstorm, landscapes. The soundtrack for both films included snippets of voice-over, recorded location sound, and a music score composed by NFB staff composer Eldon Rathburn. Tom Daly devised a special system of vertical editing for both films which juxtaposed lengthy, unedited sequences so as not to 'oversaturate' viewers with too much information.[48]

Scenes were sometimes continuous over the screens; in Chamber 1, for example, a boxer falls to the ground from one screen onto another, or a child feeds a goldfish which swims on a lower screen. Actions were also fragmented and repeated across the multiple screens. Colin Low breaks down the new compositional possibilities offered by the technology whose 'ultimate image' would no doubt be 'electronic, with stereoscopic images, perhaps a development of holograms':

> (1) flexibility in alteration of image composition;
> (2) simultaneous representation of events:
> (a) different events occurring at different times or in different locations,
> (b) different time segments of the same event, and
> (c) the same event seen from different positions and points of view;

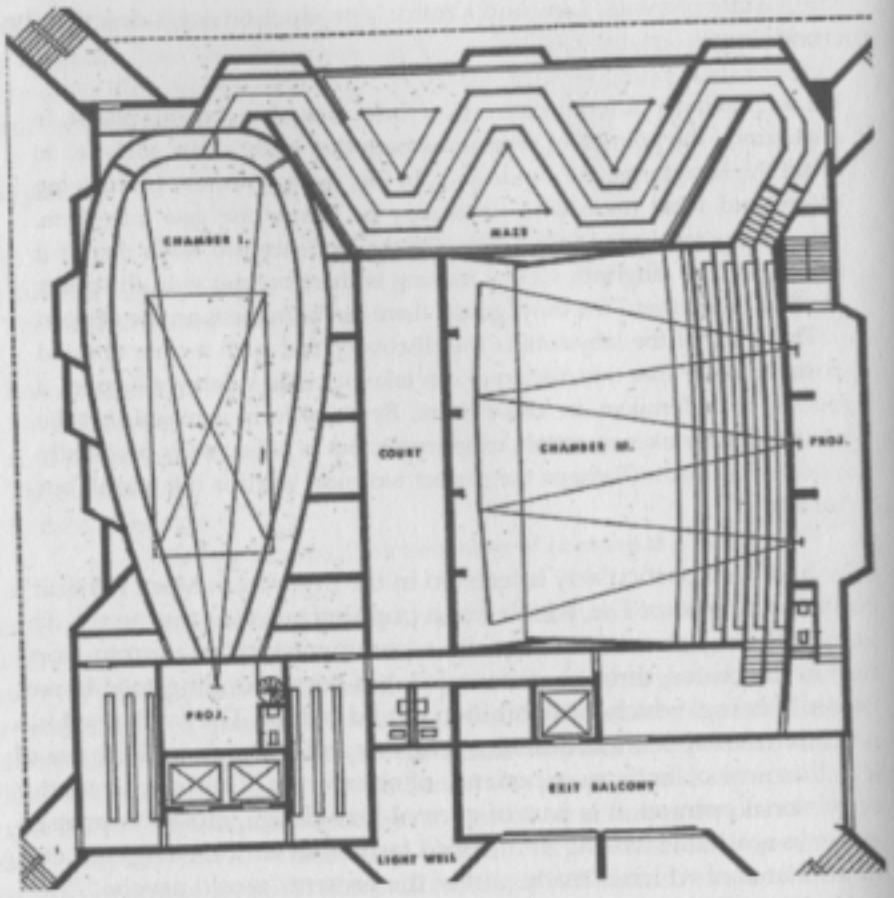

Fig. 1.3 Floorplan of the Labyrinth building. *In the Labyrinth*, 1967, National Film Board of Canada (all rights reserved).

