The Delights That Twentieth-Century Technology Owes Us

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'Do you enjoy routine?'

'Do you enjoy disaster?'

'Do you hate the neighbours, your own family?'

'Do you suffer from boredom, overwork, loneliness, overcrowding?'[1]

Fun Palace was conceived in the early 1960s for those citizens who could answer these questions in the affirmative. The British theatre activist Joan Littlewood – who conceived the idea in 1962 – and the architect Cedric Price planned a gigantic 'plaything' in London Vauxhall Gardens, where those unhappy citizens could 'learn how to handle tools, paint, babies, machinery', or just listen to their favourite tune; where they could dance, talk or watch other people make things work; where they could 'try starting a riot or beginning a painting or just lie back and stare at the sky'.[2] In order for them to escape alienation and apathy, both of which were believed to have been caused by the educational system and the automated processes of industry and public administration, *Fun Palace* (that was ultimately never built) sought to offer

1   Joan Littlewood, questionnaire, [no date], *Fun Palace* document folio DR 1995:0188:526, Cedric Price Archives, Canadian Centre for Architecture Montreal. Quoted in Stanley Mathews, *An Architecture for the New Britain: The Social Vision of Cedric Price's Fun Palace and Potteries Thinkbelt*, PhD thesis, New York: Columbia University, 2003, p. 134.
2   'Joan Littlewood presents the First Giant Space Mobile in the World it moves in light, turns winter into summer…toy…', information brochure (1964), Gordon Pask Archive, Institut für Zeitgeschichte, Vienna University.

3   Ibid.

'the possibilities and the delights that a 20th century city environment owes us'.[3] Citizens who suffered because of both conforming to the structures of the companies and institutions that employed them, and adjusting to the machines they served, were given a 'cybernetic' environment which would adapt itself to them, both on the level of events and architecture. The walls, floors, stairs and roof modules could be mobilised within the steel structure of the building; this movement was controlled by computing-machines that were able to monitor people's behaviour and transform the architecture according to their needs.

At *Fun Palace*, leftist activism and cybernetics formed an alliance. The advocates of the Enlightenment had, 200 years prior, relied on science and technology to help build a civilisation beyond the laws of nature: an unnatural, egalitarian society. *Fun Palace* was meant as an experiment in exploring the latest information technologies and whether these technologies could be used to create an environment that

emancipated its citizens. However, in the 1950s these technologies were already suspected of being just a replacement of the ferocious insensibility of nature with an even crueler system of profit maximisation, and to reinforce the power of men over men.

The British psychologist, scientist, and cybernetician, Gordon Pask, who was called on by Littlewood and Price to develop and implement the cybernetic structure of *Fun Palace*, would never have described it in these terms. In the early 1950s, uninterested in historical or classical political argument, Pask began to conceive a world in which men and machines – as well as men and men, and machines and machines – would not simply communicate, but rather conduct 'conversations'. This implied that they would learn from each other and, as a result, both the human and mechanical actors would change. His world of adaptive learning machines and buildings was meant to increase personal happiness by widening the scope of individual agency and in doing so,

Pragmatism...
(continued)
Z a y n e A r m s t r o n g

As in Wordsworth's poem 'Crowds of men and women attired in the usually costumes! How curious you are to me!' See 'People Are Strange' by Jean-Luc Nancy.

4   See, for example, *Pask Present*, an exhibition of experimental art and design influenced by Gordon Pask's cybernetic theory and practice, curated by Richard Brown, Stephen Gage and Ranulph Glanville, Atelier Färbergasse, Vienna, 2008.

rescue twentieth-century man from intellectual boredom and atrophy.

Fun Palace has been chosen as the introduction to this essay on Gordon Pask as it was his most spectacular project in terms of scale. In order to understand Pask's technophile world vision, his ideas of conversation, play and learning, as well as his concept of 'aesthetically potent environments', that still inspire architects and artists to this day,[4] it is necessary to look at the lesser known concepts and machinery he developed in 1950s and 1960s whilst moving restlessly between the fields of theatre, music, electronic teaching, ergonomics, military training, fine arts and architecture.

