TYPICAL PLAN
THE ARCHITECTURE OF LABOR AND THE SPACE OF PRODUCTION

Francesco Marullo

Typical Plan

The Architecture of Labor and the Space of Production

Proefschrift

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Propositions

appended to the thesis by Francesco Marullo

Typical Plan. The Architecture of Labor and the Space of Production

These propositions are regarded as opposable and defendable,
and have been approved as such by the supervisor: Prof. ir. Michiel Riedijk

I

Men are generic beings.
Not having a nature, they constantly produce themselves and their own environment.
Labor is their life-engendering activity: the struggle to become and persist into being.

II

Genericness is a potential, the field of human possibilities.
The greatness of labor-power stands in the faculty of being and not-being at the same time, in embracing the abyss of negation and the choice of refusal. What is potential, in fact, does not have necessarily to be. It is a void, an absence: it is freedom.

III

The vain effort of capitalism and its whole apparatus of production is the act of measuring the genericness of labor-power without restraining its potential.

IV

Human industriousness and abstraction build upon opposition and uncertainty.
As for Vitruvius, any strategy of subversion grows in the danger standing ahead.
Salvation lies in the project and strife that war entails.

V

Architecture is a plan, a strategy of organization to fulfill human actions.
It is amoral: its indifference provides the conditions for life to occur.
Success is not in what architecture is, but rather in what it is able to do.

VI

The "typical" is not an a-priori ideal but the product of accumulation: a real abstraction.

VII

A typical plan is both conventional and contingent.
It produces uniqueness out of its reproducibility.

VIII

The typical plan does not only demonstrate how capitalism put crisis at work but also how to accelerate its radical subversion. War-machines were its ancestors whereas logistics its line of flight.

IX

The freelancer is a living combination of fixed and variable capital: the paradoxical embodiment of a typical plan. When everybody is transformed into an enterprise of himself, life coincides with work while any action should be added to payroll.

X

Do not withdraw but exceed!
More money, more space, more production.
Architecture *and* Revolution.

I
Mensen zijn generieke wezens.
Zonder natuur, genereren zij continu zichzelf en hun omgeving.
Arbeid is hun generatieve activiteit: een strijd om te worden en te blijven bestaan.

II
Het generatieve vermogen is een potentieel, het veld van menselijke mogelijkheden. Het bijzondere van de arbeidskracht schuilt in het vermogen tegelijk te zijn en niet zijn, in het kunnen erkennen van de afgrond van de negatie en in het vermogen tot weigering. Een potentieel is, in feite, dat wat niet noodzakelijkerwijs zo hoeft te zijn. Het is een leegte; de aanwezigheid van een afwezigheid: het is vrijheid.

III
Het lukt het kapitaal niet om het generatieve vermogen van de arbeidskracht te meten zonder daarmee het generatieve potentieel van de arbeidskracht te beperken.

IV
Menselijke activiteiten en abstractie zijn gebaseerd op oppositie en onzekerheid. Net als voor Vitruvius, is elke subversieve strategie gebaseerd op risico, op het gevaar vooraan te staan. Bevrijding groeit in het project met behulp van de sluwe intuïtie die alleen in oorlog voorkomt.

V
Architectuur is een plan, een strategie voor organisatie om menselijk handelen te realiseren. Zij is amoreel: haar onverschilligheid vormt de basis voor het leven. Succes bestaat niet uit wat architectuur is, maar uit wat zij in staat is te doen.

VI
Het "typische" is geen apriori ideaal maar het product van accumulatie: een "Realabstraktion".

VII
Een typisch plan is zowel conventioneel als contingent. Het produceert uniciteit vanuit zijn reproduceerbaarheid.

VIII
Het typisch plan laat niet alleen zien alleen hoe kapitalisme met crisis opereert maar ook hoe het radicale subversie versnelt. Oorlogsmachines waren zijn voorouders en logistiek is zijn vluchtlijn.

IX
De freelancer is een levende combinatie van vast en variabel kapitaal: de paradoxale belichaming van een typisch plan. Als iedereen zijn eigen onderneming wordt, overlapt privé leven met werk terwijl alles wat je doet, toegevoegd zou kunnen worden aan je loonstrook.

X
Niet terugtrekken maar vermeerderen!
Meer geld, meer ruimte, meer productie.
Architectuur *en* Revolutie.

Samenvatting

Het typisch plan. De architectuur van arbeid en de ruimte van de productie.

De term Typical Plan (typisch plan) werd als eerste geïntroduceerd door Rem Koolhaas in een kort essay waarin hij de repetitieve homogeniteit van 20ste eeuwse indeling van Manhattans kantorenbouw beschrijft, als een van de zuiverste Amerikaanse archetypen: een plan ontdaan van al zijn kwaliteiten en gereduceerd tot een gecalculeerde relatie tussen discrete elementen, een leeg oppervlak dat welk programma dan ook in zich kan opnemen en dat iedereen simpel zelf zou kunnen uitvoeren.

Niettemin, meer dan een technische prestatie op het gebied van elektrisch licht, airconditioning en brandveiligheidsprotocollen, was de zogenaamde 'specifieke onbepaaldheid' van het typische plan in feite het resultaat van gewelddadige politieke en economische veranderingen. In het geval van het typische plan kwamen in de eerste drie decennia van de twintigste eeuw drie ontwikkelingen samen: de moderne industriële revolutie, het wetenschappelijk management van arbeidsprocessen en het financieel imperialism.

Door een aantal casestudies van dezelfde periode in de Verenigde Staten, Duitsland, de Sovjet Unie en Italië te analyseren, verdedigt dit proefschrift de bewering dat het typische plan ontstaat onder druk van de werkende klasse en de arbeidersstrijd. De druk van de arbeidersstrijd heeft het kapitalisme altijd gedwongen om voortdurend zowel zijn infrastructurele apparaten uit te breiden als de architectuur van zijn productie. Dit alles om zich het generatieve vermogen van de arbeidskracht toe te eigenen.

Alleen door de ruimtelijke genealogie van het typische plan te reconstrueren middels de instrumenten van de politieke economie en de dialectiek van klassenstrijd, is het mogelijk om het tweezijdige karakter van het plan te laten zien. Het tweezijdig karakter bestaat enerzijds uit een dispositief om uitbuiting en winst te maximaliseren en anderzijds als platform dat het de arbeiders toestaat zich te verzetten tegen elke vorm van slavernij, zowel binnen als buiten de fabrieksmuren.

Acknowledgments

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Prologue

"Typical" is an awkward adjective for it not only traces what is proper and peculiar of something, but also what achieved the status of a convention within a context, at certain time and in a certain place. Like a tendency, an acknowledgeable commonplace or even a consuetudinary condition, what is typical turns whatever it denotes into an average: typical is easy to be perceived, circumscribable and translatable in norms, classes, protocols, habits and spaces. In general, the idea of evolution itself might be understood as a continuous crystallization of life activities from particular to typical ordinary forms, as a cyclical reduction of exceeding singularities into standards.

In architecture, at least since the 18th century and through the modern of industrialization and serialization of building techniques, the idea of typicality progressively lost its original vagueness and semantic richness, passing to indicate the logical reproduction of the identical. What Quatremère de Quincy still distinguished from the model, notoriously postulated as the nucleus of development and variation of forms, today it seems to have converged in the repetition of a unique plan – a *typical plan* – made of both specific and generic elements indifferently applied everywhere for any kind of purpose. Contemporary urbanization offers concrete evidence of this process, often concealing its uniform roles of speculation and exploitation under superficial articulations, artificial stratifications or alleged complexities. Adopted first as a technical means of construction and successively as a paradigm for mass-produced architecture, the use of typical plans emerged in parallel to the modern metropolis and the development of civil engineering, transforming the very idea of plan into a mechanically reproducible surface – the "nth" layer of a vertical and horizontal extrusion – which could act as principle for generic urbanization.

Yet, despite being one of the most deployed architectural devices, the idea of typical plan still remains one of the least theorized, to the extent that even Rem Koolhaas' homonymous article passed almost unnoticed among the other renowned pieces collected in S,M,L,XL.[1] Written in 1993, this short text constituted the very

1   Rem Koolhaas, "Typical Plan", [1993], *S,M,L,XL* (Monacelli Press: New York, 1995): 336–350. The technical meditations on the plan would continue in "Last Apples. Speculations on structure and service"

first attempt to conceptualize the typical plan looking at the repetitive homogeneity of the twentieth-century Manhattan office buildings, whose layouts became progressively rarefied along with the evolution of financial capitalism. Koolhaas explained such a structural simplification as the deliberate speculative endeavor to absorb and metabolize the metropolitan unconscious energies via the abstraction of "business", a program indifferent to any specific spatial distribution which simply demanded an elementary architectural frame to accommodate the endless fluctuations of the market and the continuous rearrangements of the firm.

This thesis argues that the typical plan acts as a sort of *index*, making profit out of the congestion it was able to accumulate and becoming effective only by means of the internal activities, the interactions and the life it was able to condense via the emptiness and deliberate incompleteness of its layout. In other words, it is a plan that coincides with what it contains and what it performs: maximum indeterminacy within the specificity of an enclosure. [2]

Nevertheless, in Manhattan the typical was everything but a fixed form: its extension changed according to building regulations, real estate values and fire-safety protocols, while its configuration was sufficiently vague to shelter any program through the rhythmical repetition of its supporting structures. Hence, as Koolhaas subtly claimed, Manhattanism revealed in all of its ambivalence the twofold character of the typical plan – its singularity and conventionality – undermining

[1993]; "Bigness, or the problem of the large. Manifesto" [1994]; concluding with the scenario envisioned in "The Generic City. Guide" [1994] all contained in the same volume.

2   Years before discovering Manhattan, Koolhaas found the same 'specific indeterminacy' along the Berlin Wall: once again, an architecture whose power resided more in the emptiness and absence it implied rather than in its explicit presence, for it functioned as an act of erasure. The wall ensured the highest flexibility of program and the least leeway in its architecture by indifferently sequencing different situations of spatial, social, historical or geopolitical character: it was "a script, effortlessly blurring divisions between tragedy, comedy, melodrama". In a similar way, the typical plan offered another strategy by which to "imagine nothingness", using the subtle rhythm of its supports and the potential of its flat extension to generate congestion and unforeseeable forms of organization rather than management and control. "In fact, in narrowly architectural terms, the wall was not an object but an erasure, a freshly created absence. For me, it was a first demonstration of the capacity of the void – of nothingness – to 'function' with more efficiency, subtlety and flexibility than any object you could imagine in its place. It was a warning that – in architecture – absence would always win in a contest with presence."

Rem Koolhaas, "Field Trip A: (A) MEMOIR (First and Last . . .) The Berlin Wall as Architecture" [1993], *S,M,L,XL*, (New York: The Monacelli Press, 1995): 228–31.

the whole idea of typical as "standard" while emphasizing the plan precisely because of its intrinsic *non*-standard and haphazard nature, for its capacity of being endlessly reconfigured in similar but not identical forms according to the same structural algorithm: a core, a set of column and an enclosing envelope. The typical plan of the skyscraper rejected any conventional composition or fixed arrangements of parts, contradicting any static equilibrium by favoring a permanent variation according to its internal necessities or external building protocols. For these reasons, it should be conceived neither as a typology nor as a model to be copied but rather as a dispositive which implicitly denies *any* typology, as however confirmed by the series of plans linearly juxtaposed in Koolhaas' article: all different yet reducible to a unique enabling diagram, a technical apparatus applicable to whatever content and able to work in any context.

In this sense, the typical plan conceptually resembles what Bernard Cache's defined as a "frame", which emblematically resumes the essential character of the building process. Architecture for Cache cannot cause life but just creates the possibilities for it to occur. Hence, in its simplest form, architecture corresponds to an act of *framing*, namely selecting intervals of space to be inhabited. To frame means to delimit a portion of land first through vertical separations – walls for enabling life and cohabitation with what exists beyond them – and later through horizontal rarefactions of the ground – floors to support the activities of its inhabitants. Since "one never knows how the interval that is marked off by the frame will be filled", the frame is indifferent to its content and functions, albeit it receives qualities and meanings from the forms of life proliferating within its interval.[3]

According to Cache, an important role is assigned to the horizontal delimitations of the frame, which expressly allow activities to take form: the ground floor anchors the frame within a territory as a sort of stage; while the roof, the culminating element of the assemblage, protects and shelters without truly delimiting the events taking place below. Explicitly referring to Le Corbusier's famous *five points*, Cache explains that modern architecture gradually minimized the importance of the roof, reducing it to a simple floor – to a typical plan –

3 Bernard Cache, *Earth Moves: The Furnishing of Territories,* (Cambridge MA: The MIT Press, 1995): 26-30.

flattening its volumetric configuration, internalizing its primitive representativeness and condemning it to an uncertain state of continuity between the singularity of an enveloping form and the generic*ness* of a planar repetition. For Cache, modern architecture was essentially the gradual combination of ground floor with roof as continuous horizontal surfaces, which abolished any clear spatial orientation for the sake of pure circulation. This was also reflected by Le Corbusier's diagrams, like the ones illustrating the first official elaboration of the five points contained in his *Architecture d'Époque Machiniste*, showing the historical rarefactions of objects, windows, roofs and structures towards a progressive typicality, which undermined any previous symbolical, traditional, customary differentiation of the elements within an homogeneous plan.[4]

Le Corbusier's evolutionary sketch depicted such a drastic spatial simplification only according to the advancement of the construction techniques, as if architecture was purely depending upon the evolution of technology. But, as Cache pointed out, a architecture as a *frame*, as a typical plan, always performs in different ways upon the context and the activities it shelters or according to the subjects, the relations of power and the conditions of production affecting its interval of space. In this sense, it would be impossible to elaborate a valid project for the city without conceiving the city itself as an expression of labor and production, and Le Corbusier's diagrams were nothing but the most accomplished reflection of the modern affirmation of the capitalist technology as general rule.

Therefore, following the line opened by Cache and Koolhaas' contributions, this thesis will try to conjecture a genealogy of the typical plan, further investigating the political and economical background which oriented the aims of the project it entailed and its formal evolution, especially within that particular historical convergence between modern industrial revolution, scientific management of labor and financial imperialism occurred during the first three decades of the 20th century.

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4 There, architecture was reduced to a proper procedure in 5 acts to build up a generic reproducible frame: "1. Architecture: constructing a shelter; 2. A shelter: building a roof on walls; 3. A roof: covering a span to leave a space free; 4. Light up the shelter: opening windows; 5. Window: covering a span". Le Corbusier, "Architecture d'Époque Machiniste", in *Journal de psychologie normale et Pathologique* [1926], (Turin: Bottega d'Erasmo, 1975): 332-336.

The culmination of typical plan coincided in fact with the passage from the rigidity of the Fordist mass-production to what David Harvey defined as the age of "flexible accumulation", in which the laws of profit ceased to compartmentalize spaces and began to indirectly speculate via regimes of "rent", providing fields where exchanges, relations, differences and forms of life could freely proliferate within conditioned extensions.[5]

As Harvey pointed out, in the aftermath of the Second World War such a new indeterminate system of capitalist accumulation took over the ordered spatiality of Fordism, gradually replacing nation-state institutions, economies of scale, mechanical spatial organizations, solid industrial relations and fixed international exchange rates, with flexible rates of exchange, high market instability, subtle coercion of subjectivities, mass consumption, finance speculation and fragmentation of labor relations: all trends which would be eventually ratified by the dismissal of the Bretton Woods agreements in 1972, disclosing what Frederic Jameson defined the logic of the Postmodern culture.[6]

The more production exceeded the strict confinement of the factory, the more the typicality of its plan, the technical administration and the micro-disciplinary constraints of its procedures became a model for the whole society, to such an extent that the same requirements of a manufacturing layout – economy of space, rationality of arrangement, maximization of efficiency, calculation of movements, standardization of constructive parts – turned out to be crucial for *any* architecture and valid at *every* scale. In order to control the socialization of production and its increasing number of unexpected variables within a unique plan, the paradigm of the factory layout imposed itself as the most efficient strategy to integrate instabilities, disproportions and permanent reassessments. Following the claims of Manfredo Tafuri, precisely this crucial coincidence between the notion of the factory and the new emerging indeterminacy of planning constituted the highest achievement of the project of modernity, whose potential did not lie simply in the calculated precision

5 David Harvey, "From Fordism to Flexible Accumulation", *The Condition of Postmodernity. An Inquiry into the Conditions of Cultural Change,* (Oxford; Blackwell, 1989): 141-172; but also "The Art of Rent," *Spaces of Capital: Towards a Critical Geography*, (London: Routledge, 2001).
6 Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism,* (London: Verso, 1991).

of its layout, but in the deliberate acceptance of chaos and entropy as an inner source of development, exemplarily concretized in the empty form of the typical plan.[7]

What Koolhaas defined as the "specific indeterminacy" of typical plan, was in fact the outcome of specific political and economical conditions. It not only epitomized the shift from mass-industrialization to the modulation of finance capitalism but it also reflected the capitalist collapse between the two world conflicts, which generated the following neutral regimes of governance and the institution of the State as "planner and prime-mover" to control the wild spirits of the market and reabsorb the wave of social unrest and workers' discontent. As Karl Marx foretold, and the Italian Operaismo largely reprised in their writings, it was the pressure of the working-class to determine the development of capitalism, whose higher forms of integration, advanced processes of production and systems of valorization were in fact a reaction against the struggle and the sabotage of the labor force. Precisely labor struggle – which violently imposed itself with the disorders of 1848, 1871, 1905, culminating with the Bolshevik Revolution, the Weimar Republic and the 1929 crisis in United States – forced capitalism to accept the crisis as its unavoidable condition of progress and the working-class as its endogenous source of evolution.[8] On the other hand, for the same reasons but opposite intentions, it was the apparatus of capitalist exploitation – the architecture of production – that offered the working-class the possibility to fully articulate its antagonism and find cohesive forms of struggle and sabotage.

Therefore, by adopting the political assumptions of the Operaismo, through the writings of Mario Tronti and in particular the line opened by Antonio Negri, this thesis conjectures the typical plan as a product of class struggle rather than of a neutral technical progress, as a particular spatial form derived from the workers' tendency to always exceed the rules of their alienation and which had been constantly crystallized into more efficacious systems of subsumption. Through the openness and the emptiness of its form, the typical plan translates and makes tangible the

7 Manfredo Tafuri, *Architecture and Utopia. Design and Capitalist Development,* trans. by. Barbara Luigia La Penta, (Cambridge, Mass: The MIT Press, 1976).
8 Antonio Negri, "La Teoria Capitalistica dello Stato nel '29: John Maynard Keynes", *Contropiano,* I, January, (1968): 3-39.

power relations between workers and capital, self-valorization and technical composition. It is the fruit of an irreducible conflict that also explains its natural instability: as capitalism evolves thanks to continuous crisis and reassessments, so the typical plan lives out of its inner tensions and contradictions and because of its "planned uncertainty".

Thus, if read through the instruments of political economy and the dialectic of class conflict, the typical plan would reveal its twofold framing character, both as managerial device – to maximize production and profit – and as platform of organization – to articulate the workers' opposition and resistance against any apparatus of exploitation. Marx once suggested "it would be possible to write a whole history of the inventions made since 1830 for the sole purpose of providing capital with weapons against working-class revolt": in this sense, by assuming the typical plan as spatial paradigm, it would be possible to reconsider the whole architecture of modern production as the deliberate effort to neutralize the violence of the labor force and transforming it into a lymph for progress. Hence, the genealogy of the typical plan could be retraced through the history of labor movements, whose letters of "blood and fire" were clearly readable precisely where capitalism deployed its strongest apparatuses of exploitation: in its machines, factories, offices, welfare facilities and housing settlements.

In order to demonstrate the relation between labor and architecture, production and workers' organization, neutralization and persistence of the typical plan, the thesis begins where Koolhaas concluded his reflection, conceiving the sequence of architectures juxtaposed in his essay – the American warehouse loft-type, Mies' glass-skyscraper, Leonidov's Palace of Industry and Archizoom No-Stop city – as four main passages to delineate a cross-section of the advancements of class struggle from the first half of the 20th century to 1972, year of the dismissal of the Bretton Woods agreements.

Taking as a reference Reyner Banham's *The Architecture of the Well-Tempered Environment* and Peter Eisenman's *The Formal Basis of Modern Architecture,*[9] yet

9 Reyner Banham, *The Architecture of the Well- Tempered Environment,* (London: Architectural Press, 1969); Peter Eisenman, *The Formal Basis of Modern Architecture*, dissertation 1963, facsimile (Baden: Lars Müller

avoiding the technical infatuation of the first and the formal neutrality of the second, the thesis attempts to reread the project of the typical plan as the outcome of political and economical conditions and through different architectures for production, moving from the paradigm of *machinery* – which initiated a purely scientific understanding of space, canonized through the abstraction of orthogonal projections and axonometric representation, demanding the absolute neutrality and estrangement from any subjective reference point; through the plan of the *factory* – the first to evaluate the layout in pure terms of profit and rationalization of forces but also to provide a cohesive spatial frame for the workers to achieve class consciousness; the plan of the *enterprise* – conceived as an enabling spatial extension, designed to make profit of the interactions and the exchanges occurring within its conditioned environment; the plan of *dwelling* – whose domain of reproduction represented the necessary framework for resistance and constituency of the working class; and finally to the plan of *university* – whose institutional rarefaction paralleled the extension of capitalist exploitation across all the fields of life, as currently witnessed by the protests in defense of common knowledge.

Structure of the thesis

The thesis is composed of five independent chapters, each of them addressing single features of Bernard Cache's notion of frame: the art of partitioning, in the abstract catalogues of the Renaissance city plans and war-machines; the process of selection, through the index of the generic labor-power in the Fordist factory layout; the staging of activities across the continuous surfaces of the German office-landscape; the perceptive order of space and the rhythmical regulation of intensity within the Constructivist dwelling architecture; and ultimately, the horizontal and vertical reduction into an homogeneous isometric system, within Archizoom's Universal Climatic System.

Publishers, 2006).

The aim of the project should not be deduced from their linear chronological sequence but rather from their paratactical correspondences and connections, as if organized within a typical plan itself, whose potential never derives from the sum of single parts but always from the dialectical juxtaposition and common interactions of the whole. The core of the thesis – *the typical plan as a product of labor struggle* – constantly recurs in each chapter according to different perspectives themes, which deliberately evade any obvious or immediate relation to the idea of typical plan, in the attempt to estrange the concept not only from its Koolhaasian interpretation but also from any other stereotyped understanding, and thus repositioning it within an autonomous field of analysis.

The first chapter deals with the "typical" as a form of abstraction. Yet, a particular kind of abstraction, which is neither the fruit of logical speculation nor of immaterial simplifications but instead totally immanent: a worldly *real* abstraction, emerging from the social and economical productive proliferations of life. The modern affirmation of the typical plan occurred when the real abstraction of commodity exchange was posed as funding principle for the whole reality, postulating an absolute homogeneity of time and space for what Charles Jencks defined the "isometric architecture" of capitalist equivalence. Hence, the chapter would trace the roots of the typical plan back to the Vitruvian *machinatio* and the Renaissance surveying technology and military engineering, which dissected reality into a series of measurable points and coordinates, eliminating any symbolical or subjective perspectival representation. The rise of orthogonal projections and axonometric representation, in fact, instituted a mathematical control of the city-form and allowed the construction of efficient infrastructural system for the proliferating exchanges and distribution of commodities, marking the passage from an ideal to a managerial paradigm of the city long before the industrial revolution.

The second chapter will explain the logic of development of the typical plan by looking at the modern factory, whose layout incorporated both the inner tensions of the working-class and the outer contextual contingencies of the market as synergic conditions for its mechanism of expansion. The plan of the factory, in this sense, epitomized the capitalist tendency to crystallize the workers' struggle

while exploiting their labor power through an ingenious combination of machines and spatial frames. In the paramount example of Detroit, a city founded on the earlier advancements of Fordism, the relation between architecture and revolution was immediately embodied in factories, whose architecture was not just the "fruit" of a new technological era, but also the concrete achievement of the riots and the disenchanted bargaining strategy of the workers, who made the factory itself the place for organizing their resistance. From the analysis of its industrial apparatus, it would become explicit how the typical plan of the factory progressively turned into the ruling principle for the whole city of Detroit and society at large, ranging from the manufacturing layouts to the plans of the high-rise office buildings and the endless urbanization of the workers suburbs.

The third chapter focuses on the particular development of clerical space in Germany, from the symbolical authority of the first houses of labor, through the flexibility and functionality of the modern office space, to the planned indeterminacy of the office landscape. The chapter demonstrates how the tendency of the modern capitalist enterprise to exceed its own limits and to incorporate all the spheres of life within its frames of exploitation produced an horizontal expansion of the typical plan and the space of production, integrating the workers' organization within a manipulated cooperation. The more it advanced, the more the office space increased the permeability of its frame turning into a sort of homeostatic environment, which replicated, at a smaller scale, the political neutralization of the workers antagonism within the conditioned system of the welfare-state. From the Sozialstaat elaborated by Otto von Bismarck to tame the miners' discontent in the mid of 19th century, through the Weimar Social-democratic control of the salaried "brain workers" at the beginning of the 20th century, to the co-working council strategies of the post-war liberal economy, this chapter considers the typical plan as an enabling frame to elicit the tacit potential of knowledge, communication and personal relations as sources of profit and innovation.

Using the projects of Moisej Ginzburg and Ivan Leonidov, the fourth chapter will extend the concept of typical plan beyond its conventional use as instrument of management and control, considering it instead as a pedagogical and psychological

device to let its inhabitants learn by their own way of dwelling in space, and thereby achieving a higher consciousness of their own lives. From the first elaborations of the American female reformist's experiments to the modern CIAM congresses in Frankfurt and Brussels in 1929-1930, the typical plan had been traditionally employed as a basis for the scientific management and the standardization of domestic chores, aiming at transforming the household into a "machine for living" modeled on the rhythms of the factory. Yet, precisely such an increased mechanization of dwelling definitely revealed how, for centuries, the capitalist accumulation had gratuitously exploited gender divisions and domestic work as instruments to ensure the reproduction of the labor-force with the hideous enslavement of the body and the commodification of life. Conversely, at the same time in Soviet Union the working class struggle created the premises for a totally different approach to the domestic typical plan, employed as a frame to emancipate their inhabitants from the burdens of reproduction. In particular, there the rhythm of the typical plan was considered in its spatial and psychological implications, as a strategy of organization for the workers and for the consolidation of their new forms of life,.

Ultimately, the last chapter deals with crisis. In Marx there are two main laws of crisis. The first one, enunciated in the famous "Fragment on Machines", which substantially affirms that machinery and fixed capital are nothing but the fruit of a collective intelligence, the results of the scientific research and the rational efforts of a whole society: a form of crystalized knowledge. The second one, briefly mentioned in the *Grundrisse* and later extensively reprised in the third book of *Capital*, declaring that the more capitalism expands its domain, the more it is forced to empty its own apparatuses, to shrink its framework of exploitation and to polarize its power in few fixed points in order to not constrain the exchanges of information and knowledge while keeping a broad control over the field of production, configuring it as an homogenous extension. Both the laws conflated in the project of the University, the most crucial domain for contemporary production and hence the most fertile battleground for the defense of the common knowledge. The development of the typical plan, in fact, achieved its apogee in the university, encapsulating but at the same time flaunting the potential of the labor-force at extreme levels by means of

increasingly simpler frames, materializing the tendency of the profit rate to fall described by Marx into bare shelters for living and working. On this account, at the peak of the 1968 international student demonstrations, and in parallel to the rise of flexible accumulation and speculation of finance economy, Archizoom submitted a project for a university extension in Florence that conjectured the typical plan as the only valid spatial device able to frame the new spectacular reality of production, distribution and consumption within a coherent environment, while at the same time unveiling the principles for the capitalist collapse. A project that finds today its most violent and concrete accomplishment.

"You can love a city, you can recognise its houses and its streets in your most remote and secret memories; but only in the hour of revolt is the city really felt like an haut-lieu and at the same time your own city: your own because it belongs to you but at the same time also to others; your own because it is a battlefield you and the collectivity have chosen; your own, because it is a circumscribed space in which historical time is suspended and in which every act has its own value, in its immediate consequences."