The architecture designed to house the multi-screen presentation was itself a labyrinth (fig. 1.3). The building was a five-storey, poured-concrete edifice that contained two viewing theatres (Chamber 1 and Chamber 3) and a transitional zigzag space for disorientation or reflection between the two theatres called 'The Maze.' The entire space was able to handle about 720 people at a time, and there were ten shows a day. The path followed by the audience was the thread of a person's life from childhood through to old age. The Expo guide described it:

> They [spectators] will be distributed in groups through the three chambers, and at one stage will be surrounded by reflected images on all sides. At another point, they will gaze down from ramps on a huge screen 40 feet below and be subjected to sensations so strong that some will want to grab the handrail. Film for *Labyrinthe* has been specially shot by cameramen in many countries. There are no name stars to this movie – the main character is Man! In the second chamber, visitors move along walkways set between mirrored glass prisms. In the final chamber, the audience faces a multi-screen battery of unparalleled scope – using five screens, so that areas of the mind are exercised that almost certainly have not been exercised before.[42]

The guide reinforced the sense that this cinema experience would irrevocably transform viewers – it promised a visceral and unforgettable experience. *Labyrinthe* proved to be one of the most popular highlights of Expo 67 with audiences waiting in line for up to seven hours to get into the forty-five minute screening.[43]

Chamber 1: Childhood, Confident Youth (70 mm × 2)

The theatre in the first chamber was designed in a horseshoe form with the screens organized in an L shape both vertically and horizontally (fig. 1.4). From eight balconies on four levels on either side, audience members could peer over to a screen that rose forty feet in height or down onto the floor at one long horizontal screen. Five sound systems and 288 smaller speakers throughout the theatre ensured that the sound reinforced a powerful illusion and increased the sensation of vertigo created by looking down on the images. In fact Chamber 1 was able to reproduce such powerful sensations of moving through space that NFB officials were worried that the film would induce anxiety, depression, or even suicide in spectators.[44] No such thing happened, but this possibility of course increased the notoriety of the screen experiment.

Chamber 2: The Maze

'The Desert' or 'The Maze' was to be, Frye suggested, like 'the city on a hot summer day.'[45] Wendy Michener described it as a kind of acid trip.[46] Colin Low, who designed it, described it in the following way:

> The maze was three prisms in an octagonal room full of mirrors on all the

over images. I will explore this point further on, but for now, suffice it to say that both Low and Kroitor believed that the synesthetic cinema they were designing for Expo was a new medium that could well revolutionize visual culture.

Labyrinthe

> (...)
> The river is moving
> The blackbird must be flying
>
> It was evening all afternoon
> It was snowing
> And it was going to snow.
> The blackbird sat
> In the cedar-limbs.
>
> Wallace Stevens, 'Thirteen Ways of Looking at a Blackbird'[35]

Labyrinthe originated from Colin Low's idea for an *in situ* film. As he describes: 'The audience walks through a door into a darkened room and everything is subdued. Suddenly, the room lights go out and they are standing on a glass floor looking down 1,000 feet into the middle of Montreal.'[36] The first image for the screen experiment was an aerial view of the city in which the audience was suspended in space. The experiment did not quite work, but the entire structure grew out of this idea of space travel which they had already pioneered in several award-winning animation films: *City of Gold* (1957) and *Universe* (1960). As is mythological by now, the filmmaker Stanley Kubrick was deeply impressed by *Universe* and approached Low (who met with him several times) to work on the space design for his film *2001: A Space Odyssey* (1968). But Low was busy with The Labyrinth Project, which took five years to make.[37]

Briefly, *Labyrinthe* dealt with Man's conquest of himself. The approach was framed by the Greek myth of Theseus and the Minotaur, which was a half-man and half-bull creature that lived inside the Labyrinth of Crete. Theseus's quest was to find his way through the labyrinth and slay the Minotaur. Low and Kroitor used the story in consultation with Northrop Frye as a frame in which to design a narrative about individual self-realization, whereby the beast to be killed is the one that lives in all of us. The aim was to produce a 'ritual' or 'artistic' experience to

create a 'state of mind.' Low and Kroitor's production notes describe the methodology:

> We are making a pictorial labyrinth of 'life,' as it now is on this planet. In a labyrinth, the point is to choose the path that leads to the goal, i.e., to avoid the false turns, the cul-de-sacs. In life, there is no way of knowing beforehand what these false turns may be before one gets into them. There is no royal road to wisdom. Only experience can teach that, if it ever does. The labyrinth we are making is therefore not with the point; 'do this' or 'do that.' The only 'guide' there can be in life is a state of mind ... The point of the labyrinth is the discovery that such a state of mind exists. In order that this discovery can take place (to whatever degree), a journey is undertaken, in 'ritual' form. By ritual form is meant that the participant partakes of certain experiences, but is not actually personally involved in them. (Perhaps the correct technical word is not 'ritual' but 'artistic').[38]

