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RESEARCH ARTICLE

Automation or Meaning? Socialism, Humanism and Cybernetics in *Etarea*

Maroš Krivý

Designed in 1967 for a site near Prague, Czechoslovakia, and exhibited that year at the Montreal Expo, Etarea was to be a city of 135,000 inhabitants, where the conveniences of automated infrastructure would satisfy future socialist generations. Conceived by the architect Gorazd Čelechovský as the ideal communist city, the case offers compelling insight into the influence of Marxist humanism and systems theory on post-war and specifically post-Stalinist state socialist architectural culture. Informed by these intellectual currents, as the article details, Etarea placed the question of meaning at centre stage. Meaning in architecture was considered in terms of both cybernetic communication and existential phenomenology, and its function was no less than to advance the communist transition. Etarea was informed by *Civilization at the Crossroads* (1966), an influential policy treatise that emphasized the significance of the intelligentsia and the so-called 'scientific and technological revolution' to future communism. The article explores the function of the 'living environment' as a conceptual banner and link between the publication and the project. While *Civilization* argued that urbanization must be decoupled from industrialization, Etarea was to be a model 'post-industrial' environment. Three aspects to Etarea are analysed in detail: the territorial question of the city-country divide, the balance between automation and socio-psychological meaning and tensions between political emancipation and cybernetic control.

Introduction

'We are not futurologists by profession, but the future is becoming more and more significant today', mused Czech philosopher Radovan Richta in 1967 (Kotek and Richta 1967: 1). This was a concise, if enigmatic, outline of *Civilization at the Crossroads*, a book-length report on the crisis of industrial socialism in Czechoslovakia. Socialism must adopt technological innovation, cybernetic science and systemic thinking, stressed the report commissioned by the Communist Party and edited by Richta (1966). Inspired by that scenario, Gorazd Čelechovský, an architect, designed a model city of 135,000 inhabitants that would be communist, automated and radiant. Exhibited at Expo '67 in Montreal, but never built, the city of Etarea was conceived as an alternative to contemporary, admittedly mediocre, mass housing developments. It was to be, as Čelechovský put it, 'an equilibrium at a higher stage of development' (1967a: A3/2).[1]

The Etarea project is a compelling demonstration of the architectural culture in Czechoslovakia characterized by the country's so-called 'socialist humanism', informed by a range of intellectual sources, including dialectical materialism, Marxist humanism, systems theory and existential phenomenology. Following the lead of *Civilization*, the aim of the designers of Etarea was no less than to create the new communist 'living environment', a contemporary term that must be read politically, architecturally and technologically. There is now expanding research on the history of socialism and cybernetics, interrogating geopolitical, economic and technological aspects of their intersection in such diverse contexts as the Soviet Union, the German Democratic Republic (GDR) and Chile (Gerovitch 2002; Caldwell 2003: 141–184; Medina 2011; Lahoud 2015; Rindzevičiūtė 2016). Scholars have shown that cybernetics and systems theory were familiar to state socialist experts: computers held out the promise of perfecting the socialist plan, but they also opened doors beyond the socialist-capitalist distinction. There is also a thriving architectural historiography on systems theory and environments in the post-war West (Scott 2016), and this study introduces a comparable history of the socialist side of the Cold War divide.[2]

Civilization at the Crossroads

The Constitution of 1960 declared the socialist development of Czechoslovakia complete. 'We gather forces for the communist transition', the document proclaimed, in conformity with Soviet leader Nikita Khrushchev's belief that communism was on the horizon (NACSR 1960). The teaching of 'scientific communism' was inherent to that transition, inaugurated under Party chairman, president and Khrushchev disciple Antonín Novotný (Sommer 2016).[3] Coming to grips with the Stalinist legacy of Klement Gottwald, under whose leadership the Communist Party seized power in 1948, and who died in 1953 only a week after Stalin, the scientification of communism was consid-

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ered a barrier to a cult of personality. Between 1963 and 1965, the Party initiated extensive research into how to reform and revolutionize socialism, a milestone in the post-Stalinist recuperation of scientific knowledge in the country.

The initiative was triggered by a panoply of factors. The economic crisis of 1962–63 exposed the limits of the prevailing steel economic model and was the main topic of the Party's quinquennial congress of 1963. In addition, an entire generation defined by the youthful experience not of inter-war capitalism but of post-war Stalinism had now politically and culturally matured and was increasingly receptive to tensions within the socialist project and similarities across the socialist-capitalist divide. Marxism was also being reconceived as humanism, and Hegelian-idealist and phenomenological aspects of socialist revolution were being resuscitated (Myant 1989: 90–131; Horn 1998; Bren 2004; Mervart 2017).

The research was conducted at the Academy of Science by teams of economists, sociologists and political scientists, bringing these formerly proscribed disciplines into the service of socialism to come. Under the leadership of Richta, an interdisciplinary group of some sixty philosophers, social scientists, architects and engineers worked together on what would become *Civilization*, perhaps the best-known intellectual record of the particularly Czechoslovak version of socialism — 'socialism with a human face', a catchphrase coined by the Czech philosopher himself. The conceptual backbone of this publication, part philosophical treatise, part policy report, published in three editions and translated into eleven languages, was the concept of a scientific and technological revolution (STR).[4] Highlighting the critical role for communism of scientific and technological knowledge workers, *Civilization* encapsulates the spirit of a revolution that historian Gerd-Rainer Horn (1998: 359) characterized as 'instigated and led by the intelligentsia', a revolution that culminated in the so-called Prague Spring and the short-lived reformist government of Alexander Dubček.[5]

The scientification of communism emphasized the historical specificity of both class struggle and the future of socialism. 'The issue of revolution once again became highly topical during the 1960s', wrote historian Vítězslav Sommer (2017: 100); 'however, this time it was contemplated more as a phenomenon of the future than as a legacy of the glorious revolutionary past'. Seeking to overhaul socialism marred by a personality cult and bureaucratic ossification, *Civilization* revisited revolutionary aspects of communism but placed them outside the then-mainstream arena of blue-collar labour: cybernetic science and computer technology rather than industrialization. Revolution, in other words, was the business of a technical intelligentsia at home in laboratories and operations centres — what Western Marxists then described as the 'new working class', rather than the 'historical' working class of mines and factories.[6]

The report's concept of STR was adopted from the work of the Irish physicist and Marxist historian of science John D. Bernal, himself conversant with Soviet scientific developments. This pioneer of the social history of science characterized STR, or the 'second scientific revolution', as he also called it, as 'the penetration of science into all forms of production' (Bernal 1965 [1954]: 903), blurring any distinction between pure and applied sciences. 'Conscious calculation of the optimal distribution of productive resources, material and human', he wrote, fond of analogies with nature dialectics, 'represents a higher stage in social evolution much as the appearance of a central nervous system did in organic evolution' (1965 [1954]: 874). The import of Bernal's theories into Czechoslovak socialism was not without some contradictions: whereas the Irish historian developed the theory of STR with reference to the Stalinist planned economy, Richta struggled to rethink scientific planning *in opposition* to that model. Bernal's conceptual framework nevertheless suffused *Civilization*, where it was integrated with a kaleidoscopic range of thematic inputs and intellectual sources. The report was an intellectual fusion of heterodox Western Marxism, systems theory and a host of culturally and environmentally inflected social sciences, including input by theorists of architecture. It dwelled on cybernetic automation in the context of human alienation, developed a Marxist understanding of post-industrialism and explored correlations between people's disposable time, leisure patterns, self-actualization and economic productivity.

The STR, *Civilization* argued, was the contemporary crucible of socialism. Having abolished private ownership of the means of production, socialism had not resolved contradictions arising from the industrial character of productive forces. Socialist workers remained alienated, Richta professed, because the type of work they did in factories, mines and construction sites remained abstract. The challenge, then, was how to transform what the report called an 'extensive' mode of socialist production into an 'intensive' one. This was a technological issue of efficiency as much as an existential question of creativity and human self-realization (**Figure 1**). While industrialization was an indispensable driver of socialist revolution, it was incompatible with a truly democratic communism, which must consider how life is subjectively experienced. 'The accomplishment of the scientific and technological revolution is integral to the working class's historical role', *Civilization* maintained: under socialism, unlike in a capitalist context, that revolution would foster rather than impede meaningful life (Richta 1969a: 274).[7]

For Richta, the liberation from machinic enslavement would be the consequence of gradually replacing bureaucratically organized industrial manufacturing with cybernetically governed automated production. *Civilization* portrayed cybernetics as 'the only plausible foundation for governance and planning in the future' (1969a: 263). Rather than marshalling subordinates to fulfil inflexible plans, the report tasked future socialist managers with optimizing systems. For Richta, what he called the 'algorithmic restructuring of governance' was not only consistent with but essential to the kind of communism where people would experience life as meaningful (266). Thinking of self-realizing individuals as analogous to self-regulating systems, Richta believed that 'unlike primitive technology dominating people, the evolved and versatile one facilitates all-round human personality development' (198).