G o r d o n P a s k –
A B i o g r a p h i c a l N o t e
Photographs show a physically frail man; born in Derby in 1928, Gordon Pask lived until the age of sixty-seven. In the course of his intense life, one that followed the rhythm of a thirty-six-hour day, Pask wrote more than 270 articles and six books, gave countless seminars and lectures, and

built a number of cybernetic machines. Having studied geology and mining, chemistry, biology, medicine and psychology, Pask held a PhD in psychology and another in cybernetics. By his early thirties he was considered to be one of the most important British representatives of cybernetics, a science that had not originally been synonymous with computing science. Cybernetics emerged in the 1940s and linked the fields of control systems, electrical network theory, mechanical engineering, logic modelling, evolutionary biology and neuroscience. As a pioneer in the field of adaptive teaching machines, Pask achieved international fame from the mid-1950s onwards.

Heinz von Foerster, another major protagonist from the field of cybernetics – who, having invited Pask to the legendary Biological Computer Laboratory in Urbana, Champaign in 1959 – described him as a genius. His capacity to see 'operational, functional, semantic, etc., relational structures at an arbitrary depth', was a faculty for which von Foerster himself

5   Heinz von Foerster, 'On Gordon Pask'. *Systems Research*, Vol. 10, No. 3, 1993, pp. 35–42, p. 40.
6   See Gordon Pask, *An Approach to Cybernetics*, London: Hutchinson, 1961, pp. 18–22.

had 'no organs, no sense, no language'.[5] Although Pask would dedicate these talents to science, his first love was for theatre, and the locations that housed these activities were to become the initial laboratories for his cybernetic experiments and the birthplace of a new technical environment for mankind.

Man is a System that Needs to Learn

Pask considered the human being to be a system that had the tendency to ceaselessly explore its environment for novelty and that, as a result, had to learn to control the unknown. To learn meant to reduce the uncertainty of events, and this applied to both human and machine environments. Pask stressed that we cannot make predictions about the 'real world', only about simplified abstractions. These private impressions allow us to cope with the environment and to make decisions.[6] Pask assumed that building these conceptual frameworks was a pleasant activity.

In 1952–53, together with Robin McKinnon-Wood, Pask

Gordon Pask, Lecture at the second congress of the Association Internationale de Cybernétique, Namur, Belgium, 1958. On the far right: Ross Ashby
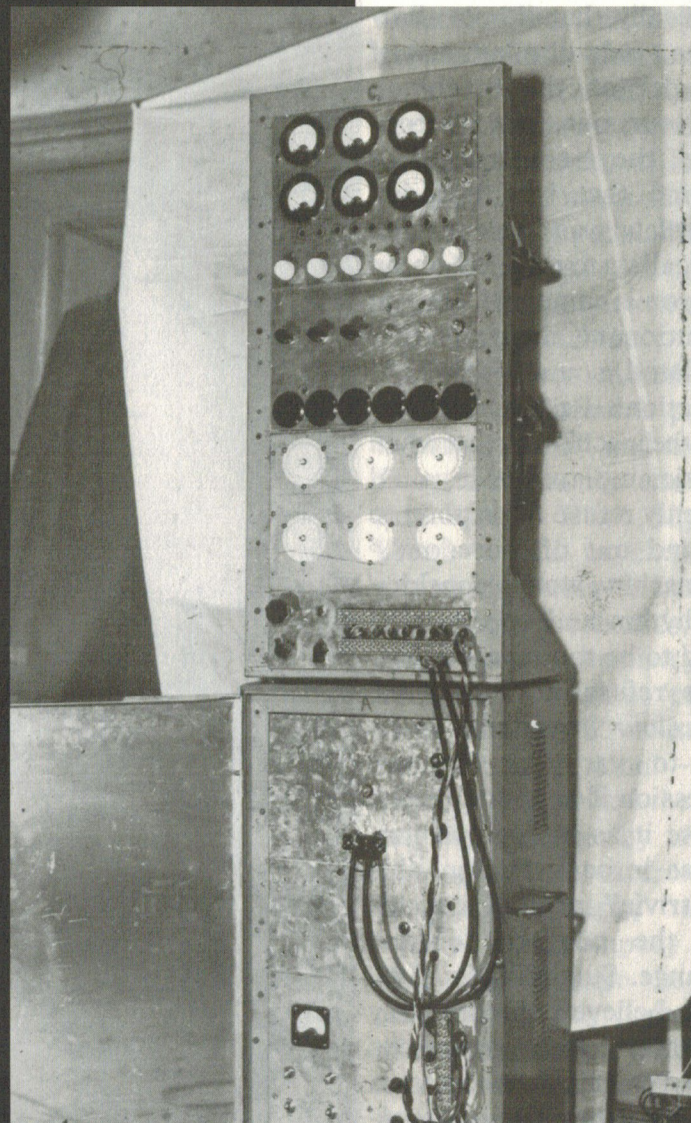
Gordon Pask, Robin McKinnon-Wood, *Musicolour*, 1952–1957