Furio Jesi, 1972

I

Real abstraction and labor sans phrase

Typical plan as a technical device
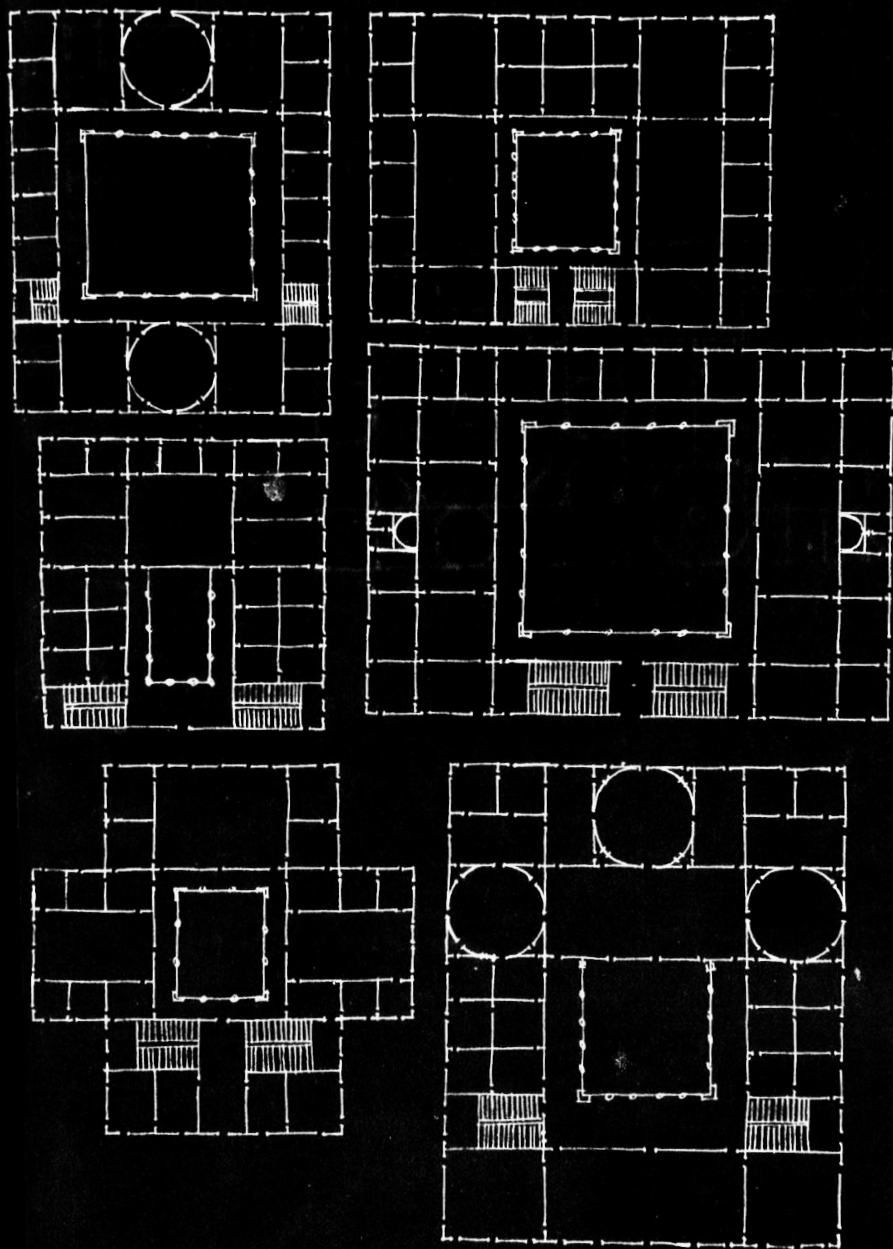
Francesco Di Giorgio Martini, *Houses and Palaces for noblemen.* Typical plans (1485-87)

Typical plan might be the paradigmatic form for what Frederic Jameson once defined as the capitalist space of "delirious equivalence", which produced an architecture made of empty extensions with a minimum supporting structure.[1] According to Jameson in fact, the rising importance of land speculation and rent values not only moved capitalism towards higher forms of abstract economy but it also stripped architecture of its most specific qualities, undermining its representative power and limiting its dialectical contextual relations to the homogeneity of an isometric space and the austerity of a reflecting envelope. The neutrality of the first compensated for the total autonomy of the second: the former, by creating an continuous internal environment, as a metabolized Miesian universal space; the latter by dematerializing mass in favor of a more or less indifferent shape through an a-signifying contour.[2]

The result was a skin and bone architecture that eluded any traditional relation with the city, because responding to a radically different logic of economical accumulation. A logic that no longer considered lands and buildings as material entities but as immaterial financial assets, namely as commodities to be bought and sold according to the rates of the stock market and the rent they yield. In other words, space and land became fictitious capital, an abstraction of heavy consistency but nonetheless able to increase through volatile operations and which transformed architecture into a pure technical problem, into an issue of management: how to make a sufficiently flexible and equipped hollow frame – a typical plan – able to indifferently adapt to whatever program and to work for any tenant. The

1 Frederic Jameson, "The Brick and the Balloon: Architecture, Idealism and Land Speculation", *The Cultural Turn. Selected Writings on the Postmodern 1983-1998* (London: Verso, 1998)186; explicitly drawing from Charles Jencks, *The New Moderns* (New York, 1990), 81-86.

2 *Ibidem,* 186: "The two features I have in mind are 'extreme isometric space' and, no doubt even more predictably, not just the glass skin but its 'enclosed skin volumes' . Isometric space, however much it derived from the modernist 'free plan', becomes the very element of delirious equivalence itself, in which not even the monetary medium remains, and not only the contents but also the frames are now freed to endless metamorphosis: 'Mies' endless, universal space was becoming a reality, where ephemeral functions could come and go without messing up the absolute architecture above and below'. The 'enclosed skin volumes' then illustrate another aspect of late capitalist abstraction, the way in which it de materializes without signifying in any traditional way spirituality: 'breaking down the apparent mass, density, weight of a fifty storey building', as Jencks puts it. The evolution of the curtain wall 'decreases the mass and weight while enhancing the volume and the contour - the difference between a brick and a balloon'" (emphasis original).

more fictitious capital increased, the more speculation expanded in a relentless consumption of land, the more architecture became an abstract machine for leasing square meters and devouring congestion, replacing any stability of program with a constant renovation and a permanent indeterminacy.

Perhaps, in order to illustrate the idea of typical plan in relation to Jameson's argument, there would be no better example than the 1985 Hague New City Hall proposal by OMA, whose title was, by no chance, *Specific Indeterminacy*. The project was in fact literally conceived as an homogeneous three-dimensional structural grid to be fed with functions, people and activities. To control both the "amateurish and unstable" programmatic requirements of the brief and the irregularity of the site, the whole building mass was vertically sliced into three parallel bars and horizontally divided in 23 floors of diminishing complexity, moving from the compact solidity of the plinth and culminating in separate towers at the top.[3] Architecture suddenly became simple, clear and quantifiable like an histogram: each bar seemed cut off from an endless extrusion as if industrially produced in series, whereas its overall volumetric articulation was supported by a single rhythmical sequence of technical cores: by a series of typical plans. The result was a suprematist *architekton* plunged in the very hearth of the city, whose hybrid character – something between a slab, a podium with towers and a urban block – emblematically marked the point of intersection between the historical urban fabric and its shameless commercial latest integrations.[4]

1.1

3 From the typewritten notes for the proposal: "An ingenious system able to combine the advantages of the closed optimum efficiency with the maximum flexibility. To this aim, we propose: (a) three zones of 14,40m, 200m long per 100m high; (b) a repetitive rhythm of elevators; (c) than we can just fill the system with program, according to (d) with the reduction of the program density at the upper floors, we produce an interesting sculptural volume, with larger internal spaces below (atrium, halls, archives, meeting rooms) and a leaner skyline upward, in order to master the colossal nature of the program (...) to let the mass to evaporate in its entirety. (...) The ambition of the project is thereby the finding of a formula that combines programmatic instability to indeterminacy or translate itself into architectural expression". The width of the bars was regulated according to the standard Dutch measurements of office workplace, based on the 1,8m module. For a complete account on the project, see the section *Stadhuis Den Haag,* (OMAR 0838-0870) of the Office for Metropolitan Archive at the NAI Rotterdam; but also Patrice Goulet (edited by) *OMA, 6 Projects,* (Institut Français d'Architecture: Editions Carte Segrete, 1990), 185-233; Graham Wyatt, *Koolhaas and OMA Win The Hague City Hall Competition,* in *Progressive Architecture,* 4, (1987), 27-28.

4 While teaching at the Architectural Association, Rem Koolhaas with Elia Zenghelis repeatedly proposed as design exercise to "fill up" a Malevich architekton with programs of any sort. See Rem Koolhaas and Elia

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Indifferently reflecting the surrounding context via a plain curtain wall of various materials and densities, the project was basically a montage of banal architectures, a sort of catalogue of the same generic office plans widely used in the recent expansions of the city. Hence, by juxtaposing a series of layouts usually adopted to generate square meters – "atrium, tower plus annex, L-shape, overlapping slab, T-shape, slab with middle core, slab with corner core, twin-towers"[5] – the project paradoxically reproduced the speculative logic of the city itself, assembled as an isometric repetition of land values contained within apparently different but structurally similar forms. Here, the financial strategies described by Jameson symbolically converged within the colossal dimension of the city-hall, denouncing the definitive submission of politics to neoliberal economy and the neutralization of architecture, transformed into a self-referential technical frame.

Yet, as Martin Heidegger affirmed in one of his most renowned lectures, the very idea of technology corresponds to an act of *en-framing* reality (*Ge-stell*), of connecting and bringing-forth its tacit potential.[6] Precisely in this act of revelation, Heidegger noted, lays the core of modern production, which is nothing but a process of exposition and crystallization of power into presence, into a tangible thing: so, the earth reveals itself through the coal mines, the field through the work of the peasant, the Rhine through the basin of a power-plant. To Heidegger, technology does correspond to any machine or technical object in particular but to a general act of disposing and ordering reality, which could eventually become so powerful and extended to subordinate the whole nature and even man within its own framing principles. Technology orders, unlocks, reveals, stores, and distributes reality while postulating its abstract equivalence, traducing nature into a sort of "standing reserve" (*Bestand*).[7] In this sense, it does not operate so differently from the capitalist

Zenghelis, "Architecture of the planetary metropolis. Architectural Association. Diploma School, Unit 9" in *Lotus,* 21, December (1978): 7-17.

5 The building, which in a working document Koolhaas defined as a "super-colossal (...) grotesque scale explosion, which poses itself as a medieval village and denouncing its neo-Stalinian aspect", was homogeneously cladded with curtain walls of various materials and densities: stone, stainless steel, concrete, glass.

6 Martin Heidegger, "The Question Concerning Technology" [*Die Frage nach der Technik,* 1954] in *The Question Concerning Technology and Other Essays*, trans. W. Lovitt. (New York: Harper and Row, 1977): 3– 35.

7 *Ibidem*, 17.
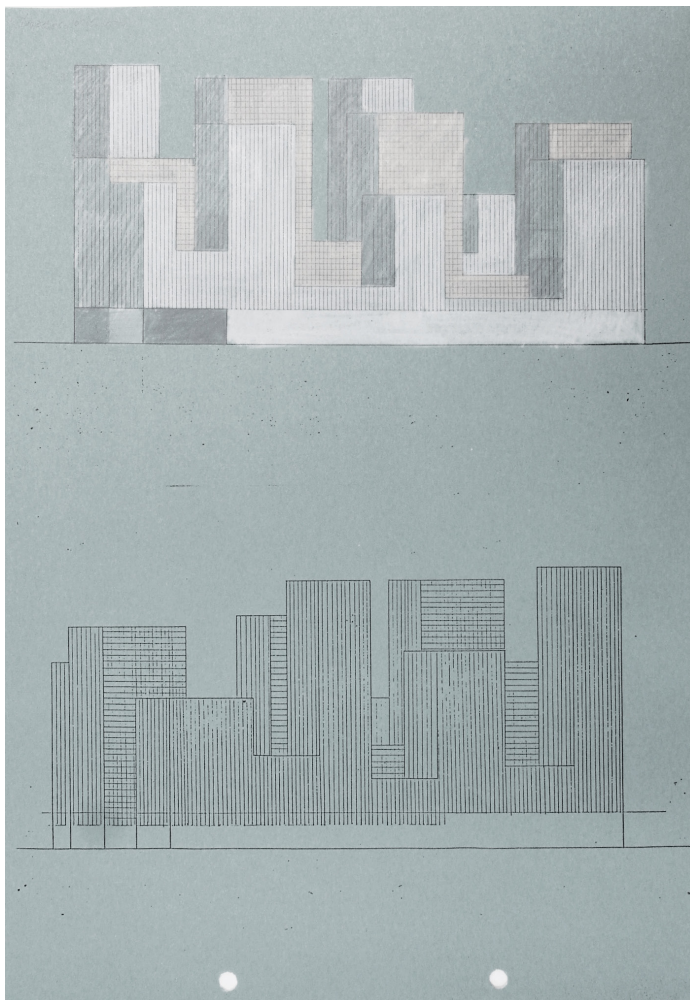
1.1 Office for Metropolitan Architecture, *The Hague City Hall* (1985), [OMA Archive, Netherlands Architecture Institute]

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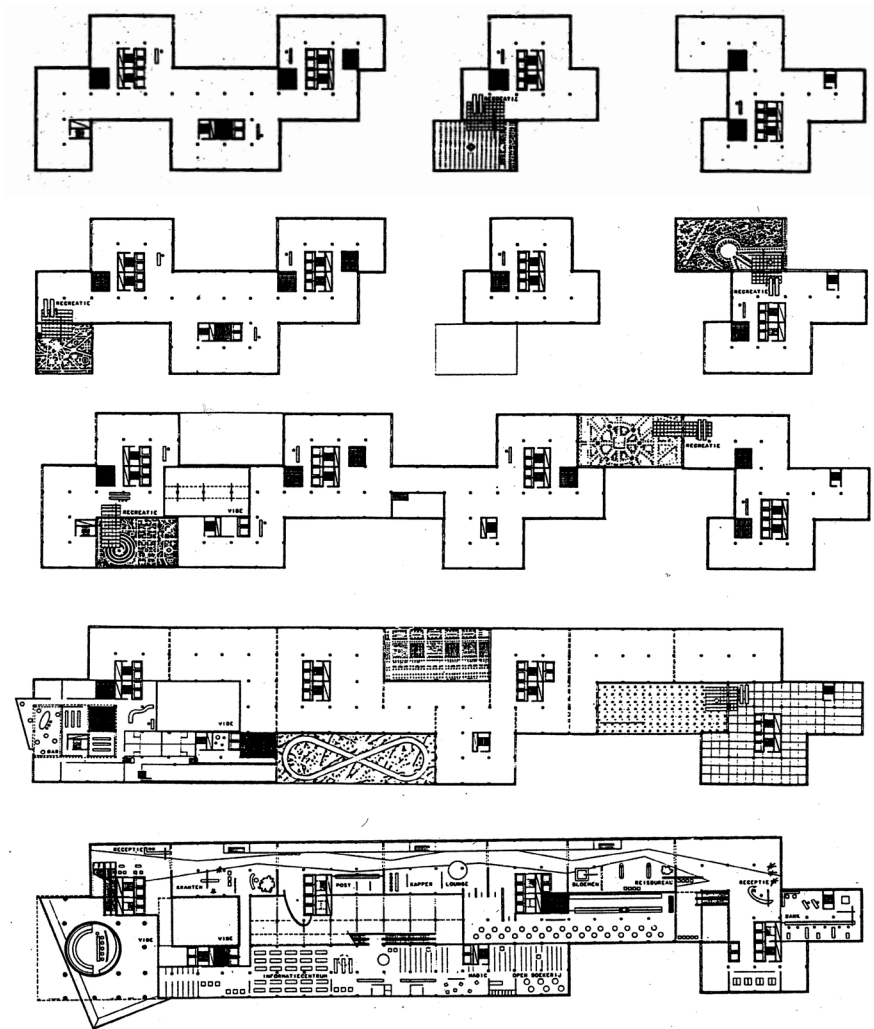
1.2 Office for Metropolitan Architecture, *The Hague City Hall* (1985)

abstraction, for which what truly mattered were not the objects in themselves with their use-values, but their exchangeability and future yields, their circulation and mutual competition. For these reasons, Heidegger remarked that the real danger of technology does not reside in factories, machinery or assembly-lines, but in the comprehensive logic of calculation it implies, whose demanding order automatically imposes itself as the unique validating reason, progressively depriving man first of his self-consciousness and autonomy of decision, and ultimately of his political will.

Therefore, the calculating logic Jameson found at work in postmodern isometric architecture and in the abstraction of its typical plans, should be not conceived as an explicit outcome of neoliberal economy but rather as the very constitutive character of modernity, which developed in parallel to the capitalist space of production and whose roots date back to Renaissance, when technology and machinery turned into epochal paradigms, mediating the relations between life, working activities and natural environment. Already in the second half of the 15th century in fact, with the development of mathematical and geometrical sciences, the population growth and the global expansion of trades, cities began to be analyzed and dissected as mechanical apparatuses, as assemblages of objects, people, and fluxes of commodities which could be rationally controlled without recurring to any symbolical, allegorical or mystical order.

At that time, in order to extend its hegemony over a neighboring territory, a flourishing city necessitated of a calculated defensive system, a faithful army and the virtuous government of a prince, able to administer the intestinal *humores* of the state and to control the conquered dominions through an efficient bureaucracy. In this sense, architecture technically advanced in two of its most utilitarian forms, namely military fortifications and administrative infrastructures, which totally reversed the utopian potential of the "ideal city" into the objective anatomy of planning and the operative strategy of management: the first, by measuring objects and surveying territories through orthogonal projections and isometric drawings, in response to the evolution of firearms and war-machines; the latter, by deliberately accepting the new forms of production, such as banking, insurance enterprises, trading or forensic activities, and thus codifying appropriate typologies which could have

been simply copied and repeated. On this account, the large collections of notes, mechanical sketches and drawings for two hypothetical "cities" left by Bartolomeo Ammannati and Vasari the Younger, for example, demonstrated such a technical understanding of the architecture of the city, conceived as a catalogue of plans for new welfare services such as universities, monasteries, hospitals, custom-houses, markets, tribunals and magistracies, prisons, barns and warehouses. Similarly to a machine, the overall efficiency of the layout was privileged to its formal elaboration: plans abandoned any decorative trait achieving an austere logistic rationality and an absolute precision of measurement and functional distribution. It is not a coincidence that, both Ammannati and Vasari the Younger worked within the vast military and administrative expansions of Cosimo I de' Medici's Great Dukedom of Florence as collaborators of Giorgio Vasari, whose building for the magistracies – the *Uffizi* – might be rightly considered the logical predecessor of Koolhaas' City Hall: a paradigm of the mutated political economy of the city, transformed into a bureaucratic apparatus, rationally composed through sequences of abstract modules. Hence, long before the industrial revolution and the rise of mass production, the particular convergence of technical rationality, military representation and civic organization produced a first modern formulation of the typical plan as a technical device to administer space at any scale, from the single tool to the city at large.

Nevertheless, before engaging in the mechanical drawings of Vitruvius, Francesco Di Giorgio Martini and Albrecht Dürer, or in the city-apparatuses of Sebastiano Serlio, Giorgio Vasari the Younger and Bartolomeo Ammannati, it would be necessary to better define the notion of abstraction and its relation to human labor and architecture, as previously raised by Frederic Jameson.

1. *Two abstractions*

> "As a rule, the most general abstractions arise only in the midst of the richest possible concrete development, where one thing appears as common to many, to all."
>
> –Karl Marx

In general, abstraction is a practice of reversal. As the philosopher Roberto Finelli explains it, given the logical connection between a subject and a predicate, abstraction is what separates the former from the latter, hypostatizing the predicate as an autonomous entity while reducing the subject to a fictitious substance.[8] In his reading of Marx, Finelli individuates two main formulations of abstraction: the first one, typical of Marx's earliest writings, which is an abstraction related to the essence of human species and its progressive alienation from life-activity; the second one, characterizing the writings after the 1857 *Introduction to a Contribution to a Critique of Political Economy*, which is an abstraction directly derived from the social and economical conditions and thus "posed" as a totalizing principle to support the whole capitalist system of production.

Marx inherited the concept of abstraction from the dialectics of Friedrich Hegel but filtered through the writings of Ludwig Feuerbach, who notoriously deduced the reversal process of subject/predicate from religion. In short, for Feuerbach "humanity", or the predicate of human essence, was detached from its concrete mankind origin and hypostasized as an absolute divine subject, eventually devaluing the original human dimension and the finiteness of its phenomenal reality. To Feuerbach, divinity was nothing but a distorted sublimation of humanity, an abstraction of men as generic species-being (*Menschliche Gattung*), and Finelli categorizes this first form of abstraction in Marx as "generic" precisely because aimed at negating, projecting and reversing the genericness of human species within

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8 Roberto Finelli, *Astrazione e Dialettica dal Romanticismo al Capitalismo. Saggio su Marx.* (Roma: Bulzoni Editore, 1987): 10-48. See also Alberto Toscano, "The Open Secret of Real Abstraction", *Rethinking Marxism,* Vol. 20, No. 2 (Autumn, 2008).

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"other" religious, political or economical extraneous entities. The same principle of reversal could have been applied not only to the State, conceived as false hypostasis of the civil society and thus an alienation of the individual will through the fictitious abstraction of a social contract, but also to economical categories at large.

With the definition of generic abstraction, Finelli's explicitly refers to Marx's early anthropocentric understanding of man as a "species-being" (*Gattungswesen*), as an animal devoid of specialized instincts and of a specific environment and thus forced to constantly *produce* its own nature through the industriousness of its labor. Therefore, according to Finelli, this first form of abstraction was actually a proper characteristic of the generic human species: fruit of that particular process through which man legitimized his own nature and reflected his own subjectivity in the products of his life-activity. In the *Economic and Philosophical Manuscripts of 1844,* in fact, Marx claims that man constantly proves the genericness and the non-specificity of his species-being through his life of labor and actions (*Gattungsleben*). Differently from any other animal, whose life immediately coincides with its instincts and specific ecosystems, man does not have any specific milieu and confronts the nature as a whole.[9] Instead of instincts man owns faculties, material and intellectual endowments that exist only as potentials, as a repertoire of possibilities which become tangible only when concretely actualized in time and space. Hence, what truly elevates man among the bare animal condition is the faculty of choosing and mentally planning his actions before actually doing something.[10] The common essence of human species resides in its innate ability to *project*, to externalize its inner potential and reduce the complexity of the world within the finite forms of spatial,

9 "The animal is immediately one with its life activity. It does not distinguish itself from it. It is *its life activity*. Man makes his life activity itself the object of his will and of his consciousness. He has conscious life activity. It is not a determination with which he directly merges. Conscious life activity distinguishes man immediately from animal life activity. It is just because of this that he is a species-being. Or it is only because he is a species-being that he is a conscious being, i.e., that his own life is an object for him. Only because of that is his activity free activity." Karl Marx, *Economic and Philosophic Manuscripts of 1844,* (New York: Prometheus Books, 1988): "Estranged Labour", par. XIV, 77-78.
10 In Marx's words: "A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality" Karl Marx, *Capital. A Critique of Political Economy,* trans. Ben Fowkes (New York: Vintage Books, 1977):Volume 1, ch.7.

temporal, cultural organizations.

For Marx man is the only animal able to negotiate with the eternal traits of his species and the contingencies of his immediate life at the same moment. The human "labor-power" represents the constant development of such an innate biological indeterminacy, which allows man to become what he is and everything he aspires to. Nevertheless, as potential, each human faculty is pure *dynamis*:[11] it cannot have a singular form per se as far as being effectually performed. Practically, in itself, a capacity does not exists. The potential is a void, an absence. Not by chance Paolo Virno rendered the idea of potential as an infinite basin of "non-present possibilities" which is juxtaposed to each singular action we perform at a precise time and in a specific place. Hence, any expression of the human labor-power, of such a "life-engendering life", needs to culminate in a form of *objectification,*[12] because only "in creating a world of objects by his personal activity, in his work upon inorganic nature, man proves himself a conscious species-being".[13] For Marx, the aim of human

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11 In this sense, the instinctual shortage of the human species constituted its highest source of freedom. Where animals are unconsciously bound within the sphere of their environment, men ceaselessly attempt to negotiate and construct their own autonomous milieu, an effort towards what Arnold Gehlen defined a sphere of "culture". In order reduce the worldly infiniteness within a controlled finitude of spaces, human beings always sought to shape their lives according to cultural frames, institutions, practices, rituals, disciplines, symbols, social organizations, codes of behavior: this act of delimitation and selection, not only ensured the survival of the species but also acknowledged the relativity of its living position within a larger context without disclosing any relation with other species. So, to Gehlen culture is something organic and proper of a "defective" nature such as the one of the human species: in fact, culture is what compensates its lack of an environment (*Umwelt*) and relieves a life within the generic openness of a world (*Welt*): each knowledge construction corresponds to an act of inclusion and framing. See Karl Marx, *Grundrisse: Foundations of the critique of political economy,* trans. Martin Nicolaus, (New York: Vintage Books, 1973), 267; Arnold Gehlen, *Man In the age of technology,* (New York: Columbia University Press, 1980) and Paolo Virno, *Scienze Sociali e "Natura Umana". Facoltà di linguaggio, invariante biologico e rapporti di produzione,* (Rubettino Editore, 2003).
12 Here it would be possible to remark the twofold use of the word estrangement: the idea of *Entäusserung,* or exteriorization, which is the necessary act through which an individual impress his own subjectivity upon the world through the objects of his activity; and the *Entfremdung,* or estrangement, when life and work are appropriated and separated from an alien or hostile entity. See Roberto Finelli, *Astrazione e Dialettica dal Romanticismo al Capitalismo. Saggio su Marx.* (Roma: Bulzoni Editore, 1987): 67.
13 "The object of labor is, therefore, the objectification of man's species-life: for he duplicates himself not only, as in consciousness, intellectually, but also actively, in reality, and therefore he sees himself in a world that he has created. In tearing away from man the object of his production, therefore, estranged labor tears from him his species-life, his real objectivity as a member of the species and transforms his advantage over animals into the disadvantage that his inorganic body, nature, is taken from him." Karl Marx, *Economic and Philosophic Manuscripts of 1844,* (New York: Prometheus Books, 1988): "Estranged Labour", par. XIV, 77-78.

labor is always a tangible expression, an externalization of its generic life.

On the other hand, precisely this necessary externalization of potential provided capitalism a fundamental basis for building up the most hideous process of division and separation, through which turning life into an inextinguishable source of value. By estranging man from his actions and products, he was also separated from the other men, and thus uprooted from his own generic species-being.[14] Capitalist estrangement, in fact, transformed the objectification of labor into a violent form of reversal: into a process of abstraction. Labor was no longer a medium of human projection and self-consciousness, but became a means of physical survival, elevated to a commodity and abstracted into a supreme principle of measurement. In order to be exchanged on the market, labor lost the specificity of its purposes and the relation to its performing subjects to become an homogeneous entity, a "labor sans phrase" as Marx defined it: not this or that labor but "a pure and simple activity, abstract labor; absolutely indifferent to its particular specificity, but capable of all specificities", uniform in quality and only different in quantity, indifferent from the modes of expenditure and from the concreteness of its use-value.[15]

This was a consequence of the thriving of exchanges, the extension of material activities, the growth of population, the rise of new needs and branches of production, which progressively established different social organizations and a technical transformation of the environment demanding more sophisticated instruments and a meticulous calculation of activities. Rapidly, the linear connection between man and his working tools was broken apart in a series of separated operations: as the quality of the traditional instruments was disassembled, specialized and arranged

14   *Ibidem,* XIV: "Similarly, in degrading spontaneous, free activity to a means, estranged labor makes man's species-life a means to his physical existence. The consciousness which man has of his species is thus transformed by estrangement in such a way that species[-life] becomes for him a means. Estranged labor turns thus: (3) Man's species-being, both nature and his spiritual species-property, into a being alien to him, into a means of his individual existence. It estranges from man his own body, as well as external nature and his spiritual aspect, his human aspect. (4) An immediate consequence of the fact that man is estranged from the product of his labor, from his life activity, from his species-being, is the estrangement of man from man. When man confronts himself, he confronts the other man. What applies to a man's relation to his work, to the product of his labor and to himself, also holds of a man's relation to the other man, and to the other man's labor and object of labor".
15 Karl Marx, *Grundrisse: Foundations of the critique of political economy*, trans. Martin Nicolaus, (New York: Vintage Books, 1973): Introduction, 103-105; Notebook III, 296.

into parts and functions of larger devices, so singular working activities were expropriated from their immediate products, divided and reassembled into collective working groups and larger manufactures. Such a drastic shift from craftsmanship to manufacture, from individual tools to machinery, from objectification of labor to its estrangement, from labor to a labor sans phrase, marked the crucial beginning of the modern capitalist production, or what Marx defined the passage from a "formal" to a "real" subsumption, where the total en-framing of technology and the abstraction of delirious equivalence established their foundations.[16]

On this account, in his *Introduction to a Contribution to a Critique of Political Economy* Marx enunciates a different definition of abstraction assuming, against all the previous theories, that the categories used in economy – such as value, labor, private property, etc. – which had always been considered as purely logical speculations, were instead absolutely concrete because generated within the social and material conditions of production. In this sense, abstraction was not mental but *real*: it did not have a logical but an historical genesis being "consubstantial" to the same social evolution of capitalist production:[17] the more capital grew in its variations and differences, extending across all the spheres of society, the more abstraction became simple and objective. As Marx clearly stated: "as a rule, the most general abstractions arise only in the midst of the richest possible concrete development, where one thing appears as common to many, to all."[18]

Therefore, only in a society where labor became so widely articulated and diffused, regularized and dissected in thousands of variations and specializations, its definition could have been generalized under the common label of "labor without qualities". In this sense, as Finelli remarks, real abstractions should never be conceived as universal concepts or as purified logical distillations but always in their intrinsic tangible and differential origin, being the fruit of endless combinations

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16 Which is to say from a phase in which the logic of surplus was simply injected into the existing systems of manufactures, to a phase in which the life of the workers and the society at large became "parts" of the extended cycle of capitalist production.

17 See Roberto Finelli, *Astrazione e Dialettica dal Romanticismo al Capitalismo (Saggio su Marx)*, (Roma: Bulzoni Editore, 1987): 118-123.

18 Karl Marx, "The Method of Political Economy" in *Grundrisse: Foundations of the critique of political economy*, trans. Martin Nicolaus, (New York: Vintage Books, 1973): 104.

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and reflecting social objective generalizations.[19] Thus, abstraction was not anymore that simple mechanism of reversal of the human nature but here became a true autonomous principle of reality, able to establish its own totality and its technical validating categories. In other words, this passage epitomized the "becoming subject" of capital, hypostasized as an impersonal and universal frame of reference that, in itself, remains devoid of determination being every time deduced from the contingent social development and from the potential of the subsumed workers.[20]

2. *Labor sans phrase*

> "The reason for this reduction is that in the midst of the accidental and ever-fluctuating exchange relations between the products, the labour-time socially necessary to produce them asserts itself as a regulative law of nature. In the same way, the law of gravity asserts itself when a person's house collapses on top of him. The determination of the magnitude of value by labour-time is therefore a secret hidden under the apparent movements in the relative values of commodities."
>
> – Karl Marx[21]

Only when real abstraction is "posed" and not just presupposed, it becomes an objective determination, an abstraction capable of reality. Not only. Once assumed as principle, as a *real* abstraction, it builds up its own system of reference, developing its conventions and rules, its own technicity. For example, Marx takes the labor sans phrase as a paradigm, assuming it as a result of the proliferation of working activities

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19 "[W]ithin the society of capital, abstraction assumes the evidence of a matter of fact (...) alluding to a universal not as a mere logical form but to a universal paradoxically capable of reality". See Roberto Finelli, *Astrazione e Dialettica dal Romanticismo al Capitalismo (Saggio su Marx)*, (Roma: Bulzoni Editore, 1987), 124.
20 Alberto Toscano, "The Open Secret of Real Abstraction", *Rethinking Marxism,* Vol. 20, No. 2 (Autumn, 2008), 275.
21 Karl Marx, *Capital. A Critique of Political Economy,* trans. Ben Fowkes (New York: Vintage Books, 1977), Volume 1, ch.1, 168.

at a social scale. But what was the true reason that made labor "without quality", and thus measure for any labor in general? In one word: *exchange*. The estrangement of labor, in fact, appropriated and separated into private properties what once was shared and lived in common, atomizing and specializing production while transforming workers in strangers and actions in "practical solipsism". In this sense, the only way to realize a social synthesis within such a reciprocal individualism was to create a system of exchange, considering any form of relation as a purchase and sell of commodities.