Figure 1: 'We Are on the Threshold of the Scientific and Technological Revolution. Human Beings Remain in Control.' Publicity poster, 1968. Slovak National Gallery.

Is social change driven by historical struggles or technological progress? To square the inexorable techno-optimism of cybernetics with the Marxist-Leninist social revolutionary outlook required some conceptual acrobatics. The STR, *Civilization* maintained, both inaugurated a new era in accordance with 'the laws of historical change' ('zákonité změny') and was equivalent to a 'change in the laws of history' ('změna zákonitostí') (234). Similarly, history could be studied as a 'cybernetic model of constrained choice', argued the research project's deputy leader, sociologist Ota Klein (1969: 146). This was a more than academic point of view, and the one that would, according to Klein, 'augment our forecasting capacity, and contain the role of resentment and cronyism in politics' (1969: 146).[8] Consistent with an unorthodox view that scientists and technology experts were a revolutionary class of their own, there was tension between dialectical-materialist and systems-theoretical conceptions of society as, respectively, a focus of political change and a system to be stabilized.

The unlikely marriage of dialectics and cybernetics, which in the contemporary Soviet Union and GDR was pragmatically deployed as a convenient toolbox for outperforming capitalism, was in Czechoslovakia further entangled with idiosyncratic existentialist programmes.[9] In his suggestively titled 1963 dissertation *Communism and the Transformation of Human Life: On the Character of Contemporary Humanism*, Richta identified putative post-industrial socialism with 'the real development of human beings' (Sommer 2016: 103). His humanism infused *Civilization*, sitting ambiguously between materialist perspectives on human self-determination (as in the 'young' Marx of *Grundrisse* and alienation critique) and liberally minded cybernetics (which could be used, according to Norbert Wiener (1989 [1950]: 162), 'for the benefit of man ... rather than merely for profits'). Richta's humanism also hinged on a rather crude argument, advanced by the French economist and sociologist Jean Fourastié, that technological automation would, as a matter of course, lead to an increase in the amount of free time at people's disposal.[10]

Other patent influences on the report included the Marxist phenomenology of Karel Kosík, author of the influential *Dialectics of the Concrete*, published in 1963, and even the existential phenomenology of Jan Patočka, erstwhile student of Edmund Husserl and later protégé of dissident-cum-Czech president Václav Havel. Although the report mentions neither Kosík nor Patočka, both colleagues of Richta at the Academy, it discussed meaning as not only an avatar of cybernetic information but also, and equally, an intersubjective sense of human worldly existence.[11] There is a sense of a phenomenological 'appropriation of the world' in Richta's description of the STR as 'inherently a *worldly process*' (1969a: 175, 70), a sense that is intimately linked but irreducible to planetary-wide cybernetic infrastructures.[12]

Living Environment

The similarly polyvalent notion of *životní prostředí* was the most salient intellectual link between *Civilization* and Etarea, delineating the terrain shared by contemporary politics and architecture. Literally a 'milieu of life' or 'living environment', the term evokes an internally differentiated unity, open as such to multiple, overlapping and potentially conflicting interpretations: the well-balanced human life, optimally distributed systems, social equity, political harmony. The trend of architecture and politics in Czechoslovakia towards becoming environmental has many parallels with contemporary developments in the West and East. Under an array of concepts ranging

from habitat and unitary urbanism, to urban imageability, to networked and intelligent cities — not to mention the protection of nature and environmentalism *sensu stricto* — the 'environmental turn' in the West swayed between denouncing and ameliorating capitalism.[13] In the socialist East, meanwhile, the environmental synthesis of automation and meaning was envisioned as a road towards an ideal communist city, as in the eponymous proposal by the Moscow-based Novyi Element Rasseleniia (NER) collective (Gutnov 1968), or the ziggurat cities of *Sinturbanizam* by the Yugoslavian architect Vjenceslav Richter.

While no stranger to these contemporary projects and debates, 'living environment' must be considered within a distinctive genealogy of Czechoslovak functionalism. In *Civilization*, the concept was outlined in a chapter written by Zdeněk Lakomý and Otakar Nový, who belonged to the youngest generation of the Czechoslovak interwar avant-garde.[14] In 1939 Nový founded the Architects' Cooperative (known as KOPA 10), of which Lakomý was a member. KOPA 10 was a sequel to the Architectural Working Group (PAS), which was active throughout the 1930s and was influenced by Karel Teige and the Devětsil group. PAS members Karel Janů and Jiří Voženílek, together with Nový and Lakomý, assumed key architectural posts in the late 1940s, after the Communist Party wrested power from the short-lived post-war government of national unity. In the newly centralized organization of architectural practice, Janů became the director of the Czechoslovak Building Works and Voženílek of the state design institute Stavoprojekt. Nový, who took credit for naming the institute, was made the Stavoprojekt's deputy director and Lakomý its head of research.[15]

Soon enough, the functionalist road to socialist architecture, by way of standardizing design and industrializing construction, became complicated under the authoritative influence of socialist realism (reprising, in a different historical and cultural setting, the Soviet Union's 1930s dynamic).[16] While Nový struggled to maintain his avant-gardist credentials, insisting that 'we must transform our building sites into factories' (Zarecor 2011: 80), Lakomý became in the early 1950s an ardent champion of socialist realism; his legacy today is encapsulated in the last syllable of 'sorela', a derogatory Czech acronym (*socialistický-realismus-Lakomý*) for that period's formulaic decorativeness. However, the irreconcilability of progressive functionalists and retrograde decorativists has become a historical platitude, not least because the terms 'function' and 'ornament' remain ill defined. A perennial struggle within socialist architecture has been, rather, that between productivism and meaning — between architectural economies of scale (industrializing construction, typifying buildings and standardizing design), advocated by Nový, and the ideological efficacy of architecture (its aesthetic, psychological and semiotic effects) championed by Lakomý.

In 1964, Lakomý and Nový co-founded the Institute for the Theory of Architecture and Design of the Living Environment at the Czechoslovak Academy of Sciences, an institutional synthesis of these two intellectual strands. The institute hosted popular seminars frequented by Voženílek and Čelechovský, but also by Dalibor Veselý, Patočka's follower and later émigré architectural phenomenologist. The concept of 'living environment' became a rallying point for attempts to consolidate the productive and communicative aspects of architecture. On the one hand, the two architects revisited theories of disurbanism: Nový published *The End of the Metropolis* (Nový 1964) and Lakomý advocated 'a gradual, two-way dissolution of the urban-rural distinction' (1966: 290). On the other, they drew on theories of landscape ecology and lifestyle developed in the 1930s and 1940s by, respectively, architect Ladislav Žák and Devětsil member Karel Honzík. The programme of disurbanism that Lakomý detailed was one of engendering new living environments. As a 'comprehensive landscape design' that would foster a 'comprehensive development of the absolute human', the problematic of living environment was pivotal to the STR (Lakomý 1966: 290, 284).

These themes were elaborated in *Civilization*, contextualizing its critique of industrial society. Industrialization had wreaked havoc on urban ecology and life quality, warned the report, and it could easily become 'an obstacle to societal development' (Richta 1969a: 220). For Lakomý and Nový, industrialization referred to both the broader dynamics of industrial society (capitalist and socialist) and the industrialized conception of socialist architecture, in the sense of the policies Khrushchev launched in 1956. The cookie-cutter approach of post-Stalinist mass housing was as much a flaw of 'inhumane environments' as of unregulated capitalist urbanization, impairing the aesthetic and psychological experiences of residents.