built a machine that did not enable the operator to easily reduce uncertainty, or more specifically, that did not allow for the ready development of a model of the machine's behaviour, but quite the contrary: they constructed a machine that was 'moody'. *Musicolour* was an electromechanical system based on an 'electronic computor [sic] of revolutionary design',[7] that translated sound into light projections. Pask had formulated the machine so that when a musician played it, it would suddenly refuse to respond to a sound out of 'boredom'.[8] The machine would 'consider' the rhythm and spectrum of sound to be too monotonous. In its refusal to cooperate, *Musicolour* forced the musician to vary his musical expression if he did not want to lose it as his companion. Just as in conversation, this 'non-trivial' machine considered the progress of the exchange. Surprisingly, if we are to believe contemporary accounts, the operators seemed to enjoy conversation with this capricious mechanical 'other', and were completely immersed in this

7   Gordon Pask, 'Moon-Music and Musicolour: Explanatory Notes', *Moon Music*, theatre club programme, Trayton Gardens, South Kensington, 12–27 January, 1954.
8   Gordon Pask, 'A Comment, a Case History, a Plan' in ed. Jasia Reichardt, *Cybernetics, Art and Ideas*, London: Studio Vista, 1971, pp. 76–98, p. 90.

9   Gordon Pask, 'The Purpose and Functioning of the System', typescript 25, August 1954, Box 4.43.2, Gordon Pask Archive, Institut für Zeitgeschichte, Vienna University.

exchange of sound and light. The musicians were subject to the machine's 'aversion' to repetition, but still they were granted a little technical support in this friendly quarrel: they could impose certain and specific preferences for the translation of music into light by means of a pedal. Thereby an individual 'language' emerged between each operator and the machine.

Musicolour, noted Pask, was the 'performer's partner in conversation', and the performance 'was the conversation itself'.[9] While Sigmund Freud reified psychological processes using metaphors taken from mechanics, electrodynamics, chemistry, and hydraulics – such as 'mechanism', 'resistance', 'neutralisation', or 'repression' – Pask anthropomorphised the man-machine relation by using a term that derives from the Latin *con-versatio*, 'to live with' or 'keep company with'. This was a term used to describe a highly coded form of communication within the aristocratic salons of seventeenth-century France, that eventually came to mean a pleasant, ideally aimless,

exchange of words. Pask had transformed these machines that had once belonged to a silent society of material things, ignorant to our excitements and moods, into actors that no longer promised either permanence or stability, but that actively provoked change.

Teaching Machines

A bundle of manuscripts that originated in Cambridge in 1954, points to the horizon of reflections in the field of occupational psychology and ergonomics in which *Musicolour* was likely to have been immersed soon after its construction. Here, Pask described the working situation of those who had to control production machinery and vehicles in an automated society: they were either overloaded or under challenged by the task, a situation that would damage both work performance and individual wellbeing. Pask did not call for a relinquishment of these conditions for the twentieth century's technical existence, but instead proposed the 'transducer'. *Musicolour* was an example of this – a mechanical

A general idea of science precludes an ultimate audience for evidence, the audience for whom science works. This is as though there is no need for any facts to be understood socially (among people) as such. This audience is ultimate in that it must be the audience that 'holds' the form which science makes moulds of. There is no need for the scientist to provide the fact for anyone other than this ultimate audience; facts are not issues brought to organisations of men for reaching consensus. A fact is recognised as such by the scientist through its being a realisation of a metaphysical item – a relative process, but considered by the scientist as ultimate. This item, such as a dream, is formed in the world somehow without that metaphysical item, but in search of it, and in light of its existence,

Gordon Pask, *The Colloquy of Mobiles*, installation view of the exhibition *Cybernetic Serendipity*, 1968, ICA, London

unit that would operate between the human and the actual task, individually increasing or decreasing complexity in order to engage the user in friendly, competitive play with the machine.