Low had been particularly interested in the myth from Mary Renault's book *The King Must Die*, which was a popularization of the story.[39] The Labyrinth Project was working with a 'common story' or a 'proto-story' that is structured through different stages corresponding to different 'states of being' which the exhibition would induce. The myth itself is a narrative that appears in different religions and cultures, and the use of it in this project lends an experience of objectivity: 'This is not a matter of personal opinion, it is part of current knowledge, mostly expressed either in academic writing or in veiled fashion in various religions, etc., neither area of which is really part of the present "world psyche."'[40]

Northrop Frye was a crucial consultant for the project, and several of his essays appear alongside production notes. He also attended meetings at various stages of the project's development. An excerpt from his newly published book *Fables of Identity: Studies in Poetic Mythology* (1963) that appears among Tom Daly's production notes might shed some light on the suggestion that 'artistic' experience be the ultimate goal of *Labyrinthe*. Looking to Wallace Stevens's speculations on the imagination, Frye explains that art is 'a unity of being and knowing, existence and consciousness, achieved out of the flow of time and the fixity of space.'[41] Stevens's poetry, with its emphasis on multiplicity and facticity, is particularly apt for understanding synethestic cinema. We can also comprehend the logic of how temporal flow and spatial fixity come together in the merging of architecture and cinema.

this as the fundamental shift in the popular imaginary towards understanding simultaneity as a space to be controlled. McLuhan would state in *War and Peace in the Global Village*: 'As visual space is superseded, we discover that there is no continuity or connectedness let alone depth and perspective.'[29] This is where space becomes acoustic (space-time).

This idea of cinema as environment was intrinsic to The Labyrinth Project, and the influence of television on the Unit B directors is well known. The shift from theatrical to non-theatrical distribution of NFB films in the early fifties began an involvement with television that would influence how documentaries were being made. Essentially, when the Film Board began to make content for the Canadian Broadcasting Corporation (CBC), the Unit B in particular was involved in making short documentaries for television with *The Candid Eye* series. The films for *The Candid Eye* were akin to 'found stories' (Kracauer), which had no beginning, middle, or end.[30] The films were heavily influenced by the realist aesthetics of Cartier-Bresson in which everyday life reveals itself photographically and phenomenologically in a 'decisive moment.'[31] This shift to television affected the way films were produced, exerting an increased demand on film production. Not only was there a growing need for more films, but the films had to be produced more rapidly. The demand was for Canadian realities, for multiple realities distributed to multiple destinations around Canada.

One fact that often goes unrecognized is the NFB's substantial technological innovations in the areas of sound recording, film cameras, and projection.[32] These contributions were all geared around mobility of the camera in both animation and live action, and of film exhibition. Two of the most important technological innovations towards this 'quest for mobility,' as Gerald Graham has called it, are the first synchronous sound recording technologies produced by the Board in 1955, which enabled a greater flexibility for location shooting and helped to consolidate the NFB's reputation in the area of cinema direct.[33] The other innovation, pioneered at Expo, was the development of large-screen projection using 70 mm and 35 mm film, which eventually grew into IMAX's 70 mm film projection. For The Labyrinth Project, the NFB developed a synchronous multi-screen shooting apparatus made out of five Arriflexes mounted in a cruciform shape (fig. 1.2). The cameras could operate all together or in combinations. The films were projected using five synchronized projectors set out in a similar shape. Both the camera and projection apparatus adapted the principles of television