As an integral component of the STR, the 'living environment' combined the universality of spatial production with the singularity of embodied meanings; it was equal parts a politico-economic and socio-psychological notion. To 'design the human being's living environment comprehensively' was an urgent task, not least because 'the concentric industrial city was an obsolete concept, in need of a fundamental revision' (Richta 1969a: 207, 204).[17] Lakomý and Nový revisited a broad spectrum of disurbanist theories — from Nikolay Milyutin's *Sotsgorod* to Richard Neutra's *Rush City Reformed*, by way of Constantinos Doxiadis's *Ecumenopolis*, Rudolf Hillebrecht's metropolitan area and Soviet planner Oleg Pchelintsev's (1966: 22) conception of 'extensive zones of intensive development' — and related them to questions of 'liveability' (*obyvatelnost*) (Richta 1969a: 204–7).

The report's chapter on the 'living environment' launched a subtle attack on rapidly developing, 'conventional high-rise collective housing' (1969a: 206). In the Czech Republic, on average, 50,000 dwelling units were completed annually in the 1960s, compared to an annual average of 20,000 between 1950 and 1954, and 30,000 between 1955 and 1959.[18] Remarking surreptitiously that 'research did not confirm that collective housing facilitates collective ethos, nor did it confirm that detached housing prevents socialization' (206), Lakomý and Nový speculated about tiered housing (universalizing access to terrace gardens) and other 'interim' typologies unfamiliar in Czechoslovakia. Hence, they situated the disurbanist agenda within the idiosyncratic context of the country's post-war development, criticizing sprawling zones for makeshift recreation used, weekend after weekend,

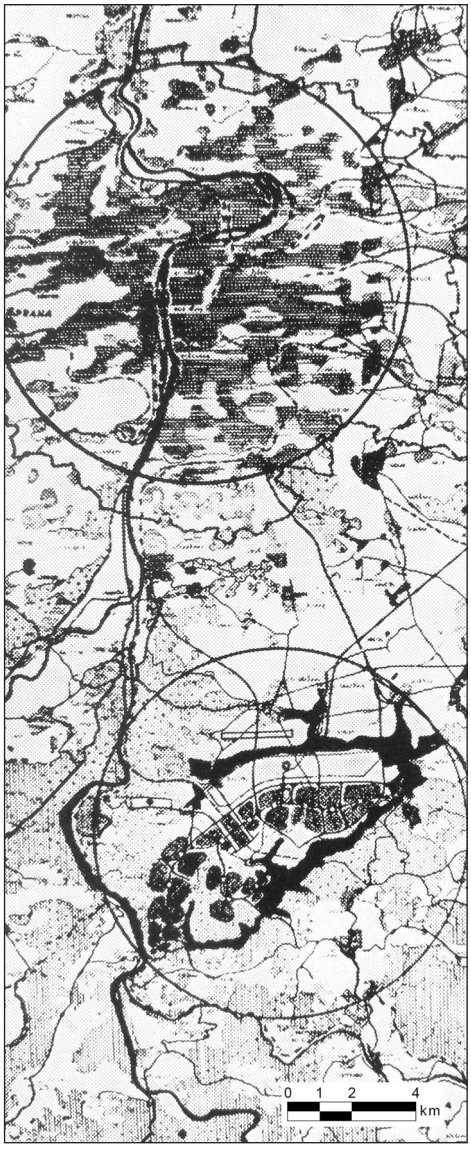

Figure 2: Prague to the north and Etarea to the south (Dvořák 1969: 74; scale added by the author).

by the apparently alienated residents of mass housing environments.[19]

Even as it challenged narrowly understood architectural functionalism, the living environment theory of Lakomý and Nový remained firmly situated within the system-functionalist orbit of *Civilization*. 'To invest in designing the living environment' was effectively 'to invest in cultivating the human force' (207). Theirs was a distinctive blend of Marx's alienation critique and his theory of value. In the report, the human-centric perspective kept reappearing under the banners of 'workers' technological initiative' (299), 'psychological reservoirs of society' (268) and eventually 'the "human factor" … suffering under the economic command system' (106). Having achieved socialist development and defeated its class enemy, as the 1960 constitution stipulated, there remained only one challenge for the working class: its own productivity.

Etarea

Designed as a model city to harness that productivity, Etarea addressed the challenge by means other than business and office parks. Situated twenty kilometres south of Prague, on a gently curved, eight-kilometre-long plan, the settlement comprised thirteen neighbourhoods of approximately 10,000 residents each (**Figures 2** and **3**). This post-Stalinist urban project in Czechoslovakia, the largest at the time, was set in scenic topography on an elevated plateau, flanked by rivers to the west and south. Planned on a north-east/south-west axis, the banana-shaped layout opened onto a water reservoir the entire length of the city, and was further bounded by forests to the south and east (**Figure 4**). Infrastructural and industrial hubs were situated on the northern edge: the city had its own airport, and was connected to Prague by highway and high-speed rail.

Balancing the linear character of the city's principal axis and transport corridor, individual neighbourhoods spread out symmetrically and concentrically on each side

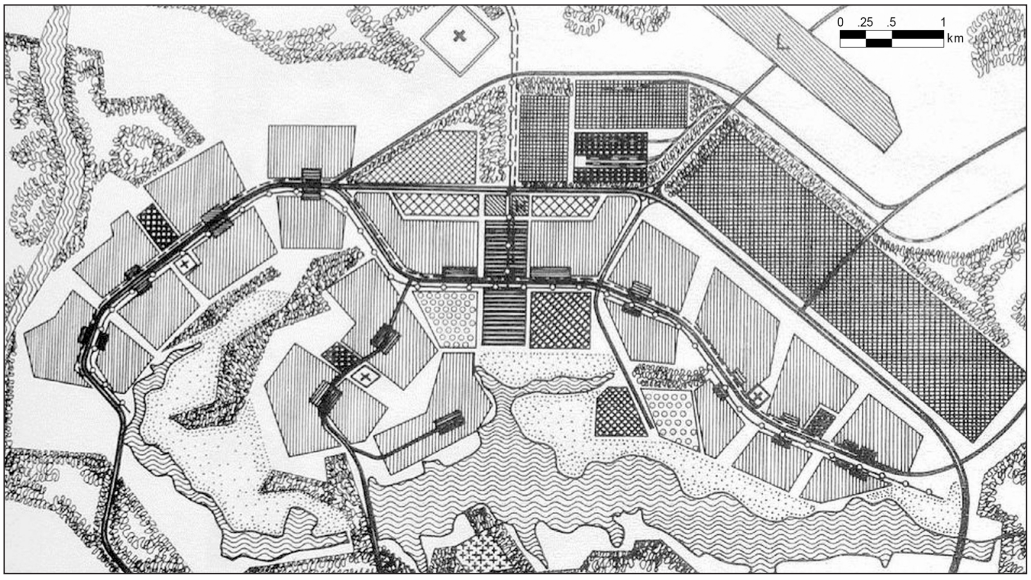

Figure 3: Zoning scheme for Etarea. Hatch patterns: vertical = residential neighbourhoods; horizontal = city and neighbourhood centres; large grid = industry; tiny grid = logistics hub; angled grids = education; diagonal = transport hubs; wave = reservoir. L = airport; + = hospitals (Čelechovský 1967a: B7/a; scale added by the author).

Figure 4: Model of Etarea (Dvořák 1969: 74).

of the corridor. The corridor hubs were integrated with their respective neighbourhoods' social and commercial centres under a single roof, reminiscent of 'ancient piazzas and arcades for leisurely strolling' (Čelechovský 1967a: B9/6). Schools and other public institutions were evenly distributed in adherence to prevailing planning policies. Pedestrian circulation was separated from road traffic, with free-formed walkways mindful of terrain and topography. With a diverse range of dwelling typologies, seamlessly integrated with the city infrastructure, yet blending with the natural setting, Etarea contrasted strikingly with contemporary housing projects — increasingly criticized during the 1960s for lacklustre facades, perfunctory urbanism and manifestly inhumane environments. It seemed, as one architect mused about their poorly understood functionalism, 'that the self-evident is not considered as self-evident' (Skoček 1965: 119).

