Capital of Feedback: Cedric Price's Oxford Corner House (1965–66)

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Throughout his career as a practising architect and lecturer, Cedric Price (1934–2003) was attuned to the spatial and temporal relationships between information, communication and location.[1] Price argued that for cities to 'continue to function' they would have to adapt to changing styles of communication.[2] In a 1961 lecture at the Architectural Association, Price warranted the influence of communications systems on architectural reasoning by pointing out how information in early human settlement had travelled by voice and foot alone, his central point being that as living conditions developed, communications technology would naturally adapt.[3]

Recently the work of Cedric Price has received renewed attention for forecasting the relationship between technology and society.[4] An essay published in the *Journal of Architectural Education* in 2015 suggests that Price's spatial approach to digital technologies could inspire today's architects and planners to 'find agency in shaping the city through the active engagement with and empowerment of its inhabitants.'[5] To challenge the perception that Price's emphasis on active engagement with physical surroundings is directly linked to social agency, I look at the feasibility study for *Oxford Corner House*. Carried out by Cedric Price Architects during 1965–66, the study serves as an example of how user participation, facilitated by post-war computational advancements, was intended to organise responsive space and in turn benefit society.

Like other techno-optimistic works of architecture from the 1960's in favour of adaptable space, Price's work has been criticised for anticipating budding neoliberal agendas.[6] Pier Vittorio Aureli has previously problematised the concept of 'free space' employed in the proposal for Potteries Thinkbelt, a project Price conceived in the same year as Oxford Corner House, by demonstrating how its readiness to accommodate to any given situation pre-empts the goal of neoliberal policies today.[7] Rather than reveal the ideological features of Price's proposal, I aim to demonstrate how the feasibility study for Oxford Corner House shares the economic logic of today's digital platforms by relying on feedback to sustain its programme. The term 'platform', originally used to describe a raised level or surface for people or things to stand on, now encompass any intermediate entity as an enabler of multiple networks.[8] Evolved as a new type of business model, the digital platform extracts data as a new kind of raw material. By providing storage and transmission paths, economist Nick Srnicek has argued that the platform typology is an economic model first and foremost, always looking for ways to expand its potential for monopoly.[9] However, by facilitating networked meeting- or marketplaces, where users freely share their content, digital platforms have in turn become entirely dependent on user activity.[10]

The first part of this essay tries to understand the framework of 'self-participatory entertainment' by looking at the broader context of Price's work

and the influence of cybernetics on his thinking. As Price's clients for Oxford Corner House, J. Lyons & Co., invented the world's first computer for business management, the second part of the essay presents Price's programme for Oxford Corner House by relating it to the features of business computing. The invention of LEO (Lyons Electronic Office) to meet society's increasing demand for data processing, shows how the features Price sought to employ for participatory purposes were used elsewhere for the automation of management and the anticipation of consumer choices. The third and last part considers why we might think of 'self-participatory entertainment' as information indispensable to the architectural programme of Oxford Corner House. With this essay, I argue that what Cedric Price designed as 'self-participatory entertainment' for the users of Oxford Corner House, could instead be regarded as activities designed to generate information without which Price's broader architectural programme of anticipation and usefulness would be unsustainable.[11]

'Self-participatory entertainment'

The feasibility study for Oxford Corner House was initiated in 1965 when Cedric Price was commissioned by J. Lyons & Co. to envision a possible future for their failing Corner House restaurant in central London. Price proposed turning the space into 'an urban information hub for city-dwellers to interact with' and aspired for the space to be a 'unique metropolitan centre of self-participatory entertainment, information and learning.'[12]

During his studies at the Architectural Association, Price had engaged with the notion of self-organisation. Together with Colin Ward, Giancarlo De Carlo had introduced the concept of 'bottom-up planning' to the school's educational programme.[13] In her book on Cedric Price, Tanja Herdt argues that Price drew on these ideas for laying out the organisational framework in future projects that involved responsive planning.[14] However, by not directly involving users in the planning stage, Price's concept of 'self-participatory entertainment' cannot entirely be understood as what has commonly been referred to as a participatory design practice. Instead, in Price's feasibility study for Oxford Corner House, participation can be read in relation to the incorporation of communications systems as architectural means and as such, participatory activity may be understood as an on-going planning process.

'Self-participatory entertainment' also appears as a concept in Price's 1960s Fun Palace project, where users are referred to as 'participants'.[15] Here terms such as leisure, education, fun and knowledge are related to the concepts of emancipation and transformation through learning.[16] Price's projects from the 1960's respond to the situation created by the economic aftermath of World War II that prompted a social transformation in British society. As the automation of labour through technological advancement came to mean more free time, post-war workers were buying TV sets and going on holiday.[17] Work was no longer restricted to 'making a living' and instead provided the means to individualise workers through what they consumed.[18] However, due to the lack of industrial renewal, Britain's work market was offering few opportunities for highly skilled workers. To Price this was above all a crisis in the education system, which he believed to be completely detached from any 'economic usefulness'.[19] The Fun Palace was the first project with which Price set out to tackle what post-war Britain's was experiencing as a 'brain drain'. Through 'reimagining education and self-learning through participation' Price sought to solve the deficit in educated workers, who were leaving Britain in large numbers.[20] For Price this meant encouraging citizens to spend their time away from work, their free time, and what was referred to as leisure time differently.[21] Price's programmes from this period are especially targeted at a new generation of deskilled labourers who were experiencing full employment and higher wages than their

parents of the interwar years. 'Unfettered by tradition – scholastic, economic, academic or class', the programme for Oxford Corner House was, like the Fun Palace, designed for the socially restricted worker to overcome the control mechanisms and consumption of 'free time'.[22] As such, participation in Price's vocabulary is associated with learning as a kind of re-learning, as he believed workers would have to adapt to changing conditions to benefit society.

Price stressed the importance of large degrees of 'indeterminacy' in developing adaptability to accommodate economic uncertainties.[23] 'Try starting a riot or beginning a painting – or just lie back and stare at the sky' wrote Price and theatre director Joan Littlewood, Price's client, in the brochure for the Fun Palace in 1964.[24] Littlewood envisioned the Fun Palace to be a place where 'people could experience the transcendence and transformation of the theatre, not as audience, but as players and active participants in a drama of self-discovery'.[25] Sensitive to the activities of the Fun Palace, Price limited the physical design to involve only a supporting structure made entirely from gantry cranes that would allow immediate flexibility in use. Over time, Price's representational diagrams of the Fun Palace have instead come to be considered the 'real' architecture of the Fun Palace. By meeting Littlewood's brief, and showing the many possibilities of a space by including all facilities in organisational diagrams, Price established himself as an unusual architect in turn. Architecture critic Kester Rattenbury has emphasised that Price's designs are 'important in what they do, not in what they are'; she has argued that this approach distinguished Price 'from the general run of architectural fetishism with its obsessive love of the highly refined building'.[26]

Favouring an interdisciplinary attitude, Price turned to systems theory to 'find an approach to thinking about architecture that emulated the performative potential of the new technologies'.[27] The field of cybernetics that emerged after World War II influenced Price's work on circularity. In an interview from 2000, Cedric Price argued that, if realised, the Fun Palace would have been the first cybernetic building in the world.[28]

As a trans-disciplinary approach for exploring regulatory systems in machines and animals, cybernetics has influenced all disciplines concerned with feedback and circular causality. 'Wherever the cybernetician looks he sees phenomena of control and communication, learning and adaptation, self-organisation, and evolution' and in that sense, cybernetics can easily be adopted across disciplines.[29] The field of cybernetics got its name from mathematician Norbert Wiener's 1948 book *Cybernetics or Control and Communication in the Animal and the Machine,* which refers to the etymological origin of cybernetics, *Kybernetes* in Greek, meaning to 'steer' and the inherent possibility of gaining control.[30] In computer science, the analogous vocabulary of cybernetics illustrates the link to natural processes: storage is analogous to memory, data retrieval to remembering and computers to brains. Price's proposal for the Olympic Village of the 1972 Olympics included a 'Village Brain', shown to be 'thinking' in figure 1, to serve as a 'multi-message totem capable of informing, delighting and responding to the activities of the inhabitants', showing how he believed distribution of information to be circular.[31]

Price described how the structure of the Fun Palace would be able to 'learn' behavioural patterns and in that sense 'plan' for future activities by processing accumulated data.[32] In addition to equipping the users of the Fun Palace with new skills and experiences, encouraging uncertainty and spontaneity in the programme also served the purpose of supplying the 'Pillar of Information', a punch card storage system, with enough varied data to start forming anticipation of user behaviour.[33] Using an IBM 360/30 computer to compile data in order to