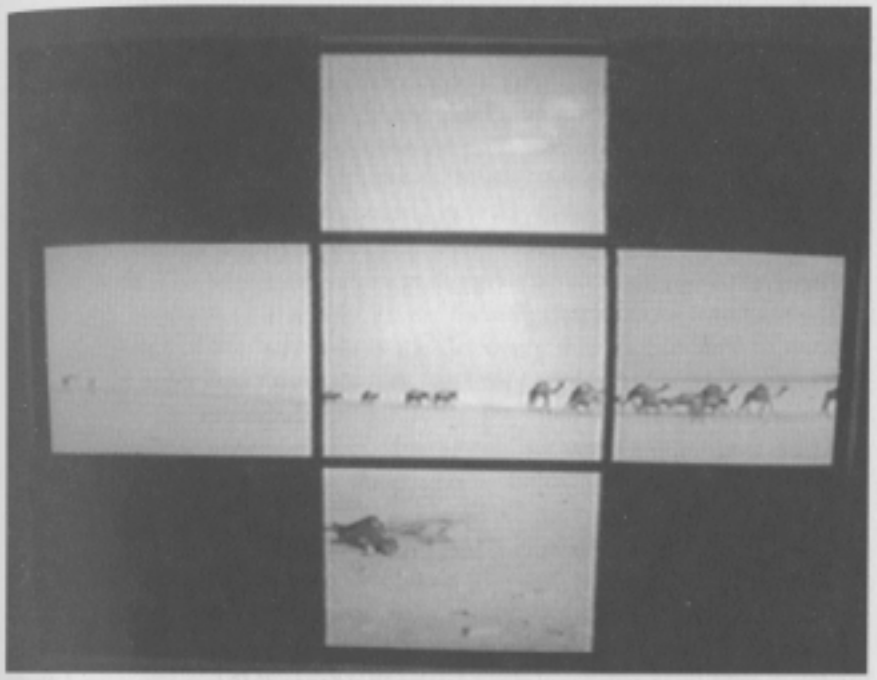

Fig. 1.2 Chamber 3, cruciform screens. *In the Labyrinth*, 1967, National Film Board of Canada (all rights reserved).

studio switching technology, which enabled greater flexibility in covering simultaneous actions.

Thus, we find two kinds of screen expansions developed by the NFB. In the first, we are dealing with the content of the frame – the camera and sound apparatus are set free to document the outside world because they are no longer tied to studio shooting (the division between outside and inside breaks down). In the second, which builds on the first, the spectator is set free in a new cinema architecture to create individualized views through screens that exceed any one person's perception.[34] Both of these innovations are geared towards greater participation and interactivity on the part of filmmakers and spectators. Arguably, this increased mobility and expansion, the opening up of new spaces of apprehension, is tied to the contradictory forces of capitalist media expansion: these produce a greater democracy of image production and consumption, and greater social and economic control