Born in 1922 and graduating in 1949, Čelechovský cut his teeth on housing projects designed under the socialist-realist canon of neo-traditionalist urbanism. He joined the Prague Design Institute after spending two years in France at the end of the 1950s. His Zahradní Město [Garden City] project, a 30,000-inhabitant satellite district made of standardized tower and slab apartment buildings, was indebted to just that early-1960s revival of functionalism that he would later criticize. While the project anticipated Čelechovský's future emphasis on openness and a natural setting, he was worried that it remained steeped in a narrowly understood functionalism (Čelechovský 1960; Čelechovský 1964a).

In essays from the mid-1960s, Čelechovský expanded on his encounter in France with the cybernetic ideas of Michel Ragon, Yona Friedman and their cohort. He rejected, on the one hand, their technocratic accent, citing Claude Parent's project for a parallel Paris as an example of how 'forecasts and visions of the future acquiesce to dominant social conditions' (Čelechovský 1964b: 5).[20] In Čelechovský's acerbic response to Constantinos Doxiadis, he wrote that in the liberal utopias of 'so many dynopolises, megalopolises and ecumenopolises', citizens were demoted to 'miserable adjuncts to levers, knobs and switches'. Science done properly, on the other hand, would reveal the monstrosity of these utopias and contribute to building a world of 'healthy, upright individuals, who live in harmony with nature, and make wise use of the comforts of civilization'. The notion of cities as metabolic and socio-psychological systems, and of their design as a form of balancing and optimizing, was for him consistent with 'Marxist-Leninist approaches to urbanism'. Ironically, Čelechovský enthusiastically embraced the same systems-theoretical worldview that informed the Western utopias he decried: not technocracy but the 'poetry of scientific urbanism' was the road of choice to the communist city (1964c: 4).

When Čelechovský began work on Etarea in the mid-1960s, he assembled a remarkable interdisciplinary team, just as Richta did for *Civilization*. Besides the design institute's architects, the Etarea team included up to fifty members, with Lakomý as a consultant. There was also sociologist Jiří Musil, who studied the everyday life of housing estate residents during the early 1960s (Musil 1962; Musil and Simon 1961),[21] and systems engineer Vladimír Šipler, with whom Čelechovský later co-authored the book *Cities as Systems* (1980). Others on the team were experts on logistics, forecasting, sociology, psychology and public health.

As a design manifesto for the 'living environment', the polyvalent term that featured in the title of the project report, Etarea set out to cut the Gordian knot of socialist urbanization: addressing the ostensibly deleterious effects of industrialization on urban ecology and of standardization on the human psyche; while rethinking, but not abandoning, the role of industrialization and standardization in architecture and even intensifying economies of scale.[22] Three aspects of the project are discussed below in detail. Etarea is considered in relation to linear territorial development, aiming to dissolve the city-country distinction; as a cybernetic-humane environment that is infrastructurally automated and psychologically meaningful; and as the ideal communist city, fraught with tensions between political emancipation, algorithmic control and abstract humanism. This tripartite structure raises a set of questions about how territory, infrastructures and subjectivities were addressed in the project.

The Territory and the Country

'Etarea is not a satellite town', Čelechovský wrote, 'but a community that is both independent of and well integrated with Prague' (1967a: B5/1). During the two post-war decades, the capital city of Czechoslovakia expanded haphazardly. Čelechovský sought to redress the flaws of socialist urbanization, which had reproduced, ironically,

typically capitalist radial patterns of growth. Prague's population of one million inhabitants was simply too small to sustain the kind of radial development that would also be polycentric, leading instead to the unhappy proliferation of both bedroom communities and mono-functional industrial towns.

Informed by the critique expounded in *Civilization*, Etarea was exemplary in advancing a linear approach to urbanization. Containing urbanization within clearly defined functional corridors would make it economically feasible to increase investment in technological innovation, and still develop cities on the scale of Etarea's 135,000 inhabitants, which would provide for what Čelechovský (1967a: A5/3) described as 'independent social life'. In other words, the question of living environment was, for the Czech architect, inseparable from the territorial question of urbanization (**Figure 5**). Linear territorial development was a precondition for advancing compact rather than expansive urbanization and developing communities that would be infrastructurally well connected, culturally vibrant and set in an attractive natural setting.

The linear city experiment also addressed the respective challenges of urbanizing the country and conserving nature. Etarea was situated amidst a sprawling recreation zone with rudimentary cottages, cabins and camping sites, epitomizing the kind of compensatory recreation that was spurred, according to Lakomý and Nový, by deficient socialist housing. Čelechovský wrote that disfiguring Prague's hinterland with 'tasteless cottages' resulted from the legitimate desire of city dwellers 'to live in a healthy environment for at least one day a week' (1957: 3).

Instead of conserving the country as a rustic landscape serving the myth of rural lifestyle precipitated by defective architectural industrialization, Čelechovský sought to overcome the city-country dichotomy. Emphasizing linear orientation and articulation at the edges, Etarea integrated dwelling and recreation within a unitary environment. Urban design could be attentive to natural topology, it was believed, and still provide for vibrant and convivial urban life. The principle, described by Čelechovský as 'one comfortable apartment in a natural setting, instead of two inferior apartments, one in the city and one in the country' (1967a: B7/3), informed the introduction of typologies unusual in housing projects at that time, including high-rises, garden apartment buildings, terraced, semi-detached and detached housing and especially the tiered housing elaborated in many variations (**Figures 6** and **7**). With an overall average height of less than four floors, Čelechovský believed, the environment of Etarea would provide easy access to nature, opportunities for gardening and do-it-yourself, and a rich social life.

Cybernetic-Humane Environments

Dwelling units in Etarea were to be serviced by a network of pneumatic tubes, delivering grocery, petrol, newspapers and other daily goods on demand, and collecting household waste. Evidently the project's most sensational feature, meticulously worked out by engineer Miroslav Šlezinger, was that each district was serviced by a distribution centre 'where everything is automated, and human labour is limited to supervision and control' (Čelechovský 1967a: B12/2).[23] Supplied by an underground maze of delivery infrastructure, the network would be run by computers, monitoring reserves, evaluating optimal delivery routes, keeping a 'systematic track of market's anomalies', and forecasting 'its future behaviour' (Čelechovský 1967a: B11/22) (**Figure 8**).

The underlying premise of Etarea's pneumatic infrastructure mirrored *Civilization*'s assumption that automation would increase people's free time.[24] Rather than contributing to consumerism, it was suggested, automated consumption would emancipate the inhabitants from mind-numbing activities. The time-saving infrastructure would put an end to repetitive shopping for groceries and everyday items. Šlezinger and Čelechovský anticipated that in future even meals would be delivered via the tube

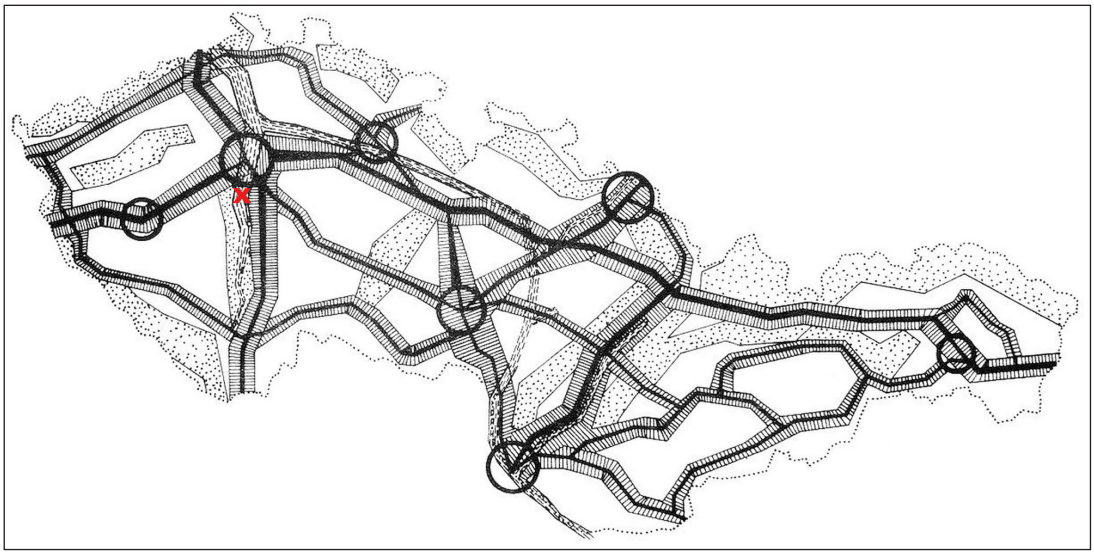

Figure 5: Gorazd Čelechovský's territorial development scheme for Czechoslovakia, 1967. Circle = principal urban nodes. Cross = approximate location of Etarea (added by author). Hatching patterns: perpendicular = economic corridors; parallel = rivers and waterways; dot = recreation zones. Etarea is situated at an intersection of these three functions (Čelechovský 1967a: A3/a).