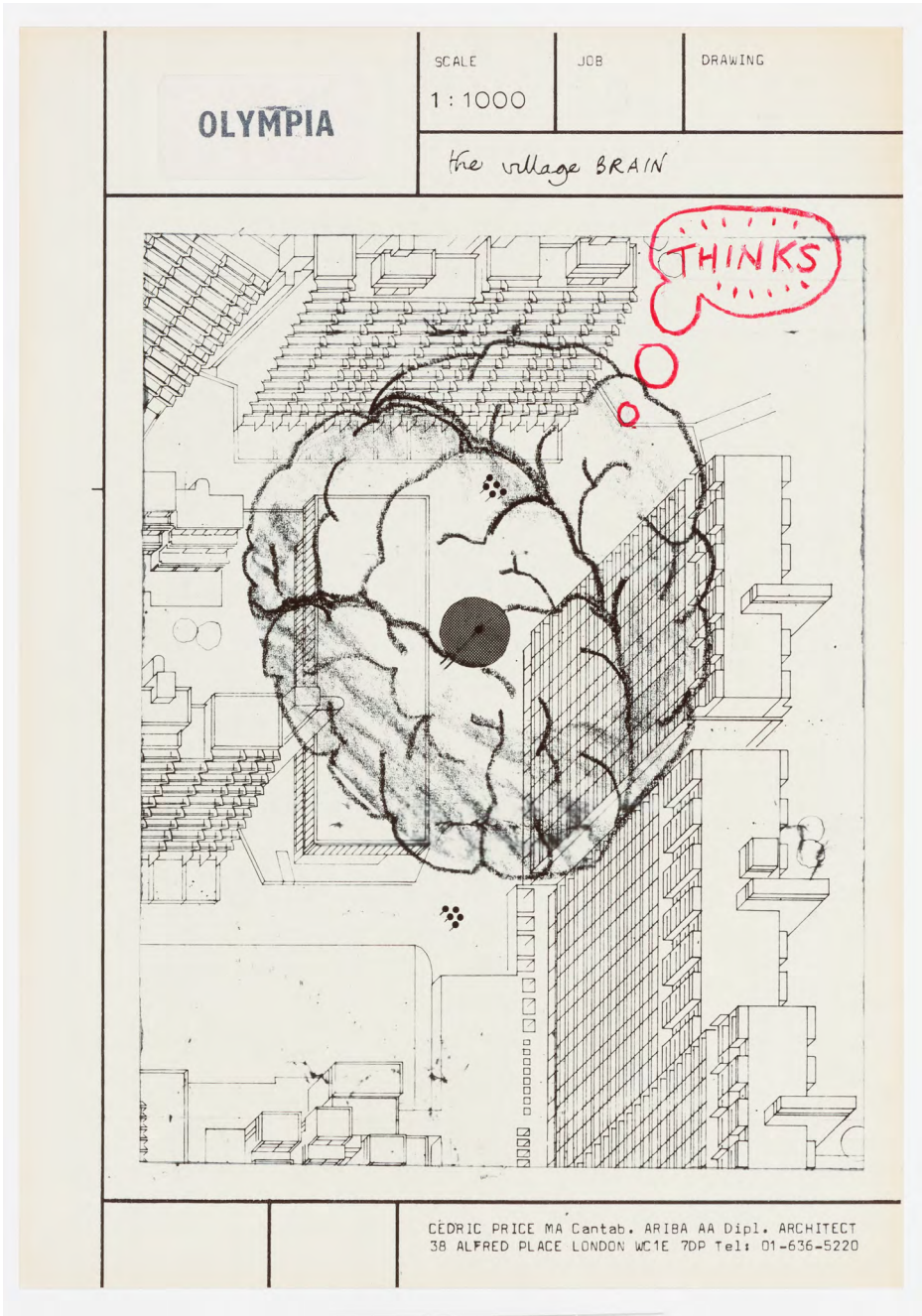


Fig. 1: Price proposed a ‘Village Brain’ for the 1972 Olympic village. Cedric Price, ‘The village brain’ for Olympia, Munich, 1971. Red coloured pencil over positive photostat print on emulsion coated paper with ink stamp on paper label, 30.1×21.1cm. DR1995:0253:005:004 Cedric Price fonds, Canadian Centre for Architecture.

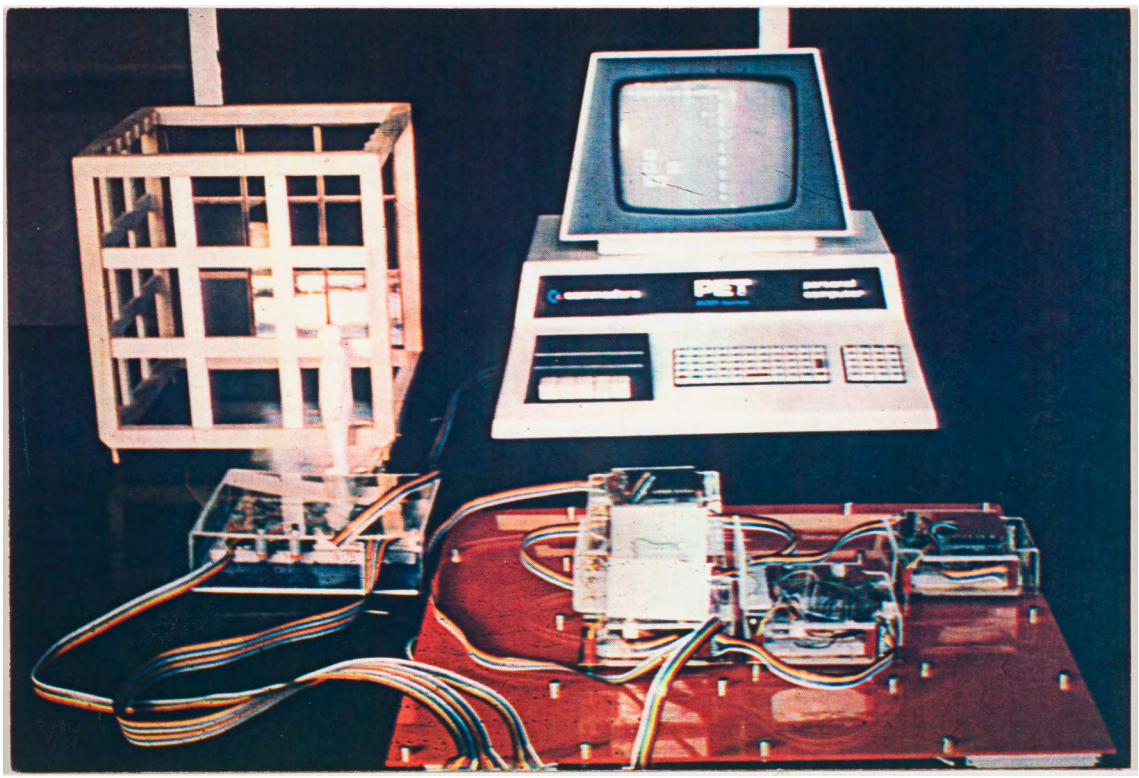


Fig. 2: View of working electronic model for the Generator project between 1976 and 1979. Colour electrophotographic print (photocopy) adhered to pasteboard, 16.3x23.9cm. DR1995:0280:651:004:006 Cedric Price fonds, Canadian Centre for Architecture.

establish overall user-trends and set the parameters for the modification of spaces and activities, the computer was intended to start adapting to the form and layout of the Fun Palace according to changes in use.[34] By including participants in its operational cycle, the structure and intentions of the Fun Palace describe the reflexive qualities of cybernetic methodology: 'modelling the form of processes and their products, abstracted from any particular embodiment'.[35]

Stanley Mathews has linked the influence of cybernetic thinking on Price's work to Norbert Wiener's description of circularity as a way in which 'a cybernetic system [will] continuously adjust itself in response to unpredictable conditions by anticipating future behavioural patterns on the basis of feedback information from prior actions'.[36] Meaning that any system sustains itself by constantly receiving self-correcting feedback. Corresponding to cybernetic analogies, it seems Price and Littlewood understood 'system' to broadly cover both the Fun Palace and society in general.

It was Gordon Pask, cybernetician, mathematician as well as Price's collaborator on the Fun Palace, who introduced the concept of underspecified goals to architecture.[37] In 1953, Pask designed and constructed the MusiColour Machine, an electronic machine for stage performances that would light up when receiving instrumental audio input. The design demonstrates the need for human interference in order for systems, human or mechanical, to respond. MusiColour would change its coloured light outputs according to its two inputs, frequency and rhythm. Musicians who worked with the machine in the 1950s allegedly treated it as another on-stage participant.[38] Usman Haque has identified the innovation of this project as its disregard for certainty: 'if the input becomes too continuous – for instance, the rhythm is too static or the frequency range too consistent – MusiColour will become bored and start to listen for other frequency ranges or rhythms, lighting only when it encounters those'.[39]

In the Generator project (1976) Price initiated the design of the actual computational programme. [Fig. 2] It would, similarly to Pask's MusiColour, get bored and 'rearrange space' unprovoked if users refrained from interacting. Programmed by John and Julia Frazer, the Generator was a constantly evolving 'intelligent building' wired to extract and demand interaction from its users, the employees of the Gilman Paper Corporation.[40] According to John Frazer, the software was designed 'in order to facilitate Cedric's belief that an instantaneous architectural response to a particular problem is too slow'.[41] Characterised as a kind of self-organising organism, the Fun Palace has been similarly described as 'an abstract machine which, when activated by users, was capable of producing and processing information'.[42] The same way Littlewood hoped to wake up 'men and women from factories, shops and offices, bored with their daily routine', so that 'they no longer accept passively whatever happens to them, but wake to a critical awareness of reality', Price was generating action in user and building by avoiding boredom.[43]

Other projects were also showing the influence of systems thinking. For the 1966 Potteries Thinkbelt project, Price envisioned a large-scale educational network for twenty thousand students. Emphasising the causal relationship between knowledge and production, the project linked education to human experience and 'the capacity for interaction'.[44] In a proposal for a livestock pen Price showed how physical space can be arranged as circuits, each unit depending on its relation to the adjoining one. [Fig. 3] Price also participated in the Federal Atomic Research Facilities project brief Atom which asked the architects to design a technology-based 'self-instructional education network' for a new town called Atomia outside of Chicago.[45] [Fig. 4] Price