The experience of such 'conversations' between musicians and the lumino-kinetic machine, *Musicolour*, inspired Pask to not only suggest improvements to working conditions, but also to explore a field that would gain him international reputation: the development of adaptive teaching machines. Teaching machines had existed since the 1920s but didn't meet with enormous interest until the late 1950s, especially in the United States where its citizens were shocked by the success of the Soviet Union in space. The West was left wondering 'how the soviet peasant under the Bolsheviks had stolen a march on the free American in a democracy'.[10] Many were quick to assume that soviet education had done the trick, and hoped to catch up by the introduction of teaching machines.

Pask had begun to construct his teaching machines

10   Charles I. Foltz, *Lehrmaschinen. Geräte, Programme Anwendungsbereiche*, Weinheim: Beltz, 1965, p. 16.

the fact comes to be considered an image of that item. I mean to bring this up as a way of approaching William James' concept of truth; pragmatism's truth.

11   In 1971 Stafford Beer developed and installed the pioneering cybernetic communication system *Cybersyn* throughout Chile, by order of Salvador Allende.
12   Stafford Beer, 'A filigree friendship', *Kybernetes: The International Journal of Systems & Cybernetics*, No. 30, 2001, pp. 551–559.
13   Gordon Pask, 'Teaching Machines', *Proceedings of the 2nd Congress of the International Association for Cybernetics*, Namur, 1958, Paris, 1960, pp. 961–968, p. 962.

The ambiguity of how to refer to 'what is suggested' and what is suggested by what is suggested. My computer is dying, I may not be able to finish typing this out. 'It is the essential meagreness of "what is suggested" by the usual rationalistic philosophies that move empiricists to their gesture of rejection.'

in 1952. These devices were for both 'teaching' and 'learning', as Pask's main concern was not only with the observation of systems, but in 'observing-systems.' One early example was SAKI, the Semi Automated Keyboard Instructor, a training device for the punching of cards used for business machines and computers. SAKI turned out to be a commercial success: it could not only monitor wrong keystrokes but also time delays, adapting its training program to the personal needs of the trainee. Stafford Beer, the famous founder of Management Cybernetics[11] and a close friend of Pask, also served as a proband for the twelve-key punch machine device. He realised with amazement that although he had never touched such a device before, '45 minutes later I was punching at the rate of eight keys a second: as fast as an experienced punching girl.'[12] Pask, or more precisely, the conversational device SAKI, had succeeded in provoking in Beer 'a pattern of behaviour, (or pattern of state changes in the brain)'.[13]

Fun Palace – A Taste of the Pleasures of the Future

In 1964 Pask was offered the chance to implement his ideas of 'conversation' with machines larger than at an individual scale when Joan Littlewood and Cedric Price asked him to join the planning group for *Fun Palace*. Pask would later call this 'a system for encouraging the creative behaviour that is necessary in an automated society'.[14] The building – that would later inspire Renzo Piano and Richard Rogers in their designs for the Centre George Pompidou in Paris – measured 260 metres in length, 114 metres in depth and 50 metres in height, and consisted of a steel structure and various flexible elements. Data about the behaviour and interests of visitors could be recorded and analysed with the aid of an IBM 360-30 computer, using electronic sensors and response terminals. The spatial structure and the programme of activities on offer would change depending on the results. Littlewood and Price had decided not to aim for a

224

14 'Fun Palace Project, Cybernetics Committee, Introductory Document, Circulation List and Basic Plans', typescript, [no date], Cedric Price Archive, Canadian Centre for Architecture, Montreal.

The self of an object: 'Thou hast made of him a thing, no Self at all', Josiah Royce says of someone referring to his neighbour. The Self of a subject here differs from an object's capability of having a Self. In considering the idea of empathy in relation to this quote, I am awakened to an idea of a Self, made socially through an understanding that someone else, an 'other' may possibly also refer to and find comparable characteristics to their Self in 'things'. In other words: I have a Self in that I am the centre of my existence, just as much as everyone else has Selves as (the centre of) their existence. Selves and things considered much the same way.

fictitious pre-industrial life, but to explore the emancipatory possibilities of the latest available technologies.

The initial programme of *Fun Palace* was comprised of, amongst other things, a science playground; 'real life' television feeds from coal mines, steel mills, factories, zoos and farms; workshops for painting, sculpture, dance and music; and an 'acting area' where citizens of London could experience the therapeutic effects of theatre in order to develop critical awareness. One zone was planned to be equipped with the 'teaching machines' that Pask had developed with his company Systems Research, where the public could learn skills such as effective co-operation and pattern recognition.