Nevertheless, any act of exchange demands the commensurability of the exchanged commodities: a system of reference to calculate their magnitude and substance independently from their embedded use-values, from the individuality of buyers and sellers and from their private issues. If considered as use-values, commodities are all different and unique because of their intrinsic properties and their specific relations with users, whereas as exchange-values commodities presuppose an equality which necessarily exceeds any singular qualitative determination. Within any transaction, in fact, both space and time are supposed to remain continuous and homogeneous since commodities cannot be altered in shape or in their essential consistency. So, by virtue of the exchange process, abstraction reveals itself as an immediately tangible and operative process, transforming singular qualities of use-value into quantitative amounts of exchange-value and therefore validating the totality of capitalist production as a general frame of reference.[22] In other words, whenever something is exchanged, it becomes implicitly quantified and stripped of all its peculiar features according to a uniform denominator – the "labor sans phrase" – whose social abstract objectivity determines the value of everything.

In this sense, adopting the epistemological perspective advanced by Alfred Sohn-Rethel in his *Intellectual and Manual Labor*, the abstraction of commodity exchange did not only marked the beginning of a capitalist "zweite Natur" – of a purely social synthetic nature based on the cycle of production, circulation,

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22 "This is an abstraction not in mind, but in fact. It is a state of affairs prevailing at a definite place and lasting a definite time. It is the state of affairs which reigns on the market." See Alfred Sohn-Rethel, *Intellectual and Manual Labor. A Critique of Epistemology.* (London: The MacMillan Press LTD, 1978): 41.

distribution and consumption – but it also provided the conceptual ground for mathematical and social sciences to erect autonomous systems of knowledge and to hypostatize notions which would eventually reverberate on man himself. The Heideggerian *en-framing*, in this perspective, became possible only because of the double reversal of capitalist abstraction, able to rise and twist concepts derived from the differences of reality into logical universals.

Sohn-Rethel demonstrates that the whole evolution of cognitive abstraction, as well as all the forms of human rationality, were simple reflections of the proliferating practices of exchange: from the very first redistribution of surplus production in ancient Egypt, where the first geometrical measurement of land permitted an equal division of the harvest and the tributary exchanges between the Pharaoh and the peasants; to the spread of coinage in the 7th and 6th century B.C., characterized by the mathematical theories of Pythagoras, the rise of Greek philosophy and Euclidean abstract geometrical demonstrations; through the establishment of international banking and credit systems in the 13th century to finance the merchant explorations, which resulted in the evolution of mathematical calculus, perspectival geometries, medicine and chemistry experiments; to the 17th century, when Galileo literally translated the real abstraction of commodity exchange into the modern laws of physics and inertial motions. In other words, the more the requirements of exchange expanded across the planet – extending their homogeneity of time, space, matter, quantity, motion – the more they constructed a "kind of abstract framework into which all observable phenomena are bound to fit" and to which every space and time of production should have been planned accordingly.

Through the long historical development of cognitive notions, the passage occurring between the 15th and the 17th century represented for Sohn-Rethel one of the most crucial moments, when the absolute precision of mathematics superseded the approximate world of craftsmanship, in parallel to the large expropriations of common lands and natural resources which created masses of future proletarians, deprived of everything except for their innate working capacity. Above all, for Sohn-Rethel it was development of firearms and war-machines that truly imposed the domain of mathematics and technology as an hidden foundation of every human

activity, especially in architecture. The evolution of artillery, in fact, demanded a prompt measurement of the fire-trajectories and an accurate survey of the opponent defense, which resulted in a new designs of bastions and city walls, wide rearrangements of the urban fabrics and new typologies.[23] This not only changed the city form but it revolutionized the way of measuring, representing, designing and thus constructing architecture. The subjective vanishing-point of the *costruzione legittima,* for example, was gradually replaced by the neutral objectivity of the axonometric view, deduced by dissecting reality into orthogonal projections and dissolving the single view-point into a bundle of rays posed at an infinite distance. In this sense, the emergence of isometric architecture, the affirmation of the technical paradigm and thus the development of the typical plan were unavoidably linked to the Renaissance real abstraction and the construction of war-machines.

3. *War-Machines*: four passages

> "La sollecitudine adunque, e il pensiero , che si ha di piegar la natura a nostra utilità, ci fa machinare"
>
> – Daniele Barbaro

The term "machine" comes from the Latin term *machina* standing for "medium, tool, plot, scaffold" and its earliest use appeared in the II century B.C famous Ennius alliteration "machina multa minax minitatur maxima muris", describing a giant machine menacing walls and ramparts of cities".[24] Two centuries later, in Vitruvius'

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23 *ibidem,* 113 : "The use of firearms was confined to guns for artillery, and in this capacity created problems completely new and alien to artisan experience and practice - problems such as: the relationship between the explosive force and the weight of cannon and range of fire; between the length, thickness and material of the barrel; between the angle and the resulting path of fire. Metal-casting assumed new proportions, as did the mining of ore, the demands of transport and so on. Special importance accrued to military architecture for the defense of cities and harbors. From the fall of Constantinople to the Turks in 1453 well into the sixteenth and even seventeenth century the Turkish menace hung over Europe like a nightmare." See also the famous Massimo Scolari "Elements for a History of Axonometry", in *Oblique Drawing. A History of Anti-Perspective,* (London and Cambridge Mass.: The MIT Press, 2012).
24 Ennius, *Annales,* (621, V)

De Architectura, the only surviving architectural treatise of antiquity, the term *machina* found its first complete definition as a "coherent combination (*coniunctio)* of materials with the virtue of moving (*motus*) heavy loads."[25]Yet, its etymological origin could be extended back to the Greek *mechané* (or *mechós)* "means, expedient, remedy"*,* and even further to the ancient Indo-European root *mahg*-: "that which enables" or more generally "power" or "capability".[26] Within this wider perspective, the idea of machine seems not only to exceed the simplicity of the tool, but also to attain an ambiguous spatial and intellectual combination being deployed both as a physical and mental device: a war-machine, in fact, did not discern any difference between a weapon or a strategic plot. Moreover, as Vitruvius pointed out, while the instrument, the *organum,* was a simple extension of the human limbs and thus related to the actions of a single person – like the craftsman with his working tools – machinery were instead governed either by great natural sources of power, or by a number of people, or even acting autonomously, as a system of interconnected parts with their intrinsic logic (*automata*).[27]

The construction of machines was in fact a practice known since ancient times, especially in architecture. In his *De Architectura*, Vitruvius considered the fabrication of mechanical devices, the *machinatio*, as one of the three fundamental disciplines of architecture, beside the proper art of construction, the *aedificatio*, and the realization of sundials and measuring tools, or *gnomonice*, useful to orient, order and distribute cities, territories and infrastructures. As soldier and carpenter for Julius Cesar, in fact, Vitruvius was genuinely moved by a technical and scientific interest towards architecture, a discipline he considered constantly on the verge

25 From the Latin "machina est continens e maxima coniunctio maximas ad onerum motus habens virtutes". See Vitruvius, *De Architectura,* translated by Morris Hicky Morgan, (New York: Dover Publication Inc., 1960), Book X, ch.1,1.
26 The Indo-European root *magh-* traceable in Latin words such as 'magic' (*magia*), 'great' (*magnus*) or in the Greek 'trick' (*mèchos*), or in the German 'force' (*macht*). See Gerald Rauning, *A Thousand Machines,* (Los Angeles: Semiothext(e), 2010), 36.
27 Vitruvius, *De Architectura*, translated by Morris Hicky Morgan, (New York: Dover Publication Inc., 1960), Book IX, Ch. 8,4 and Book X, ch.1,3. The reference to *automata* was referred to the hydraulic devices by Ctesibius (*automatopoeetasque machinas multaque deliciarum genera*): "having thus observed that by the compression and concussion of the air, sounds might be produced, he made use of the discovery in his application of it to hydraulic machines, to those automata which act by the power of inclosed water, to lever and turning engines, and to many other entertaining devices, but principally to water dials."

between speculation and fabrication, *ratiocinatio* and *fabrica,* the application of materials and the rational understanding of their properties.[28] Such a cognitive dialectics for Vitruvius coalesced in the most distinctive human faculty, the *sollertia,* namely that particular synthesis of cunning intuition and practical knowledge that men instinctively deploy against the adversities of life. In fact, whether in taming the conditions of nature, or in the midst of a conflict or in a political dispute, the efficacy of human ingeniousness for Vitruvius emerged always in moments of danger, when hostile conditions demanded prompt responses and tactics of survival. In a way, the Vitruvian *sollertia* could be conceived as the complementary praxis to that aforementioned tendency to *project* which for Marx distinguished man from animals,[29] whose combined deployment lay at the core of *machinare:* the art of constructing material and abstract machines, of turning the laws of nature in wooden frames, pulleys, and cogs but also the art of reversing adversities into tactics to defeat adversaries. The architect for Vitruvius was truly a "machinator" more than a *mechanicus,* a strategist more than a technician, for he realized means to serve the scopes and the ideas in his imagination. This becomes explicit in the tenth last book of his treatise, which deals with a very broad range of knowledge regarding the construction of mechanical devices: from juridical prescriptions concerning the maximization of building expenses; to functional analyses of civil machines for transporting weights, rising water or extracting materials; to a general account of physical laws; to detailed explanations of attacking and defensive apparatuses;

28 Daniele Barbaro, a famous exegete of Vitruvius who publish a first commented Italian version of the treatise in 1556 and a second Latin edition with illustrations by Andrea Palladio, translated the combination as *fabrica* and *discorso*: "Essa [architecture] nasce da *fabrica* e da *discorso*. Fabrica è continuo et essercitato pensiero dell'uso che di qualunque materia, che per dar forma all'opera proposta si richiede, con le mani si compie. Discorso è quello che le cose fabricate prontamente e con ragionevole proporzione può dimostrando manifestare." See *I Dieci libri dell'Architettura. Di M. Vitruvio, tradotti e commentati da Mons. Daniel Barbaro eletto Patriarca d'Aquileia, da lui riueduti e ampliati; e hora in piu commoda forma ridotti* (Appresso Francesco de'Franceschi Senese et Giovanni Chrieger Alemano compagni: Florence, 1567), 9

29 On this account, Barbaro's comments to the virtues of the Vitruvian *sollertia* closely resemble the same passage in Marx. Defining it as the "proper feature of the human species", the one that provides the means to connect principles and scopes of human actions and which truly distinguishes the human intellect from the simple animal instincts, the "Solerzia non è altro che sùbita e pronta invenzione del mezo. E quello è mezo che, avendo convenienza con gli estremi, lega quelli ad uno effetto, e però nella solerzia si può dire che sia la virtù del seme. Laonde Vitruvio usa quella parola prontamente, che nel latino dice *solertia*."

concluding with a praise to the architect's *sollertia,* and to the elaboration of stratagems to undermine the hostile forces of the enemy at war.[30]

In short, the whole Vitruvius' *De Architectura* could be conceived as a constant combination of material and mental war-machines, fruit of that abstract calculative thinking which for Sohn-Rethel arose with land survey techniques and tax regulations. The treatise was elaborated during the largest extension of the Roman Empire and in parallel to the evolution of a protocolar administration of cities and colonies based on the rules of the *castrametatio,* the temporary or stable military encampment, whose rigid delimitation and uniform distribution of barracks could almost be conjectured as the true ancestors of the typical plan. To Vitruvius, the order of military encampment equaled the rules of architecture itself, as the procedural schemes of the machine's assemblage equaled the instructions of the *castramentatio*. In the very first book of the treatise, he claims that architecture is a complex discipline, composed of different spheres of knowledge but nevertheless reducible to a set of principles, which faithfully respect his military training: *ordinatio*, standing for Greek *taxis,* which means ordering according to quantity; *dispositio*, standing for *diathesis,* which is the regular arrangement of parts according to the whole; *eurythmia*, or the proportional relation of the inner parts of a plan; *symmetria,* or the complementary correspondence of the elements within the composition; *decore,* or the proper suitability to customs, rules, traditions and natural conditions; and finally *distributione,* standing for the Greek *oikonomia*, which is the appropriate disposal of site, building procedures and expenses. All of them found a direct application in the settlement of cities, from the main central crossing of streets and the outer delimitations of walls, to the inner disposition of buildings according to the topography of the site, to the direction of winds, the presence of water, the healthiness of the climate: as for machines and military settlements, the city had to correctly convey all the natural forces of the site within the economy of an ordered architecture, to ensure the healthy life of its inhabitants and its resistance in times of hostility.

30 Bernard Cache, "Vitruvius Machinator Terminator", *Projectiles,* (London: AA Publications, 2011), 119-139.

1.3 Vitruvius, *De Architectura*, Book X (Fra Giocondo,1511). Machine for defense X,16; Ballista, X,10;Hoist machine X,2 and the foundation of the city according to the winds and in form of a *castrum* (I,6)

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In particular, when referring to the act of disposition, Vitruvius mentioned three different ways to create architectural forms, three ordering "ideas": the *ichnographia*, or the ground plan of an object, measured in its length and width; the *orthographia*, or the elevation measured in its vertical extension; and the *scaenographia*, to show the front and the receding shadowed side with all its interior parts.[31] By deliberately adopting the term *idea* – deriving from the Greek *eidos* (εἶδος) standing both for "that, which is seen", "form" or "shape" but also for "notion" – Vitruvius emphasized the specificity of the architectural drawing whose abstraction directly implied a form of execution. Again *fabrica* and *ratiocinatio:* the idea of the plan was not dissimilar from the modular nature of war-machines, for it implied a concrete ordering of reality according to the disposition and distribution of its forces into measurable quantities. In the treatise, in fact, there were no illustrations of machines but only detailed descriptions, abstract sets of instructions which could have been applied everywhere. Machines were first of all schemes, ideas, than actual built models:

31 Vitruvius wrote "Scaenographia est frontis et laterum abscedentium adumbratio ad circinique centrum omnium linearum responsus." The interpretation of this passage is still uncertain. If many translated it with *perspective*, in relation to the theatrical *scenography*, here we would like to privilege the other hypothesis for *skiagraphia,* or cross-section, referring to the depiction of side shadows in a measured side representation without shortenings. Perspective, in fact, was an unreliable instrument of measurement and the especially in the Renaissance translations of Vitruvius, the idea of 'section' was often preferred to perspective. On this account, for example, Alberti in his *De re aedificatoria* remarks the difference between the two terms: "there is this difference: the former endeavors to portray objects in relief on the panel through shading and the shortening of lines and angles; the architect instead, avoiding shading, represents reliefs through a plane drawing, and represents in other drawings the form and extension of each facade and each side utilizing real angles and non-variable lines, as one who desires that his work not be judged on the basis of illusory appearance, but evaluated exactly on the basis of a controllable measurements". On the same line Daniele Barbaro translates "Le idee della dispositione sono queste la pianta, lo in pié, il profilo. La pianta è un moderato uso della sesta, e della regola, dal quale si piglia il disegno delle forme del piano. Lo in pié è la immagine dritta della fronte, e della figura con modo dipinta, con le ragioni dell'opera, che li deve fare. Il profilo è adombratione della fronte e dei lati che si scostano e una rispondenza di tutte le linee dal centro della sesta." and then comments "La terza idea è il profilo, detto sciografia, dal quale grande utilità si prende, perché per la descrittione del profilo si rende conto delle grossezze de i muri, de gli sporti, delle ritrattioni d'ogni menbro, e in questo l'architetto come Medico dimostra tutte le parti interiori e esteriori delle opere e però in questo ufficio ha bisogno di grandissimo pensamento, e giudicio, e pratica, come à chi considerta gli effetti del profilo è manifesto: perché la elevatione della fronte e la mestà non dimostra gli sporti, le ritrationi, le grossezze delle cronici, de i capitelli, de i basamenti, delle scale e d'altre cose, però è necessario il profilo".
Daniele Barbaro, *I Dieci libri dell'Architettura. Di M. Vitruvio, tradotti e commentati da Mons. Daniel Barbaro eletto Patriarca d'Aquileia, da lui riveduti e ampliati; e hora in piu commoda forma ridotti* (Appresso Francesco de'Franceschi Senese et Giovanni Chrieger Alemano compagni: Florence, 1567): 29-30.

what truly mattered was the dynamic principle, the modularity and proportional relations of their inner parts rather than their effective shape, which might vary according to the resources available on site.[32] In this sense, Vitruvius derived the whole art of *projecting,* of throwing projectiles, from the multiple of a base module, which in the case of scorpions and catapults depended "on the length of the arrow that the instrument is to throw", while in the case of ballistae upon the proportional relation between the diameter of the hole of the torsioned cable mechanism and the weight of projectiles, for which he even provided a table of reference.[33]

For these reasons, by assembling natural, human and intellectual energies within a unique object, war-machines required already an higher level of abstraction, a *real* abstraction derived from experience, to replicate reality into schemes and compose its different forces eliminating their contingent imprecisions: their working dynamism implied the homogeneity of a calculated space ensuring the correct disposition of parts, the balanced distribution of power and an efficient

32 For example, in the case of *ballistae*, Vitruvius explained that there were various and different ways of constructing them "though contrived to produce similar effects. Some of these are worked by windlasses, others by systems of pulleys, others by capstans, and others by wheels: no ballista, however, is made without regard to the weight of the stones it is intended to throw. Hence the rules will only be understood by those who are acquainted with arithmetical numbers and their powers." Vitruvius, De Architectura, translated by Morris Hicky Morgan, (New York: Dover Publication Inc., 1960): Book X, Ch. 11,1.

33 While for the proportions of temples rested upon an undefined modular dimension, the variable human feet, machinery, and especially war-machines, already presented parametric relations between their constituent elements, quantities and movements, such as the formula linking the diameter of the sinew to the weight of the stone to be catapulted by the ballista. "For instance, holes are made in the capitals, and through them are brought the cords, made either of woman's hair, or of gut, which are proportioned to the weight of the stone that the *balista* is to throw, as in the *catapultæ* the proportions are derived from the length of the arrow. But that those who are not masters of geometry and arithmetic, may be prepared against delay on the occasions of war, I shall here state the results of my own experience as well as what I have learnt from masters, and shall explain them, by reducing the Greek measures to their correspondent terms in our own. 3. A *balista* capable of throwing a stone of two pounds should have the hole (foramen) in the capital five digits wide; for a stone of four pounds, six digits; for a stone of six pounds, seven digits; for a stone of ten pounds, eight digits; for a stone of twenty pounds, ten digits; for a stone of forty pounds, twelve digits and nine sixteenths; for a stone of sixty pounds, thirteen digits and one eighth; for one of eighty pounds, fifteen digits; for one of one hundred and twenty pounds, one foot and a half and a digit and a half; for one of a hundred and sixty pounds, two feet; for one of a hundred and eighty pounds, two feet and fivefold digits; for ●one of two hundred pounds, two feet and six digits; for ●one of two hundred and ten pounds, two feet and seven digits: and lastly, for ones of two hundred and fifty pounds, eleven feet and a half." Vitruvius, *De Architectura,* translated by Morris Hicky Morgan, (New York: Dover Publication Inc., 1960): Book X, Ch. 11,2-3. See also Massimo Scolari, *Oblique Drawing. A History of Anti-Perspective*, (London and Cambridge Mass.: The MIT Press, 2012): 254-255; and Bernard Cache, "Vitruvius Machinator Terminator", *Projectiles,* (London: AA Publications, 2011): 119-139.

exchange of energies. Therefore, in the very form of machinery, the objectification and the further estrangement of labor became a self-explanatory processes. At a first stage, machines were in fact combinations of natural and human forces, based on the selection of physical energies such as sun, water, wind or gravity, conveyed to amplify and thus externalize human labor-power. In a later stage instead, once effectively understood in their inner functioning, natural forces and human gestures were sectioned and reproduced into separated parts, re-assembled and put at work within dynamic mechanisms of exchange and vicious cycles of valorization: only then labor-power could have been transformed into a pure supply of energy, in labor sans phrase.[34]

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"La bontà delle fortezze sta nell'artificio della pianta anziché nella grossezza de' muri."

– Francesco di Giorgio Martini[35]

During his whole life, Francesco di Giorgio Martini sought to transform the Vitruvian *machinatio* into a real science, supported by appropriate visual and methodological explanations. It could be thus affirmed that the core of his whole architectural and theoretical production was already contained in the *Codicetto*, a notebook he offered to Federico da Montefeltro, which included hundred drawings of machines, pumps, watermills, wheels and other technical devices.[36] When

34 "But, once adopted into the production process of capital, the means of labor passes through different metamorphoses, whose culmination is the machine, or rather, an automatic system of machinery(system of machinery: the automatic one is merely its most complete, most adequate form, and alone transforms machinery into a system), set in motion by an automaton, a moving power that moves itself; this automaton consisting of numerous mechanical and intellectual organs, so that the workers themselves are cast merely as its conscious linkages." Karl Marx, "The Fragment on Machines", *Grundrisse* (London: Penguin Classics Reprint edition: 1993): 692.
35 "The efficacy of fortresses lies in the ingeniousness of their plans rather than in the thickness of their walls." Francesco di Giorgio Martini, *Trattato di Architettura Civile e Militare,* (Turin: Chirio and Mina Typography): Book V, Ch. IV.
36 The *Codicetto* represented the state of art of the 15th century *machinatio*. Most of the machines were annotations from his master's books Mariano di Jacopo, known as Taccola, who introduced Di Giorgio to the

Martini definitely moved to the court of Urbino, around 1475, he had already been a renowned hydraulic engineer, responsible for the entire underground aqueducts of Siena, the so-called *bottini*.[37] Di Giorgio was in fact a passionate machinator and expert of antique treatises on machinery, being trained in the workshop of Taccola, a famous inventor and engineer from Siena, who introduced him to the mechanical studies of Ghiberti, Brunelleschi, Fioravanti, Sangallo and Valturio.[38]

In his first treatise, Di Giorgio drew and imagined large series of machines which he literally defined *edifizi,* or "buildings".[39] These devices were sort of scale-less open boxes always represented in cross-section, horizontally or vertically partitioned with floors and rooms, showing internal concatenations of cogs, wheels and gears enclosed within wooden or masonry frames. In other words, they embodied the primitive technical essence of the typical plan: a building simply reduced to a load-bearing structure, a mechanical core and a delimiting envelope. The drawings were elementary and undecorated. Differently from his predecessors, Di Giorgio did not contextualize his machines within natural settings but he simply left the drawings right beside the text or in empty folios. The accuracy of the *disegno* was fundamental: all machines were in fact represented in parallel or axonometric projection to ensure
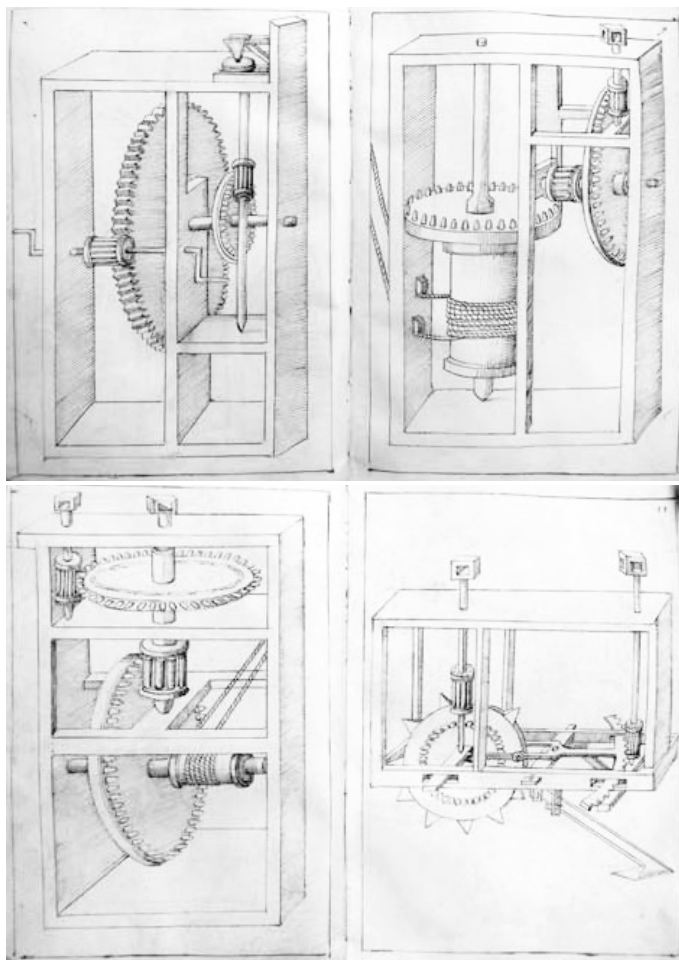
1.4

elevator systems invented by Filippo Brunelleschi in Santa Maria del Fiore, the building and transportation machines used by Aristotele Fioravanti in Rome during Nicolò V *renovatio*, which were also recorded by Leon Battista Alberti, Buonaccorso Ghiberti and Giuliano Sangallo. Beside Vitruvius' book on machinery, Di Giorgio found another important reference in Roberto Valturio's *De re militari*. On the *Codicetto* see Francesco Di Giorgio Martini, *Taccuino*, (Cod.Urb.Lat.1757. Seconda Metá del 15th Sec.), commented by Luigi Michelini Tocci, (Milano: Jaca book, 1991. In general, among the vast literature on Francesco Di Giorgio, see Francesco Paolo Fiore, Manfredo Tafuri, *Francesco di Giorgio architetto,* (Milano: Electa, 1993); Francesco Di Giorgio Martini, *Trattati di architettura, ingegneria e arte militare,* edited by Corrado Maltese, translated by Livia Maltese (Milan: Il Polifilo, 1967). About Taccola see Frank D. Prager and Gustina Scaglia, *Mariano Taccola and his Book De Ingeneis*, (London, Cambridge, Mass.: MIT Press, 1972).

37 As Vitruvius taught, the art of finding, extracting and transporting water, was a quintessential knowledge for an architect, since water constituted the fundamental source of energy to manage the city and the health of its population.

38 Mariano di Jacopo, better known as Taccola, (1382 – ca.1453) the "Sienese Archimedes" was famous for his 4 books treatise *De Ingeneis,* and the other treatise *De Machinis,* concerning engines and machines.

39 Francesco di Giorgio Martini, *Trattati di Architettura Ingegneria e Arte Militare,* edited by Corrado Maltese, (Milano: Il Polifilo, 1967): Vol.1, 142: "E per simili ragioni le lieve delle rote son da fare, e massime in molti vari *edifizi,* come di mulini e altre cose che di continovo all'architetto occorrendo accade, siccome qui di sotto alcune formazion d'esse figurate mostraremo. Quantunque difficil sia in *disegno* cosa demostrare, neanco per scrittura in alcun modo molte cose spriemar non si può, perché son tante le varietà delle cose interrotte e opposite l'una all'altra che a occupare si vengano, e però è necessario quasi di ciascuna cosa modello fare."

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1.4 Francesco di Giorgio Martini, *Trattati di Architettura, Ingegneria e Arte Militare* (1478-82). Some early examples of mechanic mills in form of *edifizi* in oblique drawing.

1.5 Francesco di Giorgio Martini, *Codice Santini* (Urbino, 1475). [X 8v, XI 9v, XII 10v, III 2,v.] Mills, winches and plows in oblique and axonometric drawing.

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the measurability of the parts and to facilitate the three-dimensional understanding of their functioning.

Only the flow of water was emphasized and sometimes even colored, being the main source of automatic movement: for the rest, there were neither people, nor ornaments, not even landscaped backgrounds. For Di Giorgio, in fact, the source of all machines were natural elements, and in particular water, the mildest source of energy. As *mastro di bottini*, Di Giorgio in all of his treatises took in large account the management of water. The art of finding, extracting and transporting water, in fact, constituted not only a quintessential knowledge of the architect – being water fundamental to ensure the healthy development of the city and its population – but it also required the absolute continuity and integration of its related infrastructures.[40] Precisely this marked interest for the hydraulic technologies represented also a tacit metaphor for Di Giorgio's machines and civil architecture, which he himself often compared to the human circulatory system, necessary to distribute the bodily *humores* to organs and limbs ensuring a balanced life. And not by chance, his first commissions for Federico da Montefeltro were a series of both hydraulic and mechanical interventions to be realized within the articulated complex of the Duke Palace in Urbino, whose construction began with Luciano Laurana in the mid of the XIV century. Di Giorgio improved the internal circulation, the water management and the heating system of the building without compromising any previous articulation of the Palace, carefully positioning a discreet number of autonomous architectural devices enclosed within rigid boundaries: the helicoidal ramp close to the main hall, for example, which provided a complementary vertical access from the square and parallel to the main but inefficient *scalone*; the pensile garden, reoriented by the opposite round volume of a new ramp and by the open facade towards the landscape; the underground system of water cisterns, cellars, sheds, deposits, storages, kitchens, furnaces, fireplaces, chimneys stoves, and the

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40 On this account, in a chapter on fortresses and city planning, Di Giorgio rightly recalls the Vitruvian figure of Dinocrates of Rhodes, who proposed a fortified city to Alexander presenting on his left hand the model of the city and on his right hand a bowl to receive the water of all the streams that are in the mount Athos. See rancesco di Giorgio Martini, *Trattati di Architettura Ingegneria e Arte Militare,* edited by Corrado Maltese, (Milano: Il Polifilo, 1967): Vol.2, 361-362.

icehouse; the dynamic spatial concatenation of the private *studiolo*, bath and chapel for Federico; and finally, the formidable cylindrical bastion at the base of the palace overlooking the valley, containing an helicoidal ramp and four cannon-posts connected with the rectangular volume of the stables, which provided a fast connection with the lower area of the market, or *Mercatale*. Despite working within the larger complex of the palace, this archipelago of volumes were technical objects with their own autonomous logic. As hydraulic machines, these punctual interventions were in fact a concatenation of complex intersected volumes, pipes, basins, barrel vaults and pavilions, which resembled his schemes for fireplaces, water ducts and pumps, all elements which had been often neglected in previous architectural treatises, even in Vitruvius.