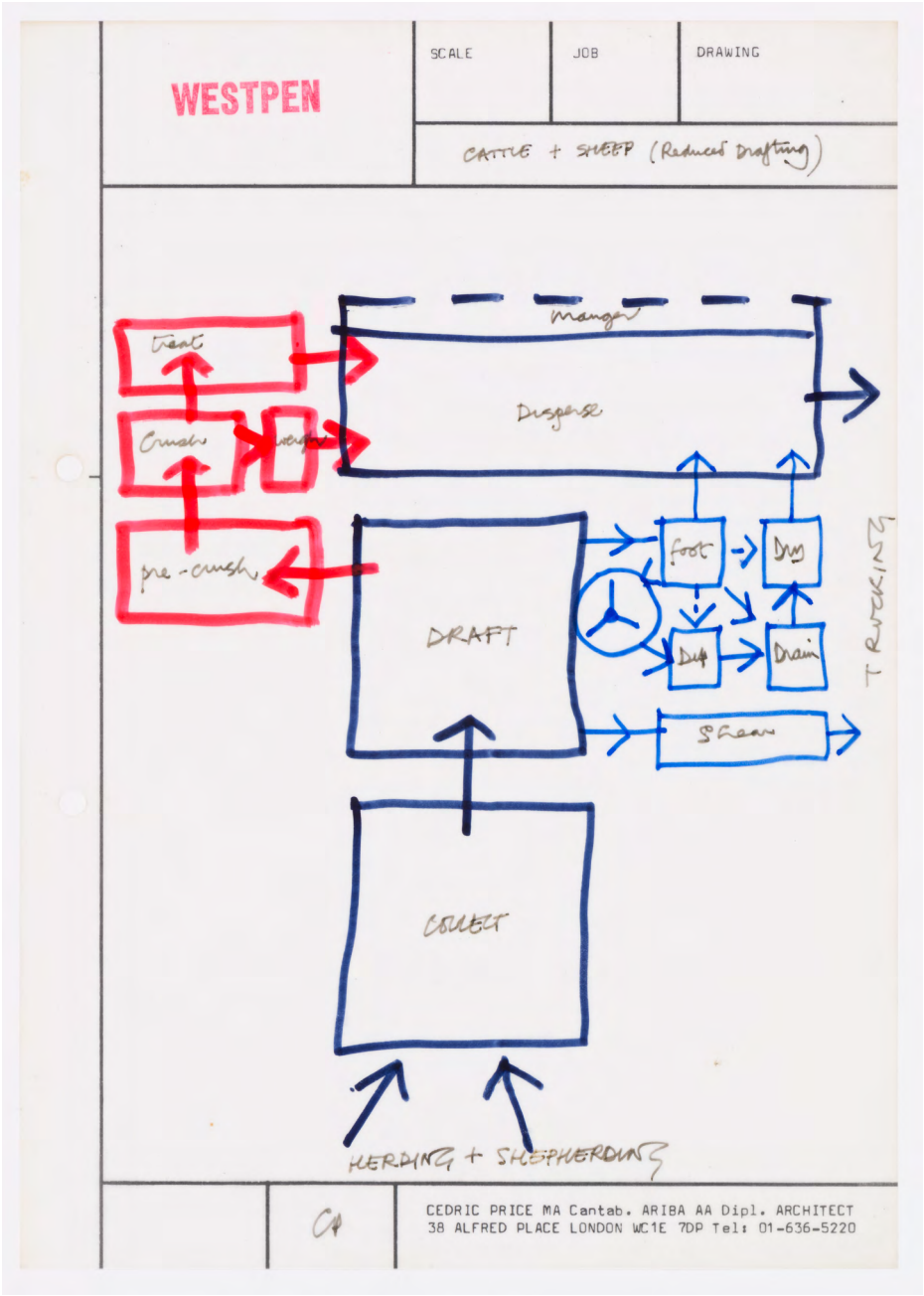


Fig. 3: Diagrammatic plan for Westpen, Hampshire, England between 1977 and 1979. Ink on pre-printed paper, 30x21cm. DR1995:0285:062:002:010 Cedric Price fonds, Canadian Centre for Architecture.

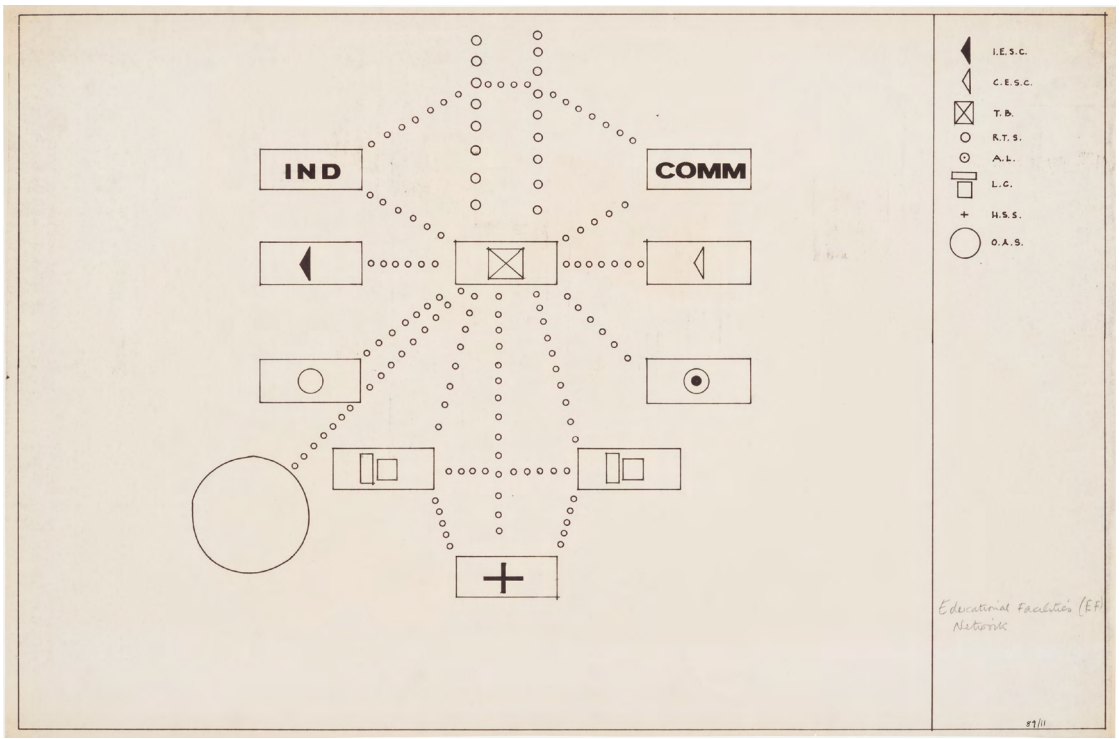


Fig. 4

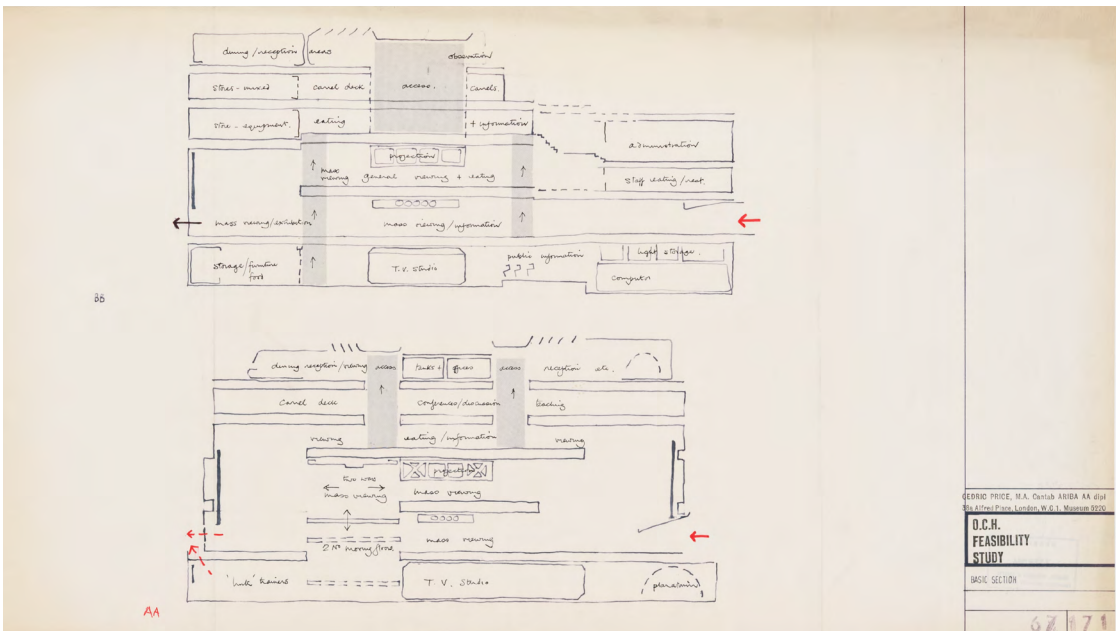


Fig. 5

Fig. 4: Educational facilities network for Atom project, 1967; reprographic copy with caption in graphite on paper, 45.7×69.2cm. DR1995:0233:017 Cedric Price fonds, Canadian Centre for Architecture.

Fig. 5: Sections for Oxford Corner House, London, 1966. Ink on architectural reproduction, 35.8×68.3cm. DR1995:0224:303 Cedric Price fonds, Canadian Centre for Architecture.