Fun Palace highlighted two aspects of Pask's vision for an adaptive technical environment that critique the use of information technology: in order to adapt to visitors the machines had to observe them, i.e., measure them and store the resulting data. What's more, Pask sought to 'program' the visitors, that is

225

to say, to plan spatial structures and events that would effectively 'modify' them.[15] Every theatre or cinema director, every exhibition maker, shares this desire to alter the public mindset by some means or other, but Pask's desire to put this into effect on the basis of statistical and mathematical models may make today's readers shiver with indignation. Needless to say, the initiators of *Fun Palace* devised an experiment that they wanted to control. They assumed a distance on the level of consciousness between themselves and the ordinary citizen. Having adopted such an attitude, they didn't question the power structures that had emerged from the disparity between those who were technically monitored and those who would use the data. What continues to make this project appealing, is that their desire to change society was not confined to verbal critique, but was instead expressed through the construction of a short term institution – they outlined its transitional character – with a structure that could be partially modified by

226

15   See 'Fun Palace Cybernetics Committee Report', 1964, *Fun Palace* document folio DR 1995:0188:526, Cedric Price Archive, Canadian Centre for Architecture, Montreal, Mathews, l.c., p. 192.

its users, and a programme that enabled citizens to explore their agency through a wide variety of situations.

Aesthetically Potent Environments

At the end of the 1968 Pask was given the opportunity to try out his ideas in the context of the contemporary visual arts. Jasia Reichardt, the assistant director of the London Institute of Contemporary Art, invited Pask to develop an installation for the exhibition *Cybernetic Serendipity*, an international show that explored the creative forms engendered by technology. Pask conceived an adaptive computer-based system entitled *The Colloquy of Mobiles*; it consisted of five rotating mobiles suspended from the ceiling that communicated with each other through light and sound. In order to give significance to their communication, Pask conceived them as 'a social system'. This analogy made reference to an animal species: the two 'males' sought to direct their light beams into the three shell-like 'females', which would hoot if the male was successful. The aim of this

227

communication was to achieve a moment of satisfaction, and the mobiles learnt to optimise their behaviour to a level where this moment could be reached with the least possible use of energy. With the help of flashlights, the exhibition visitors could assume the same role as one of the mobiles, interfere in their courtship and influence, or more precisely, disturb the learning process.

Pask called *The Colloquy of Mobiles* an 'aesthetically potent environment'. As a concept it summed up his experience with *Musicolour, Fun Palace* and his adaptive teaching machines. An 'aesthetically potent environment' encourages the public 'to explore it, to learn about it, to form a hierarchy of concepts that refer to it; further, it guides his exploration: in a sense, it makes him participate'.[16] Pask was able to reiterate why it was that he wanted to provide people with environments that forced them to continuously integrate new information into their model of the world: this process of assimilation of knowledge was for the people

16   Gordon Pask, 'The Colloquy of Mobiles' in ed. Jasia Reichardt, *Cybernetic Serendipity: The Computer and the Arts*, London: ICA, 1968, p. 34.

Hyper-materialism: not that materialism is not enough, but I want to consider materialism in light of pragmatism, and to not bog it down with the kind of value judgment-oriented view that slops materialism and superficiality onto one another and dismisses it. Hyper-materialism is linked to post-processual archaeology (akin in ways to postmodernism). That is: bring with you your terms and those borrowed, and put-on contingencies of history and experience, ideas of absolutisms and your slew of 'existing' ideas – of course: what would you do without them? Could you leave them behind if you wanted? And with all of those various methodologies consider the