1.6

This urge for delimiting spaces in a clear spatial continuity, constituted a constant cipher of Di Giorgio's work, remarking the hydraulic and mechanical nature of his architecture. A technical approach which clearly emerged in his elaborations on the architecture of the city, conceived both as a military fortification and as a system of collective production that needed to be contained within a recognizable *ricinto*, or "outline": a technical term he often used for the scaffolds of his mechanical *edifizi*. Similarly to machines, Di Giorgio's research on fortifications and urban plans moved from a diagrammatic list of polygonal schemes, a set of primitive typical plans. Simple variations – from squares to diamonds to triangles – which constituted the formal basis for the sharp perimeters of the ramparts but also for the limits of the urban blocks and the positioning of technical facilities: the water basin, the mill, the furnace and the *castellano*, or prime tower.[41] The problem of fortifications verged on the protections of its curtains from flanking attacks and Di Giorgio was among the firsts to modulate the walls with sharp fugitive edges and circular corner donjons (*orecchioni*): all of the proposed schemes resulted in simple

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1.8

1.9

41 "Avendo adonque fra me esaminato quale figura alle mura fusse più conveniente et utile, ho concluso nelli circuiti la forma del rombo e del romboido essere assai perfetta; apresso a queste lo equilatero e lo equicuro e 'l diversilatero similmente. El quadrangulo ancora, ortogonio, pentagono, esagono et altre angulari figure. Et è da sapere che quanto è la fortezza e circuito grande, tanto più angoli richiede la sua forma, ma tutte indifferentemente, secondo che pate el sito e la proporzione del circuito, si possono mettere in uso." Francesco di Giorgio Martini, *Trattati di Architettura Ingegneria e Arte Militare,* edited by Corrado Maltese, (Milano: Il Polifilo, 1967): Vol.2, 431, *Codice Magliabechiano II.I.141, f.*51V, tav. 242

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enclosures of maximum economy, adapted to profit of the topographical conditions and minimized to expose the least disposable surface to frontal assaults. In the Rocca at Sassocorvaro, for example, two circular bastions and a central triangular edge strategically protect the highest access to the city, controlling the surrounding valley. The particular assemblage of volumes, presumably influenced by Valturio's *De re militari,*[42] opposes a scarp basement to an expanding cantilevered wall, horizontally delimited within a series of stone cornices. The exterior organic shape of the fortress was regulated by the severe composition of its inner courtyard, surrounded on three sides by a porch and centered on the main tower. Civil and military, residential and communal architectures were merged within a unique apparatus, whose perfect functional distribution of spaces culminated in the stoic simplicity of the squared columns, devoid of orders and homogenized by a continuous double *ricinto*.

Nevertheless, Di Giorgio technical abstraction culminates in his drawings for palaces and houses, in which the hydraulic and mechanical logic of concatenation was merged in a stylized articulation of rooms. The whole architectural language was reduced to a series of integer elements: walls, openings (door or windows), single supports (columns or pilasters), staircases and services. Since the rational connections among the elements were far more important then their formal succession or juxtaposition, the different typologies could have never extended beyond a certain size. Hence, all the compositions rotated around the empty core of the *cortile,* often surrounded by a distributive loggia.[43] As in the fortresses, in fact, the courtyard established the modular rule for the whole building, the length and the width of the main hall, the position of the staircases and accesses: often, its

42 Beside Roberto Valturio, *De re Militari* (1454), see also Vittorio Marchis, "Macchine tra realtà e fantasia. L'orizzonte tecnico di Roberto Valturio", in *Le macchine di Valturio: nei documenti dell'archivio AMMA* (Torino, 1988): 117-142.

43 The *cortile* embodied the distributive center of the building, corresponding to the Albertian *sinus* (V, 17)*,* and often coupled with an *atrium*, the Vitruvian *cavum aedium* (VI, 3), which constituted the semi-open centre of the traditional Roman house. Di Giorgio gives precise rules for the proportional ratios of the atrium: "L'atrio overo ridutto si può fare in tre modi, e così le sale perché hanno una medesima simmetria. El primo è ch'el se divida la sua lonhezza in parti 5, e 3 di quelle sia la larghezza; el secondo che si divida in parti 3, e due di quelle sia la larghezza. (...) See Francesco di Giorgio Martini, *Trattati di Architettura Ingegneria e Arte Militare,* edited by Corrado Maltese, (Milano: Il Polifilo, 1967): Vol.2, 345-346, *Codice Magliabechiano II.I.141, f.*17V, tav. 194
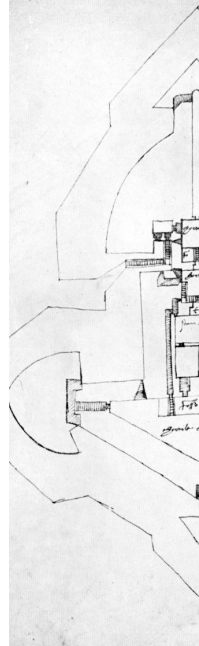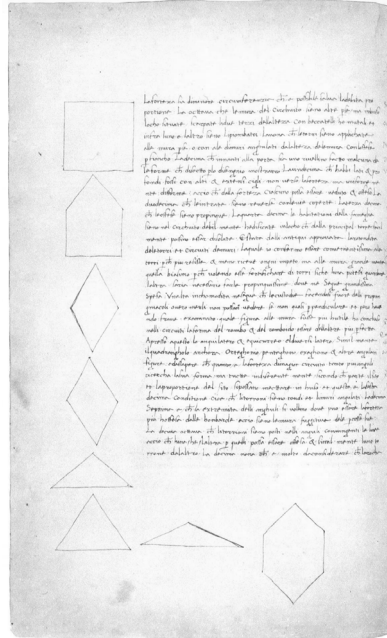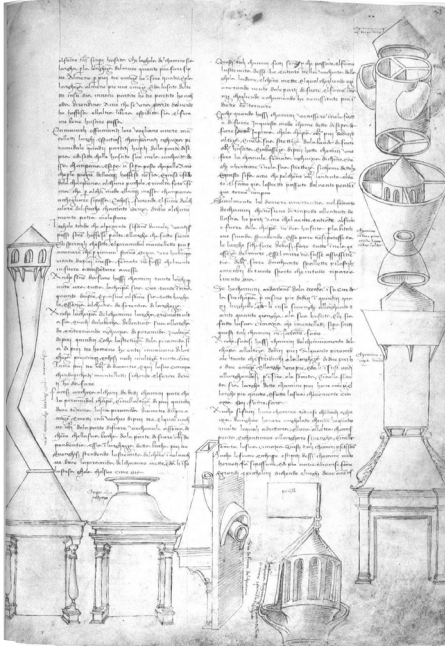
1.6 Francesco di Giorgio Martini, *Trattati di Architettura, Ingegneria e Arte Militare* (1478-82). Chimneys and ventilation systems.
1.7 Francesco di Giorgio Martini. *Trattati di Architettura, Ingegneria e Arte Militare* (1485-87). Basic perimeters of fortresses according to Euclidean geometric figures.

Real abstraction and labor sans phrase
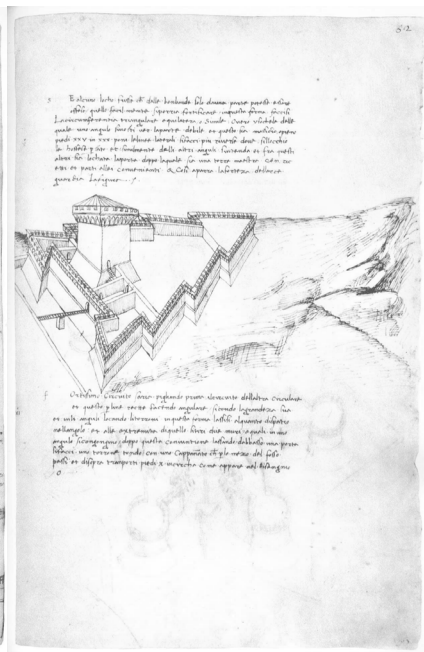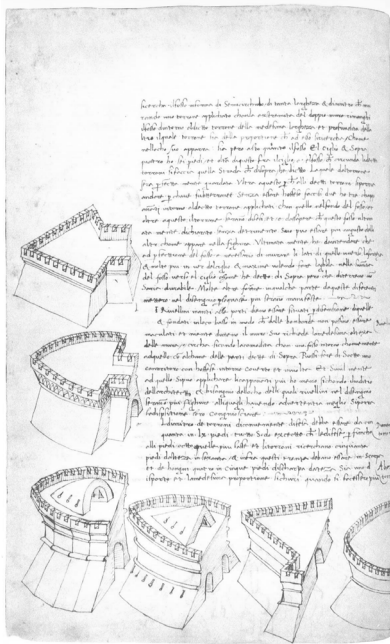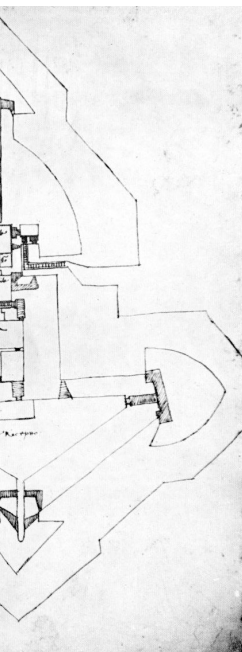
1.8 Francesco di Giorgio Martini, *Trattati di Architettura, Ingegneria e Arte Militare* (1485-87). Typical plan of a triangular fortress with central tower and rivellino.

1.9 Francesco di Giorgio Martini. *Trattati di Architettura, Ingegneria e Arte Militare* (1485-87). Different corner solutions for the donjons in oblique projection.

1.10 Francesco di Giorgio Martini. *Trattati di Architettura, Ingegneria e Arte Militare* (1485-87). Positioning of the empty perimeter of the city-fortress within the natural system.

Typical plan as a technical device
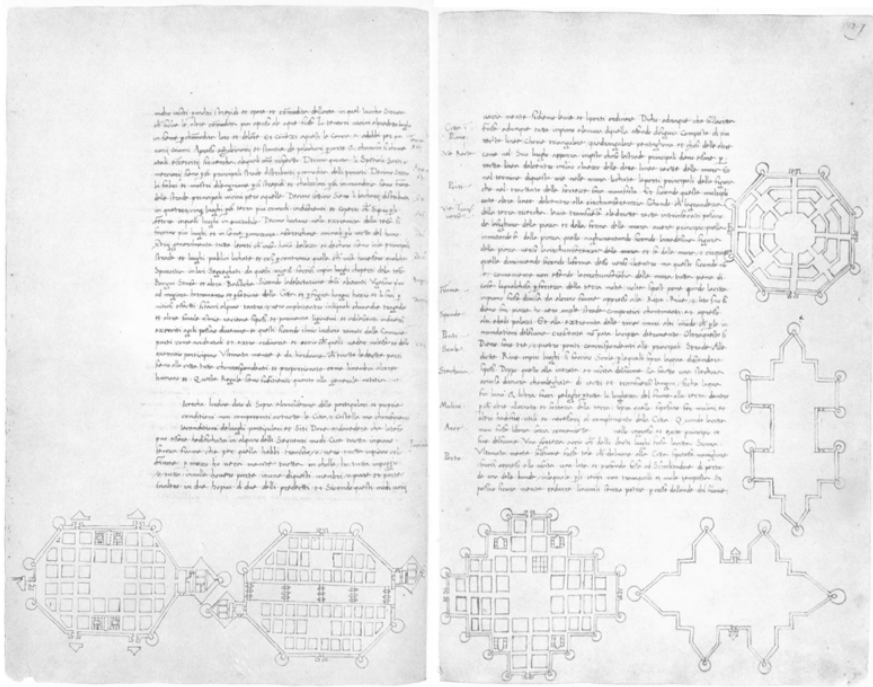
1.11 Francesco di Giorgio Martini. *Trattati di Architettura, Ingegneria e Arte Militare* (1478-82). Typical plans of fortified cities and of the internal districts. The city became a machine: the civic urban fabric is a mechanical apparatus within the boundary of the city walls, served by few technical cores.

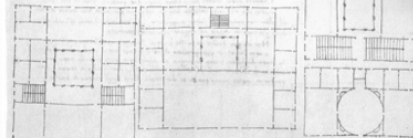*Real abstraction and labor sans phrase*

predominance was reinforced through a gradual peripheral reduction of the spatial proportions from the *sala* (main hall) to the *camare* (service rooms), as bodily limbs.[44]

1.12   From the extreme simplicity of the houses for artists, conceived as simple aggregations of rooms served by a lateral staircase and generally lacking of patios, the complexity of the layout progressively increased in the houses for merchants, whose commercial functions demanded an additional articulation of rooms, workshops and storages in connection to the street and surrounding an internal

1.13   courtyard. The final evolution was reached in the houses for nobles and princes, characterized by centrifugal compositions around single or multiple courtyards recalling the annotated drawings of thermal baths and royal palaces visited during his journey to Rome. The binary connection atrium-cortile decided the symmetrical arrangement of the private rooms, generally distributed in linear or cruciform sequences interrupted by services spaces, while the overall circulation was enriched with the presence of porticoes and loggias in relation to the staircases. The vertical proportions of the *sale* and *triclini* were deduced in relation to their planar extensions according to different geometrical procedures as in the Vitruvian war devices.[45]
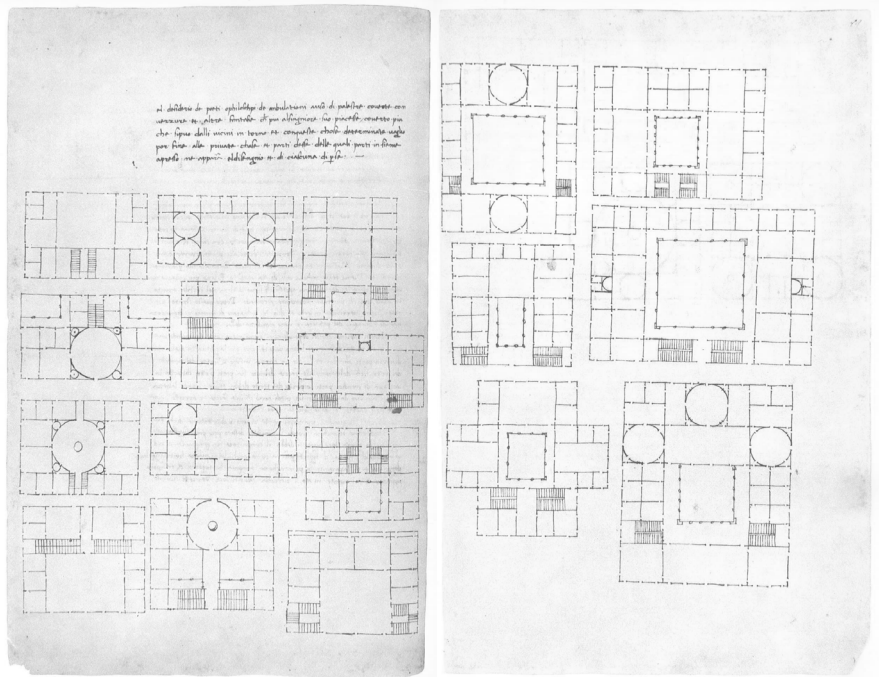
If the drawings in the first version of the treatise were accurately detailed, provided of programmatic indications and often rendered with colors, in the second version, the plans for private houses and representative buildings lost any redundant information and even the thickness of walls and partitions, the *poché,* turning into pure planar distributive schemes, into standardized typical plans. The drawings were thus not dissimilar from the Euclidean figures or other geometrical demonstrations that Di Giorgio studied and included in other parts of his treatises. Functions were no longer indicated but implicitly inferred by the sizes of the spaces and their geometrical configurations, whereas accesses and facilities were simply suggested with line interruptions or the positions of staircases. Lines were just measures, developments from a point *A* to a point *B:* quantities devoid of quality, distances

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44 *ibidem;* Vol.2, 342-353 *Codice Magliabechiano II.I.141, f.*18V, *f.*19, *f.*19V, *f.*20, *f.*20V, *f.*21,*f.*21V tav. 196-202
45 *ibidem;* Vol.2, 348-349

1.12 Francesco di Giorgio Martini. *Trattati di Architettura, Ingegneria e Arte Militare* (1485-87). Typical plans of houses for artists and merchants.

Real abstraction and labor sans phrase

1.13 Francesco di Giorgio Martini. *Trattati di Architettura, Ingegneria e Arte Militare* (1485-87). Typical plans of houses and palaces for noblemen.

devoid of thickness, as in the future Jean-Nicolas Louis Durand's geometrical studies.

<p align="center">*</p>

<p align="center">"L'attacco insegna la difesa"</p>

<p align="center">– Raimondo de Montecuccoli[46]</p>

In order to reproduce and exploit natural forces it was necessary to understand how they were composed and how they operated. Therefore reality had to be sectioned and quantified into intelligible parts, scientifically investigated in its inner laws and finally three-dimensionally reassembled according to the deduced principles. In this sense, Albrecht Dürer's *Instruction in measurement with compass and ruler, in lines, planes, and whole bodies* (1525) theoretically dissected the art of representation into dimension-less points, lines, planes and regular solids, making the rules of vision accessible to everybody, from painters to goldsmiths, sculptors, stonemasons, and carpenters.[47]

For Dürer, measuring corresponded to an act of cutting and separation: each image implied a division and each division a circumscribable limit and an extension. Geometrical procedures followed a similar logic, being structured in blocks of text alternated by figures of demonstration and introduced by the constant refrain: "I will show this in the following diagram". The term "diagram" – *Aufgerissen* or *Aufriss,* literally "what divides" and "make visible" or simply "outline" – for Dürer indicated

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46 "*The attack instruct the defense",* or the purity of the attack triggers the necessity of counter-attack, ultimately unfolding in a strategy. Actually, according to Carl von Clausewitz, war is always generated by the defense and never by the attack, which would rather pursue its own aims if unobstructed. The defense has to measure its adversary and organize its response accordingly: in this sense, it does not only aim at defeating the opponent but also at appropriating the energy of the enemy, to eventually reinforce its own apparatus. See Prince Raimondo Montecuccoli, *Opere di Raimondo Montecuccoli ; corrette, accresciute e illustrate da Giuseppe Grassi,* edited by Giuseppe Grassi, (Torino: Giuseppe Favale, 1821): Vol. 1, Book 1, Ch.5; and Carl von Clausewitz, *On War*, (Oxford: Oxford University Press, 2007).

47 Albrecht Dürer, *Instruction in measurement with compass and ruler, in lines, planes, and whole bodies* [*Underweysung der Messung, mit dem Zirckel und Richtscheyt, in Linien, Ebenen unnd gantzen corporen*, Nuremberg, 1525], also known as *The Painter's Manual by Dürer A.,* Strauss W. (eds.), (New York: Abaris Books, 1977), available at http://www.slub-dresden.de. See also Erwin Panovsky, *The life and art of Albrecht Dürer*, (Princeton: Princeton University Press, 1955), 244-273.

the proper measuring instrument, the way to section reality and thus translating objects in drawings with plans, sections and elevations. Substantially, the diagram was conceived as an operative evolution of the Vitruvian three *ideae*: a dimensionless and invisible scheme in real space, deriving from an abstract reasoning but nonetheless establishing rules and conventions upon reality for its logical development. Once reduced the complexity of the world into integer elements of measure it would have been possible to re-construct any kind of object by means of simple horizontal and vertical linear extrusions in space. According to Dürer at beginning there were only points and their quantitative relations or measures: points were indivisible entities without size, length, width or thickness and yet "they constitute the origin of all corporeal things we may want to construct, or which we may invent in our minds." Hence, the length of a line (*linea*) was nothing but an extrusion of a point; as the length and the width of a plane (*planum*) extrusions of a line; or the length, the width and the depth of a solid (*corpora*) the extrusion of a plane: lines, planes and solids constituted all that could be measured. Dürer represented the process of extrusion by juxtaposing plan, front and side elevations of an object within the same drawing: in this way it was easier to control the projection of elements on a perpendicular axis through the parallel coordination of multiple points of view placed at an infinite distance, and thus to translate every passage into simple numerical coordinates.[48] In

1.14   this way, the *disegno* definitely achieved its own autonomy, turning into an abstract machine that gradually superseded any incongruous description of reality with its numerical notation, and imposing the prescriptive directions of its geometrical constructions as the capitalist real abstraction imposed its homogeneous categories of time and space among exchanges. Orthogonal projections, in fact, not only represented the object *in* space but also the space *of* the object itself, allowing both an immediate understanding of its inner logic and opening the possibility for a further evolution of its internal concatenations. But above all, by rendering objects in their "very true form", orthogonal projections detached the act of vision from the singularity of the observer and transferred it to an infinite point of view, eliminating

48 Albrecht Dürer, *Underweysung der Messung, mit dem Zirckel und Richtscheyt, in Linien, Ebenen unnd gantzen corporen* (Nuremberg, 1525): Book I.

the tyranny of the perspectival vanishing point and recovering the autonomy of the objects themselves in their natural *dispositio*. This was a radical act of estrangement for the sake of the pure rationality of the architectural drawing: what essentially divided architecture from the other arts, as Raffaello Sanzio and Baldassarre Castiglione claimed in their famous Letter to Leo X concerning the surveying of the antique ruins of Rome, was precisely the rational execution of drawings based on the Vitruvian ideas of plan, elevation and cross-section and thus avoiding any perspectival distortion or celebratory intents.[49]
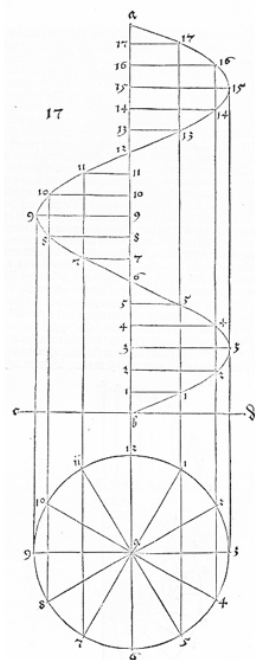
The act of estrangement of the human beholder was illustrated by Dürer in his famous "long" demonstration of the Brunelleschi's *costruzione legittima,* showing a cube seen from a positioned eye and illuminated from a punctual source of light but represented from a third point of view.[50] In order to construct the perspective, Dürer first drew the plan and the elevation of the cube, and he later projected their lengths from the positioned eye through the famous "cone of vision". In this way, the positioned eye appeared as simple point in space, a relative and not absolute source of projection. To make the entire procedure even more clear, Dürer replicated the projection of the cube using its cast shadow. He began assuming that "every light radiates by means of straight lines" and "if an opaque surface is interposed, it will repel the rays of light and cast a shadow to the extent that the rays are held back".[51]

49 The letter is actually a set of instruction of orthogonal projections, providing indications concerning how to draw elevations and sections from the ground plan by means of parallel extrusions, as described by Dürer. See Raffaello Sanzio, Baldassarre Castiglione, "Lettera di Raffaello d'Urbino a papa Leone X"*,* (1519) in *Baldassarre Castiglione, Le lettere*, edited by Guido La Rocca, (Milano: Mondadori, 1978): 531-542.
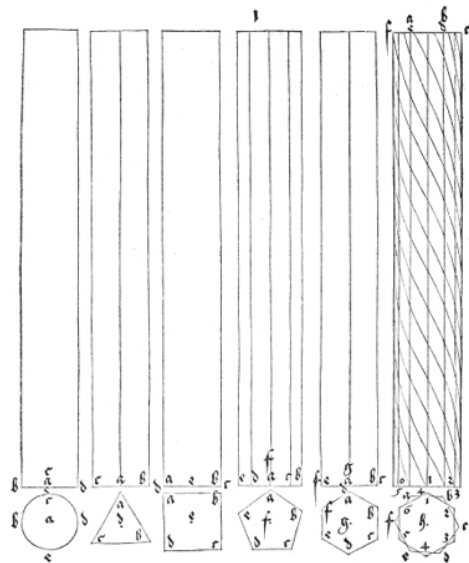
50 "The final presentation of the subject, however, is found at the end of the Fourth Book of his treatise on Geometry, the *Underweysnng der Messung mit dem Zirckel un Richtscheyt,* 1525 (revised edition 1538). Here Dürer teaches: first, the "costruzione legittima," illustrated by a cube placed on a square and lighted so as to serve, at the same time, as an example for the construction of cast-shadows; second, the "abbreviated construction" which he happily calls "der nahere Weg" ("the shorter route") ; third (in the revised edition only), Piero della Francesca's method of transferring planimetrical figures from the unforeshortened into the foreshortened square; fourth, two (in the revised edition, four) apparatuses to en sure an approximative correctness by mechanical instead of mathematical means." Erwin Panovsky, *The life and art of Albrecht Dürer*, (Princeton: Princeton University Press, 1955): 252. For the definition of *costruzione legittima*: "Namely, that of tracing it with the ground-plan and profile and by means of intersecting lines, which was something truly most ingenious and useful to the art of design." See Giorgio Vasari, Lives of the most eminent painters, sculptors & architects, (translated by) Gaston du C. de Vere, vol.2, (London: Macmillan and co., ld. & The Medici society, ld. 1912).

51 Albrecht Dürer, *Underweysung der Messung, mit dem Zirckel und Richtscheyt, in Linien, Ebenen unnd*
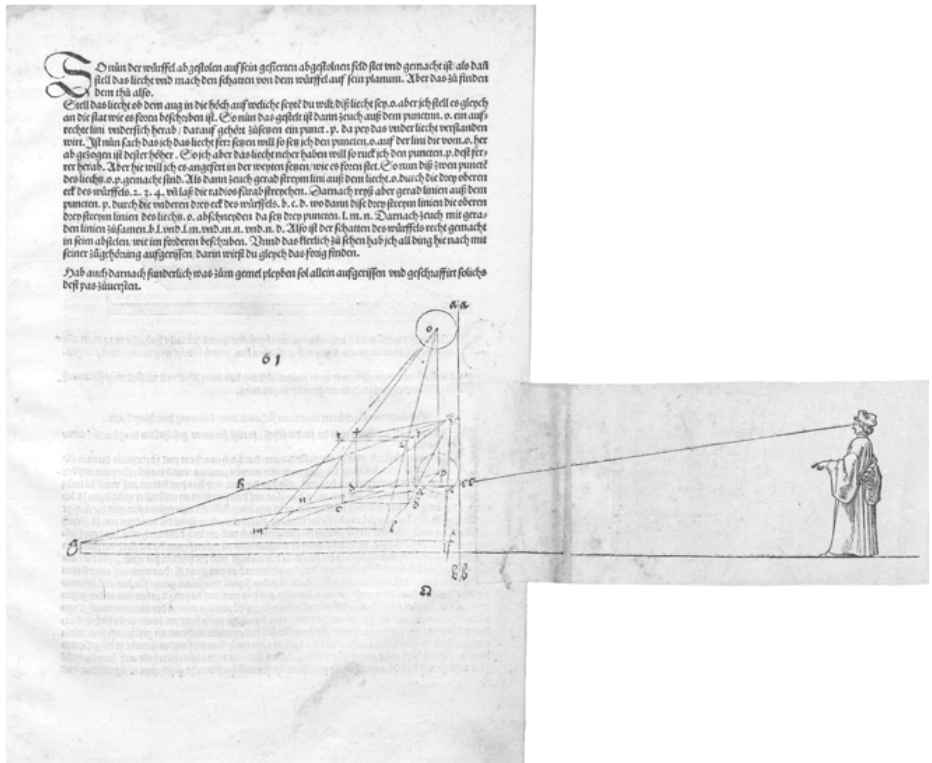
Real abstraction and labor sans phrase

1.14 Albrecht Dürer, *Underweysung der Messung, mit dem Zirckel und Richtscheyt, in Linien, Ebenen unnd gantzen corporen* (1525). Extrusion of a spiral from a set of points and extrusions of columns from sets of planes.

Every object, in this way, could achieve a complete definition only when positioned upon a background and rendered in its simple presentness. Despite mistakes in magnitude – the sun was equaled to a punctual source of light rather than a bundle of rays of lights – Dürer opened the way for a further level of estrangement and abstraction of the human point of view. Once acknowledged the three-dimensional mechanism of the cone of vision and the projection of shadows, the next level of the demonstration would have been the positioning of the projecting eye at an infinite distance, in coincidence with the sun itself. In this conditions in fact, when angled at 45 degrees, the shadow would have not only rendered objects as reliefs but actually 'measured' them in plan and elevation, not differently from the Roman *groma* described among Vitruvius' surveying machines. Only by adopting the infinite and inhuman point of view of the sun - an external and neutral observer able to see through parallel streams of light rather than through a converging visual pyramid - it would have been possible to attain a first isometric vision of space and a totally mathematical translation of reality, uncorrupted from human perception: rendering "what men know" rather than "what they see". Therefore, if the Vitruvian *machinatio* primarily referred to individual devices and specific stratagems, its Renaissance rediscovery established the premises for a limitless isometric system of measurement, an extended apparatus able to act directly at a urban scale by distributing trades, people and goods.

Years before Dürer's demonstrations, in his *De Prospectiva Pingendi* Piero della Francesca explained Brunelleschi's "long procedure", a way to reproduce objects from a series of points in space by means of three drawings in parallel projection without any transcendental vanishing point. The method, in fact, was intended to render entities of a certain complexity, such as human body parts or multifaceted solids as seen, for example, in Piero's anatomical studies[52] which largely anticipated

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gantzen corporen (Nuremberg, 1525) Book I. See also Thomas da Costa Kaufmann, "The Perspective of Shadows: The History of the Theory of Shadow Projection," Journal of the Warburg and CourtauId Institutes, 28 (1975): 258-287.

52 "Now in this third book I intend to treat of the foreshortening of bodies composed of diverse surfaces variously positioned, but having to deal with more difficult things, I shall follow another route and use an Other Method for their foreshortening, which I did not use in the preceding demonstrations; but in effect it is the same thing, and what results from the one method, results from the other. But for two reasons I

Real abstraction and labor sans phrase

1.15 Albrecht Dürer, *Underweysung der Messung, mit dem Zirckel und Richtscheyt, in Linien, Ebenen unnd gantzen corporen* (1525). The side reversal and estrangement of the observer directly on the page.