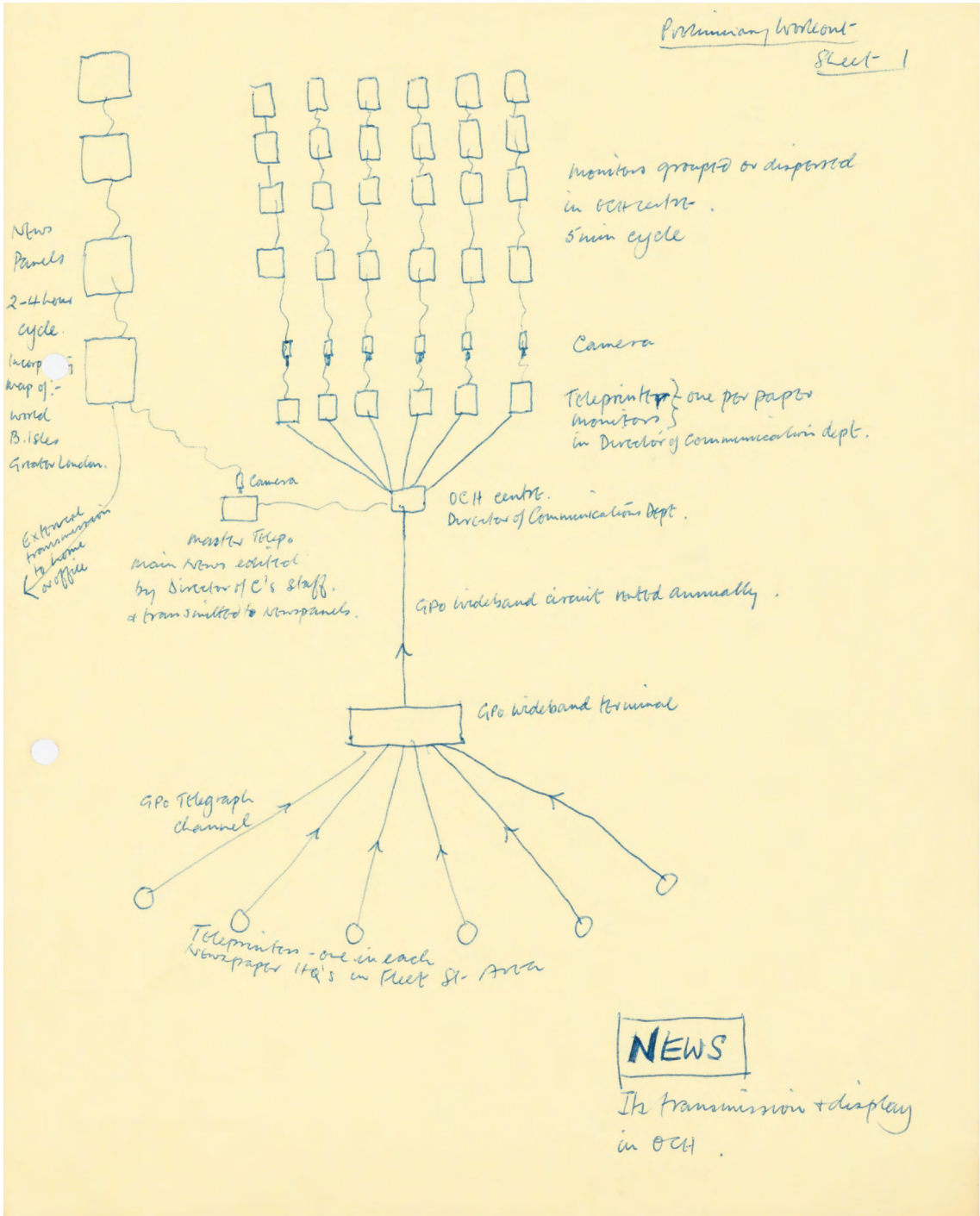


Fig. 6: Communications diagram for Oxford Corner House, London, 1966. Ink on reprographic copy, 37.7×68.9cm DR1995:0224:278 Cedric Price fonds, Canadian Centre for Architecture.

responded by proposing a 'Town Brain'; a databank and central hub for the production of educational material, as well as a 'Life Conditioner' box, a flexible structure that could provide educational facilities.[46] The idea of relying on civic information input for arranging spaces, was later vividly expressed in the statement for Non-Plan. A joint collaboration between Cedric Price, Peter Hall, Reyner Banham, and Paul Barker, Non-Plan scaled up Littlewood's idea of Non-Programme to a national level: 'serving the needs of a mobile society' by 'keeping all the options open'.[47] Published in an issue of *New Society* in 1969, they wrote: 'Why not have the courage, where practical, to let people shape their own environment?'.[48] 'Fed up' with post-war planning,[49] the group rhetorically asked: 'why don't we dare trust the choices that would evolve if we let them?'.[50] Claiming that physical planning should instead 'consist at most, of setting up frameworks for decision, within which as much objective information [as possible] can be fitted'[51] – assuming that with the principles of Non-Plan 'at the least, one would find out what people want'.[52]

Oxford Corner House

J. Lyons & Co. had, prior to their financial decline in the 1960's, been one of the largest catering and food manufacturing companies in the world, employing over thirty thousand workers, managing 250 high street teashops, five restaurants serving up to two thousand visitors each, as well as their own tea and food production. After World War II, the company's expanding infrastructure of supply and demand required increasingly large-scale calculations. The controller at J. Lyons & Co., John Simmons, initiated the development of a computer designed for the needs of the company and in 1951 Lyons' Electronic Office (LEO I), the world's first business computer, was launched.[53] The benefits of LEO business computing was explained in a 1957 promotional film as meeting a vital need for management to 'grasp the changing factors and act accordingly'.[54] In the mid 1960's, LEO merged with the English Electric Company, leaving J. Lyons & Co. to focus on their core identity as a catering company and managers of the iconic but failing Lyons' Corner Houses of central London.

Price imagined the adaptability of Oxford Corner House to reflect his approach to education and new technologies, as it would 'permit and encourage self-pace exploration by the individual' only driven or hindered by 'his curiosity, skill and mental appetite'.[55] Price's credo corresponded with LEO's aim of 'freeing clerks to do more stimulating and rewarding work'.[56] Moving on from the Fun Palace project, Price wanted to create a 'system that evolve[d]', making Oxford Corner House 'open-ended and undetermined'.[57] Oxford Corner House would transform from restaurant to leisure centre, with 'activities ranging from eating and drinking to self-pace learning and involvement with world news'.[58] An internal memo at J. Lyons & Co. shows that they imagined that by hiring Price, they could be catering for 'a new social pattern'.[59]

Provided with a seemingly open brief, Price was only constrained by the location and boundaries of the existing building: a four-floor restaurant in a busy part of the British capital. Unhindered by the physical constraints, Price wrote: 'The equipment which we have centralised has no boundaries'. Setting the scene for 'responsive architecture' as well as illustrating the core-cybernetic idea of the city as a 'nervous centre', Price proposed turning Oxford Corner House into a communications system: 'It can penetrate through walls, buildings, towns and countries provided the transmission paths are available'. Circulation and access was for this project unhindered by the human-centred features of the Fun Palace, leaving Price to concentrate on providing J. Lyons & Co with an information infrastructure.[60] [Fig. 5, 6, 7]

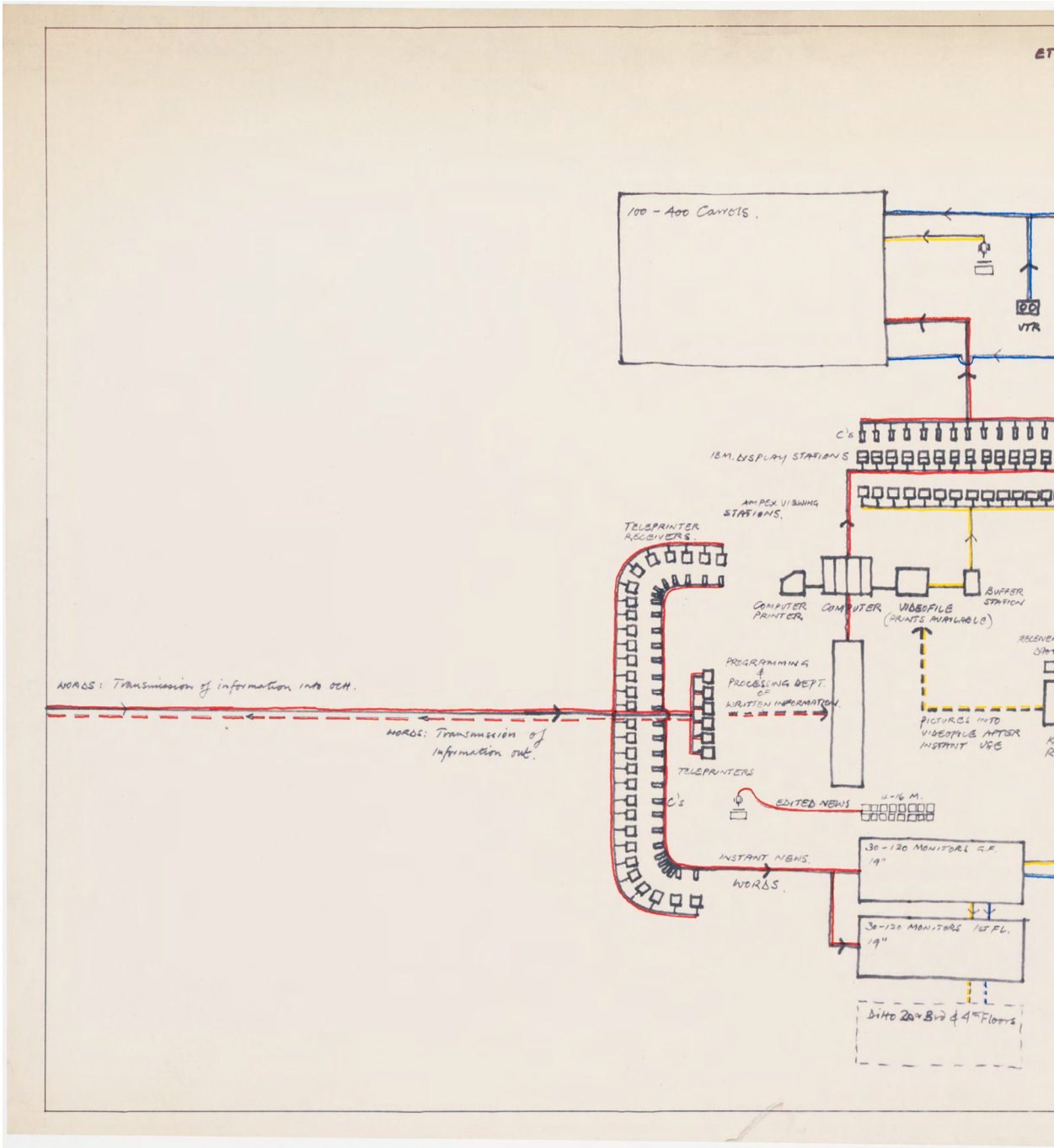
The LEO computer at J. Lyons & Co.'s headquarters at nearby Cadby Hall, had first been intended to process the data for Oxford Corner House.[61] However due to lack of storage, Price considered IBM computers with a capacity of 844,000,000 characters to 'do the job'.[62] By 1965, when the feasibility study for Oxford Corner House was initiated, IBM computers were better equipped than LEO devices. This was largely due to the British government's apprehension in developing and continuing to support private initiatives of computer technology after World War II, when Britain had been at the forefront of computational development. Due to security risks, the British government overlooked the potential of business computing, leaving America to lead in the field of digital technology. The technological re-ordering of labour, not fully foreseen by the British government, resulted in the 'brain drain' that Price was concerned with.