17   Ibid., p. 76.
18   Gordon Pask, 'The architectural relevance of Cybernetics', *Architectural Design*, September 1969, pp. 494–496, p. 496.
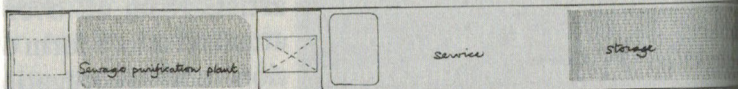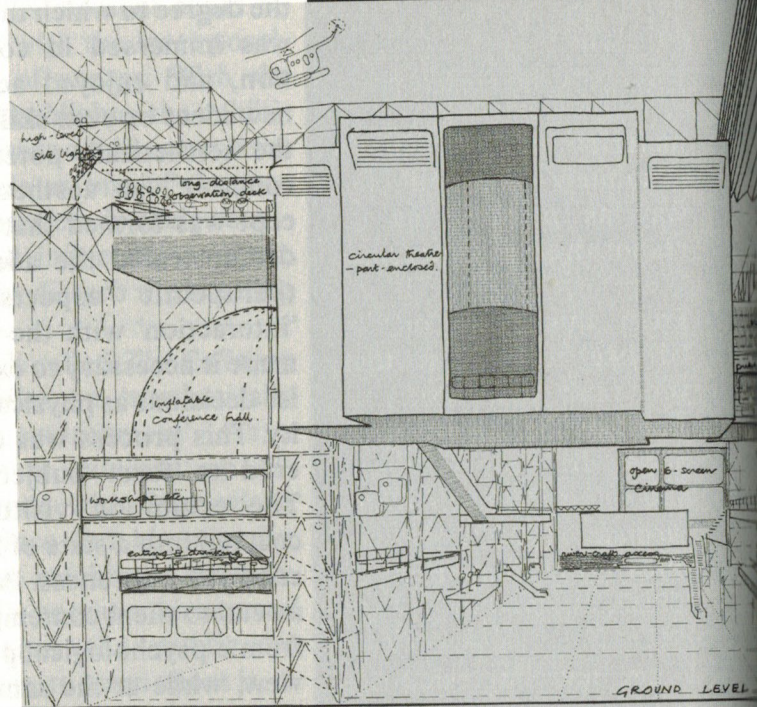
material at hand, in as absolutely 'at hand' a way as possible, as responsively as possible.

From this point on I'd like to suggest that you read this text aloud while a film plays. I'd suggest *Steel Magnolias* (1989), *White Oleander* (2002), *Daisies* (1966) or *Adaptation* (2002).

I am not interested in showing you or anyone the plant I have, now behind me in the room (it was in front of me before). I want to show you how I 'see' it or 'think' it, and what makes me believe it is there. I am also attempting to convince myself. But I want how I see it, and talking about this, to act

'an inherently pleasurable mode of activity'.[17]

Pask measured the 'aesthetic' success of his works by the degree to which the public was immersed in conversation, and enjoyed acquiring new ideas or even skills. With the 'aesthetically potent environment', an aesthetic concept was formed that clearly demonstrated the additional therapeutic aspects: any 'interaction' with the system made it necessary to externalise decisions as physical activity. This process was considered to form 'subjectivity'. The exhibition visitor was coerced into a state of heightened self-awareness. Pask put an end to silent contemplation from a psychological point of view, while at the same time artists from all over Europe attacked it as a form of alienation and subjugation to a bourgeois hierarchy. Pask would add to his aesthetic concept one year later, with a proposal for a new 'poetics' that was born out of 1940s cybernetics, echoing this artistic *zeitgeist*. In an article about architecture he defined design as 'control of control'[18] – i.e., the designer does not

Labels within drawing: adjustable 'sky' blind over whole area · gantry crane · high-level side lighting · long-distance observation deck · circular theatre – part-enclosed · long distance information screens · moving catwalk · inflatable conference hall · restaurant · open exhibition · workshop area · open 6-screen cinema · auditorium – under construction · observation · eating & drinking · telephone tower · GROUND LEVEL · Sewage purification plant · service · storage · heating & ventilating plant

ARRIVE AND LEAVE by train, bus, monorail, hovercraft, car, tube or foot at any time YOU want to – or just have a look at it as you pass. The information screens will show you what's happening. No need to look for an entrance – just walk in anywhere. No doors, foyers, queues or commissionaires: it's up to you how you use it. Look around – take a lift, a ramp, an escalator to wherever or whatever looks interesting.