Pavilion	Presentation	Length in Minutes	Image: Medium	Image: Realization	Sound: Medium	Sound: Channels
Canada	*Origins and History of Canada:*	26:00	35mm		Optical	
	1. Exploration			1 screen		1
	2. Settlement and Conflict			2 screens		2
	3. Confederation			3 screens		3
	4. Agriculture and Industry			1 screen		1
	5. Today			3 screens		3
Canadian Kodak	*The Wonder of Photography*	8:00	Slides	(a) 3 screens (b) water jets forming screen	Magnetic ¼-in.	1
Canadian National Railways	*Motion*	14:00	70mm	1 screen	Magnetic, single-system	3
Canadian Pulp and Paper	*Story of Paper*	17:00	16mm; slides; live	Screens and ramp of circular auditorium	Magnetic 16mm, double-system; microphones	1
Canadian Pacific-Cominco	*We Are Young*	20:00	35mm	6 screens	Magnetic 35mm, double-system	3
Chemical Industries (Kaleidoscope)	*Man and Color*	12:00	35mm	1 screen reflected in mirrors	Optical	1
Czechoslovakia	Polyvision	9:38	35mm; slides	Surfaces of various shapes, stationary and moving	Magnetic, double-system	1
	Diapolyekran	14:44	Slides	112-screen mosaic	Magnetic	3
	Kino-Automat	65:00	35mm; 16mm	3 screens	Magnetic, single-system	4
(La Ronde)	Laterna Magica	35:00	35mm; live	3 screens	Magnetic, single-system; microphones	4
France	Light and Sound Spectacle	7:00	Light flashes along strands of cables		Magnetic ¼-in.	4
Great Britain	*Shaping a Nation*	6:00	16mm; stills	Surfaces of various shapes	Magnetic ¼-in., indiv. tracks	4
	Sources and Uses of Power	4:00	35mm	3 screens	Optical	3
Labyrinth	Chamber 1	20:30	70mm	2 screens, vertical and horizontal	Magnetic 35mm, double-system	6
	Chamber 2, *Maze*	7:30	Lights	Mirrors and prisms	Magnetic 35mm	5
	Chamber 3	20:00	35mm	5 screens cruciform	Magnetic 35mm, double-system	6
Man, His Planet and Space	*The Earth Is Man's Home*	11:00	70mm	1 screen, vertical	Optical	1
Man, the Explorer	*Polar Life*	14:00	35mm	11 screens, 3 visible at one time	Optical	3
Ontario	*A Place to Stand*	17:30	70mm	1 screen	Magnetic, single-system	6
Québec	Integrated exhibits				Magnetic ⅜-, ¼-in.	
Switzerland	*Switzerland*	20:00	70mm	1 screen	Magnetic, single-system	6
Telephone Assn. of Canada	*Canada '67*	22:00	35mm	9 screens surrounding audience 360°	Magnetic 35mm, double-system	12
Union of Soviet Socialist Republics	Cosmos Hall (Space Ride)	40:00	Modified Zeiss planetarium; 35mm; slides	Cyclorama; 5 screens	Optical	1
United Nations	*To Be Alive*	18:00	70mm	1 screen	Optical	1
	(original version	18:00	35mm	3 screens	Optical	3)
United States	*A Time to Play*	20:00	70mm	3 screens	Optical	1
Western Provinces	Integrated exhibits				Magnetic ¼-in.	

Fig. 1.1 'Table I, Presentations at Expo 67,' reproduced from Fran Lewin, 'Man and His Sound – Expo 67,' *Journal of the SMPTE* (March 1968).

to the 'Expanded Cinema University,' that is, to universal knowledge. Just as his geodesic dome was designed for mobility, as a ball in movement, so too was the synesthetic cinema designed for process-oriented experiences.

The notion that film technology could create a new awareness and an expanded consciousness for the new age of simultaneity was repeated frequently at Expo. The cover story of the 14 July issue of *Life* was called 'A Film Revolution to Blitz Man's Mind,' a revolution that 'showed us the future': 'London's Crystal Palace in 1851 did this with iron and glass architecture, the Paris 1889 fair with steam engineering, the 1904 St. Louis Fair with the auto. Expo 67 does it with film and, through images that assault the senses and expand the mind, explodes the world into a revolution in communications.'[20] Expo offered a variety of new forms of participatory multi-screen cinema (fig. 1.1). *Canada 67*, a part of the Telephone Pavilion, was among the most spectacular and nationalistic with a film made by Walt Disney Studios. Using a nine-camera apparatus to create a 360° circle vision screen, the spectacle enveloped 1,500 viewers at a time. The twenty-two-minute film began on the east coast with the Canadian Mounted Police, moving to Quebec's Winter Carnival to a Toronto Maple Leafs' hockey game to the wild west and Canada's national parks. For Robert Fulford all of the multi-screen presentations were disappointing, but *Canada 67* was among the most 'blatant in its chauvinism.'[21] CPR Cominco Pavilion's *We Are Young* by filmmakers Francis Thompson and Alexander Hammid, who also made *To Be Alive* for the 1964 World's Fair, used six screens to devise a documentary about the trials and tribulations of being a teenager. *Polar Life* by Graham Ferguson displayed eleven screens with two or three visible at a time as viewers sat in four revolving theatres on one large turntable. Perhaps the most theatrical of the presentations was the Kino-Automat (movie vending) on three screens, devised by cinematographer Raduz Cincera, which incorporated live theatre at the Czechoslovakian pavilion. Audience members had a red and a green button in front of them and were invited to vote on the actions to be taken by characters in the film. A live performer from the film would emerge at different points to ask the audience to vote. The voting itself was a ruse, and although each interval did allow for two choices, all paths ended in the same place. For Cincera, this illusion of interactivity was to be a comedy, a comment on democracy.[22]