Prior to their decline, J. Lyons & Co. had funded the completion of Cambridge University's EDSAC (the Electronic Delay Storage Automatic Calculator) and as such the LEO 1 was largely modelled on computing for engineering, but with storage being the main advancement, it had twice the memory size of EDSAC, occupying five thousand square feet (465 m^2).[63] As Lyons' management required many simple calculations compared to a few, complex calculations, business computing proved different from scientific computing and subsequently studies of how to optimise the influx of input were carried out in the development of Lyons' Electronic Office.[64]

LEO quickly gained a monopoly over data processing; being the only business computer in Great Britain, it carried out all of the British General Post Office's national transmissions, and later managed all of the PAYE tax code for the British government, as well as government payrolls and business management of multiple corporations. For the British transport company, LEO calculated the shortest distance from each station to the other four thousand, a job that otherwise would have taken 'fifty clerks five years to do'.[65] Additionally, LEO would carry out calculations for the British Ministry of Defence – a task for which it would be sealed off from personnel.

Computer specialists later argued that LEO had been successful precisely because it relied on customer information to update its flow of input, anticipating more responsive kinds of computation.[66] Because multiple inputs and outputs were running at the same time, multiple but simple factors – such as weather forecasts and the amount of ice-cream in store – could be combined, making it possible for 250 shops to make last-minute changes to their orders. David Caminer, one of the computer engineers of LEO 1, has explained the use of manager input as the first example of re-engineering: 'For example, if there was a heat wave or a cold snap, we could have an upsurge in demand for beef and dumplings, or salads.'[67]

Apart from dining areas, Cedric Price and J. Lyons & Co. settled on the following functions for Oxford Corner House: exhibition hall (with changing displays), catering facilities, bowling alley, hobby shops, and sport centres. Price explored a wide range of technological devices that could function as educational and training aids inside Oxford Corner House. The Eidophor projection system that would project televised programmes onto large outdoor screens in full daylight, the Link System for Indoor Driving Tuition, a simulated driving machine, and recording cameras were all considered and included in the feasibility study portfolio. As computers had not yet been developed with display, and screens were only able to receive and project, CCTV was employed as a kind of interface, projecting live information on the various floors.[68] Different electronic systems were dispersed throughout the building – the ground floor was designed to provide


100 - 400 Cameras.
VTR
C's
IBM. DISPLAY STATIONS
AMPEX VIEWING STATIONS.
TELEPRINTER RECEIVERS.
COMPUTER PRINTER.
COMPUTER
VIDEOFILE (PRINTS AVAILABLE)
BUFFER STATION
WORDS: Transmission of information into OCM.
WORDS: Transmission of information out.
PROGRAMMING & PROCESSING DEPT. OF WRITTEN INFORMATION.
PICTURES INTO VIDEOFILE AFTER INSTANT USE
TELEPRINTERS
C's
EDITED NEWS
4-16 M.
INSTANT NEWS.
WORDS.
30-120 MONITORS G.F. 19"
30-120 MONITORS 1ST FL. 19"
DITTO 2ND & 3RD & 4TH FLOORS

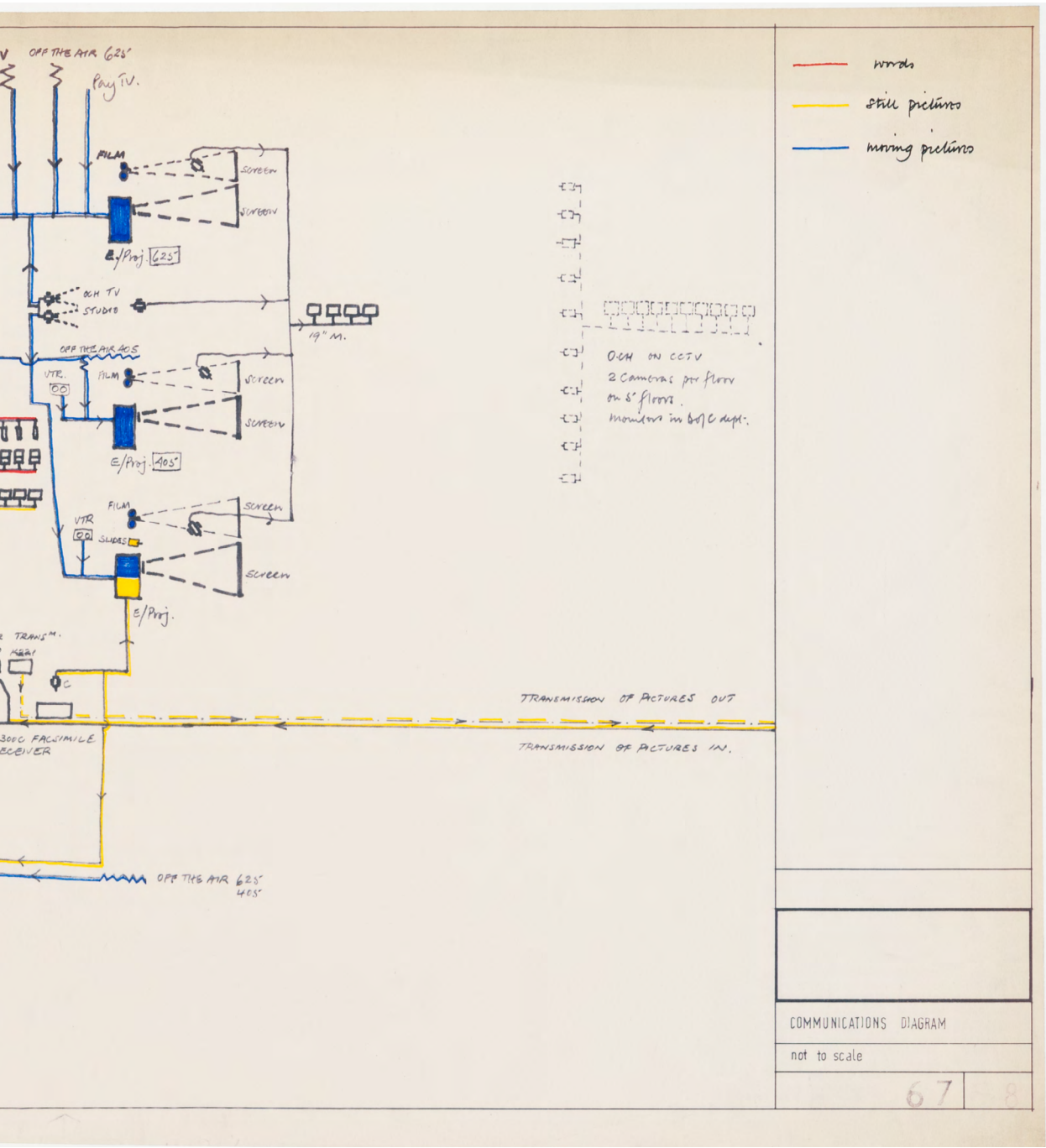


Fig. 7: Communications diagram for Oxford Corner House, Cedric Price, 1965. Ink on reprographic copy. DR1995:0224:342:001:003, Cedric Price Fonds, Canadian Centre for Architecture.

an instant news flow and information especially devoted to displaying transportation routes and timetables. Ten television-viewing rooms followed on the second floor and an information library on the third floor.[69] These computer systems were then to be linked to the outside world, transmitting and receiving data to sustain information channels.[70] Moreover, the hydraulic moveable floors that Price had already designed for the Fun Palace would enable various interchangeable spatial entities, like a TV studio in the middle of the second floor. The floor slabs would be managed by London's Hydraulic Power Co., ordered by fax sent via the GPO, to carry out the many possible floor plan rearrangements. As seen in the section for Oxford Corner House, the floors of the second and third levels would move according to the arrangement made by visitors, made possible by pneumatic lifting.[71] [Fig. 5] The British General Post Office's transmission lines shown in figure 6 as 'GPO', was only some of the national infrastructure relying on the programming of LEO computation. Price employed GPO transmissions as Oxford Corner House's exterior communications system.