Figure 6: Model of Etarea, detail. Note the tiered housing in the foreground (Čelechovský 1967a: np).

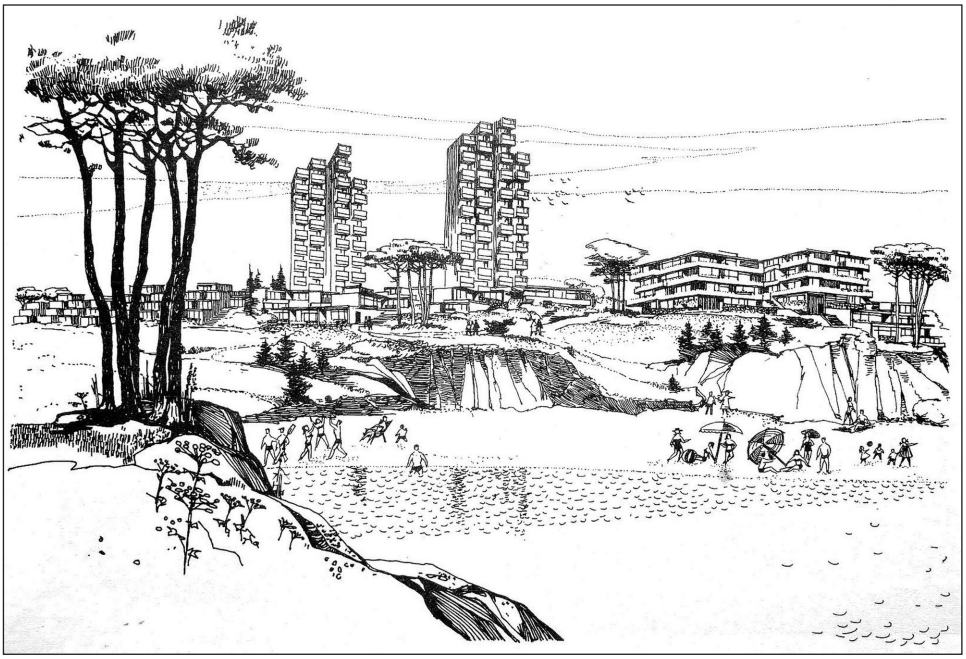

Figure 7: Integration of dwelling and recreation, perspective drawing (Čelechovský 1967a: B19/p).

network, dispensing with cooking and dish-washing, and leading to 'a tenfold increase in the amount of saved time' (1967a: B12/7). However, unlike communal dining in the style of Moisei Ginzburg's Narkomfin or Czechoslovak Koldům, a similar project from 1947, Etarea's time-saving circuitry was conceived as a way of remaking dining into a family ritual and individual pleasure — 'there are men who enjoy brewing specialty coffee and mixing cocktails', the report says, unmindful of gender aspects to the organization of free time (Čelechovský 1967a: B18/2).[25]

The network parameters were painstakingly calculated: the lag between order and delivery, for example, was specified to be 'between 2 minutes, 20 seconds and 11 minutes, 30 seconds' (Čelechovský 1967a: B12/7; see also Čelechovský 1972: 167). Excessive levels of detail and technical specification were at odds not only with the project's otherwise broadly brushed, experimental character, but also with the requirement to continually update the network. Under the STR, and in contrast to the industrial society, Čelechovský explained, systems of urban infrastructure would be subject to accelerating cycles of obsolescence. He considered not only urban systems but the very concept of the city to be essentially prototypical. The report dedicated more than eight pages to detailing, one by one, some fifty relationships within Etarea's functional system outlined in a cybernetic diagram — an impenetrable cluster of blocks, arrows and words such as 'environment', 'population', 'production' and 'services' (**Figure 9**). However, the report acknowledged that that particular configuration, 'debatable and possibly flawed', was less important than the systems-theoretical framework itself (1967a: A6/11).

By considering social and socio-material relationships in the city as inherently volatile and contingent, Čelechovský came close to normalizing the systems-theoretical

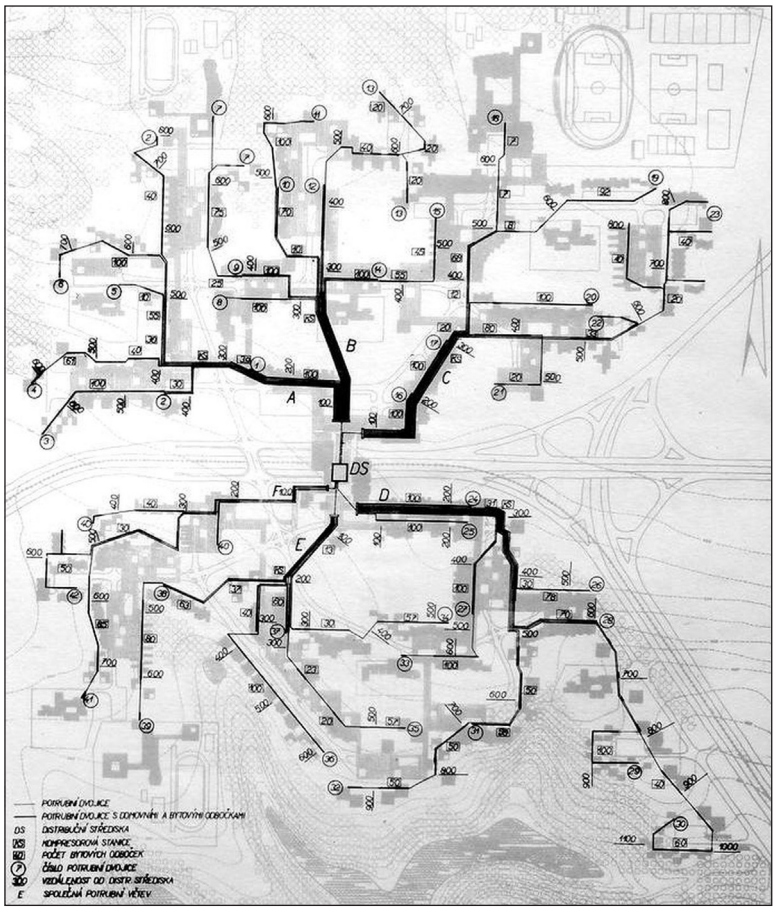

Figure 8: Pneumatic tube network and a typical neighbourhood plan for Etarea (Čelechovský 1967a: B12/1).

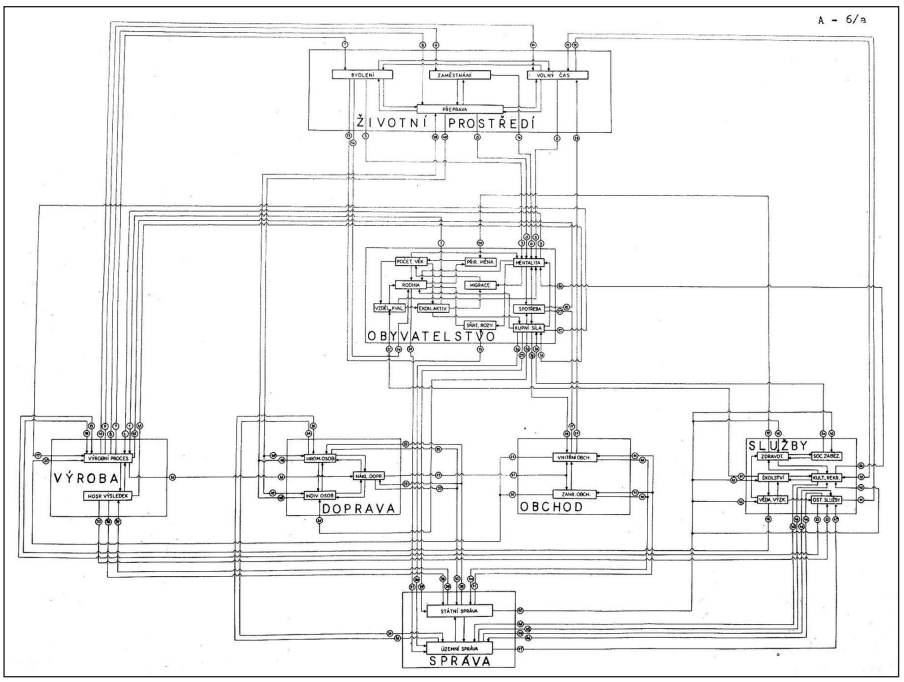

Figure 9: Functional block diagram for Etarea (Čelechovský 1967a: A6/a).