Dürer's drawings of human body. Piero subdivided the human head into 130 dots regularly distributed on several planes at different heights, with 16 radial points at 22,5 degree intervals which allowed him to re-construct the human head in any position he wanted out of a series of cross sections drawn first in plan and side elevation and then reassembled in a composite view.[53] Similarly, in Dürer's treatise on human proportions,[54] the body was not only drawn in plan, elevations and side-elevations at different scales, but also de-composed into object-like pieces, rotated and deformed by simple alterations of coordinates. This totally objective method of representation accommodated the exigent requirements of the new warfare techniques introduced between 14th and 15th centuries: the laying out of the ramparts and the calculation of the lines of fires demanded, in fact, the absolute neutrality and the accuracy of orthogonal projections more than the foreshortening lines of perspective. Not by chance, as Sohn-Rethel pointed out, among Dürer's last theoretical works there was a treatise on military architecture he composed after the

shall change the foregoing rules: the one is because things will be easier to demonstrate and to understand; the other is because of the great multitude of lines that would be necessary to make these bodies following the first method, so that the eye and the mind would be confused by these lines without which these bodies could not be foreshortened properly, nor without great difficulty." Quoted in Robin Evans, *The Projective Cast. Architecture and Its Three Geometries,* (London, Cambridge Mass.: The MIT Press, 1995):149-150. See Piero della Francesca, *De Prospectiva Pingendi,* edited by Giustina Nicco-Fasola (Florence: Sansoni, 1942) and reprinted with notes by E. Battisti, F. Ghione, and R. Paccani (Florence: Sansoni, 1984).

53 Nevertheless, the importance of planar cross sections and its sequence of outlines had been remarked even before by Leon Battista Alberti in his *De Pictura* (1435), in which he considered the rays emanating from the limit of an object towards the eye provided a true 'quantification' of the object itself (as in the Vitruvian *dispositio*) which could be then acknowledged *per comparatione* to other objects: the outline, in fact, circumscribed the thing-in-itself into a quantitative amount of matter, locating it to a position and establishing relations on the basis of that assigned measure. In this sense, the line itself was conceived both as limit and as a sectioning device. According to Alberti, the sculptor needs to find the mimesis through a general *dimensio* and a particular *finitio,* intending the former as an exact proportion between the parts and the whole, while the latter as the variations of the outer line, with its angles and curvatures: the *dimensio* was something exceeding the particular, corresponding to the generic idea to be represented, for example, a man; while the *finitio,* instead, indicated the specific trait of a man in particular. To map these Alberti used the *finitorum,* operating a vertical division of the sculpture into horizontal planes - or *horizons* - through which conceiving the whole length of the body according to their inner proportions. The object was abstractly divided, segmented and composed of intermingled parts similarly to Vitruvian war-machine, as Alberti himself notes in his *De re aedificatoria*: *"machines should be considered as animated bodies, provided of exceptionally strong hands and moving as humans when removing weights. Hence, it is necessary to reproduce, by means of machines, the same dimensions and operations we do with our limbs and nerves when we hold, push, pull or carry objects".*

54 Albrecht Dürer, *Four Books of Human Proportion* [*Hieirin sind begriffen vier Bücher von menschlicher Proportion,* 1528], (New York: Dover, 1972)

Real abstraction and labor sans phrase

The German gothic text block:
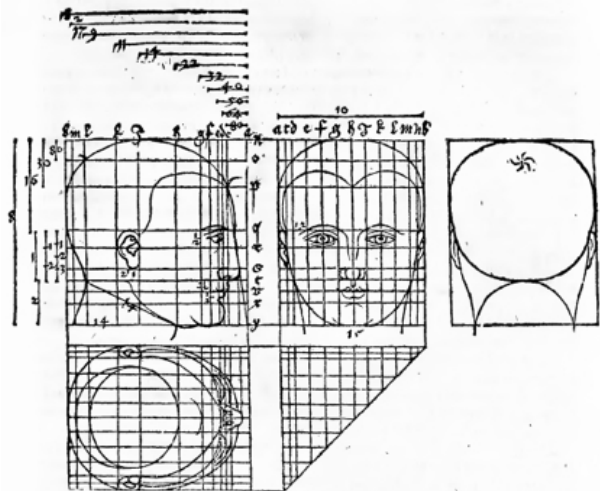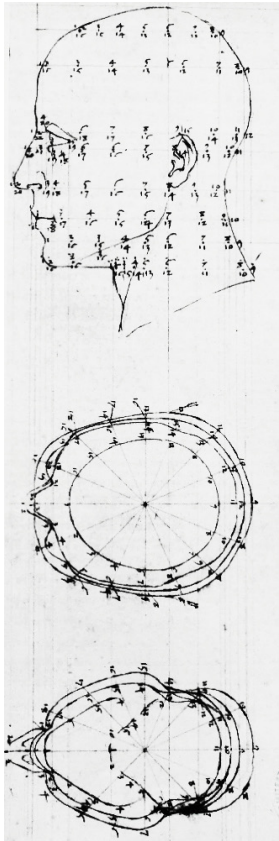
Achuolgend will ich ein jung kindlein beschreiben vn auffreissen / darzu gebrauch ich mich der ordnung / bey den vorgeschribnen bildern / Steil erstlich so lanck ich das kindlein machen wil / drey auffrecht linien oder puncten / die dieselben bedeuten nebeneinander / Bey der ersten wird ich das kind nach der seyten machen / Bey der andern das furstichtig / vnd bey der dritten das hinderwertig kind. Dise drey auffrecht linien vber vnd vnderzeuch ich mit zweyen zwerch linien / die ober sey. a. die vnder. z.

Weytter teil ich die leng der teil in disem kind mit zwerchlinien vnd als. a. vnd. z. schentel vnd soln rüren / so miss ich von der scheytel herab ein 4. teyl. da setz ich ein zwerch lini. b. die rüret das ende des helsleins an dem leib hinden vnd vorn / da seyn halsgrüblein ist.

Aus diser höhe mach ich zu dem nebensichtigenn haupt / ein rechte vierung / darein beschleus ich das haupt / vnd bezeichen die vorder auffrecht seyten da die nasen hinauss stehet auch mit einem. a. vnd die hinder. b. vnd ehe ich mit dem kind weiter fahr / wil ich erstlich das haupt gahr beschreiben.

Anfencklich teil ich das nach der lenge / die höhe vnnd nydern mit zwerchlinien / wie da vornen offt gemelt / von der zwerchen. a. herab ein. 24. teil / setz ich ein zwerch lini / die rürt vorne oben die stirn. Aber vom dem a. herab ein 16. teil / setz ich ein zwerche. c. die gehet durch

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1.16 Piero della Francesca, *De Perspectiva Pingendi* (1482). Orthogonal projections of the head by means of a set of points.

1.17 Albrecht Dürer, *Vier Bücher von menschlicher Proportion* (1528). Orthogonal projections of the head by means of a set of points.

diet of Nuremberg (1522-1523) against the Turkish threat, in which he elaborated the project for an integral city-war-machine, where the different parts worked as organs and limbs of a unique body.[55] As we have seen in Di Giorgio, the most difficult task in the design of fortresses was outlining their walls, whose corners had to be articulated into bastions to protect the city from flanking attacks, and the tilting angle the rampart, or *scarpa,* had to be calculated in relation to the surrounding topography. And so, in one of the four lessons of the treatise, Dürer provides exacts indications precisely for the realization of an angled fort, whose cross-section was fundamentally important because it revealed the two main research direction of the whole late-Renaissance urban planning. On one hand, in fact, by proposing the concatenation of *guasto* (scorched land)*,* ditch (B) and circular casemate bastion protecting the city wall (A), Dürer anticipated the studies on projectiles by Niccolò Tartaglia and Galileo Galilei, which would extend the ramparts beyond the rigidity of the city form, shaping its territorial expansion according to ballistic calculations: as Scolari pointed out, "site and building interacted as never before".[56] On the other hand, the typical plan of the warehouse platform would open a totally introverted typological investigation of civil architecture, understanding the whole urban fabric as a *congegno* to be rationally planned and controlled.[57]
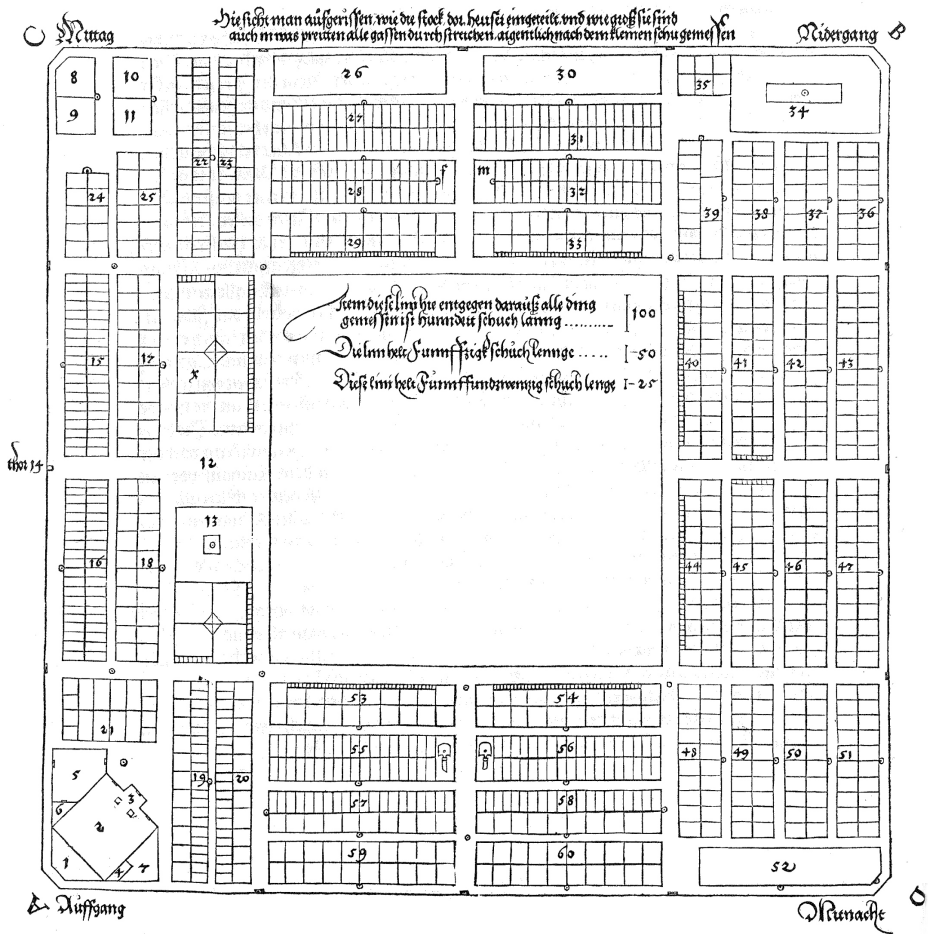
In its purely technical understanding of the city, in fact, Dürer's military speculations were blatantly clear in equaling the city to a complex technical object, which could have been only understood if dissected through an isometric system of representation. On this account, among the vast literature on military architecture

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55 *Etliche underricht zu Befestigung der Stett, Schloss und Flecken* (*Several instructions for fortifying towns, castles and small cities*) published in 1527 was the first ever printed work on fortifications, and for Mario Carpo even the first to present a juxtaposed plan, section and elevation for an individual project. See Mario Carpo, *Architecture in the Age of Printing: Orality, Writing and Typography in the History of Architectural Theory*, (Cambridge, Massachusetts: MIT Press, 2001); John Pinto, "Origins and Development of the Ichnographic City Plan," *The Journal of the Society of Architectural Historians*, Vol. 35, No. 1 (Mar., 1976): 35-50; Erwin Panofsky, *The Life and Art of Albrech Dürer* (Princeton University Press, 1943); William Martin Conway, *Literary Remains of Albrecht Dürer* (London: Cambridge, 1889)
56 Massimo Scolari, Oblique Drawing. A History of Anti-Perspective, (London and Cambridge Mass.: The MIT Press, 2012): 291.
57 On the development of military architecture beyond the city wall see Amelio Fara*, Il sistema e la citta: Architettura fortificata dell'Europa moderna dai trattati alle realizzazioni, 1464-1794*, (Sagep editrice, 1989) but also *La Città da Guerra nell'Europa Moderna,* (Milan: Einaudi, 1983).

Real abstraction and labor sans phrase

Mittag

Nidergang

Item diſe lini hie entgegen darauß alle ding
gemeſſen iſt hunndert ſchuch lanng .... | 100

Die lini hat Fünnfftzig ſchuch lennge ...... | 50

Diſe lini hat Fünnffvndzwentzig ſchuch lenge 1-25

thor

Auffgang

Mitternacht

1.18 Albrecht Dürer, *Etliche underricht zu befestigung der Stett, Schloß unnd flecken* (1528). Typical plan of a city in form of fortress.

Typical plan as a technical device
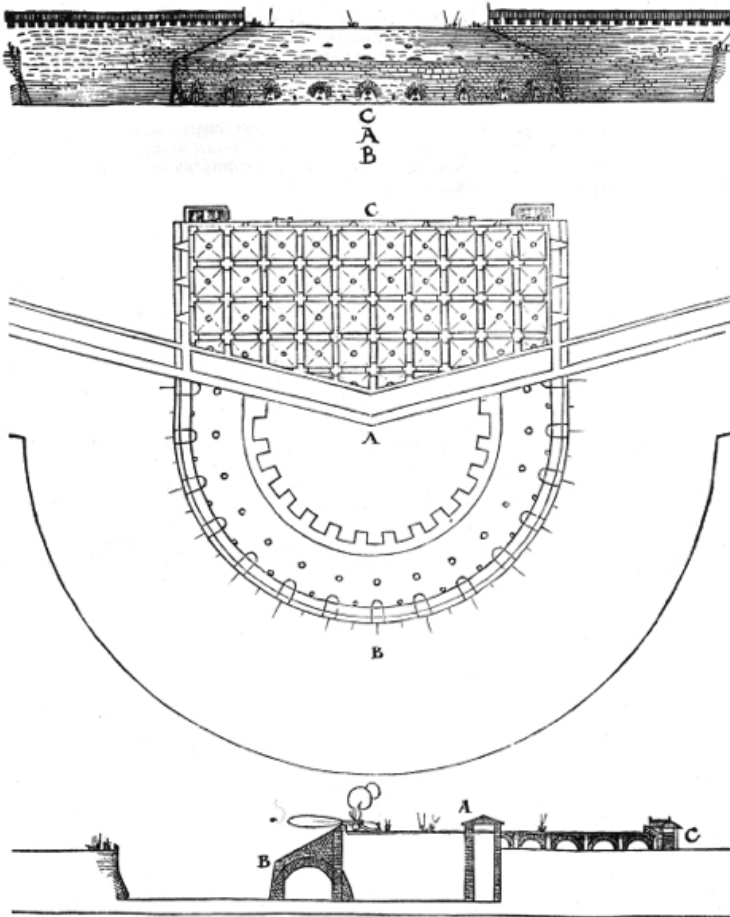
1.19 Albrecht Dürer, *Etliche underricht zu befestigung der Stett, Schloß unnd flecken* (1528). Elevation, ground plan and cross section of an angled fortification.

Real abstraction and labor sans phrase
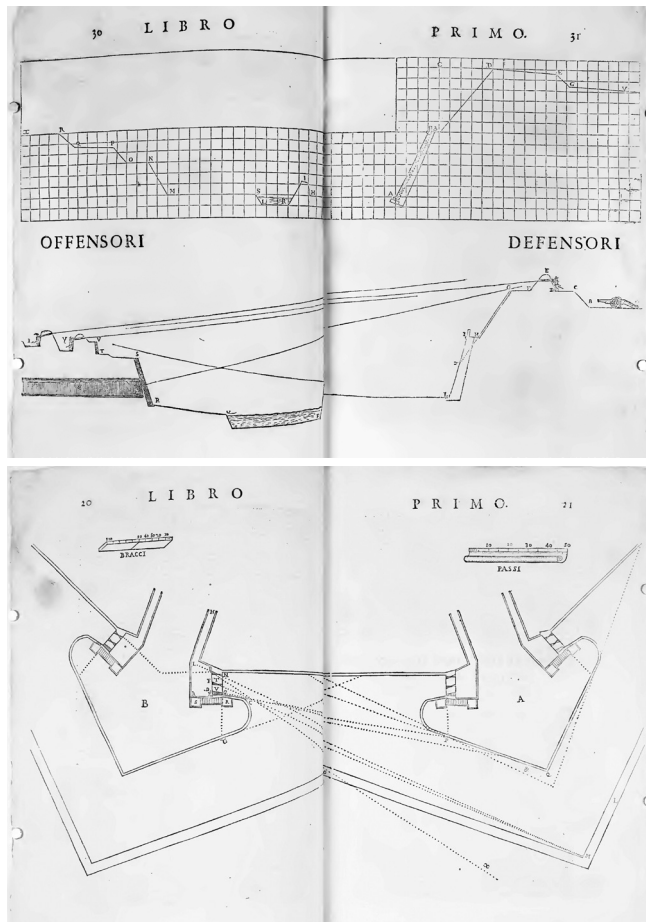
1.20 Bonaiuto Lorini, *Fortificazioni di Bonaiuto Lorini,* (1596). Cross-section with guasto, scarpa, counter-scarpa and lines of fire, measured on an homogeneous grid pattern

Typical plan as a technical device 65

between 16th and 17th century, from the works of Pietro Cataneo, Giovanni Battista Bellucci or Francesco De Marchi, a great importance was attached to the *Fortificazioni* by Bonaiuto Lorini, and *Della fortificatione delle città* by Girolamo Maggi and Giacomo Castriotto, because of their deliberate refusal of perspective and the adoption of what they called the *prospettiva soldatesca,* or a first attempt of axonometric representation, with an infinite point of projection and a correct dimensional representation of frontal and lateral elevations.[58] In this way, cities could have been definitely illustrated as real three-dimensional models, whose inner and outer parts were visible in one single drawing of immediate understanding.[59] Largely before William Farish's *Isometrical Perspective* (1822) or Gaspard Monge's *Traité de géometrie descriptive* (1860-1864) the axonometrical representation of military architecture resurrected the Vitruvian *machinatio* in a renewed abstract fashion, which eliminated dead zones and standardized foreshortenings in favor of a total objectification: mechanization and exchange of commodities were finally ready to take command.[60]

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58 Pietro Cataneo, *I quattro primi libri dl Pietro Cataneo senese,* (Venice: 1554); Giovanni Battista Bellucci, *Nuova invenzione di fabbricar fortezze in varie forme,* (Venice: 1598); Francesco de Marchi, *Della Architettura Militare,* (Brescia: 1599); Bonaiuto Lorini, *Fortificazioni di Bonaiuto Lorini,* (Venezia: 1596); Girolamo Maggi, Giacomo Castriotto, *Della fortificatione delle città,* (Venice: 1564). For a larger account see Horst de la Croix, "Military architecture and the radial city plan in the sixteenth century in Italy", in *Art Bulletin,* XLII, (1960): 263-290; and "The Literature on Fortification in Renaissance Italy", *Technology and Culture*, Vol. 4, No. 1 (Winter, 1963): 30-50.
59 Writes Lorini: "perché spesse volte suole avenire di formare i disegni delle Fortezze, o d'altra cosa in prospettiva, acciò mostrino le parti dell'opera come stanno, overo come devono stare, sarà necessario sapere almeno la pratica di quella *prospettiva più commune*, che basti per essequire quanto s'è proposto, e particolarmente per l'introduttione del disegno, il quale non solo è utile, ma ancora molto necessario, sì in quella professione del fortificare, come anco in tutte le altre, dove però ciascuno si doveri affaticare per impararlo." (emphasis mine). Bonaiuto Lorini, *Fortificazioni di Bonaiuto Lorini,* (Venezia: 1596): 32.
60 Yve-Alain Bois, "Metamorphosis of Axonometry", in *Daidalos,* January (1981): 41-58.

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"Di molte cose belle si sono serviti gli antiqui Romani
ne l'arte della guerra, ma fra le quali dua al parer mio
sono bellissime: cioè il ponte di Cesare per mettere sopra
un fiume con facilità grande, l'altra la castramentazione
di Polibio per alloggiare uno esercito con bellissimo
ordine"

–Sebastiano Serlio [61]

Di Giorgio's drawings revealed architecture in its very process of "becoming form"; as if the *disegno* itself, similarly to a mechanism, was the only way to transfer on paper the mental paths of invention. Somehow, in his feeble thin-lined drawings and mechanical *ricinti,* there was already a sort of rational utopianism at work, a tendency which would characterize the whole Florentine Mannerism between the 16th and 17th centuries, culminating in what Eugenio Battisti defined an "Enlightenment ante-litteram". Yet, as Battisti and Manfredo Tafuri pointed out, it was a totally secular and immanent utopianism, aimed at the investigation of the rational principles of reality rather than at conjecturing about outer or external ideal worlds. In the case of architecture, such a tendency resulted in the isolation and anatomical dissection of the discipline considered in its material objecthood: as a man made artifact.[62] The Renaissance recovery of the Vitruvian *machinatio,* in this sense, was part of a much more ambitious project: the creation a laboratory of abstraction in which architecture could have been understood in its process of composition and a-ideological reasoning, as demonstrated, for example, by Di Giorgio's typological schemes, whose endless variations and distortions often

61 "Among the excellent instruments Romans made use of in the art of war, two were of the highest value: Cesar's boat-bridge to easily cross the rivers; and the Polibius' encampment, to rationally settle an army, whose order had been heavily studied in these times". Sebastiano Serlio, *Architettura Civile. Libri Sesto, Settimo e Ottavo nei manoscritti di Monaco e Vienna*, edited by Francesco Paolo Fiore, (Milan: Il Polifilo, 1994): Book VIII, 21v-22r, 551.
62 Manfredo Tafuri, *L'architettura del manierismo nel cinquecento europeo* (Roma: Officina Edizioni, 1966): 217-254.

prevailed over their presupposed straight utility.[63] It was precisely at this moment that technology turned into an epochal paradigm, translating any previous alchemic, symbolical, ideal, divine or theological correspondence with the real abstraction of its linguistic investigation, whose mechanical rationality became hypostatized as supreme principle of evolution.[64] It was also at this moment that the Renaissance theme of the "ideal city" – as the one symbolically represented in the famous perspectival paintings in Urbino, Berlin and Baltimore – was reversed into a totally mundane paradigm, inscribed within the logic of exchange and management, functional distribution and circulation, legislation and bureaucracy. A city governed on the principles of the *civitas* and founded on rational horizontal datum of its urban layout, instead of being ruled by allegorical vertical hierarchies resumed by the univocal centrality of few vanishing points.

This mechanical assemblage of spatial elements, reduced to quantities and modular combinations, constituted a distinctive character of Sebastiano Serlio's method, whose IV book titled *Regole Generali di Architettura sopra le Cinque Maniere degli Edifici,* was nothing but a theory for the montage of standardized linguistic elements or, as Mario Carpo explained, of "ready-made fragments. Not ruins but composite and designed parts ideally repeatable and thus transferrable from a project to another one".[65] Perhaps, among the vast corpus of Serlio's work, his unpublished VIII book *Della castramentazione di Polibio ridutta in una cittadella murata,*[66] seems here appropriate to describe the reversal of the symbolic value of the "ideal city" into the isometric precision of the orthogonal projections, conveying the

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63 In a paradoxical similarity to Vitruvius and Marx, Di Giorgio points out the power of the human ingeniousness in its capacity to envision infinite variations: "Questo medismo le opere sue dimostrano, perche tutti li altri animali operano, come similmente ogni irondine nidifica e similmente ogni ape overo aranea domifica, ma nell'intelletto umano essendo I'arte con la forza assegnata, tutte le opare sue, le quali sono quasi infinite, infinito varia". See Francesco di Giorgio Martini, T*rattati di Architettura Ingegneria e Arte Militare*, edited by Corrado Maltese, (Milano: Il Polifilo, 1967): Vol.2, 506.
64 Eugenio Battisti, *L'Antirinascimento,* (Milan: Feltrinelli, 1962): 365-366.
65 Mario Carpo, *Alberti, Raffaello, Serlio e Camillo,* (Geneve: Libraire Drosz S.A., 1993): 11.
66 For a general information concerning the project see William Bell Dinsmoor, "Literary Remains of Sebastiano Serlio", in *Art Bulletin,* Vol.24, no.1 (Mar, 1942): 55-91; Paolo Marconi, "Un Progetto di Città Militare. L'VIII libro inedito di Sebastiano Serlio", in *Controspazio,* June 1969 (part 1): 52-59 and September-October 1969 (part 2): 53-59; and the more comprehensive Sebastiano Serlio, *Architettura Civile. Libri Sesto, Settimo e Ottavo nei manoscritti di Monaco e Vienna,* edited by Francesco Paolo Fiore, (Milan: Il Polifilo, 1994).

whole technological rationality of epoch within the planimetric disposition of the Roman *castramentatio.*[67]

In the first passages of the treatise, Serlio informs the reader of the totally abstract nature of his project, undertaken as a self-committed intellectual exercise, implicitly criticizing his patron Francesco I of not having subsidized his efforts. Serlio proposed the restitution of a Roman temporary military encampment in the solid built forms of a "cittadella murata",[68] philologically recovering the original Polybius' description of VI chapter of *Histories* with the collaboration of Pietro Strozzi.[69] Serlio conjectured a secular city, centered on the military institution of the *Praetorium* and rigorously subdivided in *strigae,* translating barracks and tents into

architectures suitable both for soldiers and for citizens.[70] Integrating the vacant lots of the Polybian camp with public facilities "per la sanità come anche per le diliccie de' soldati" – an amphitheater, a circus, and thermal baths – Serlio stressed the intention to transform the order of the military camp into a paradigm for the correct administration of the city and for the State at large, repurposing in a modern fashion

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67 The term *castramentation* derives fron the Latin *castrorum metatio* or 'measurement of the camp'. As Paolo Fiore noted, Serlio was well aware of Machiavelli's *Arte della Guerra,* if not through the accurate knowledge of Piero Strozzi, nephew of Lorenzo Strozzi to whom Machiavelli himself dedicated his book. But the theme of the *castramentatio* was also well known in France at that time, whose french translation of Polybius' book was published in 1545 and quoted in the *Instructions* by Guillame du Bellay.

68 "Havend'io condotto al fine la castramentazione di Polibio fatta primieramente di pure linie di poi fatti tuti li particolari loggiamenti di padiglioni e tende ridotti in un libro con la sua scruttura; la qual cosa mi piacque tanto considerando con che bello e ispidito ordine s'acampavano gli antici Romani ne logiamenti lhoro et con che prestezza senza trepito dilogiavano mercé de i beni disciplinati soldati, che mi caddette ne l'animo di volere dispore una citadella murata simile a quella per tenerci di continuo uno esercito in guarnisone. (…) Ecco, benigno lettore, la castramentazione di Polibio tanto celebrata dagli uomini letterati et rari ch'io vi ho ridotta in una citadella murata, non perch'io creda che a questo secolo colmo di avaricia si truovi che entrasse in tale impresa: ma per esercitare lo mio picolo ingegno, il quale non si puote quitar già mai che non operi in questa architettura da me amata." Sebastiano Serlio, *Architettura Civile. Libri Sesto, Settimo e Ottavo nei manoscritti di Monaco e Vienna,* edited by Francesco Paolo Fiore, (Milan: Il Polifilo, 1994): 517.

69 Polybius, *The Histories of Polybius*, (Cambridge, Ontario: In parentheses Publications, 2002): Book VI.

70 As Polybius narrates, the foundation of the encampment coincided with the marking procedure of the crossing point between the *cardo,* the north-south axis, and the *decumano,* the east-west axis, transferring on the earth the four polar division of the sky, and thus dividing an eastern side of the field considered favorable, or *pars familiaris,* from a western side or *pars hostilis,* and separating also a northern part, or *pars postica,* with the primary buildings of tribunes and prefects, from the *pars àntica,* the southern area with the barracks of the legionaries. In the center, at the intersection between the *via principalis* and the *via praetoria* lay the tent of the general, the squared area of the *Praetorium,* provided the module for the whole settlement. Serlio emphasized even more the relevance of the *Praetorium* by adding a secondary internal route, the *Via Larga.*
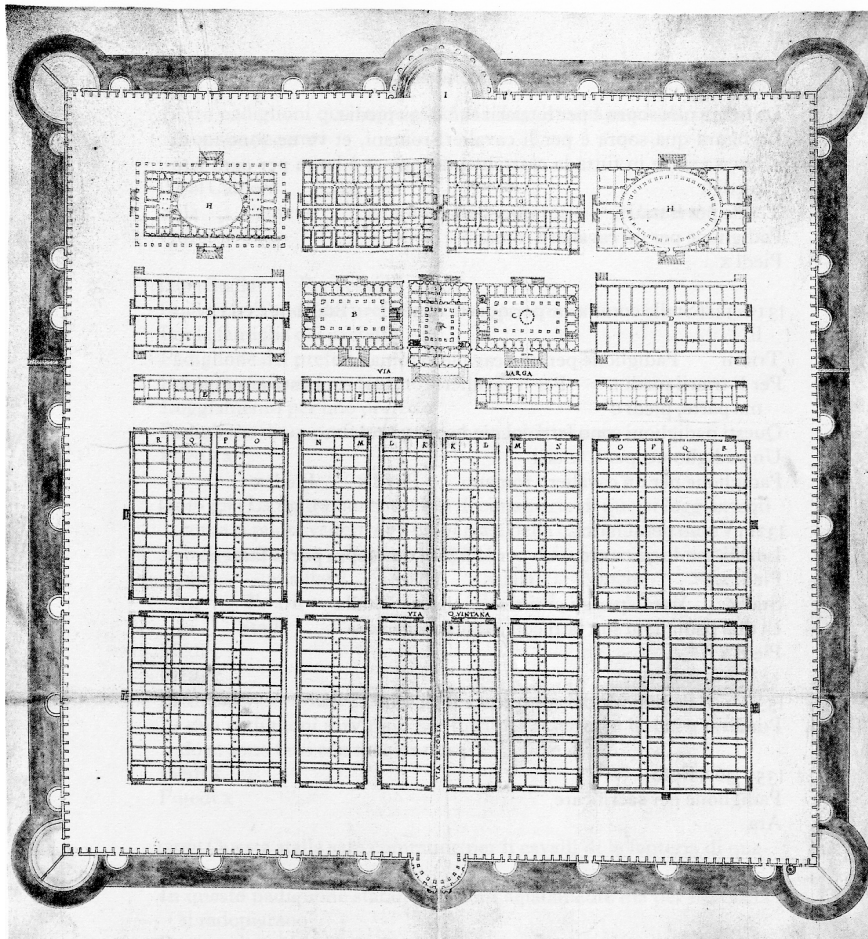
1.21 Sebastiano Serlio, *Della castramentazione di Polibio ridutta in una cittadella murata* (1546). Restitution of the Polybian military camp in form of a built city. Typical plan.