CHOOSE what you want to do – or watch someone else doing it. Learn how to handle tools, paint, babies, machinery, or just listen to your favourite tune. Dance, talk or be lifted up to where you can see how other people make things work. Sit out over space with a drink and tune in to what's happening elsewhere in the city. Try starting a riot or beginning a painting – or just lie back and stare at the sky.
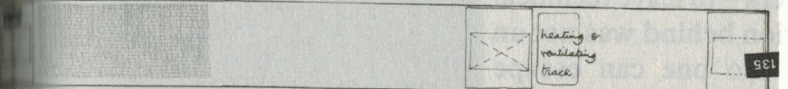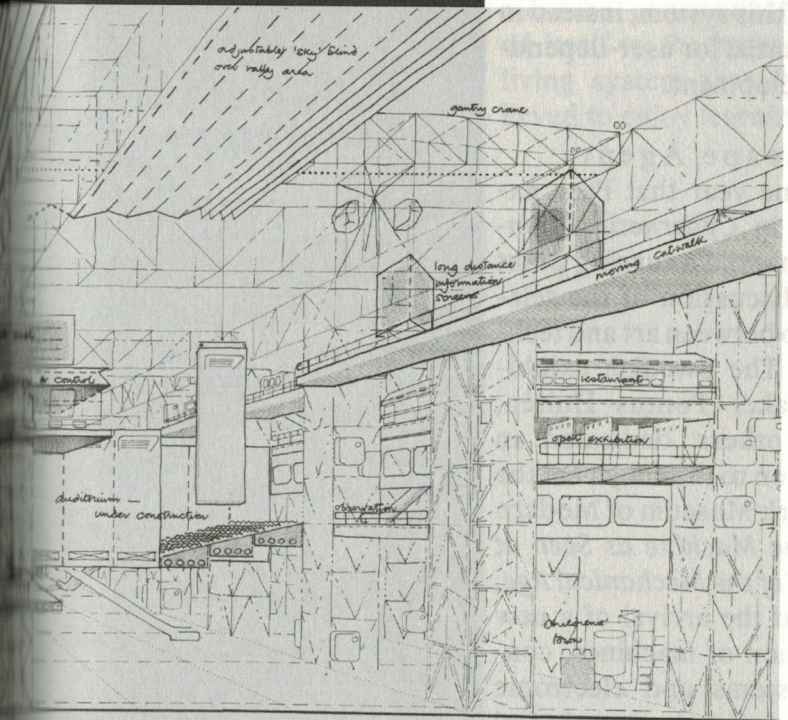
WHAT TIME IS IT? Any time of day or night, winter or summer – it really doesn't matter. If it's too wet the roof will stop the rain but not the light. The artificial cloud will keep you cool or make rainbows for you. Your feet will be warm as you watch the stars – the atmosphere clear as you join in the chorus. Why not have your favourite meal high up where you can watch the thunderstorm?

WHY ALL THIS LOT? "If any nation is to be lost or saved by the character of its great cities, our own is that nation".
– Robert Vaughan 1843

We are building a short-term plaything in which all of us can realise the possibilities and delights that a 20th Century city environment owes us. It must last no longer than we need it.

Joan Littlewood presents the FIRST GIANT
SPACE MOBILE IN THE WORLD
It moves in light turns winter into summer…
Joy…EVERYBODY'S what is it?, information
brochure about *Fun Palace*, 1964

create a final oeuvre, but rather a system of rules – and recommended as little specification as possible for large parts of this system, instead in the potential for user-dependent development.

Escape Agents

The same year that Pask exhibited in *Cybernetic Serendipity* marked a turning point in the discussion of the relationship between art and technology. The Swedish exhibition maker Pontus Hultén, among others, dedicated an exhibition to the subject at the New York Museum of Modern Art, *The Machine as Seen at the End of the Mechanical Age*, declared the arrival of a new generation of machines, control systems and electronic computers – to leave technical civilisation behind was not an option. 'No one can escape from the machine. Only the machine can enable you to escape from destiny,'[19] stated Hultén, paraphrasing a remark made by Tristan Tzara on Dada. Pask's 'conversational' machines were among those possible escape agents. Ignoring questions of power, and with little interest in

19   Pontus Hultén, *The Machine as Seen at the End of the Mechanical Age*, exhibition catalogue, New York: Museum of Modern Art, 1968, p.13.

as a means for increasing sensitivity to how I see it, and how 'we' can see or think it.

I'm talking about increased sensitivity in its being a state suggested by the logic of hyper-materialism, or a meaning that I'd like to link to or stuff that term with.

Okay, it is a forklift.

discussing the impact on society as a whole, Pask aimed to emancipate the individual using a new technical environment that continuously adapted itself to the human – that living system that Pask believed to enjoy learning.