paradigm. Etarea straddled, on the one hand, socialist principles of territorial equity and balanced development, and, on the other, the organicist conception of the city as a system of functional and calculable relations. While Čelechovský questioned the kind of stylistic functionalism that was about architectural expressions, he was convinced about the future significance of the cybernetic functionalism of inputs and outputs. 'Staying true to functionalism', Čelechovský maintained, 'means accounting for each and every function' (1967a: B7/4). Rethinking the city as a balanced organism while optimizing circulatory infrastructures would, in his view, uphold the civilizational role of

socialism. He considered Etarea to be a model 'supersystem' that would 'behave in the same way as nature' (1967a: U1/6). Čelechovský was convinced that, as he wrote in an English summary of the project, in future 'entire settlement systems will be controlled by a kind of central nervous system, exactly comparable to those encountered in the natural environment' (1970: 229). Though surrounded by lakes, rivers and forests, Etarea's organicism was epistemic rather than formalistic, tantamount to the homeostatic premises of systems ecology.

It is not clear whether Etarea designers were familiar with the contemporary Ideal Communist City project, designed by the Soviet collective NER, and presented at the 1967 Milano Triennale. They would have certainly subscribed, however, to NER's synthesis of Marxism and cybernetics, and its programme 'to compute the interaction of all the internal and external factors that maintain the social process in its normal condition' (Gutnov 1968: 16–17). Like NER, Etarea staked the future communist living environment on the principle of normalization. While this attempt appears, in hindsight, self-defeating, it is important to avoid the tempting Orwellian metaphors. The political enigma of Etarea is not one of omniscient government but of benevolent algorithms: less a totalitarian power that erases individual differences than a cybernetic one modulating them with good but ultimately fatalistic intentions.

The Communist City

The puzzle of Čelechovský's enchantment with the optimal and normal unravels further when we consider that Etarea was designed predominantly with the intelligentsia in mind. We can ask what role and function this standard-bearer of the STR would play in the governance, citizenship and labour of the city. Firstly, it was believed that benevolent experts supported by unbiased computers would run the city more fairly and efficiently than either the Party nomenklatura, prone to personal whims, or the state bureaucrats preoccupied with inflexible rules. In the paradoxical context of post-Stalinist socialism, the idea of depoliticizing socialism struck Čelechovský as a progressive one. He compared Etarea to a 'voyage into uncharted space', emphasizing that science, specifically mathematics and stochastic theory, could provide the future city with rigorous foundations, 'not unlike space missions, which provide astronauts with the essentials'. The scientification of urbanism was for him tantamount to its humanization, or as he put it somewhat redundantly, Etarea would 'humanize the human being [*polidštění Člověka*]' (Čelechovský 1967a: D1/18). Under the double banner of cybernetic automation and meaningful self-realization, the democratic challenge to future communism was demoted to an adjunct of techno-scientific optimization under the guise of human-centric design.

Secondly, Etarea's humanistic bent cannot be neatly separated from market socialist ideas introduced in the mid-1960s, such as the opening of labour and housing policies to market competition (Myant 1989: 110–85). Čelechovský's apparent emphasis on social equality within the project created tension with the social bias of design that extols individual self-realization. As the model city of the STR, the citizens of Etarea would be recruited predominantly from among scientists, technology workers and other members of the intelligentsia. 'Social differentiation would be proportionally smaller in Etarea', as the report phrased it, rather obtusely, 'because the lower social strata would be proportionally less present there' (Čelechovský 1967a: C3/21–22). In other words, Etarea would be equitable because few blue-collar workers would live there.

Social differences were discussed in the project report, as in contemporary sociology (Machonin and Jungmann 1968), in terms of stratification rather than the arguably by-then abolished class conflict. While Čelechovský the humanist waxed poetic about *cultural* differentiation in the future communist city, he was resigned to the apparently ironic fact that *economic* inequality would be unavoidable there. Even as he brought the territorial question to the fore, in the end he went along with designing Etarea as an idyllic enclave for the intelligentsia (**Figure 10**).

Thirdly, there is a sense in which Etarea was conceived as an 'intelligent' environment that would render human intellect into a productive factor. The 'human factor' of Etarea (Richta always set this term in scare quotes) would

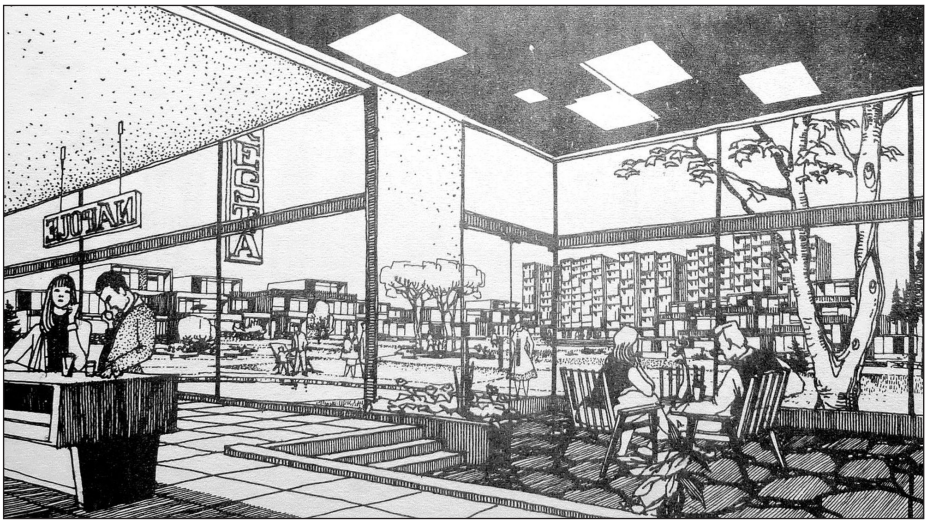

Figure 10: The intelligentsia of Etarea, perspective drawing (Čelechovský 1967a: B19/š).

be responsible for operating and overseeing computers, yet free to play, self-realize and otherwise explore its creative potential. The aim of Etarea's distinctive living environment, blending automated infrastructure into the natural setting, was to allow citizens to fully enjoy their free time, and to otherwise experience their life as meaningful.

Yet this subjective satisfaction of citizen-workers was in itself considered productive. Etarea, Čelechovský wrote (presumably to entice the project's state investor), was a 'strictly economically efficient investment in human beings' — one that would help to better organize 'societally optimal use of the free time' (1967a: C2/36, C2/25). The project's economic aspects were not limited to cost-saving measures through more efficient circulation of goods and people; instead, the supposition was that the happier and more satisfied the intelligentsia were, the more productive they would be. The soothing and congenial living environment of Etarea, in other words, was conceived as a training ground for the post-industrial working classes, whose subjectively meaningful and apparently disinterested self-realization verged on a techno-scientific appreciation of the 'human factor' (**Figure 11**). While Čelechovský would probably insist that the creative freedoms of the socialist intelligentsia cannot be considered illusory — like the 'freedom' of workers to sell their labour under capitalism — nevertheless, at the critical juncture of 1960s socialism, there was a tension between communist and proto-capitalist aspects of Etarea's synthesis of automation and meaning.

Conclusion

Etarea was a model city informed by a set of ideas about the post-industrial communist transition, outlined by *Civilization*. While Richta challenged the ossification of the Communist Party, Čelechovský challenged the ossification of functionalism in architecture. By means of a conceptual blend of Marxism, humanism and systems theory (and even simple 'common sense'), Etarea ventured to reconcile productive and communicative aspects with architectural design, creating an environmental design that would be automated and subjectively meaningful, optimized and politically efficacious.