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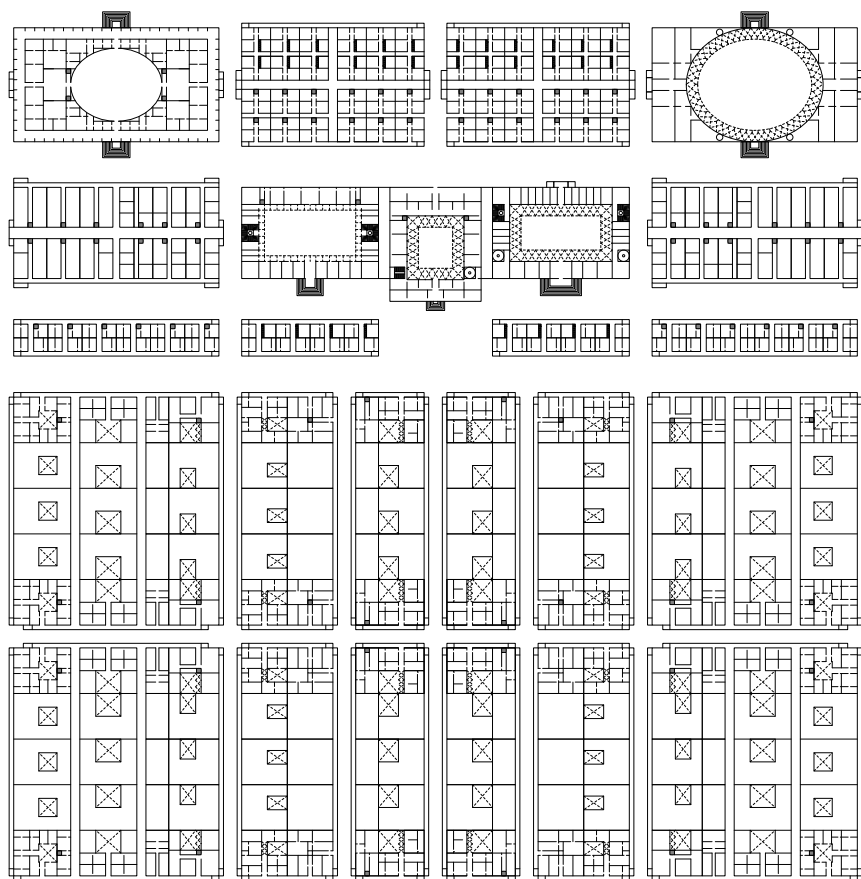
1.22 Sebastiano Serlio, *Della castramentazione di Polibio ridutta in una cittadella murata* (1546). Plan of the military camp redrawn by the author on the basis of the reconstruction by Pier Nicola Pagliara (1972).

Typical plan as a technical device

the same political intentions of the VI book of *Histories*. Beside the organization of the Roman army, in fact, Polybius not only described the cycle of evolution and corruption of political power, but he also praised the positive aspects of the Roman mixed constitution, whose mutual restrained power of Senate, Consuls and people had been notoriously endorsed in the Renaissance as model for a well-balanced government, a city in guise of a war-machine.[71]

Moreover, as Paolo Marconi pointed out, Serlio's exercise not only marked the mature synthesis of his formal method, but it also offered a particular formulation of the very idea of "typical", conceived as a suitable category to unfold generalized formulations into tangible forms in order to be scientifically or critically investigated: confirming what we had previously defined with Marx, a *real* abstraction. Paraphrasing Marconi, the philological-antiquarian research of Serlio's VIII book had an explicit pedagogical intention, aimed more at presenting and explaining certain emerging typical forms of society rather than codifying or prescribing their specific utilization.[72] In this sense, the project was a reflection about architecture in its inner laws of becoming, exemplified through the typical plans of the *castrum*, which at that time was widely used both for military extensions and urban redevelopments in France and Italy. Furthermore, in transforming the camp from a temporary to a stable settlement, Serlio profited of the strict orthogonal modular arrangement to elaborate concrete proposals for different housing typologies, translating the hierarchies of military ranks into the spatial and hierarchical qualities

71 The three typical forms of power – monarchy, aristocracy and democracy – in order to avoid their implicit degeneration, according to Polybius should have been integrated within a unique system, as Lycurgus did in Sparta, where the royal power was mediated by the Gerusia, the councils of the elders, and limited by the people. Similarly, the Roman constitution allowed the Consuls, the Senate and the people to restrain their mutual sovereign powers, ensuring a lively political antagonism and the solidity of the State, especially in moments of struggle and adversities. See Niccolò Machiavelli's *Discorsi sopra la prima deca di Tito Livio,* (1531)
72 "L'esercitazione filologico-antiquaria in cui consiste il codice dell'VIII Libro di Sebastiano Serlio ha insomma il valore di chiarire la problematica del disegno urbano, più che di codificarla, di presentare in forma tipica problemi solo apparentemente distanti dalla realtà, così come la trattatistica degli ordini architettonici stimolata dall'Accademia Vitruviana non si proponeva di fornire prescrizioni, ma di giungere ad una formulazione "tipica" di essi, suscettibile di ogni empirico adattamento. A ben pensarci, è la formula didascalica del felice periodo che arriva a tutto l'ottocento e solo dopo di allora sarà ritenuta scaduta e vuota di senso: formula he, ben lungi dall'imporre norme o codici prescrittivi fida ancora in una aristotelica capacità di scernere il "tipico" tra i cascami della contingenza". Paolo Marconi, "Un Progetto di Città Militare. L'VIII libro inedito di Sebastiano Serlio", in *Controspazio,* September-October 1969 (part 2): 59

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of architectural types: from the representative grandeur of the *Praetorio,* to the magnitude of the internal double-loggia in the *Questorio* or in the *Foro;* the laconic orders and decoration of the residencies for *tribuni* and *prefetti*, to the submissive homogeneity and linearity of the housings for *fanti* and *cavalieri straordinari,* or even more the ones for the simple *astati* and *cavalieri ausiliari,* echoing the social class division in civil society.[73]

4. *Typical Plans*

Serlio's reconstruction of the military encampment was a way to investigate the formal logic of the city at large, reduced to a calculated aggregation of plots and modular typological units, whose protocolar process of settlement could have been applied everywhere across the territory, as a mechanical apparatus. Nevertheless, almost at the same time there have been also other similar attempts to scientifically categorize the rising typological differentiations of the pre-capitalist city, which in *Space, Time and Architecture* Sigfried Giedion unpleasantly defined "the sixty-odd dreary projects which the younger Vasari worked into stillborn plans for ideal towns and to those produced somewhere about the same time by that otherwise rather interesting architect Bartolomeo Ammanati".[74] Despite Giedion's doubtful opinion, it was precisely in the formal researches of Ammannati and Vasari the Younger that the a-ideological and rational abstraction of the typical plan attained its first complete elaboration, conceived as a pure linguistic frame to be inflected in infinite variations.

In fact, as Marconi pointed out, the experiments of Serlio, Ammannati and Vasari the Younger were all different expressions of the same program developed at the *Accademia Vitruviana,* founded in Rome in 1542 by Claudio Tolomei with the attempt to recover the heritage of the classic Greek and Roman architecture

73 The squared palace of the pretor, for example, organized around a central courtyard and equipped with double series of rooms along the north-south axis, closely resembled the house for a "gentiluomo nobile dentro la città" of his VI book.
74 Sigfried Giedion, *Space, Time and Architecture. The Growth of. A New Tradition,* (Cambridge: Harvard University Press, 1941): 51.

through a scientific exegesis of Vitruvius, in order to formulate a linguistic code based on sets of "typical" projects. In these drawings, the "typical" definitely turned into a form of real abstraction, able to elicit the generalized notions of the real into reproducible conventions, useful to scrutinize an ever-developing urban extension and to construct valid frames of knowledge to support it. This contributed to the rapid transformation of architecture into an apparatus of production: a "technical frame", which would be gradually assessed during the 18th and the 19th century in the passage from the manufacture to the factory.

Both Ammannati and Vasari the Younger worked in close collaboration with Giorgio Vasari and within that economic and political *renovatio* carried out by Cosimo I de' Medici between 1537 and 1574, which transformed Florence into the capital of a new state, the Grand Duchy of Tuscany. Like if on a battlefield, Cosimo used architecture as a strategic instrument to displace the obsolete communal institutions with a modern managerial infrastructure.[75] After the annexation of Siena in 1555, when his power achieved a critical extension he carried out a general economic reassessment of the Duchy, ordering a territorial survey of his territories with a detailed investigation of its natural and human resources, while issuing a series of important fiscal and legislative reforms, which reduced the autonomy of guilds, craftsmen and peripheral powers under the jurisdiction of his centralized government. Along this line, between 1561 and 1563 Cosimo rationalized the administrative apparatus of the State, requiring the unification of all the magistracies into a single office building intended for the *publicae commoditati* (common good): the renowned *Uffizi* building, commissioned to Giorgio Vasari in 1560.[76]

1.23

Besides Bramante's tribunal palace in Rome or the Castel Capuano tribunal court in Naples, there were no typological predecessors for such a building, whose purely administrative function did not require any symbolic authority but

75 Cosimo inherited the ingenuity and the obstinacy of his father, the renowned *condottiero* Giovanni dalle Bande Nere, conducing an impressive military expansionist politics which resulted in an ambitious program of fortifications and armed forces on land and at sea, to control the commercial traffic in the annexed territories, extending from Arezzo, Siena and Pisa to the Mediterranean coast and the *Stato dei Presidii*.
76 For a general account on Giorgio Vasari, see Claudia Conforti, *Vasari Architetto* (Milan: Electa, 1993); Leon Satkowski, *Giorgio Vasari: Architect and Courtier* (Princeton: Princeton University Press, 1993) and idem, *Studies on Vasari's Architecture* (New York: Garland, 1979).

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a rather strict economy of means and a minimum impact on the historical urban fabric. Deeply influenced by the iterative modularity of the mediaeval Procuratie Vecchie in Venice, but even more by the longitudinal tension of Michelangelo's Laurentian Library, Vasari's final solution – a three-story building arranged in two symmetrical but unequal wings – turned the Strada Nuova into an hybrid, open public courtyard, a perspectively oriented "stage" set between the absolute volume of the Ducal Palace and the private residences of the ducal court across the Arno, including the Palazzo Pitti, the Boboli gardens and the Forte Belvedere.[77] In this way, by making the modern administrative centre of the Grand Duchy coincide with an open void – the public space of the Strada Nuova – Vasari clearly marked the political shift from a power imposed through military force to a power exerted more through management, taxes, legislative decrees, financial strategies and armies of functionaries.[78] Moreover, in order to accommodate the eight magistracies and the five guilds despite their varying importance and functions, Vasari devised a standard volumetric unit which could have been easily halved or doubled according to the occupants' needs. This sort of "typical plan" comprised an almost cubic, double-height audience chamber that was directly accessible from the continuous external porticoes and furnished with benches and a fireplace. There were also three service spaces at the back for secretarial activities and storing records, as well as a deposit

1.24

77 Cosimo rejected the first free-standing palace-like proposals, ordering the disposition of the magistracies along the two sides of the Strada Nuova, a new street that he opened in 1546 to connect the Piazza della Signoria to the bank of the Arno. The site of the project was rectangular plot measuring 147 meters long and 76 meters. The fresco *The Siege of Florence*, executed in the Ducal Palace in 1560 under the direction of Giorgio Vasari, meticulously recorded the topography of the city, including the demolition ordered by Cosimo I to facilitate the creation of the Strada Nuova. Beside the irregularity of the plot, the project had also to consider several important preexisting structures, like the Loggia dei Lanzi and the Mint at the north-west end, and S. Pier Scheraggio at the north-east end.

78 The "bureaucratic machine" of the Uffizi completed Cosimo's *renovatio* of the city, providing a concrete visual infrastructure which connected and distributed the places of power around its longitudinally oriented piazza, just as Bramante's Belvedere for Julius II or even Caesar and Nerva's Roman Fora had done. Moreover, as an expression of the emergent state bureaucracy, the Uffizi's severe architecture not only anticipated the formulaic repetitions of the 17th- and 18th-century apparatuses of governance, but also constituted, through its reversal of the figure–ground logic of traditional architectural "objecthood", one of the most important paradigms for modern spaces of immaterial production, from the urban arcades of the 19th century to contemporary office landscapes. See the famous interpretation of the *Uffizi* by Colin Rowe and F. Koetter, "Crisis of the Object: Predicament of Texture", in *Collage City* (Cambridge, Mass.: The MIT Press, 1978).

1.23 Giorgio Vasari, *Uffizi,* (Florence, 1560-81). Perspective view from the Strada Nova to Piazza della Signoria. [Bildindex der Kunst und Architektur, Aufnahme-Nr. 1.000.644]
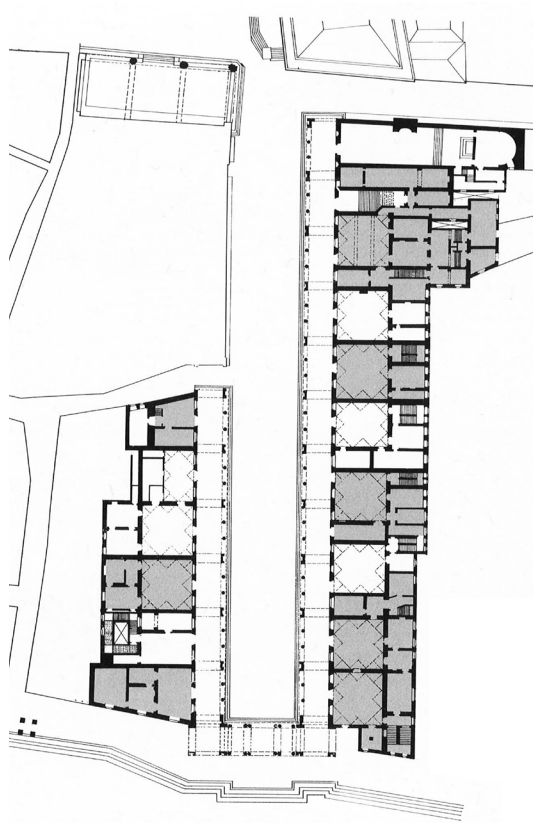
1.24 Giorgio Vasari, *Uffizi,* (Florence, 1560-81). Typical plan [extracted from L. Satkowski, *Giorgio Vasari*, Princeton University Press, 1993]

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area on the mezzanine level accessible from a side staircase.[79] The disarticulation of the façade from the internal distribution of the modules allowed the perfect integration of an incredible variety of programs – including a church, a theatre, a library, a mint, an art gallery, a mediaeval tower, warehouses and, of course, offices – despite the site's irregularities, literally transforming the building into the product of its context: a city within a city.

Giorgio Vasari's technical approach and professional detachment from construction, demonstrated his particular attention to the art of drawing – the *disegno* – conceived as a primarily mental translation of ideas into forms, able to economically devise a plan, to organize and distribute a space before its concrete construction. It would be precisely this managerial approach to architecture, and its logical analysis into modular components, to stimulate the typological investigations of Vasari's long-time collaborator, Bartolomeo Ammannati, and Vasari's nephew, Giorgio Vasari the Younger.

The *Città Ideale* by Bartolomeo Ammannati, for example, constituted a random collection of drawings, annotations and sparse texts for a hypothetical treatise on the city, which nonetheless was never accomplished despite the author devoted his whole life on it.[80] The extensive body of material ranged from geometrical problems to mathematical theorems and games, technical information concerning the design of fortifications and bastions, notions of urban planning, mechanical schemes, descriptions of instruments and machines, plans of houses and public buildings.

The most part of his proposals, in fact, were public and social facilities typical of an infrastructural urban expansion and necessary for a consolidation of its territorial

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79 The tripartition of the module was rationally repeated also in elevation, marked by pronounced cornices dividing the upper and lower loggias from the piano nobile, characterized by large series of windows in alternately triangular and arched tympani which provided light to the ducal workshops and laboratories. The basement floor was organized with a radically abstract trabeated loggia, which displayed Tuscan-Doric columns to praise the mythical Etruscan/Tuscan origin of Florence's power and was covered with a longitudinal barrel vault lightened by low rectangular openings, as found in Roman crypto-porticoes.

80 The main 'corpus' of Ammannati work includes the drawings for the *Città Ideale,* and a series of various annotations of different nature contained in the *Manoscritto Riccardiano,* which also includes some documents by Luca Pacioli. See Bartolomeo Ammannati, *La Città. Appunti per un trattato,* edited by Mazzino Fossi, (Rome: Officina Edizioni, 1970) and also Mazzino Fossi, *Bartolomeo Ammannati Architetto*, (Floence: Morano, 1968).

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management: markets, parsonages, hospitals, schools, prisons, farms, monasteries, administrative palaces, barns, customs, etc. For the same reason, the drawings were conceived in their sole functional organization, ruled by simple logical principles and mostly reduced to concrete schemes of distribution, devoid of decorations or sumptuous arrangements. In other words, in Ammanati's *Città* there was nothing "ideal", being everything rationally laid out for a possible urban realization: the originality of the plans coincided with their totally objective and often obsessive elaboration, which sometimes resulted in architectures of great complexity, sorts of 'cities-within-cities'.

1.25

The famous *Calonaca,* for example, a project for a patronage, included 71 two-stories residential units partially equipped with patios and arranged around a

1.26

central block containing common facilities. The units were all based on the same modular typical plan and, combined in different ways to provide larger possibilities for different users. The squared continuous sequence of row houses formed a defensive inhabitable wall, bordering the whole complex as a fortress and leaving one single point of access. Separated by an internal street, another row of housing units delimited the inner block, which gathered four districts around a central square with a church, a library, a common kitchen, a bakery and shared laundries in the back, similarly to the necessary provisions suggested by Francesco Di Giorgio for the plans of fortresses or encampments.

The motif of the inhabitable wall and the introverted composition recurred in many other projects devoted to collective use, as in the important proposal for a Custom House, where the series of independent residential rooms and offices for functionaries stood on a first floor above deposits, guardian posts, and chancellor's rooms bordering a central courtyard. The office-type on the upper floor, with their double height squared halls, mezzanines and service rooms served by internal stairs, was so successfully solved that might have influenced even Giorgio Vasari's coeval project for the *Uffizi* in Florence.[81] The inhabitable wall characterizes also

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81 Bartolomeo Ammannati, *La Città. Appunti per un trattato*, edited by Mazzino Fossi, (Rome: Officina Edizioni, 1970): XXV dis. 3406 A and XXVI dis. 3407 A

his proposals for palaces, such as the generic public residence with two courtyards[82] or the study for a Palace with Three Courtyards,[83] presented a central core with staircases and services surrounded by a series of residential rooms alternated with larger *saloni*, on the model of Palazzo Farnese in Rome, whose plan also appears among the plans of the series.[84]

Another recurrent motif, opposite to the previous one, was the centrifugal distribution of rooms, as in his *Pianta senza scritura fatta,* or literally a "plan sans phrase", where the combination of spaces did not have any programmatic intention except the pure logical concatenation of its spaces. As Mazzino Fossi explained it, "sanza scrittura" meant a plan without any clear destination and considered only as a schematic exercise for either a public or private complex of great dimension, for a "grande abitazione"[85] like a tribunal or a palace for magistracies. The plan was in fact centered on a main *salone,* surrounded by a cruciform distribution of four squared porticoed courtyards and a liminal row of modular rooms and served by four angular staircases.

A last leitmotif was a primeval form of open-plan, mostly recurring in working or servile spaces like barns or warehouses, usually supported by a simple grid of pilasters,[86] or in other generic shelters, like the hypostyle space for "uncertain purposes", with nine circular and octagonal domes and a squared labyrinthine plan.[87]

Coeval of Ammannati, and working also at the court of Cosimo I and later of Francesco I in Florence, was Giorgio Vasari the Younger, nephew of Giorgio Vasari and author of another project for a *Città Ideale.* Rejecting any explicit relation with the environment, Vasari the Younger, imagined an octagonal city lying on a flat ground plane, well exposed to the winds and in the proximity of a river.[88] But the apparent simplicity of the layout was contradicted by the rich typological

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82 *Ibidem*: XXVIII, dis. 3415 A
83 *Ibidem*: XXXIII, dis. 4514 A
84 *Ibidem*: XXXIV, dis. 3450 A
85 *Ibidem*: XXIX, dis. 3416 A. See also the further development of the complex in XXX, dis. 3455 A and XXXI, dis. 3457 A. In other examples, the
86 XXIII, dis. 3404 A and XXIV, dis. 3405 A
87 XXXII, dis. 3460 A
88 Giorgio Vasari il Giovane, *La Città Ideale. Piante di chiese, palazzi e ville di Toscane e d'Italia,* edited by Virginia Stefanelli, (Rome: Officina Edizioni, 1970).

Real abstraction and labor sans phrase

formulations for public, private and collective facilities. More than Ammannati, in fact, Vasari the Younger privileged the most utilitarian and less representative urban types, which he elaborated out of an almost mechanical process of composition. Most of the plans derived in fact from the reiteration of a single modular unit, a squared room, often resulting in sort of orthogonal diagrams devoid of scale. This was particularly evident in the projects for collective housing, such as in convents and monasteries but also in the proposals for a university or an orphanage, where the logic of aggregation responded only to its systematic continuity, even when positioned in not-symmetrical conditions. As in Ammannati, all the plans were rigidly enclosed within a solid boundary, often corresponding to a series of inhabitable rooms. Yet, in Vasari the Younger the internal distribution of spaces was richer in terms of programs and often unbalanced in terms of composition, exalting even more the methodological possibilities of his method.

The *Città Ideale,* was in fact preceded by another book of plans, *Il Libro delle Piante di Chiese, Palazzi e Ville in Toscana e d'Italia,* a sort of recueil in which Vasari the Younger gathered the blueprints of renowned building plans, simply juxtaposed according to form and typology. Such a personal categorization, which in a way represented the state of current architecture, provided the linguistic basis of his morphological evolutions, further assembled in the plans for the *Città Ideale* via a process of schematization and abstraction consolidated in the squared modular unit. The previous book of blueprints provided also a first programmatic selection of civic architectures for the future *Città,* such as hospitals, banks, office buildings, magistracies, asylums, prisons or, in other words, all those institutions which would shape the rising of the modern State apparatuses. Famous, in this respect, were the projects for a Merchants' Loggia[89] and for the Magistracies, both indispensable for the governance and the increasing market exchanges of the expanding Dukedom of Florence, and in fact both resembling the first version of Giorgio Vasari's *Uffizi:* a public square delimited by a continuous loggia and surrounded by a modular

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89 *Ibidem,* 102: "Per comodo poi, ed uso, de Gentilhomini, e Mercanti, i quali è pur bene come si vede in tutte le Città, che habbiano un'luogo appartato dove possano ragunarsi insieme, a trattare di loro negotij, potrà servire questo disegno".
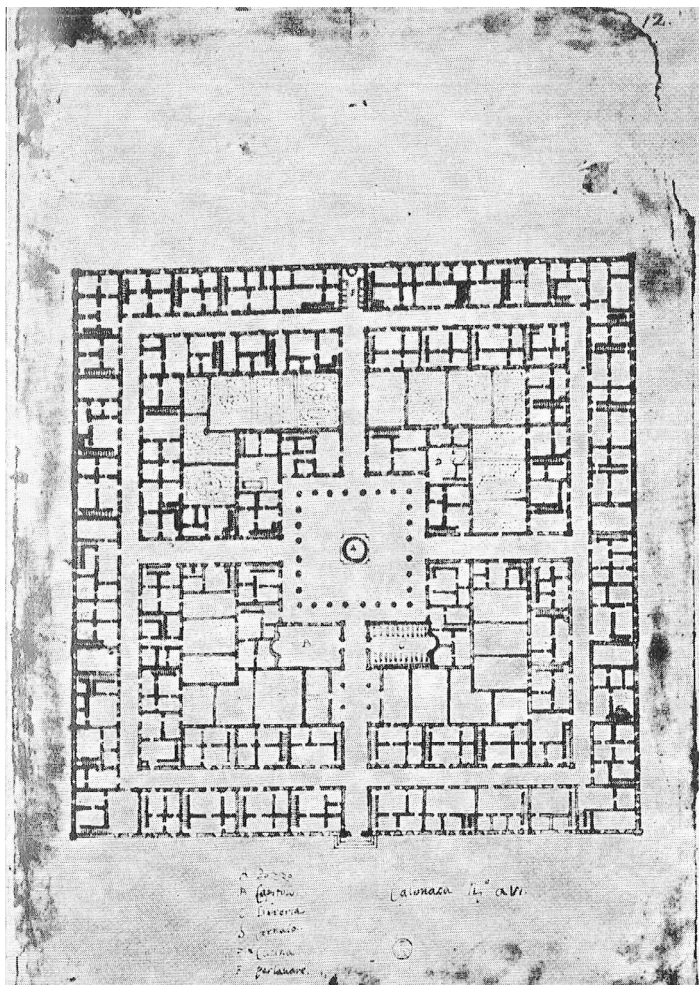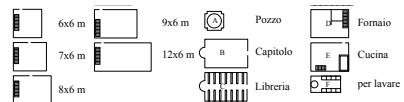
1.25 Bartolomeo Ammannati, *La Città Ideale* (ca.1550-92). *Calonaca* (Typical plan for a patronage) XII. dis. 33 A. (A) Pozzo (B) Capitolo (C) Libreria (D) Fornaio (E) Cucina (F) per lavare.
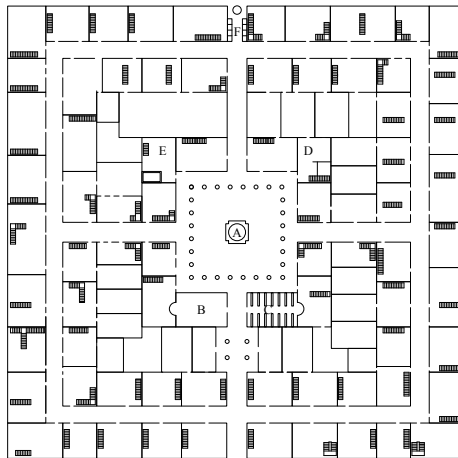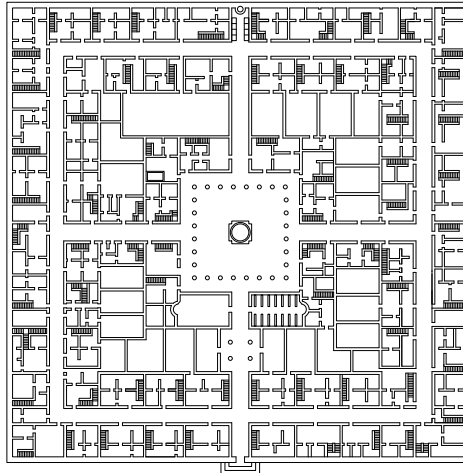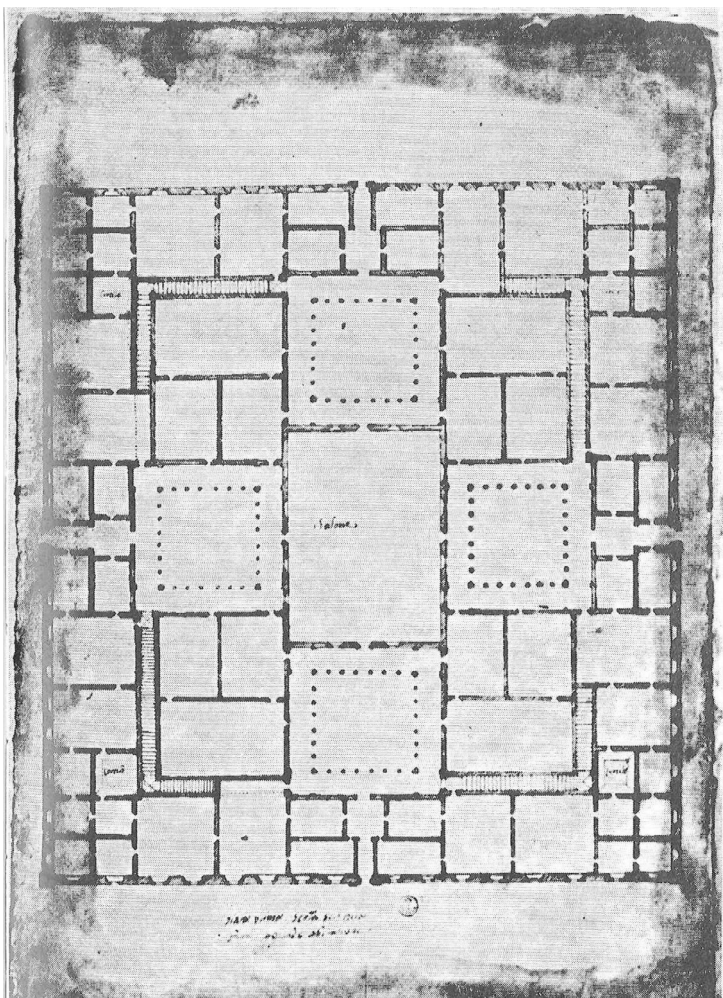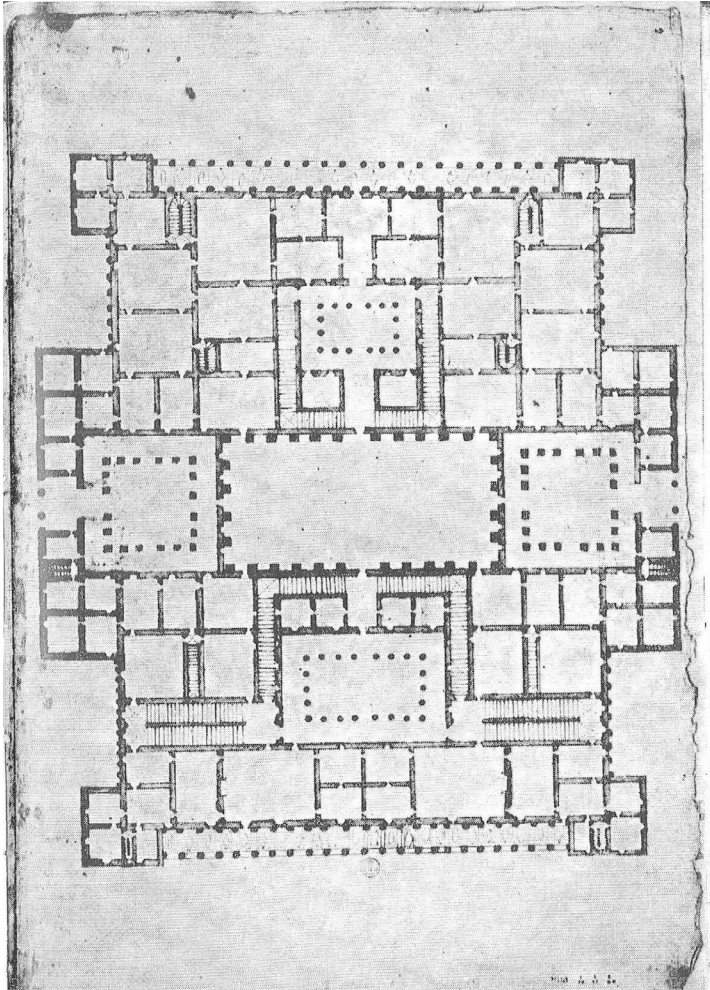
1.26 Bartolomeo Ammannati, *La Città Ideale* (ca.1550-92). Typical plan for a patronage redrawn by the author on the basis of the XII. dis. 33 with a scheme of the typologies. (A) Water well (B) Church (C) Library (D) Bakery (E) Common Kitchen (F) Laundry.

|						
	6x6 m		9x6 m	Pozzo		Fornaio
	7x6 m		12x6 m	Capitolo		Cucina
	8x6 m			Libreria		per lavare

1.27 Bartolomeo Ammannati, *La Città Ideale* (ca.1550-92). *Pianta prima senza scrittura fatta per grande abitazione* (Plan without destination for a large program) XXIX. dis. 3416 A.