One of LEO's central jobs was to carry out stock management. Every day, the manager at each of Lyons' 250 shops would have to place an order at Lyons' headquarters. As 'understocking leads to lost sales', when working with food, 'overstocking soon becomes intolerably wasteful' the 1957 promotional film for LEO explained.[72] After lunch, each Lyons manager would consider her stock; the film shows how she 'weighs up local conditions and decides what variations [to add to her order]'. The manager then proceeds to call the head office where her variations are noted quickly onto punch cards; 'there is no written record; what the [telephone] girl hears, she punches' simultaneously a short paper tape 'puts in last minute management decisions'.[73] Afterwards 'the programme is fed first laying down the sequence for the multiplicity of calculations LEO will perform, next the standing orders from [the manager's] telephoned revisions; teashop by teashop are fed in with the overriding variations on the paper tape'. Immediately, packing notes are printed out for both the clerks in the central storage and management. 'After further electronic processing' and by 'means of discriminance built into the system, LEO will examine all the statistics, but only print those that require action'. In this way, the promotional film explains, the central management 'are given precise up-to-the-minute information and enabling decisions to be more closely related to trading conditions'.[74]

The film explains how it was 'programmers, method-men and electronic engineers' who would analyse the needs of J. Lyons & Co. and then 'at the right time, crystallise them into a development plan'.[75] This plan would then be transformed into a logical scheme of circuit diagrams much like Price's diagram for the overall communications system for Oxford Corner House. [Fig. 7] Only for LEO designers, each unit would be treated as its own circuit. In comparison with Price's diagram, that serves an architectural purpose by showing the entire building as a circuit, the drawings for LEO of each physical rack or circuit board had to be very detailed, as the switching devices were assembled and programmed by hand.

In a 1952 internal LEO publication 'The Layman's Guide to LEO', the management's new computer is referred to as an automated calculator and explained in those terms. LEO consisted of a 'store' for keeping numbers, an 'arithmetic unit' for abstracting information, an 'input' for 'putting information into the store' and finally an 'output' for printed results. To carry out a computational job, the four basic units had to 'operate in conjunction with one another in definite sequence'.[76] A simple operational circuit for LEO was described as a feedback loop, involving all four basic units: Input, Storage, Output and Operator. A feedback loop can best be described as the circulation of a set of messages

that are exchanged without regard to their content, or as a kind of non-hierarchical information extraction only directed by its purpose.[77]

Gordon Pask's diagram for the Fun Palace shows how engaging with information activities would provide the desired adaptability in the user. [Fig. 8] The diagram describes three procedural stages of a participant entering the Fun Palace: 1) data collection, 2) compilation, and 3) feedback, and the concurrent modification of spaces and activities in the Fun Palace, as feedback was effectively comparing people coming in (unmodified people) to people leaving (modified people).

In order to find agency in anticipation, we might imagine the Lyons manager from the promotional film as a participant in LEO computation. Able to make her own local considerations and alterations to the order, she provides the system with information that the managers at the head office would otherwise have no way of knowing. As such, her orders are presented as vital to overall sales, perceived cybernetically; she carries out an activity that generates information, without which the system, in this case the enterprise of J. Lyons & Co., wouldn't operate or reach its goal of supplying all shops accordingly. Then if we imagine that the same Lyons manager had carried out enough information during a twelve-month cycle, she would have provided enough variables for LEO to start carrying out its own arithmetic abstractions and begin to predict the following day's order. The manager would have automated herself out of a job. On the other hand, if LEO only relied on stored information, the argument against such automation would be that J. Lyons & Co. would be unable to adapt to local conditions and assessments, only visible to the manager. Her job as a participant is to provide input, while the overriding programme decides exactly what goods will arrive to her store the next day. With a programme 'liable to change at short notice', the film argued that it enabled J. Lyons & Co. to avoid under- and overstocking and to eliminate imprecise planning.[78] In Oxford Corner House, form was influenced by information retrieved from users, in such a way that the floorplan would be arranged according to how users would access information. Like the use of LEO for management purposes, the programme for Oxford Corner House was organised as a facilitator of reliable flows of telecommunication for the design to constantly change according to the activity of its users.

Activity is information

Price's vision to 'strategically and with minimal physical means reorganise systems toward more socially productive ends' was encouraged by clients who were eager to make use of the new digital technologies.[79] Debates from the 'Cybernetic Committee' set up by Price for the Fun Palace, demonstrate how the ideals of realising 'indeterminate space' were essentially modulated over time as Price was hired to do similar, user-involved work by other clients, far from Littlewood's left-wing and emancipatory ideology. The committee was set up in 1963 to debate the ramifications of the systems employed in Price's projects. In the end, psychological reflections superseded the technical, and it became apparent that designing a code of conduct for a 'free space' would be challenging, the committee concluded that enforcing social control would be necessary to prevent violence.[80] However, for the commercially commissioned Oxford Corner House this concern was not an issue: social conduct would already be enforced by the social conventions of visiting a tea house or restaurant, and although, like Fun Palace, Oxford Corner House would be open twenty-four hours a day, security staff would tackle any unwelcome behaviour.

During the 1960's, criticism of Price's projects addressed elements of the designs considered controlling and pseudo-radical. As Price gradually capitalised the features of indeterminate free-space, the English situationist group King Mob encouraged

the public to 'occupy the Fun Palace', as they viewed Cedric Price as the leading architect of 'professionalized radicalism'.[81] In 1969, George Baird wrote: 'Price's idea of architecture as "life conditioning" rests on essentially the same view of human experience as Jeremy Bentham's Panopticon'.[82] Public sentiment had shifted, and the inherent control mechanisms of cybernetics were perceived to be limiting. Royston Landau later argued that while Price's aim does '[bear] a strong resemblance to the British philosophical concerns of Jeremy Bentham and to John Stuart Mill's deep passion for personal freedom' a closer examination of Price's 'version of enabling' can be compared to Bentham's idea of providing the individual with greater utility, or usefulness', as the idea of 'freedom to be useful' Landau argued, 'seems to lie very close to the surface of the Cedric Price production'.[83]

Almost ten years after the first initiatives to build the Fun Palace, and at the end of its so-called obsolescence cycle, Price and his co-authors maintained the importance of the idea by proposing the Non-Plan to see what would happen if people could 'decide for themselves'. By taking the features of the Fun Palace to a national level, Price maintained the societal importance of indeterminate and responsive architecture. As Non-Plan was intended to consist of geographically widespread zones of so-called launch-pads it would connect users and planners in the task of organising space. Cybernetically 'wired', like the Fun Palace or Oxford Corner House, Non-Plan's launch-pads would be facilitated by the same mechanisms that J. Lyons & Co. would depend on for managing their supply-chain. Precisely by relying on last-minute input, society would be freed from forecasting and be able to eliminate long-term planning altogether. By extracting information, the launch-pads, the authors claimed, would be able to provide citizens with what they wanted by letting them actively take part in producing their own environment. 'Even the first waves of information would be valuable, if the experiments ran for five years, ten years, twenty years, more and more of use would emerge.'[84] Instead of planning, the ideal of Non-Plan to 'set up frameworks for decision' was aimed at '"knowing" instead of "imposing"'.[85] Compared to planning, which the authors claimed 'lurched' 'from one fashion to another, with sudden revulsion setting in after sudden acceptance', the launch-pads would be provided with enough knowledge to anticipate responses by receiving information retrieved from participatory activity.[86]

That Price perceived 'self-participatory entertainment' as a dynamic activity of information exchange between user and building seems to be inspired by the work of media theorist Marshall McLuhan. Price considered 'the potential impact of different forms of media on the active participation of users; referring to the "hot" medium of film versus the "cold" medium of television'.[87] In order to 'sustain and maximize civic connections through information', information entering Oxford Corner House would, according to Price's diagrams, arrive through different channels and then travel according to purpose.[88] Price noted: 'So far people are involved simultaneously with: 1) The hot medium of film; 2) the cold medium of TV; 3) The hot medium of written word (which I suppose may be transformed to a cold medium when shown on a TV receiver); 4) The hot medium of radio & sound generally; 5) The hot medium of print on panels around the building'.[89] McLuhan introduced the hot/cold distinction in his 1964 study *Understanding Media*. 'Cool media' could, according to McLuhan, be perceived as organic and curvilinear whereas 'hot media' would 'run' linearly through a building.[90] The temperature analogy would determine how much 'brain work' any given activity would require. A lecture would, according to McLuhan's principles, be considered a 'cool medium' as it would require more 'participation' than a hot medium like television.[91]