Writing under the influence of both McLuhan and Fuller as well as all of the multi-screen experiments at Expo and the emerging field of

experimental media art, Youngblood posits synesthetic cinema as a new revolutionary form. This is the age of 'cosmic consciousness,' in which intuition and reason are joined once more.[23] Youngblood theorizes that it is the cinema's role to approximate consciousness, which he defines according to R.G. Collingwood's specification as 'the kind of thought which stands closest to sensation or mere feeling.' All thought grows out of this and 'deals with feeling as thus transformed into imagination.'[24] Consciousness is not simply static. Moreover, it is in the process of expanding through technology. 'This consciousness expansion is created on the one hand by mind manifest hallucinogens and on the other by a partnership with machines.' Synesthetic cinema is the only language suited to the post-industrial and post-literate age with its 'multi-dimensional simulsensory network of information sources.' An increasing number of inhabitants, he writes, live in another world, and the synesthetic cinema belongs to this other counter-culture world, a world that is other to commercial media.[25]

Although this form existed at the turn of the century and Abel Gance's three-screen manifesto *Napoleon* (1927) sought to revolutionize visual culture just as sound was coming to the cinema,[26] Youngblood asks why it took so long for the multi-screen cinema to come of age. The answer to this question is simple, 'television is the software of the earth.'[27] It has made film obsolete as a documentary technology (transformed it into art) and connected it into and helped to consolidate the 'intermedia network' of magazines, books, radio, recorded music, photography. All media are the new environment; they are nature as McLuhan would posit: discontinuous, fragmented, and interconnected like a labyrinth. Screens become architecture because of television's self-reflexive ubiquity – there is no outside or inside to televisual images: 'The videosphere is the noosphere transformed into a perceivable state.'[28] It is not that the screen disappears but that the screen as support is materialized as an object alongside or within another screen ad infinitum. The 'medium is the message' and thus the screen and the building that houses the screen and the city that houses the theatre are all part of the ever-expanding or imploding picture of the earth which the Russian satellite Sputnik had delivered in 1957.

While we might have seen screens within screens in the history of cinema, multiple screens or video walls became a common prop in the popular television culture (especially American) of the fifties and sixties. So often science fiction and spy serials used television monitors to connote the surveillance and high-tech control of space. We could read

Sainte-Hélène) offered something unique in the way of urban design: a utopian non-place that combined a unified system of signs with a highly diverse visual culture representing a new sense of globality. Expo was built to reflect certain trends in international art and architecture of the sixties. These trends towards openness to the present and connection to the world as a diversity of perspectives encompassed central themes of hybridity and multiplicity.

The three-chamber installation that made up *Labyrinthe* was designed by Colin Low and built by the architectural firm of John Bland, Roy E. Lemoyne, Gordon Edwards, and Anthony Shine, with Harry Vandelman as the project supervisor. Inspired by McLuhan's anthropological writings on the media as well as Northrop Frye's theories of archetypes, the installation served to highlight a new awareness of simultaneity and new concepts of space-time created through media technologies. McLuhan's intellectual collaborations with the British-born urban planner Jacqueline Tyrwhitt, who taught urban design and landscape architecture at the University of Toronto up until the mid-fifties, might shed some light on this new context of architecture in the sixties. Tyrwhitt was the editor of the journal *Ekistics* and translator and editor of many of Siegfried Gideon's writings – an important influence on McLuhan's media theories. We can see in *Understanding Media* (1964) precisely this influence on his views of the media as architectonic, environmental, and process-oriented fields rather than as simply virtual or static containers. A member of the Toronto Explorations Group in the early fifties, Tyrwhitt was also connected to architects in Montreal, not least the firm that employed Moshe Safdie, the designer of Habitat – the ultimate encapsulation of Expo's humanist intent. What grows out of the exchanges between urban and media theory with the Explorations team, a research group connected to an international interdisciplinary enterprise, is an anthropological approach to the built environment and an understanding that communications media as extensions of the human body produce environments that carry their own hidden biases.[15]