Real abstraction and labor sans phrase

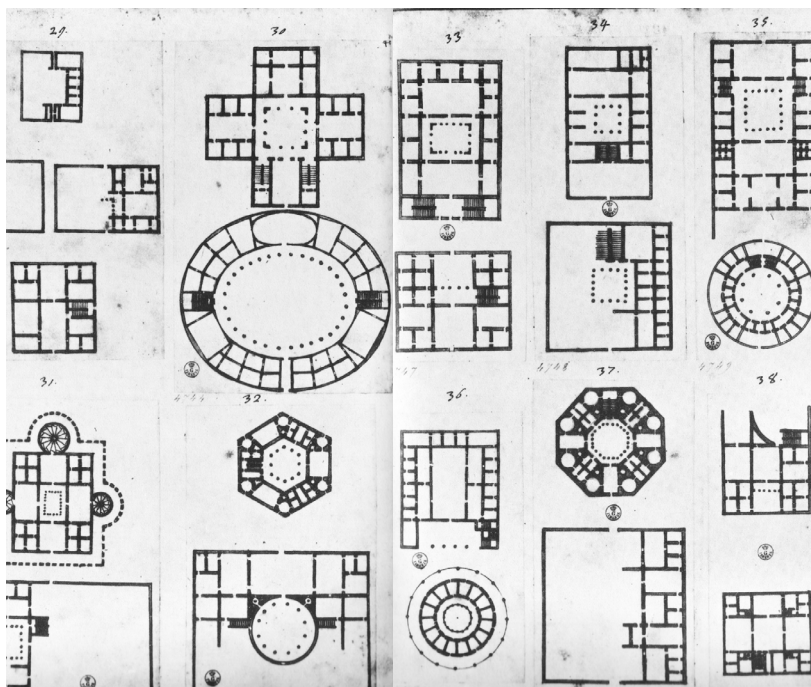**1.28** Bartolomeo Ammannati, *La Città Ideale* (ca.1550-92). untitled. XXXI. dis. 3457 A.
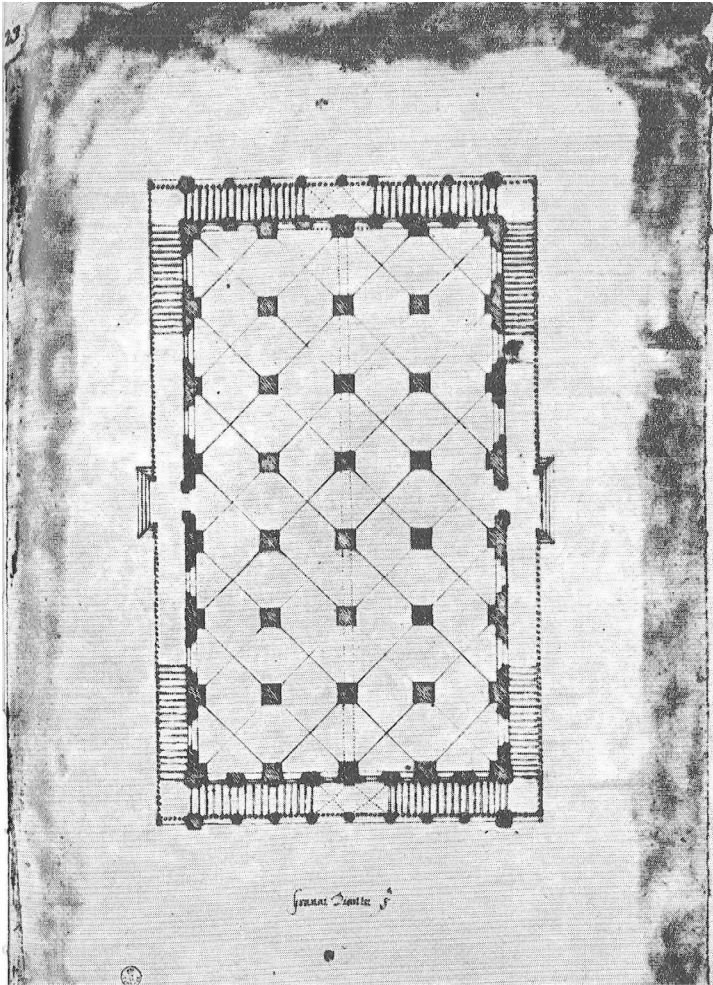
1.29 Bartolomeo Ammannati, *La Città Ideale* (ca.1550-92). *Granai* (Typical plan for a barn) XXIV. dis. 3405 A.
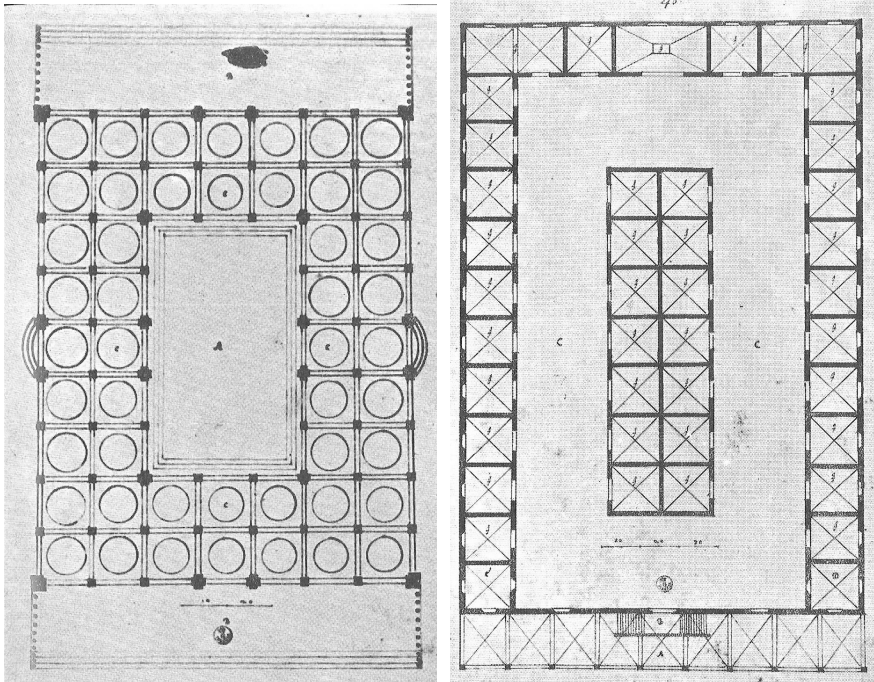
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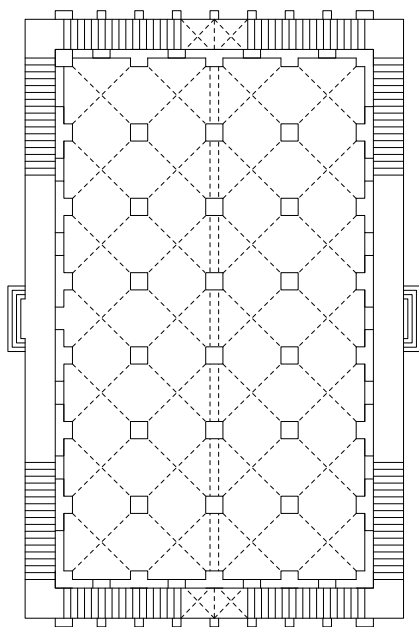
1.30 Bartolomeo Ammannati, *La Città Ideale* (ca.1550-92). Typical plan for a barn redrawn by the author on the basis of the XXIV. dis. 3405 A.

1.31 Giorgio Vasari the Younger, *Libro delle Piante di Chiese, Palazzi e Ville in Toscana e d'Italia*. Catalogue of typical plans.

*Real abstraction and labor sans phrase*

1.32 Giorgio Vasari the Younger., *La Città Ideale* (1598). Typical plan of a public loggia and a square for merchants (left), typical plan for a barn (right). (A) Arcades (B) Slope (C) Main circulation hall (D) Office (E) Rest room and surveillance room (F) Barns.
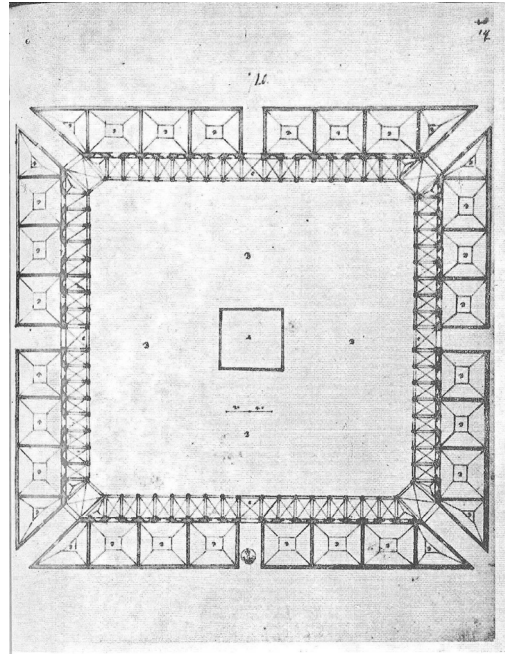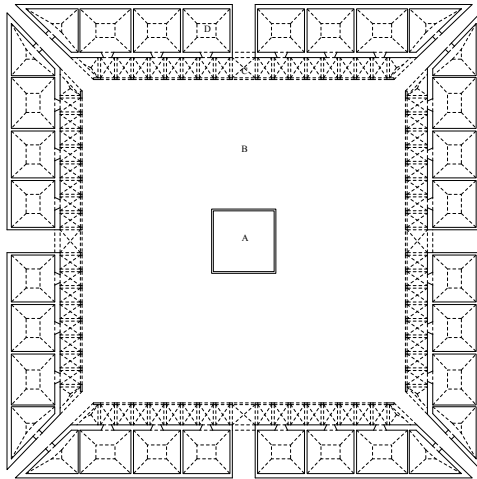
1.33 Giorgio Vasari the Younger, *La Città Ideale* (1598). Typical plan for the palace of magistracies. Redrawn by the author (A) Palace of the Prince (B) Square (C) Arcades (Offices)
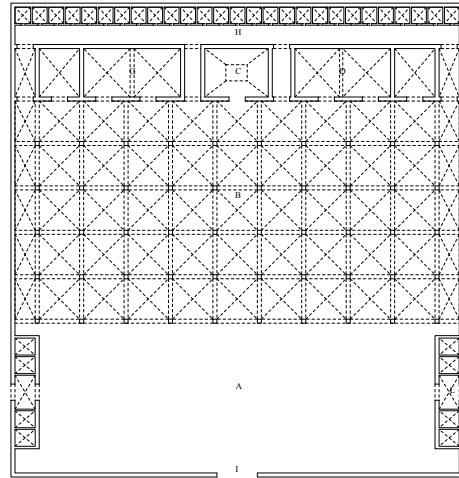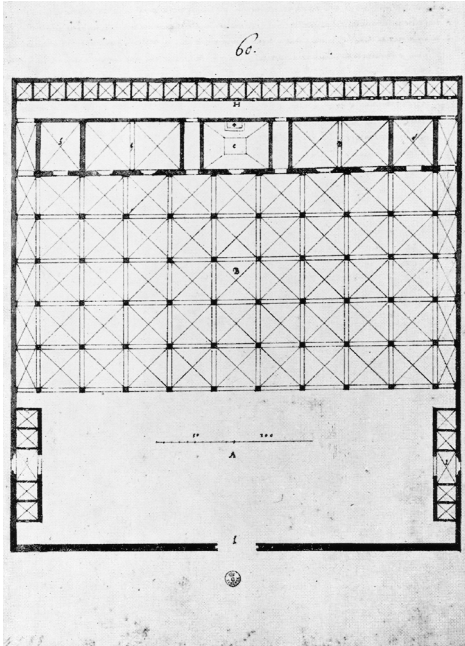
1.34 Giorgio Vasari the Younger, *La Città Ideale* (1598). Typical plan of an Arsenal redrawn by the author. (A) Open-air working space (B) Porticoes for the boats (C) Chapel (D) Wood Deposit (E) Carpenters' workshop (F) Iron storage (G) Blacksmiths' workshop (H) Workers' housing (I) Main entrance (L) River

Typical plan as a technical device 91
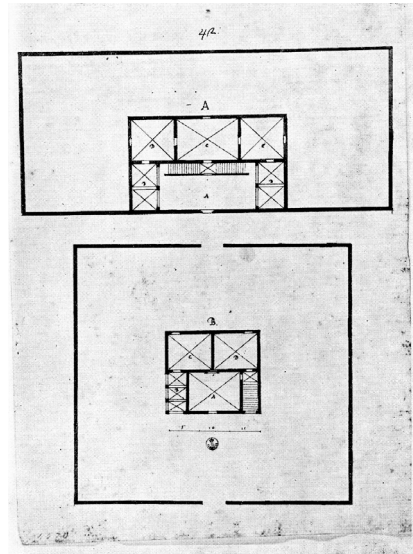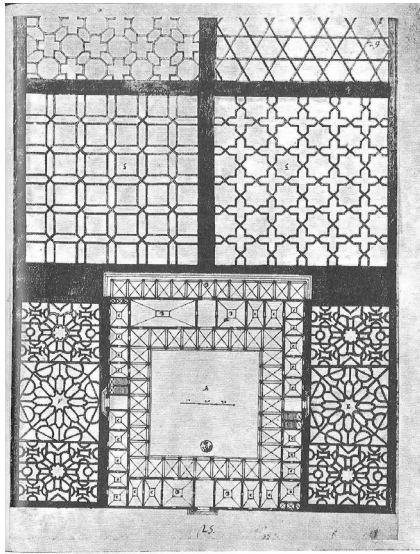
1.35 Giorgio Vasari the Younger, *La Città Ideale* (1598). Typical plan of a palace with gardens.(A) Courtyard with loggia (B) Saloni (C) Rooms (D) Loggia on the garden (E) Garden of flowers (F) Small garden (G)Half of the wide garden.

1.36 Giorgio Vasari the Younger, *La Città Ideale* (1598). Typical plan of houses for peasants. (A) Courtyard (B) Portico above and below (C) Cellar and room above (D) Stable and room above (E) Stable and room above

Real abstraction and labor sans phrase

sequence of open or closed squared rooms.[90] The use of modules was indifferently applied not only to private houses, palaces or churches, but also to more utilitarian buildings, such as stables, armories or deposits and even to gardens, in which plants and trees achieved the same consistency of walls as in open-air rooms. In the proposal for a barn,[91] or in the one for a merchants' loggia, or even in that for a parsonage,[92] the obsessive juxtaposition of rooms became a simple plain a grid, which definitely reduced the problem of composition to a mechanical issue of organization and circulation.

Among Vasari the Younger's plans, there was also a tendency to consider the economical and social differentiations of the respective users, albeit far from the precision of Serlio's VI book,[93] but nonetheless accurate in reflecting the corporative class composition of Florence at the time, distinguishing houses for gentlemen, well-off bourgeoises and merchants, craftsmen, farmers and peasants. In particular for the last two categories, Vasari the Younger proposed not only variations of affordable urban housing units, with elementary combinations of rooms and patios in the back, but also curious houses for peasants annexed to enclosed fields, whose absolute dryness and simplicity recall Mies' future studies for patio houses.[94] Housing was also integrated in types immediately devoted to production, such as in the tripartite Plan for an Arsenal – one of the important productive locations within the Renaissance city, forerunner of the modern factory – in which Vasari the Younger

90 *Ibidem,* 98: "E' di gran comodo all'universale de' i popoli in una Città, che i Magistrati tutti, e i Tribunali, da quali si esercitano gl'atti della Iustitia, p dare à ognuno quello che è suo; no siano tutti sparsi p la Città, ma uniti insieme, p comodo di chi hà bisogno di loro, massime de' i forestieri, i quali no si habbiano aggirare."

91 Clearly derived from the squared module of Orsanmichele in Florence. *Ibidem,* 150: "Necessarissima è la presente pianta, p. riporvi e conservarvi ne tempi abbondanti e fertili le grande ricolte, così di grani come di tutti le altre sorti di biade, per i tempi che potessero venire penuriosi, secondo che meglio sarà giudicato da quelli, che sopra di ciò saranno deputati."

92 *Ibidem,* 150, 160, 102: "per comodo poi, ed uso de Gentilhomini, e Mercanti, i quali è pur bene come si vede in tutte le Città, che habbiano un'luogo appartato dove possano ragunarsi insieme, a trattare di loro negotij, potrà servire questo disegno, di molto diversa forma da quella, che insino à ora sono state fatte conciosiacosa che l'haviamo fatto aperto nel mezzo, no solo p cagion del lume, ma ancora accio che di state vi si possa passeggiare allo scoperto, si come la vernata, e ne tempi cattivi al coperto."

93 Sebastiano Serlio, *Sesto libro delle habitationi di tutti li gradi degli homini,* edited by Marco Rosci, (Milan, 1966)

94 *Ibidem, 140,* 142: "Ma che per tutti i Poderi come si è di sopra accennato, non sono grandi à un modo, e no hano bisogno di un gran' casamento, p.cio haviamo q.te due altre piante p. altre case da Lavoratori di poderi più piccoli"

provided compartments for workers behind the large workshop and the ateliers of blacksmiths and carpenters.[95]

5. *End of the siege*

Albrecht Dürer concludes his treatise on fortifications with the famous woodcut *The Siege of a Fortress*. Yet, similarly to his previous cross section for an angled fort, also here the illustration reveals much more than a simple warfare event. On the left side stands a fortress, with a relatively minor relevance in respect to the other larger part of the woodcut, dedicated to the sole advancements of the troops. In the representation there is neither heroism nor the violence of the clash: it is an impartial report of a marshaling army. Nevertheless, the fact that two thirds of the woodcut were dedicated to the arrays of soldiers, arranged in the rigid dispositions of the *ordinanze*,[96] clearly prefigured not only the future extension of the defensive urban apparatus beyond the close delimitations of the ramparts,[97] but also the homogeneous application of the military discipline across the whole territory.

The troops, in fact, were rendered in so regular and compact forms to almost resemble buildings, controlling and at the same structuring the large plain in front of the city. In this way, the mathematical order of war-machines, first translated into the geometrical organization of the city, was here definitely applied on human bodies, to frame their movements and administer their cooperation. In the early manuals and treatises of war the *ordinanze* were not usually described by means of figures, but

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95 *Ibidem,* 178; "O nella Città, o vicino ad essa, sarà comodissimo un' luogo p un' Arsenale, p. fabbricarvi nuovi legni, e rassettarne di vecchi, e guasti, però haviamo fatta questa pianta assai grande e spatiosa (...) Lo stanzone che si è disegnato à man'ritta servirà p. tenervi legnami, e la stanza appresso p. lavorargli da maestri d'asce. si come quello à manca servirà p. il ferro, ò ferramenti, e la bottega vicina p. i fabbri. Haviamo ancora disegnato molte stanze quali servino p. abitatione de lavoranti."

96 The *ordinanza,* or *forma,* was the particular arrangement of a troop in war according to the different soldiers. As already mentioned, Dürer was indeed familiar to Nicolò Machiavelli *L'Arte della Guerra,* (1520), which presented a compendium of the Roman *ordinanze* at the end of the book. See Guido Beltramini, *Andrea Palladio and the Architecture of Battle: With the Unpublished Edition of Polybius' Histories*, (Venice: Marsilio, 2010).

97 As already occurring with the aforementioned *guasti* or the mathematical calculations of the *contro-scarpe* around the city walls.
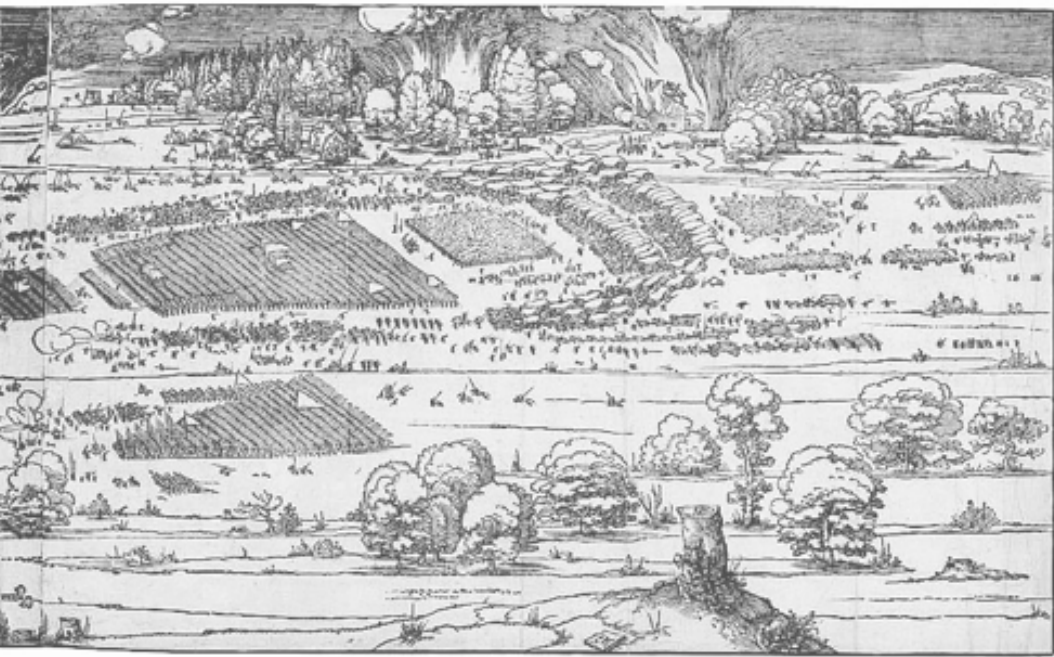
according to a particular typographical system that associated alphabetical types to soldiers on the battlefield. This form of abstract representation, which reduced men to letters and troops to geometrical figures, was inherited from the old *Tactics* of Aelian (Aenas Tacticus), a Greek military writer who, in the II century B.C., edited one of the firsts known treatises on war and military stratagems, describing the different formations of the hoplites' phalanx through typical forms and parameters applicable in different wars and strategies.
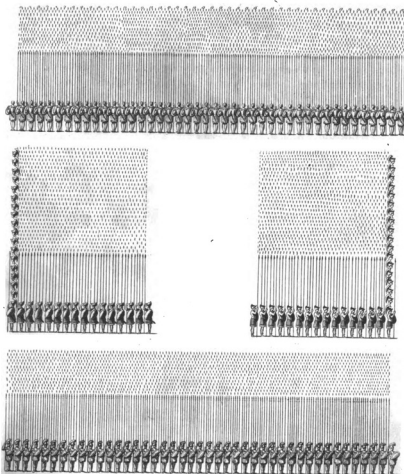
Through the mathematical configuration of the troops, the calculated precision of the orthogonal projections and the rigor of the axonometric representations, the real abstraction of the technical frame was finally ready to be posed as founding principle of reality, preparing the terrain for the upcoming industrial revolution and for that "architecture of delirious equivalence" described by Frederic Jameson. Soon the siege depicted by Dürer would be over since war would extend everywhere: the fortress with its ramparts would be swallowed by the isotropic condition and the typological continuum of capitalist production, reducing the city and its architecture to what Archizoom defined a *non-figurative* plan, ultimately translating Aelian's human *ordinanze* in the regular supports of a unique and ubiquitous typical plan.[98]

98 Archizoom Associati, "Città Catena di Montaggio del Sociale. Ideologia e Teoria della Metropoli", *Casabella*, 350-351, Jul-Aug (1970).
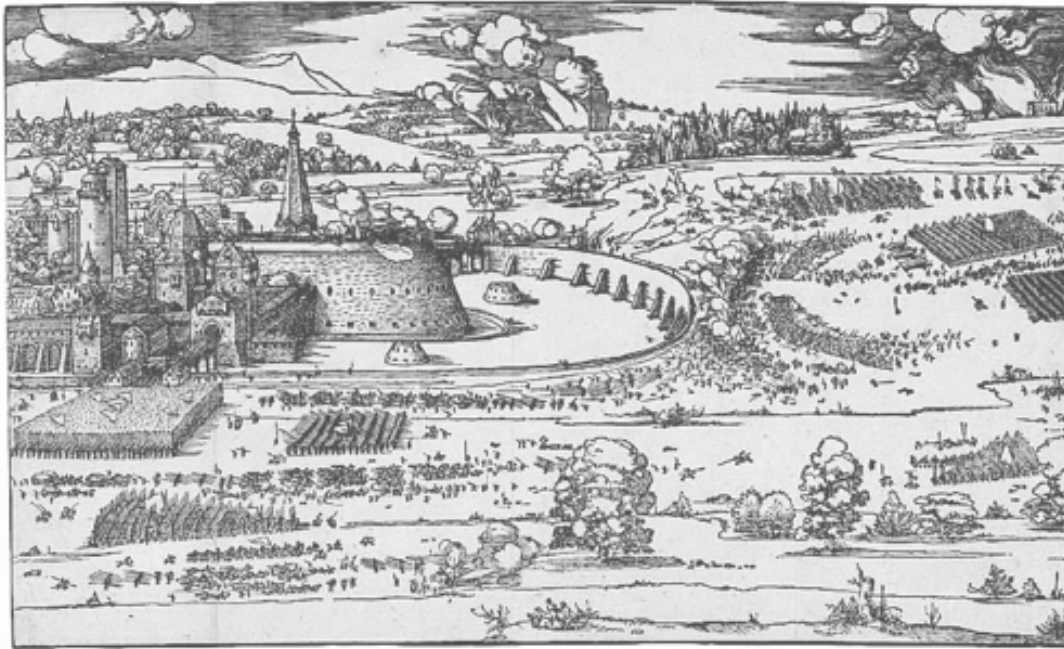
1.37 Albrecht Dürer, *Siege of a city*. In *Etliche underricht zu befestigung der Stett, Schloß unnd flecken* (1528).

Real abstraction and labor sans phrase

1.38 (left) Aelianus Tacticus, *Tactics* (II B.C.). Standard alignments and a *phalanx* in a quadrilateral form with four fronts.

1.39 (rigth) Niccolò Machiavelli, *The Art of War* (1525). Two forms of *ordinanze* in aligned and squared arrangement.
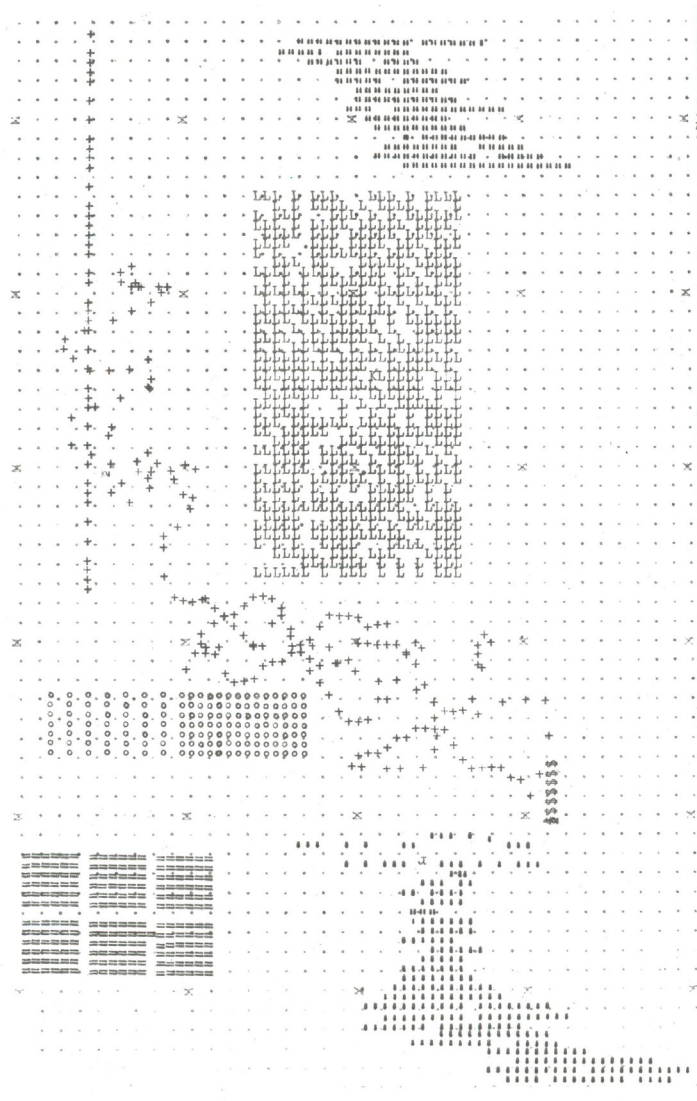
1.40 Archizoom Associati. *Hypothesis for a non-figurative architectural language* (1970).