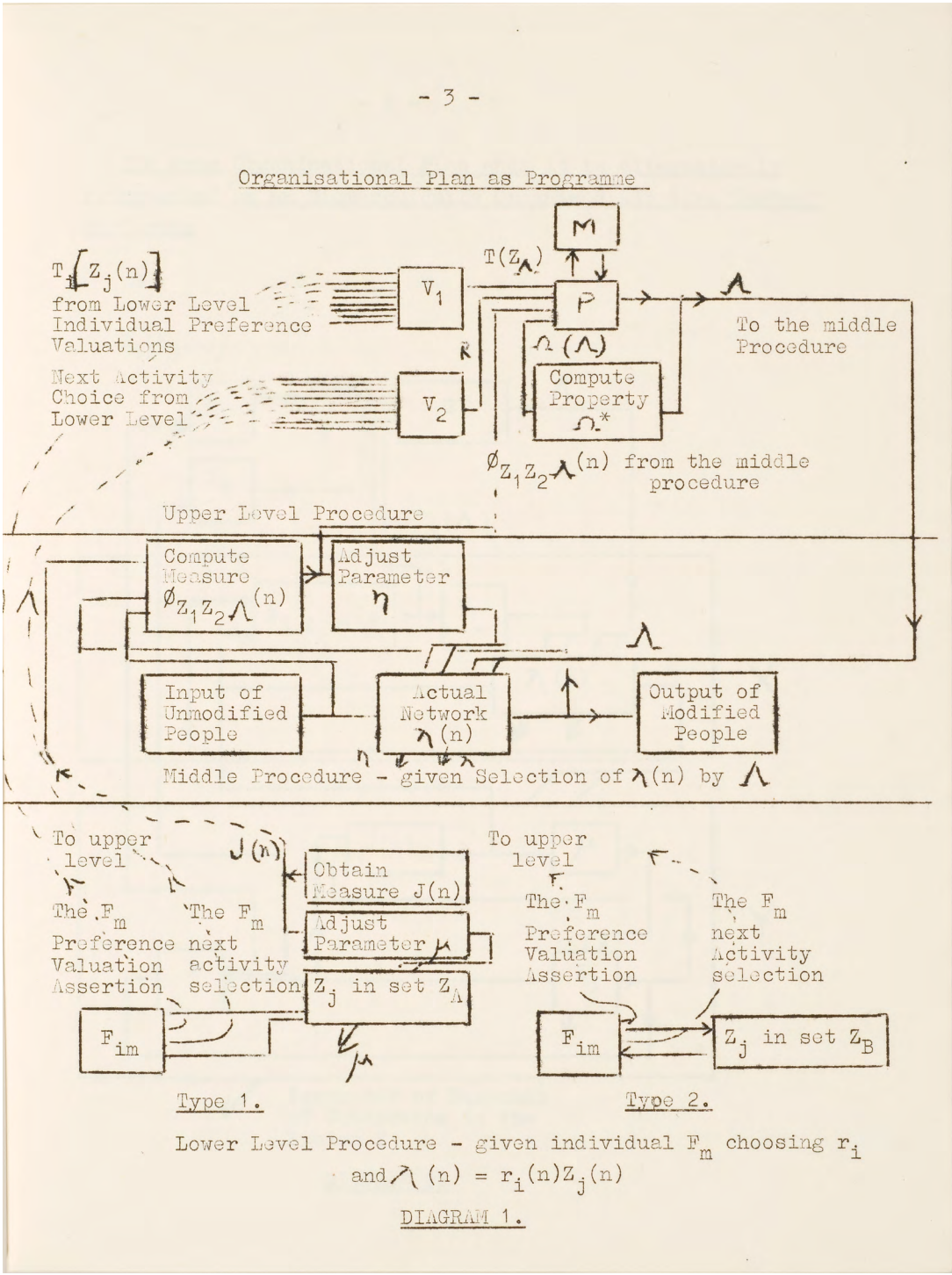


Fig. 8: Gordon Pask and Cedric Price: ‘Organisational Plan as Programme’, from the minutes of the Fun Palace cybernetics committee meeting, 27 January 1965. Reprographic copy, 25.6x20.5cm. DR1995:0188:525:001:001:004 Cedric Price fonds, Canadian Centre for Architecture.

Following Price's architectural reasoning, participation is thus what happens between the screen and the user, between stimuli and response. As such, for Oxford Corner House, the combination of programme and informational interfaces become the building's architectural means.[92] In turn, 'self-participatory entertainment' becomes a matter of cognitive interpretation, of hot or cold media, of brain work and interaction and as such, by generating it, activity becomes information. McLuhan wrote: 'The new patterns of human association tend to eliminate jobs, it is true. That is the negative result. Positively, automation creates roles for people'.[93] Seemingly inspired by McLuhan, Price considered the degrees of participation required by the various roles that could be assumed in Oxford Corner House. Whether engaging with a hot or cold medium, the overall distribution of activities all served the same purpose; creating new roles for people in order to respond to the needs of a changing society.

Conclusion

Described as 'unequivocal in seeing architecture serving the user'[94], Price's 'desire to improve the human condition' was mediated through responsive architecture.[95] The participatory ethos can be located in his reputation to have redefined 'the ways in which the architect might enhance human life, extend human potential, and promote social change'.[96] However, the feedback mechanisms that Price intended as architectural design also made him dependent on human action for creating responsive environments. In order to anticipate choice in a building, Price needed input from its users through 'self-participatory entertainment' that can be seen as a system's self-regulating or conditioning activity.

Stanley Mathews recalls how Price had told him shortly before he died that the Fun Palace 'wasn't about technology, it was about people', suggesting that followers and critics alike might have misunderstood his endeavours.[97] However, the remark also demonstrates Price's cybernetic understanding of the reflexive relationship between the two terms 'people' and 'technology', and that focusing on one over the other seems to be only a matter of emphasis. Today the ethos of the digital platform equally claims that it is 'people' and their lives that are central to the smart city. Input is intended to be derived from sensors or produced by people's mobile devices 'acting as data "feeds" to predetermined central systems' much to the benefit of established user networks of digital platforms.[98] The visions of 'big, data-driven, smart urban systems rely on the power for large transactions of simple information', as the smart city encourages people to 'actively participat[e] in the shaping of environment[s]'.[99]

In a 2000 interview with Hans Ulrich Obrist, Price was asked about the future of participation. Obrist, who had just interviewed Giancarlo De Carlo, wanted to know if Price would agree with De Carlo that participation had become 'kind of formalistic and a cliché'. Obrist explained how De Carlo had proposed that the 'the only way to work with participation would be to make it implicit in a building, to make it almost invisible'.[100] Price referred to radio shows that ask their audience for input: 'which makes for rather cheap radio but very dull listening for the rest of the population' as a way of agreeing with De Carlo, saying that 'at the moment it's almost a little dictum of right thinking people to allow everyone to participate'.[101]

How Price would have responded to the prospect of smart cities and invisible data monitoring, we cannot know, but in many of his projects, he pointed towards an inbuilt and planned 'obsolesce', in order to prevent his proposals to outlive their timeliness. Price provided his projects with lifespans of about ten years: for the Fun Palace, he stated that it 'must last no longer than we need it'.[102] However, throughout his career Price continued to be concerned with technology's possibilities for human beings and it is for this endeavour that his work today is hailed.

Described as a 'persistent critic of normative architecture' and as an 'iconoclast visionary – notorious for breaking all the rules', Price's projects extend far beyond their intended life span.[103] Despite being modelled after the visionary concepts of free time for the Fun Palace, ultimately the programme for Oxford Corner House shows how capitalism, in the shape of J. Lyons & Co., intended to extract value from workers in their so-called leisure time. Unlike for the Fun Palace, the programme never sought to ask what kind of activity comes after work. With Oxford Corner House, Price didn't distinguish between 'action' as social agency, and 'activity' as physical action, and as encountered in cybernetic reasoning there seems to be no distinction between the two, as long as they continue to generate input. The question is, if the participatory elements in Price's design can be reduced to activities that generate information, is it then possible to perceive Price's projects as models for coupling architecture and technology in architectural participatory practice today. Although Price was responding to a different social and economic situation than our own, the development of business computation shows that the same technological means he employed to 'better the human condition' were already employed in the 1960's to increase economic capital. Perhaps instead of hailing Price as what is conventionally considered socially radical, it would be productive to reconsider his statement: 'Cities die due to lack of usefulness' as a way of stressing the importance of economic adaptability.

Notes

1. 'His major themes are those of time and movement. Central to his thinking and his work is his opposition to permanence and his discussion of change. Price's projects continually push against the traditional physical limits of architectural space and map out the trajectories of time.' Hans Ulrich Obrist, *Cedric Price – The Conversation Series, 21* (Cologne: Verlag der Buchhandlung Walter König, 2009), 9–11.
2. 'Cities die due to lack of usefulness'. Cedric Price, 'A Summertime Breeze', in *AA Files* vol. 0 (1984): 71.
3. Royston Landau, 'A Philosophy of Enabling: The Work of Cedric Price' in *Cedric Price: Works II,* ed. C. Coudrille (London: Architectural Association, 1985), 13.
4. When Price is quoted, or mentioned, it is often for his radical forecast of the present moment. The 2019 digital supplement to the online journal *e-flux* quotes Price in its first editorial statement: 'When Cedric Price declared "technology is the answer, but what was the question?" he could not have understood the extent to which such a logic would underpin the economic and industrial logics of disruption that have since become increasingly determining of social life and urban experience'. E-flux journal: 'Digital Supplement, Editorial Statement'. https://e-flux.com/.
5. Kathy Velikov, 'Tuning up the City: Cedric Price's Detroit Think Grid', *Journal of Architectural Education* (2015): 51.
6. Anthony Iles argues that Price's visionary designs have been co-opted by neoliberal policies and how the 'Fun Palace can be considered a pre-vision of the emerging post-industrial society'. Anthony Iles, 'Legislating for Enthusiasm: From Fun Palace to Creative Prison', Arcade, March 2009, http://arcade-project.com.
7. 'Cedric Price's proposals for the Fun Palace and Potteries Thinkbelt as extreme examples of how labor has been "enabled" by specific architectural spaces that have anticipated our contemporary modes of production, modes in which knowledge, cooperation, and information play a fundamental role in producing economic value'. Pier Vittorio Aureli, 'Labor and Architecture: Revisiting Cedric Price's Potteries Thinkbelt', *Log* no. 23 (Fall): 99.
8. Tarleton Gillespie, 'The Politics of "Platforms"', *New Media & Society* 3 no. 12 (2010): 348–350.
9. Nick Srnicek, 'The Challenges of Platform Capitalism: Understanding the logic of a new business model', *Juncture* vol. 23, Issue 4 (2017): 254.
10. Gillespie, 'Politics of "Platforms"', 348.
11. 'The element of anticipatory design is essential because architecture in one way, has proved itself useful in that it is apparently dating faster and faster,

running out usefulness quicker and quicker'. Cedric Price, 'Anticipatory Architecture', Columbia University, 1995. *Cedric Price Works 1952–2003: A Forward Minded Retrospective* vol. 2: 'Articles and Talks', ed. Samantha Hardingham (London & Montreal: Architectural Association & Canadian Centre for Architecture, 2016): 460–1.