McLuhan's research aimed to uncover media biases through the creation of anti-environments, which the successful work of art could produce. His critical pedagogy maintained that the meeting of new and old technologies could generate new forms of awareness. He does not separate different media but rather seeks to understand them in terms of whole networks of obsolescences, absorptions, and hybrid energies. All media come in pairs, with one acting as the content of the other.[16] The usefulness of the electric light as an example of a medium (one that Eco

objected to) stems from its lack of content. Students of media can observe the way they transform the structures of time and space, work and society. They will come to understand the 'form of power that is in all media to reshape any lives they touch.'[17] All other media are hybrid; they are the result of a meeting which produces 'a moment of freedom and release from the ordinary trance and numbness imposed by them on our senses.' The interface between two different media has characterized the undertakings of the best artists: Dickens, Shaw, Eliot, Joyce, Eisenstein, the Marx Brothers, Chaplin, and many more, who were able to produce new forms of entertainment and art. It often takes a great artist to anticipate the hybrid created by the clash of cultures, which often occurs during wars and migrations.[18] This idea of the 'interface' between old and new technologies was central to the new synesthetic cinema that was pioneered at Expo and later theorized by Gene Youngblood in his landmark study, very much inspired by Expo 67, *Expanded Cinema* (1970).

Mind-Expanding Screens

The relation between screen and architecture, the screen as architecture, was endemic to the humanist design of Expo. Whereas classical depictions of dehumanization staged the cinema screen as precisely that which alienates humans from the social fabric of everyday life – Fritz Lang's *Metropolis* (1922) is a great example of this idea – Expo's image of the screen, as we shall see, was just the opposite. R. Buckminster Fuller, whose geodesic dome was an important milestone for those multi-screen experimenters at Expo, wrote the wonderful introduction to Youngblood's book. Fuller's planetary vision of an 'earth space' challenged the view of the earth that portioned it into tiny static cubes of property, an idea based on a two-dimensional picture of the world that did not include the space above the ground, that is, the universe. Instead, Fuller counterposes Einstein's larger view of a non-linear universe, a complex of frequencies, waves, broadcasts, and instantaneous communication within the context of the universe. For Fuller, Youngblood's book is important because it uses the 'scenario-universe principle': 'a scenario of non-simultaneous and only partially overlapping transformative events.' Youngblood's theorization of synesthetic art is most valuable for its educational potential: it will synchronize the senses and humankind's knowledge in time to ensure 'the continuance of the ... Space Vehicle Earth.'[19] The new ecological art forms will lead

total cinema would lead to the disappearance of the screen (i.e., holographic cinema),[5] the contemporary context presents just the opposite: frames within frames that foreground the materiality of the screen. In this essay, I focus on one of the most complex of the multi-screen pavilions at Expo: *Labyrinthe*. The exhibition was designed by Colin Low with Roman Kroitor, who were both established documentary film directors from the Unit B at the National Film Board of Canada (NFB). The Labyrinth Project proposed an audio-visual experience that they believed could well transform the future of cinema by creating a new medium. My account does not seek to establish a 'pre-history' of digital cinema but rather to point to this experiment, one of thousands tied to the experimental media cultures of the sixties, to illustrate an increasing desire on the part of artists to create entirely new architectures for sensory immersion that would expand the experience of film.[6] I would like to draw attention to a particular attitude underlying the NFB's *Labyrinthe*. This was an attitude that was at once utopian and pragmatic, combining a profound awareness of the world as organic interconnectivity and simultaneity as communicative possibility.

Expo as Earth City

I was a young child when I attended Expo 67, and my memories of it are vague. Yet childhood memories, unreliable as they may be, often preserve lasting impressions of a time. Two themes dominate my recollection. The first is distinguished by an awareness of the materiality of the earth as a liquid planet – the image of the 'space-age' mirrored in the designed environment of soft edges and orbed surfaces. The second was a notion that television would serve as a means of corporeal transportation. This idea might well have been reinforced by *Star Trek*, which featured a 'transponder' that seemed made of cathode ray beams, which was of course a wonderful (and ironic) encapsulation of the electromagnetic waves that made TV transmission possible. All across North America, primary schools added special features to curricula, inspired on the one hand by Expo and on the other by the promise of space travel.[7] In a peculiar fashion, the two projects were synonymous. Both shared the humanistic guise of 'Man and His World,' the theme of Expo 67, and both concerned the future planet and technology. Growing up in Montreal, I can recall more than one school project geared towards imagining the future of the planet as a utopian city (one of McLuhan's early formulations was the 'planet as city')[8]: a fluid and

boundless world that operated off the ground. This is the context in which I would like to analyse one of the most successful multi-screen, multi-chamber film experiments at Expo 67.