The presentation in the Czechoslovak Pavilion in Montreal during Expo '67, situated just opposite the exposition grounds' operation control centre, remains Etarea's culmination. The project was scrapped soon after the watershed Warsaw Pact invasion of Czechoslovakia in 1968. In contrast to Čelechovský's vision, housing projects of the 1970s and 1980s were concentrated in satellite developments in the outskirts of cities, including the expansive and ill-reputed South City estate derided in Věra Chytilová's film *Panelstory* (1979). Few parallels between Etarea and the 1968 South City proposal, such as the extensive use of tiered housing, were lost during the realization, and it has since become commonplace to cite the project, together with Petržalka, a similar housing estate in Bratislava, as examples of the inoperativity of state socialist urbanism (if not socialism as such) ('Sequel to Etarea', 1970).

Yet even as Etarea's propositions remained indeed tangential to the country's urbanization during the 1970s and 1980s, rejected by orthodox Czechoslovak communists under the pressure of Brezhnev's *realpolitik*, another interpretation needs to be put on the table. The moot point was Čelechovský and Richta's conviction that there was an 'optimal' road to socialist renaissance — by way of the STR. Their vision of communism, informed by the somewhat abstract humanism and cybernetics of self-regulating systems maintained in normal, homeostatic states, remained oblivious to the strife between the old and new working classes: manual workers and the intelligentsia.

It remains a sad irony that the early 1970s institutional turnaround, complete with the demotion of large swathes of the intelligentsia associated with socialist reformism, was characterized by its proponents as 'normalization' (Bren 2010). But it is even more ironic that a schematic rendering of the STR remained pivotal to the Communist Party's orientation in the two decades to come. Gustáv Husák, installed as the Party's general secretary in 1969, substituted 'socialism with a human face' with Brezhnevian 'real socialism' to describe his vision of the future. Husák's reification of socialism as really existing, and the consequent evacuation of communism from the political horizon, amplified a tension within the STR between

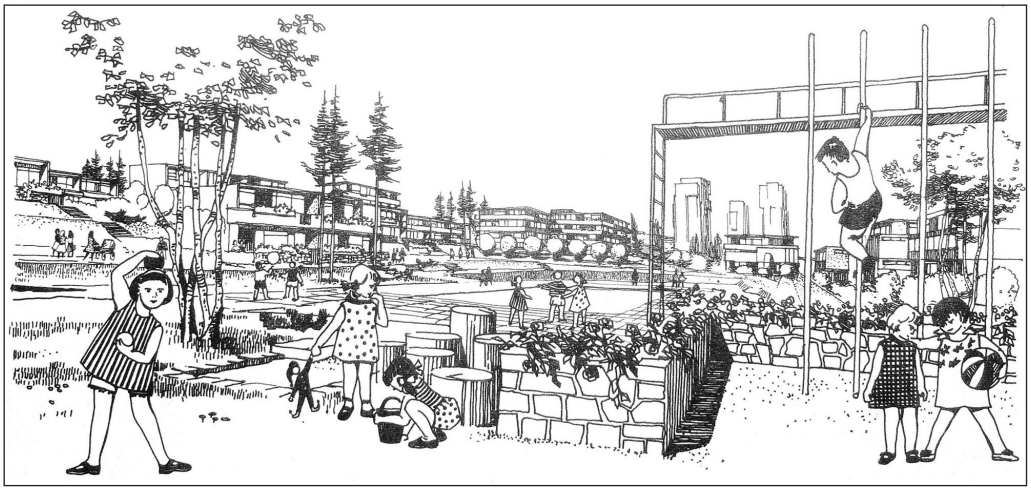

Figure 11: Environments of play and creativity for Etarea, perspective drawing (Čelechovský 1967a: B19/t).

cybernetic and phenomenological 'meanings', and the STR consequently bifurcated into technocratic forecasting on the one hand and a nebulous psychologizing on the human and humane on the other.[26] In a trenchant sequel to the story, following a ceremonial self-criticism in 1969, in which he renounced *Civilization*'s reformist tendency yet hammered home the enduring relevance of the STR, Richta was promoted to director of the Institute for Philosophy and Sociology of the Czechoslovak Academy of Sciences.[27]

A similar bifurcation occurred during the 1970s and 1980s under the proliferating banner of humanizing the living environment (Krivý 2019). While that term kept being discussed under a cybernetic and systems-theoretical rubric, it had relatively little purchase on actual design practice. In 1977, Čelechovský left the Prague Design Institute for a research position. He remained convinced that cities are cybernetic systems, and drew ever-more arcane diagrams to prove his case (**Figure 12**). The banner's anti-political thrust, on the other hand, was conveniently appropriated by a budding socialist postmodernism and its rediscovery of the so-called 'human scale' of cities. The living environment, in that rather crude reading, meant simply streets, plazas, courtyards and other spaces between buildings identified with the pre-modernist urban fabric and pre-socialist urbanity.[28]

The few scholars and pundits who discuss Etarea consider it to be a 'dream' (Jíšová 2011) and its scrapping an 'encounter with reality' (Řeboun 2010).[29] They imply that by discontinuing the model city project, the bureaucratic state apparatus bore witness — by way of inversion — to its visionary character. This line of reasoning is commonplace in the post-socialist historiography of socialist Czechoslovakia. The preoccupation with forcibly imposed discontinuities that marked the year 1968, while important, nevertheless impedes the study of, on the one hand, contradictions internal to socialist reformism itself, including its Marxist, techno-cybernetic and phenomenological intellectual strands; and, on the other, longer historical continuities between socialist reformism, real socialism and post-socialist neoliberalism.[30]

In 1968, for example, Richta's colleague Kosík, himself a key thinker and proponent of socialist reformism, criticized *Civilization* for its techno-scientific determinism:

> The ideologues of the scientific and technical revolution link socialism with their vision of the future, in which a predominant number of citizens will be occupied in scientific labour. It, however, does not cross their minds that this quantitative growth cannot lead to a dialectical leap forward and to a new quality, because it is itself a mere manifestation of

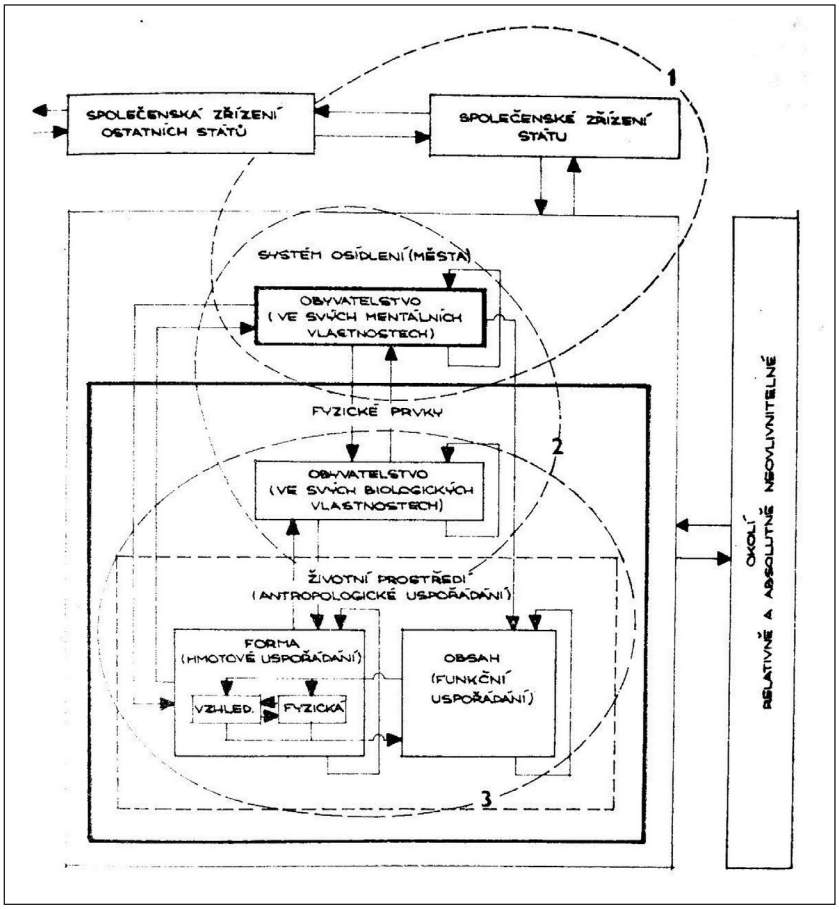

Figure 12: Gorazd Čelechovský and Vladimír Šipler, urban system functional diagram. The innermost square includes categories such as 'population biological traits', 'urban fabric' and 'living environment'. Situated outside are 'population psychological traits' and 'settlement systems', and further outside 'state organization' and 'unalterable environment' (Čelechovský and Šipler 1980: 187).