12. Stanley Mathews, *From Agit-Prop to Free Space: The Architecture of Cedric Price* (London: Black Dog Publishing), 179.
13. Tanja Herdt, *The City and the Architecture of Change: The Work and Radical Visions of Cedric Price,* trans. Helen Ferguson (Zürich: Park Books, 2017), 103.
14. Tanja Herdt suggests that projects such as the Fun Palace and Non-Plan were influenced by the ideas of 'bottom-up' planning introduced to the Architectural Association by Giancarlo de Carlo and Colin Ward in the 1950's. Ibid., 103.
15. Arata Izoaki, 'Erasing Architecture into the System', *Re: CP*, ed. Hans Ulrich Obrist, (Basel: Birkhäuser, 2003), 28–32.
16. Joan Littlewood, 'Non-program', *The Drama Review* vol. 12, no. 3, Architecture/Environment (Spring, 1968): 132.
17. 'Those who at present work in factories, mines and offices will quite soon be able to live as only a few people now can: choosing their own congenial work, doing as little of it as they like, and filling their leisure with whatever delights them'. Littlewood, 'Non-Program', 130.
18. John Rule, 'Time, Affluence and Private Leisure: The British Working Class in the 1950's and 1960's', *Labour History Review* vol. 66 (2001): 223–4.
19. Aureli, 'Labor and Architecture', 112.
20. Stanley Mathews, 'Cedric Price: From the "Brain Drain" to the "Knowledge Economy", *Architectural Design* 76, no. 1(2006): 91.
21. 'Price's architecture reflected the changing character of British society in those heady times, but it also acted as a catalyst to expedite social transformation'. Stanley Mathews, 'The Fun Palace as Virtual Architecture: Cedric Price and the Practices of Indeterminacy', *Journal of Architectural Education* (2006): 39.
22. Cedric Price, 'Oxford Corner House', ed. Coudrille, *Cedric Price: Works II*, 65.
23. Mathews, 'Fun Palace as Virtual Architecture', 40.
24. Cedric Price and Joan Littlewood, 'Fun Palace promotional brochure', 1964. https://cca.qc.ca.
25. Stanley Mathews, 'The Fun Palace: Cedric Price's Experiment in Architecture and technology', *Technoetic Arts: A Journal of Speculative Research*, vol. 3, no. 2 (Intellect Ltd, 2005): 76.
26. Kester Rattenbury, 'Catalogue for "Magnet" – an exhibition by Cedric Price', arranged by The Architecture Foundation in London, from 18 April – 8 June 1997.
27. Mary Louise Lobsinger, 'Cedric Price: An Architecture of Performance', *Daidalos,* no. 74 (2000): 23.
28. Obrist, *Cedric Price – The Conversation Series*, 84.
29. Cybernetics was explored before 1948 and especially the Josiah Macy Foundation's conferences on 'Circular Causal and Feedback Mechanisms in Biological and Social Systems' are said to have been influential in the field. Bernard Scott, 'Second-Order Cybernetics: An Historical Introduction', *Kybernetes* (October, 2004): 1367.
30. Ibid., 1366.
31. Hardingham, ed., *Cedric Price Works* vol. 1: 'Projects', 350–1.
32. Mathews, 'Fun Palace as Virtual Architecture', 44.
33. Molly Wright Steenson, *Architectural Intelligence*, (Cambridge, MA: MIT Press, 2017), 132.
34. Mathews, 'Fun Palace: Cedric Price's Experiment', 85.
35. Scott, 'Second-Order Cybernetics: An Historical Introduction', 1368.
36. Mathews, 'Fun Palace as Virtual Architecture', 41.
37. Usman Haque, 'The Architectural Relevance of Gordon Pask', *Architectural Digest* 77, no. 4 (2007): 55.
38. Haque, 'Relevance of Gordon Pask', 56.
39. Ibid.
40. John Frazer, *Cedric Price Opera*. Ed. Samantha Hardingham (London: Wiley-Academy, 2003), 46.
41. John Frazer 'Computing Without Computers', *Architectural Digest*, 75, no. 2 (2005): 39.
42. Lobsinger, 'Cedric Price', 24.

43. Littlewood, 'Non-Program', 130.
44. Aureli, 'Labor and Architecture', 112.
45. Velikov, 'Tuning up the City ', 42.
46. Ibid.
47. 'Non-Plan' applied to a zone, as a launch-pad, 'would keep all the options open'. Reyner Banham, Paul Barker, Peter Hall, and Cedric Price, 'Non-Plan: An Experiment in Freedom' *New Society*, no. 338 (1969): 438.
48. Ibid., 435.
49. 'Most planning is aristocratic or oligarchic in method even today – revealing in this its historic origins'. Ibid., 435.
50. Ibid., 437.
51. Ibid., 442.
52. Ibid., 436.
53. Jonathan Coopersmith, 'Reviewed Work(s): A Computer Called LEO: Lyons Teashop and the World's First Office Computer by Georgina Ferry', *Enterprise & Society* 5 no. 1 (2004): 143.
54. Bell, *LEO: The Automatic Office*, 12:59.
55. Cedric Price, 'The Oxford Corner House', in Coudrille, ed., *Cedric Price: Works II,* 65.
56. Colin Bell, *LEO: The Automatic Office* (London: FHP Productions, 1957), promotional film, 12:59. https://youtube.com.
57. Haque, 'Relevance of Gordon Pask', 54.
58. Molly Steenson, 'Cedric Price's Oxford Corner House Feasibility Study (1966)', *99th ACSA Annual Meeting Proceedings, Where Do You Stand,* ed. Annie Cormier, Annie Pedret & Alberto Perez-Gomez (Montreal, 2011): 139.
59. 'In an internal memo to Geoffrey Salmon, [Price] wrote, "I think that there is an enormous potential in catering for the leisure activities of the populace and that we could well be letting a new social pattern if we went ahead with this scheme, as original as the Teashops were at the turn of the century".' Steenson, 'Cedric Price's Oxford Corner House Feasibility Study (1966)', 138.
60. Mathews, *From Agit-Prop to Free Space: The Architecture of Cedric Price*, 179.
61. Steenson, *Architectural Intelligence*, 141
62. Canadian Centre of Architecture, 'The Information Hive: A Reading of Cedric Price's Oxford Corner House', March 2011, https://cca.qc.ca.
63. 'LEO Computers', website on History and Philosophy of Computing – Middlesex University, accessed 1 June 2019. http://ta.mdx.ac.uk.
64. 'The Cambridge team, however, were not developing a computer for commercial use and Lyons soon realised that the requirements of business computing were very different from those of scientific computing (for example, many simple calculations versus a few, very complex calculations; extensive versus limited input and output)'. Edgar A. Whitley, 'A Computer called LEO: Lyons Teashops and the world's first office computer', *Information Technology and People,* no. 17 (2014): 102.
65. Bell, *LEO: The Automatic Office*, 1:58.
66. Coopersmith, 'Computer Called LEO, 143.
67. Ross Bentley, 'The Tea Shops that Ruled the IT World', *Computer Weekly*, 20 May 2003, 40.
68. CCA, 'The information hive'.
69. Mathews, *From Agit-Prop to Free Space*, 180.
70. Ibid., 182
71. Using water pumped from the ground, at a pressure of up to seven hundred pounds per square inch (49 kg per square cm) around it was already used to operate lifts, theatre machinery, and various cranes, presses and other heavy equipment. Andy Emmerson, 'Hydraulic Power in London', Subterranea Britannica, accessed 1 June 2019. https://subbrit.org.uk.
72. Bell, LEO: The Automatic Office 9:38-12:59.
73. Ibid.
74. Ibid.
75. Ibid., 1:58
76. 'A Layman's Guide to LEO: Chapter 1: How LEO works', 1952, typescript on the website of the Centre for Computing History, accessed 1 June 2019. http://computinghistory.org.uk.
77. Steenson, *Architectural Intelligence*, 16.
78. Bell, *LEO: The Automatic Office*, 06:43.
79. Velikov, 'Tuning up the City', 40.

80. Herdt, *City and the Architecture of Change,* 61.
81. Britt Eversole, 'Occupy The Fun Palace', *Thresholds* 41 (Spring 2013): 33.
82. George Baird, '"La Dimension Amoureuse" in Architecture' (1969), *Architecture Theory Since 1968* edited by K. Michael Hays (Cambridge, MA: MIT Press, 1998), 41.
83. Landau, 'Philosophy of Enabling', 3.
84. Banham et al., 'Non-Plan: An Experiment in Freedom', 437.
85. Ibid., 442.
86. Ibid., 435.
87. CCA, 'The information hive'.
88. Steenson, 'Feasibility Study', 139.
89. Ibid.
90. Ibid., 139.
91. Marshall McLuhan, *Understanding Media*, (London & New York: Routledge, 1964), 25.
92. Ibid., 139.
93. Ibid., 12.
94. John Frazer, 'John Frazer', *Cedric Price Opera*, ed. Hardingham, 47.
95. David Allford, 'The Creative Iconoclast' in Coudrille, ed., *Cedric Price: Works II*, 7.
96. Stanley Mathews, *From Agit-Prop to Free Space: The Architecture of Cedric Price*, 8.
97. Mathews, 'Fun Palace as Virtual Architecture', 47.
98. Alessandra Aurigi, 'No need to fix: Strategic inclusivity in developing and managing the smart city', *Digital Futures and The City of Today* ed. Glenda Amayo Caldwell, Carl H. Smith and Edward M. Clift. (Bristol: Intellect Ltd, 2016): 19.
99. Ibid.
100. Hans Ulrich Obrist, *Re:CP*, 67.
101. Ibid., 66.
102. Whereas Oxford Corner House was supposed to last ten years, 'Non-Plan' was based on a 'rapid obsolescence cycle'. Price and Littlewood wrote: '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'. Cedric Price and Joan Littlewood, 'Fun Palace promotional brochure', 1964. Accessed 1 June 2019. https://cca.qc.ca.
103. Whitney Moon, 'Cedric Price: Radical Pragmatist, in Pursuit of Lightness', *Journal of Architectural Education*, 71 no. 2 (2017): 171.

Biography

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