Organized by the NFB for Expo, *Labyrinthe* was precisely the kind of future cinema earth city project that a collective fantasy was conjuring in the popular culture of the sixties. One of the expressive metaphors for this fantasy of modernity was an excess of screens, and Expo 67 was filled with them. As Judith Shatnoff's review in *Film Quarterly* described, 'film came on two screens, on three, five, six, nine in a circle, 112 moving screen cubes, a 70mm frame broken into innumerable screen shapes, screens mirrored to infinity, a water screen, a dome screen.'[9] And new names were being invented to describe these screens: Circle Vision, Polyvision, Kino-Automat, Diapolyecran, and Kaleidoscope. While the Moscow World's Fair featured *Glimpses of the USA*, a projection on seven screens by Charles Earnes in 1959 (which upstaged *The Family of Man* photographic exhibition curated by Edward Steichen), and while the New York World's Fair (1964) had dozens of multi-screen projections, including *Glimpses of the USA* on fourteen screens at the IBM pavilion,[10] there was nothing that matched Expo in terms of sheer quantity of international and experimental films.[11]

As a future-tense city, Expo was said to be itself a cinematic city, filled with structures made of webs and screens that refracted and reflected other images, bodies in movement, and atmospheric variations. Indeed, the 'master plan design intent,' whose chief architect was Edouard Fiset, recommended that designers and architects explore the new possibilities of webs and film-like materials. Expo was called the 'Space-Frame Fair' because so many pavilions covered large areas with lightweight materials creating structures that were demountable and ready for transportation. It is the immaterial, the impermanent, the non-linear, the ephemeral of Expo that gave it its modern futuristic sheen, mirroring the new, dematerialized commodity culture of North America.[12] Thus it was not the monumentality of 'a disposable imperial city, expressing man's dominance over the earth,'[13] that we find at Expo 67 but the flexibility of the city in movement. Not surprising, transportation and the orchestration of traffic were the key components of the entire plan, with trains uniting vast areas of the complex site. The trains were themselves a complicated network of movements and connections, organized according to different speeds, operating at different heights while offering riders a variety of vistas.[14] Expo's one thousand acres with two man-made islands built on the St Lawrence River (Île Notre-Dame and Île

1 Multi-Screens and Future Cinema: The Labyrinth Project at Expo 67

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Media histories are located across a variety of artistic and industrial practices, institutions, and technologies. One aspect of this includes the history of an attitude towards the media, and more specifically towards what makes them new and meaningful. As both Marshall McLuhan and Raymond Williams have shown us, the evolution of media forms does not arise suddenly out of nowhere but is connected to a social, economic, and cultural network of conditions, grammars, and contiguities that support their development.[1] World expositions are places where new expectations and attitudes towards future technology are stimulated. This is no doubt what makes them such useful historical markers of cultural value. Consider Expo 67, which was held in Montreal to celebrate Canada's centenary. Second only to Paris's Exposition Universelle of 1900, it was one of the most successful world fairs ever held, with attendance at just over fifty million.[2] Although it may be true that all world expositions are training grounds for commodity consumption in ways that 'raise spectatorship to a civic duty,'[3] what distinguished Expo 67 from all other previous world expositions was its spectacular showcasing of audio-visual technologies. Over three thousand films were produced for the event, several film festivals were connected to it, including a large Montreal Film Festival and a student film festival. Approximately 65 per cent of all the pavilions and complexes presented moving pictures, many of which were dazzling displays of the new flexibility of the screen and the new synesthesia of the visual cultures of the world mediated through technology.[4]

This event can be read as an important precursor to the multiplication and interconnectedness of screens that characterize twenty-first-century digital architectures. While Bazin predicted that the myth of