> the change that is occurring in modern science. (1995 [1968]: 37)[31]

Or as Jean Baudrillard commented sceptically on the 'cybernetic idealism' tying together the design, environment and other concepts that permeated Etarea, '"humanist" neo-functionalism has no chance when faced with operational metadesign' (1981: 199, 198).

These critiques are as relevant today as at the time, and the contradictions are most palpable in the field of urbanism. The case of Etarea offers an unexpected prehistory to the post-Cold War era of control societies and smart cities (Deleuze 1992; Halpern, Mitchell and Geoghegan 2017). Čelechovský's design for variegated living environments that nurtured self-realization was ultimately inseparable from his belief in the 'quantification', 'algorithmization' and 'stabilization' of cities-systems — a paradox of revolutionary yet homeostatic urbanism (1967a: A6/3). Etarea, in this sense, is likewise a compelling prequel to what legal scholar Antoinette Rouvroy describes as algorithmic governmentality (Rouvroy and Stiegler 2015).

Familiar events outside of Czechoslovakia speak to similar questions. Witness the Cybersyn project in socialist Chile: its command room was destroyed by a right-wing dictator, but the conceptualization of the economy as a cybernetic system was in fact consolidated by that dictator's neoliberal economists (Medina 2011). Or consider the International Institute for Applied Systems Analysis, co-founded in 1972 by the Soviet Union and the United States, a testimony to the global appeal of systems theory and cybernetic computation as answers to issues arguably beyond the capitalist-socialist distinction, including world peace (Rindzevičiūtė 2016: 52–72).

Etarea is the architectural equivalent to these and many other examples of intersecting socialism and cybernetics, poised ambiguously between divergent visions of the future: open ('at the crossroads') to collective determination, yet constrained by blind techno-scientific forces. The story recounted here can be interpreted as a fraught attempt to reconcile dialectical materialism and systems theory, reflecting the fateful encounter between the Communist Party and the intelligentsia. In architecture and urbanism, systems rationality served as a basis for reviving functionalism and rethinking what counts as a meaningful life. It can be argued, in hindsight, that Etarea was as much defeated by Soviet tanks as 'outsmarted' by a post-humanist disposition of planetary informational networks — the ubiquitous smart urbanism — thriving, ironically, on algorithmic control similar to that which animated Etarea's socialist humanist ideals.

Notes

[1] All translations are mine unless otherwise noted. For citations from this report, I follow the original pagination by chapters, i.e. here chapter A3, page 2. In preparation for Expo '67 in Montreal, the report was also published in French (see Čelechovský 1967b).

[2] For fragmentary attempts at socialist histories of architecture and cybernetics, see D'Hooghe (2006); Le Normand (2014: 217–22); Kurg (2018).

[3] On similar developments in the Soviet Union see Aronova (2011).

[4] All citations in this article are from the third edition of Richta (1969a). For English and French translations see, respectively, Richta (1969b) and Richta (1968).

[5] Sociologists working on a parallel research project questioned the power and import of the intelligentsia in contemporary Czechoslovakia (see Machonin and Jungmann 1968: 439).

[6] The concept of a 'new working class' is from French sociologist and activist Serge Mallet, who defined it as 'the active population strata … integrated into the most advanced production processes' (Horn 1998: 359).

[7] Richta's diagnosis contrasted, in this sense, with the German economist E. F. Schumacher's concept of 'technology with a human face' (1975 [1971]; cf. Höhler 2014: 61).

[8] On Cold War forecasting, see Andersson and Rindzevičiūtė (2012).

[9] On the Soviet Union, see Rindzevičiūtė (2016: 24–51). See also the CIA report that described the economic policies of the GDR's Walter Ulbricht as 'cybernetic revisionism' (CIA 1970).

[10] Richta refers to Fourastié (1965), translated to Czech as Fourastié (1969).

[11] Klein cited Kosík in a paper written for a 1968 colloquium on the STR in Mariánské Lázně, Czechoslovakia, subsequently published in French (Klein 1968). Kosík is not, however, mentioned in the 1966 version of the paper, published in Czech (Klein 1966). Both Kosík and Patočka were critical of technocratic aspects of the STR theory.

[12] Emphasis in the original. The original term, 'světový', can be interpreted in both ways, unlike in the current debates on planetary urbanization and planetary-scale computation (Brenner and Schmid 2012; Bratton 2016).

[13] One historian describes the 1960s–70s as the 'Environmental Age' (Höhler 2014; see also Scott 2016 and Martin 2010: 49–68).

[14] Although the book does not name the authors of respective passages, they correspond closely with the vocabulary, style and arguments that Lakomý and Nový used in contemporary publications (e.g., Nový 1960; Nový 1964; Lakomý 1966; Lakomý 1973).

[15] On inter-war and early post-war architecture in Czechoslovakia, see Zarecor (2011) and Miljački (2017).

[16] On the Soviet Union, see the chapter 'Architecture and Stalin's Revolution, 1932–1941' in Anderson (2015).

[17] It remains speculation whether Bernal's thoughts on disurbanism reached the authors of *Civilization*. In 1936, Bernal expressed the hope that the country would share in 'all the possibilities of a full and developing life found in the towns' and agricultural workers would have 'similar opportunities to those enjoyed by the city capitalists' (Whittaker 1999: 272).

[18] Calculations based on CSO (2011).

[19] On this problem after 1968 see Bren (2002).

[20] The essay is illustrated with drawings by Paolo Soleri, Kisho Kurokawa and William Katavolos and with Frank

Lloyd Wright's Key Plan for Ellis Island, reproduced from Ragon's 1963 book *Où vivrons-nous demain?* In 1967, the book was published in Czech, including an extensive, extremely critical and uncredited afterword by Dalibor Veselý (Ragon 1967; Veselý 1967). On technocratic tendencies in 1960s French architecture, see Busbea (2007).

[21] Nový and Lakomý most likely had Musil's research in mind when they disputed, in *Civilization*, the link between collective housing and collective spirit.

[22] These objectives were emphasized in a short synopsis of Etarea, published in French (Dvořák 1969).

[23] The network featured prominently in contemporary English digests: 'Integration' (1968) and Čelechovský (1972). The inspiration may have come from a pneumatic post system, which was installed in Prague in 1889, with an overall length of more than 50,000 kilometres.

[24] The contemporary and much-studied Fun Palace was informed by the same assumption. See the little-known Iles (2009) on this issue.

[25] On Koldům see Zarecor 2011: 38–53. On gender relations in Czechoslovakia, see Bren (2010: 159–76).

[26] Czech émigré Eugen Loebl (1971: 300), for example, drew a contrast between humane economics, or what he called humanomics (in a 1976 book of that name), and computer imperialism, 'an integrated computer system which will tie the central computer of each Eastern European country to a single giant computer complex in Moscow'.

[27] On Richta's self-criticism, see Devátá (2014: 57).

[28] The Barrandov housing estate in Prague is considered a quintessential project of socialist postmodernism. The project began under Čelechovský, but was overhauled by architects Zdeněk Hölzel and Jan Kerel, after Čelechovský's departure from the Design Institute. Kerel worked on Etarea as a student (see, e.g., Skřivánková 2017). Influenced by Charles Jencks and Kevin Lynch, Hölzel and Kerel introduced in Barrandov traditional street typology, defensible spaces and other aspects of the human scale idea. Hölzel's translations of key texts by Jencks and Robert Venturi were a watershed in the Czechoslovak reception of postmodernism during the 1980s (see also Krivý 2016).

[29] Etarea was featured in a 2009 Czech Television documentary series on discarded socialist-period projects. For an alternative interpretation of Etarea, limited, however, to transport networks, see Logan (2015: 138–39).

[30] Cf. Kopeček (2008) and Pullmann (2012).

[31] For the original Czech essay, see Kosík (1993 [1968]).

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Competing Interests

The author has no competing interests to declare.

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