Typical plan as a technical device

II

Architecture and revolution

Typical plan as index of generic

Albert Kahn, *Ford Highland Park Plant*, General Layout. (Detroit, 1914)

The vast architecture of the factory is perhaps the only means of translating the immeasurable reality of production into a present and tangible form. From the extraction and transportation of materials thousands of miles away, to the assembling of products and their final distribution across foreign lands, it is the colossal nature of the factory which enables such a particular architecture to represent all modes of industry. Rather than a building, the factory resembles a system of relations that extends far beyond the limits of any enclosure. It is more than a metaphor: as the model of industrial logic in which raw materials become finished commodities, the factory functions as the concentrated form of the modern metropolis. The discrete entities that compose the city – coordination of masses, building typologies, land values, and levels of integration – run parallel to the individual jobs on the factory floor; the whole of an architecture or place cannot function without its parts. And it is precisely these parts that have, through labor struggle and revolution, shifted not only the entirety of the industrial plan, but also the societal machine intrinsically linked to production.

Over time, capitalism did not determine the factory; rather, the attitudes, frustrations, and needs of the working class influenced advancements in policy, plant conditions, and architecture. As employers answered their employees' struggles, protests, and sit-ins by investing in better wages, fairer hours, and safer working conditions, capitalist goals were not simply met but exceeded. Financial potential lay within revolution and the architecture and work systems that answered it. By reacting to struggle with enhanced worker incentives and a more streamlined approach to production, automotive giants such as Henry Ford and the Ford architect Albert Kahn set the physical and psychological foundation that make even today's factories run. To understand the ever-evolving dialectical logic between struggle and development, architecture and revolution, there is nothing more revealing than retracing the evolution of the factory plan.

1. *Marx in Detroit*

By the end of the 19th century, the dramatic economic growth of industry could no longer avoid addressing the dire circumstances responsible for its rapid success. A revolutionary project was taking place that began to dissect the power dialectics of the era and explicitly confront the subjects involved, primarily intolerable living conditions and the oppressive rhythms of labor exploitation. The promises made by the industrial arena of a better life or future paled in comparison to strife – low wages, long days, and abuse – within the factory. Yet if the human condition has always evolved through labor and labor-conflict, as Karl Marx and Friedrich Engels suggested in both the *Outlines of the Critique of Political Economy* and *The Housing Question*, then an accurate analysis of the political relations and the embedded contradictions of this historical time could have enabled workers to understand that the metropolis and its capitalist development were a result of their labor struggle, not its premise. In this sense, the history of the workers movement seems to culminate wherever capitalist powers have been able to deploy their strongest mechanisms of resistance – offices, warehouses, department stores, universities, housing settlements, and, above all, factories – in a strenuous endeavor to technically "solve" the workers revolution by opposing an appropriate architecture.

Revolution, therefore, could not be avoided.[1] On the contrary, it became the true agent of capitalist advancement and its architecture of production. In Detroit, the early stages of Fordism, from 1905 to 1941, saw unprecedented levels of labor struggle at its most fundamental; workers were devoid of any ideology and only "asked for more": more wages, better working conditions, and freedom of assembly. Yet it was precisely this radical and disenchanted bargaining strategy that produced a higher capitalist technical response: the industrial architecture of Albert Kahn, whose factories for Henry Ford literally demonstrated both how the opposition of the working class generated the space of production and in which ways the "blood and fire" of American labor history could be translated into new rational

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1 As Le Corbusier provocatively affirms in his renowned "Architecture ou Révolution," *Vers une Architecture* (Paris : Éditions Crès, 1923).

Architecture and revolution

configurations of workshop layouts. Mass production reduced living labor down to an abstract and generic entity – to a "labor sans phrase" – uniform in quality and only different in quantity, which enabled the factory to approach production with a plan drawn from the simplest form of possibility: the "typical plan," a coherent, flexible, and reproducible scheme, constructed from an homogenous envelope, a technical core, and a minimum of supports that achieved maximum profit from tacit human potential, which could be altered by those in charge or the acts of employees themselves as an instrument of control and emancipation.

The term "typical plan" was first introduced by Rem Koolhaas in a short text describing the repetitive homogeneity of 20th-century Manhattan's plans for office buildings as one of the purest American non-ideological archetypes – a plan stripped of all its qualities and reduced to calculated relations between discreet elements, in which anyone could simply be and perform himself.[2] "Typical" was in fact the "nth" plan, the standard skyscraper floor plan that resulted from the vertical "extrusion" of a given urban site, whose tautological over-imposition allowed the multiplication and controlled reproduction of the wild spirits of Manhattan's congestion. From the "montage of attractions" of the first hybrid skyscrapers (such as the Flatiron Building, the Waldorf-Astoria, or the Downtown Athletic Club), massively deduced from real-estate possibilities and simply shaped according to the envelopes of the Zoning Law, to the post-1929 prototypes, which operated independently from the urban block through slender automated combinations of volumes and the serial rectangular variations of the plan (as in the case of the RCA Building, the Lever House or the ONU Headquarters), Koolhaas described the technological evolution of the typical plan in parallel to the progressive demise of the skyscraper's representational and narrative character. This genealogical rarefaction resulted from the mature absorption and metabolism of unconscious metropolitan energies via the abstraction of "business," a program that did not require any particular function or spatial distribution except for a simple architectural frame that could accommodate its continuous fluctuations and changes by means of both the empty indeterminacy

2 Rem Koolhaas, "Typical Plan: Mediation, 1993," in *S, M, L, XL* (Monacelli Press: New York, 1995): 336–350.

and the specificity of its singular form.

More than a plan, the typical plan was a device meant to contain, mediate, and measure any kind of activity across the floor: it did not possess any meaning or an established configuration in itself but was instead generated, in each instance, from the forces, variations, selections, and revolutions contained within its enclosure, as an "index" of the generic human potential.[3] Besides its internal rarefaction, the power of the typical plan existed in its regular delimitations, which permitted technical reproduction and the opportunity for its inhabitants to achieve their full potential. Typicality, then, did not imply an inconsiderate and uncontrollable flat extension, but a rigorous modular reproducibility of similar yet non-identical forms based on the living activities of the subjects who inhabited its floor. In this sense, rather than repressing the material and immaterial forces of production or, as Koolhaas claimed, inhibiting the soul of Manhattanism, the reproducibility of the typical plan and its technical conventions made these forces even more explicit (and thus exploitable) by clearing away everything unnecessary to let life simply emerge.

While financial capitalism drove the typical plan towards its basic form, it was modern American industry that established its political and economic foundation, the dialectical relation between architecture and production, typical plan and forms of life. In Mario Tronti's postscript to *Workers and Capital*, the author offered the direct political strategy of American pre-union workers as a model for the European working-class movements of the 1960s. But beyond the organization of workers in the early 1900s, a more useful perspective into the linked roles of the working class, capitalism, the factory, and the city can be found in a genealogy of Albert Kahn's industrial buildings. The work of this Prussian-born "Architect of Detroit" conceptually redefined the "typical plan" not as a mere default condition of the modern city but rather as the true measure of its most fundamental principle for growth: labor power, the generic ability of any human being to produce.[4]

3 For the notion of the "index," see Charles Sanders Pierce, "A Sketch of Logical Critics," in *The Essential Pierce: Selected Philosophical Writings*, vol. 2, (1909): 460-461 and Rosalind Krauss, "Notes on the Index: Seventies Art in America. Part II", *October*, Vol. 4 (Autumn, 1977): 58-67.
4 For a complete analysis of the work of Albert Kahn, see George Nelson, *Industrial Architecture of Albert Kahn Inc.* (New York: Architectural Book Publishing Company, 1939); Grant Hildebrand, *Designing for Industries* (Cambridge, MA: MIT Press, 1974); Federico Bucci, *L'architetto di Ford. Albert Kahn e il progetto*

2. *Daylight Factories* (1905–1910)

> "Labor struggles are an irreplaceable instrument of self-consciousness for capital: without them it does not see, it does not recognize its own adversary and, therefore, it does not acknowledge itself."

—Mario Tronti[5]

Though the history of the United States began on the Atlantic coast, the country's culture, politics, and ideologies developed on the western Plains and through the industries of the North. At the turn of the 20th century, the progressive era coincided with the conquest of this frontier as well as the establishment of national boundaries and a general reassessment of the laissez-faire economy, whose impulsive speculations, mostly driven by railroad construction, had pushed the country and banks into deep financial crisis. Rapid growth of commercial exchanges and the development of new forms of corporate enterprise imposed a "visible hand" – the managerial layer of a company – upon the otherwise wild forces of markets. This type of supervision coordinated the circulation and distribution of needs, goods, and services and set the foundations for an intensive plan of industrialization and the future of financial capitalism.[6] Anti-monopolistic "positive government," which would culminate with presidents Woodrow Wilson and Theodore Roosevelt, enhanced the legislative role of Congress to endorse a balanced financial reform while nationally managing natural and energy resources (opening the peculiar path that would, in response to the Great Depression, influence President Franklin D. Roosevelt's implementation of the New Deal economy). At a larger scale, this

della fabbrica moderna (Milan: CLUP, 1991); and W. Hawkins Ferry, *The Legacy of Albert Kahn* (Detroit: Detroit Institute of Arts, 1970).
5 Mario Tronti, "Poscritto di Problemi," *Operai e Capitale* (Turin: Einaudi, 1966): 289.
6 The radical shift from the traditional American single-unit enterprise (in which an individual or a number of owners directly operated a single office) to hierarchical business organization – companies owned by shareholders and administered through multiple units in different locations and handling different lines of activities, goods, and services – marked the rise of the advanced class of managers and the salaried masses of employed immaterial workers. See Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA: Harvard University Press, 1977).

political strategy enacted comprehensive territorial planning, which involved considerable urban interventions and the construction of national infrastructural networks. Gradually, the American landscape, especially that of the American West, was transformed from an untamed externality of adverse conditions into a measured isotropic extension made of geographic distances and endogenous basins of resources.[7]

On a smaller scale, improved land-surveying techniques and notational systems (which dissected urban settlements and evaluated the degree of fire hazard in relation to the effective quality of the built environment) soon revealed the unreliability of conventional mill construction, specifically in the structures' ability to adapt to new systems of production. Citywide surveys had to be conducted, and insurance companies compiled special atlases whose protocols were based on "typical plans," in which the data taken from each building unveiled the working components that formed the true skeleton of the city. Each building's essential elements – from the size of the plot, construction materials, and characteristics of the supporting structure, to the locations of openings, doors, elevators and the presence of skylights or sprinkler systems – were accurately recorded to provide a complete sense of basic functionality.[8] However, the true modern rationalization of the factory only occurred with the introduction of "daylight factories," the first

2.1

7 The concept of "externality," or the conditions which are external but still influence the productive process (defined by Keynes as "given facts") has been transformed from a negative problem to be solved with the industrialization of nature (through infrastructure, transportation, and communication systems) into a positive resource for modern immaterial production, where localized qualities can be emphasized by creating distinctions increasing profits. Territorial hostility became fixed capital, a spatial "cost" to be maximized, and the traditional American "agrarian" ideology turned into a new strategy of accumulation through its gradual industrialization: from Emerson and Thoreau to Ludwig Hilberseimer – passing through Henry Ford. See Francesco Dal Co, "From Parks to the Region: Progressive Ideology and the Reform of American City," in *The American City: From the Civil War to the New Deal* (Cambridge, MA: The MIT Press, 1983). For a general account of American industrial architecture, see Betsy Hunter Bradley, *The Works: The Industrial Architecture of United States* (New York, Oxford University Press, 1999); Lindy Biggs, *The Rational Factory: Architecture, Technology and Work in America's Age of Mass Production* (Baltimore and London: The Johns Hopkins University Press, 1996); and Thomas P. Hughes, *American Genesis: A Century of Invention and Technological Enthusiasm* (New York: Viking, 1989).

8 It is no coincidence that, in the opening spread of Rem Koolhaas' *Delirious New York,* there is an extract from a Sanborn Map of Manhattan, which emphasizes the rude materiality of the typical plan beneath the phantasmagoria and congestion of the metropolis. See Diane L. Oswald, *Fire Insurance Maps: Their History and Application* (College Station, Texas: Lacewing Press, 1997).

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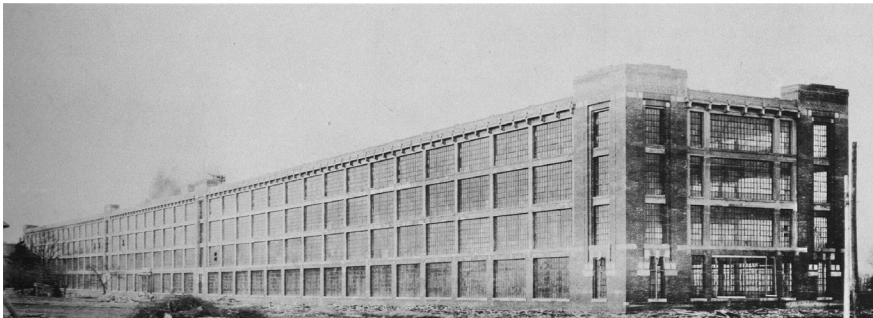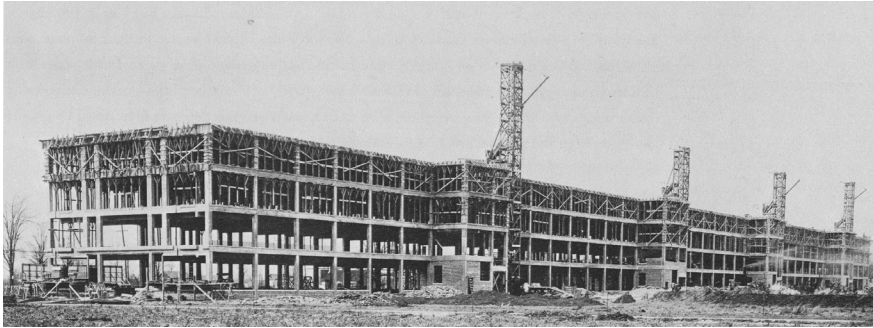
2.1 Albert Kahn, Ford Motor Company Plant, Highland Park. Old Shop, Detroit, 1909-1910. The concrete frame under construction, from southeast, and the completed building from southwest (demolished around 1960). [Ford Archives, Henry Ford Museum]

entirely fireproofed buildings built from reinforced concrete. The durable material provided an efficient deadweight resistance, a rapidity of erection with larger glazed surfaces, cleaner and safer workshops, a considerable reduction of supports, longer spans, a major economy of space, and wider flexibility, all without qualified builders.[9] Yet the archetype's clear spatial and economic statement as the "first fruit" of the new age unveiled a fundamental contradiction to the approach of progressive-era industrialization, whose menacing nature was articulated by the increasing discontent of the working class, which exploded in decades of numerous riots and upheavals (from the railway strikes during the 1870s to the 1882 Pennsylvania homestead strike, Chicago's 1886 Haymarket Affair, and the revolt of the Pullman Company town in 1894). The daylight factory, in this sense, constituted an ambivalent response to and a rational capitalist weapon against the assault of the working class and emerging labor organizations.[10] Accepting and, at the same time, opposing the requests of their employees (eight-hour work days, sanitation, and laws to safeguard children, women, and convict labor), employers could carry out even heavier forms of production by implementing new forms of scientific management in the production process. Ultimately, the daylight factory turned out to be an instrument of exploitation rather than an amelioration of poor working conditions.

2.2

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Albert Kahn was among the first to realize the value of daylight factories in the United States. Thanks to the Kahn System of Reinforced Concrete – patented by his brother Julius – the architect, whose family immigrated to Detroit when he was eleven, managed to not only erect multi-story concrete frames capable of

9 The pioneer of concrete construction in the United States was the engineer Ernest L. Ransome, who, starting in 1884, designed several massive buildings in California using rudimentary concrete systems armed with twisted steel bars of squared cross-sections. His experiments, developed through several patents from 1902–09, culminated with the Ransome System of Unit Construction, composed of an entirely standardized set of prefabricated elements. Ransome's first large-scale factory buildings – the Pacific Coast Borax at Bayonne, New Jersey and the United Shoe Machinery Company in Beverly, Massachusetts – were the first fireproof daylight factories built in the United States. These structures consisted of three-dimensional concrete frameworks with a large number of glazed surfaces, and they were entirely assembled with precast elements and mass-produced classical decorations. See Rayner Banham, *A Concrete Atlantis: U.S. Industrial Building and European Modern Architecture 1900-1925* (Cambridge, MA: The MIT Press, 1986).
10 From the beginning of the depression in the 1860s, the National Labor Union, the Knights of Labor, and the American Federation of Labor (AFL) fought to establish the eight-hour day and legislation on child, female, and convict labor.

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withstanding massive weights, but also reduced the frequency of the interior columns by up to ten meters – an innovation particularly suitable for the rising automotive industry in Detroit.[11] In several lectures, Kahn praised America's "sanest and most comprehensive development": concrete industrial architecture. He advocated for the elementary expression of smaller elements such as columns, lintels, and floors, and he strove to achieve a clear rhythm of light and shade. Through a simple articulation of solids and voids, Kahn's architecture maintained a size in proportion to the masses working inside the buildings.[12] Kahn's first two important industrial commissions – for the Packard Plant in Detroit and the Pierce Arrow in Buffalo – were variations on the daylight factory, based on two defining structures: the multi-story platform, a three-dimensional concrete frame that could vertically organize the entire production process "under one roof," and the roof-lighted single-story horizontal workshop, where all manufacturing activities occurred "over one floor" appropriate for heavy machine-rooms.[13] Both models converged in Kahn's

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11 The system was based on the "trussed steel bar," a steel bar with a diamond-shaped section that projected wings on either side and slotted off along the edge of the diamond, bending up to an angle of 45-degrees to reinforce the shearing stress of the joint.

12 See Albert Kahn, "Reinforced Concrete," typewritten, November 18, 1918 and "Reinforced Concrete Architecture: These Past Twenty Years," speech for the twentieth anniversary of the American Concrete Institute, typewritten, 1924 (Albert Kahn Archive).

13 Building No. 10 for the Packard Motor Car Company in Detroit was commissioned in 1903 to extend nine preexisting brick-pier buildings, which were organized around courtyards. Kahn designed a new unit using a reinforced concrete frame, whose rectangular plan of 60 by 100 meters was divided into two aisles by a central row of columns. The squared bays, spaced by almost ten meters, supported a central girder, on which rested the beams at five-meter intervals, according to the Kahn Trussed Steel system. The structural skeleton was completely exposed on the façade, devoid of a perimeter girder, and filled either with glass or brick panels where light was unnecessary and further protection was needed. The technical volume at the last bay, containing services, shafts, and the water-tank, constituted the only exception to the absolute severity of the multi-story frame, defined by Reyner Banham as a real "a null value condition, a zero-term of architecture of ruthless rationality which hardly any other architect or builder with a professional conscience could have done." The other variation of the daylight factory was the Geo N. Pierce Car Company in Buffalo, conceived in 1906 as a unique plateau for production. Only one story high and roof-lighted, the architecture in this case was entirely deduced from the flow of production: the horizontal plan was organized according to a common structural module proportionally adapted in relation to the different sectors of the manufacturing processes: brazing, manufacturing, assembly, and body building. Since the whole manufacturing process occurred on a horizontal plane, the saw-tooth glazed roof achieved a complete independence from the workshop, the machines, and their partitions, ensuring a diffused natural light and an homogenous ventilation across the whole production space, prefiguring the technical ceilings of modern office buildings. See Reyner Banham *A Concrete Atlantis: U.S. Industrial Building and European Modern Architecture 1900-1925* (Cambridge, MA: The MIT Press, 1986): 82-102.

2.2 The Devastation of Railroad Equipment, Cars, and Locomotives during Railroad Riots, Pittsburgh, July 21-22 (1877) [Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA]

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2.3 The Daylight Factory as 'first fruit' of the new age: the rhetorics of light, order and hygiene against the threat of the working class discontent. Interior view of the Assembly Department of the Packard Motor Company Works, Detroit, 1917. [Photograph extracted from Moritz Kahn, The Design and Construction of Industrial Buildings (London: Technical Journal LTD, 1917)]

first project for Henry Ford: the renowned 1908 Highland Park plant of Detroit, built to manufacture the Ford Model T, "the average car for the average man."[14] The plant consisted of nine buildings. A four-story main unit of reinforced concrete framing hosted each distinct vehicle assembly procedure around a gigantic, centrally located single-story machine workshop where the parts of the Model T were made under a glassed saw-tooth roof. All elevators, stairs, shafts, and restrooms were concentrated in four utility towers attached to the building, leaving the production floors completely uninterrupted.

Nearly one thousand cars were completed per day at Highland Park, which meant that almost 640 tons of materials constantly circulated through the workshop before being assembled into the final Model T. The handling of these materials, the allocation of workers, and the control of activities played key roles in maximizing the profit of every single square meter of floor space. Therefore, the "plan" of the daylight factory was transformed into a "layout" that reduced men and raw materials to parameters of an overall logistical dispositive and eliminated any possibility of waste, congestion, or worker insubordination. Ford claimed that the manufacturing process required an orderly progression of commodities through the shop, which distributed and confined workers, tools, and machinery according to assembly procedures.[15] As for the "organization of geneses" described by Foucault, each worker's movement was translated into a planned series of temporal segments and spatial operations that even the most unskilled man could perform. For these reasons, Henry Ford preferred to hire people "who had nothing to unlearn" and simply executed what they were told to do. His assembly line proved itself as a successful device that yielded the quantity-oriented mechanical choreography for which he strove. In this sense, the architecture of the Kahn-designed workshop combined the Ford principles of mass production – power, accuracy, economy, system, continuity, and speed – with a mobile, teachable, and massive workforce, thus

14 Soon, the tendency was to combine the advantages of the first – expandable, suitable for expensive urban areas, and allowing the supervision of the production routine within building units – with the qualities of the second – advisable for heavy and vibrating machines and for operations requiring large and uncluttered space for technical maneuvers. See Moritz Kahn, *The Design and Construction of Industrial Buildings* (London: Technical Journal LTD, 1917).
15 "Mass Production," *Encyclopaedia Britannica* (1926).

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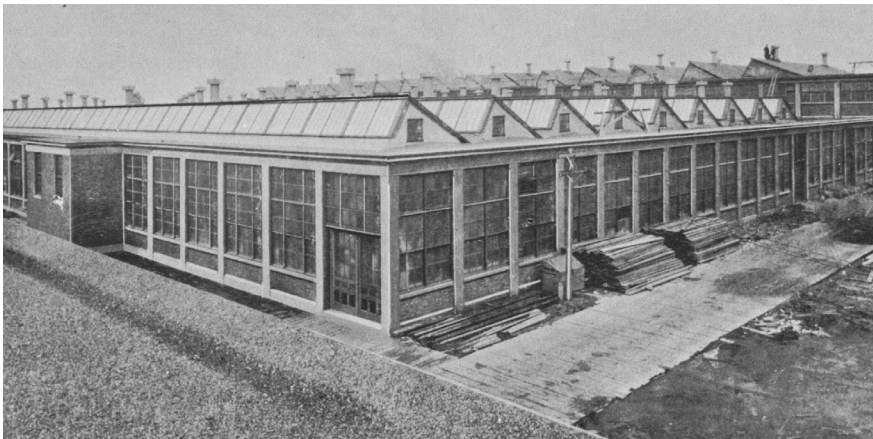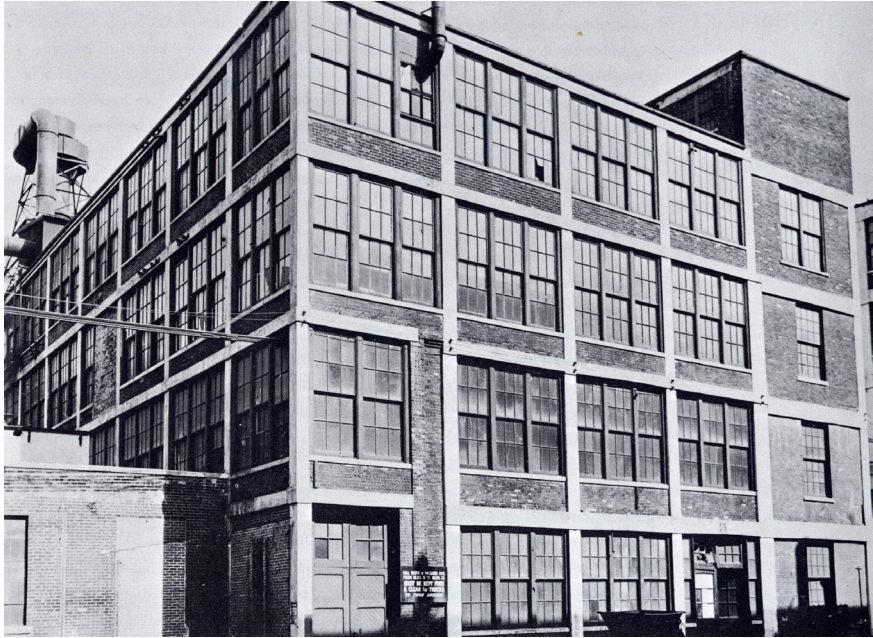
2.4 *Multistory Platform.* Albert Kahn, Packard Plant, Building 10. Detroit (1906) (photo Reyner Banham, A Concrete Atlantis, 1986).
2.5 *Horizontal Workshop.* Albert Kahn. Geo N. Pierce Arrow Plant, Manufacturing and Assembly Building from the roof of the Brazing Building, Buffalo, 1906 (photograph by Joseph Klima extracted from Grant Hildebrand, Designing for Industries, (Cambridge, MA: The MIT Press, 1974))

2.6 Albert Kahn, Ford Motor Company Plant, Highland Park Old Shop, Detroit, 1909 [Detroit: National Automotive History Collection, Detroit Public Library, 1917]
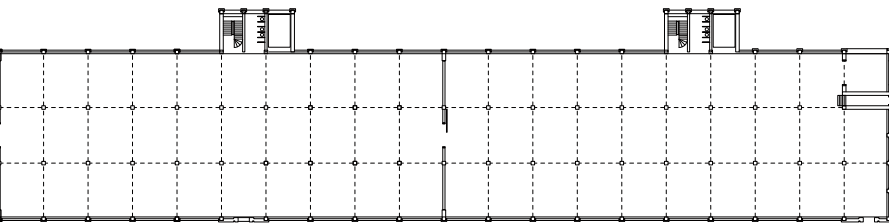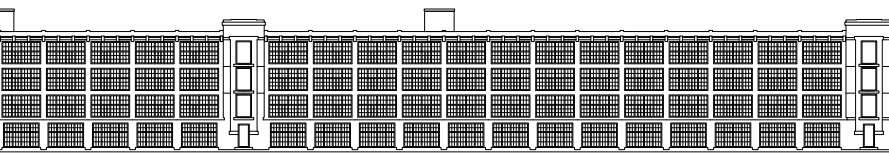
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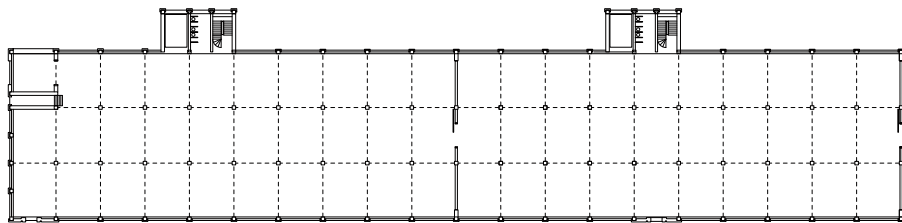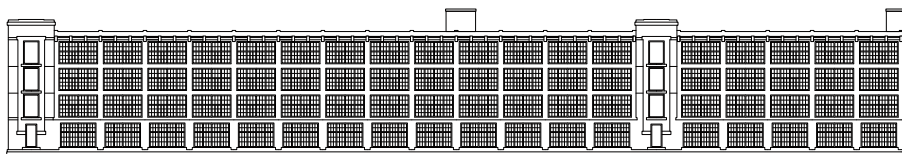
2.7 Albert Kahn. Ford Motor Company Plant, Highland Park Old Shop, Detroit, 1909. Elevation and Typical Plan (redrawn by the author)

exploiting the "docility" of the workers as parts of the productive machinery, moving homogeneously at a standard velocity which excluded "the least representation, and the smallest murmur": [16] fast workers had to slow down while slow workers had to adapt to rhythms imposed by production.[17]

Although the integration of the assembly line induced the logical replacement of the experienced and trained labor force with masses of unskilled immigrant-workers, hired for lower wages and heavier, more exhausting shifts, this rational management of production also demanded new, qualified "immaterial" employees to monitor and scientifically analyze the rate of production. The continuity of operations required constant technical supervision of workers and machinery, which gradually resulted in specialized inspection teams of foremen, sub-foremen, and "shortage chasers," who, in order to avoid shortages among the different departments, were put in charge of controlling the volume of production, assemblage sequences and pace, stocking and storing availability, and the ratio of ordered quantities to purchased material. In this way, the hierarchical "technical composition" of the daylight factory coincided with the fragmented "class composition" of the workforce, whose marked subdivision between untrained workers, experienced operators, foremen, and scientific managers resulted in few official national syndicates and numerous grassroots labor organizations. These new bureaucratic ranks of "knowledge workers" recorded the information exchanged between each manufacturing department in order to achieve a seamless production process, which already anticipated certain Toyotist principles such as "lean production," the elimination of waste by means of a "just-in-time" plan of production, and reversing the process from the effective demand of final products to the amount of raw material necessary to sustain a constant maximum regime.[18] In

16 Michel Foucault, *Discipline and Punish: The Birth of the Prison* (New York: Pantheon Books, 1997): 135-169.
17 "The first assembling line established in the Ford shops (for the magneto) was originally speeded at 60 inches per minute, which proved much too fast. The next speed tried, 18 inches per minute, was found to be as much too slow. The third guess, 44 inches per minute, answered so well that it is yet retained...The work is so divided among the assemblers that each operation is performed in 7 minutes and 36 seconds, turning out 300 complete chassis assemblies on each chassis-assembling line in 8 hours of working time, save in case of operations 1 and 2." Horace Lucien Arnold and Fay Leone Faurote, *Ford Methods and Ford Shop* (New York: Engineering Magazine Company, 1914): 140.
18 Although information would only reach its complete primacy in contemporary factories, an organizational

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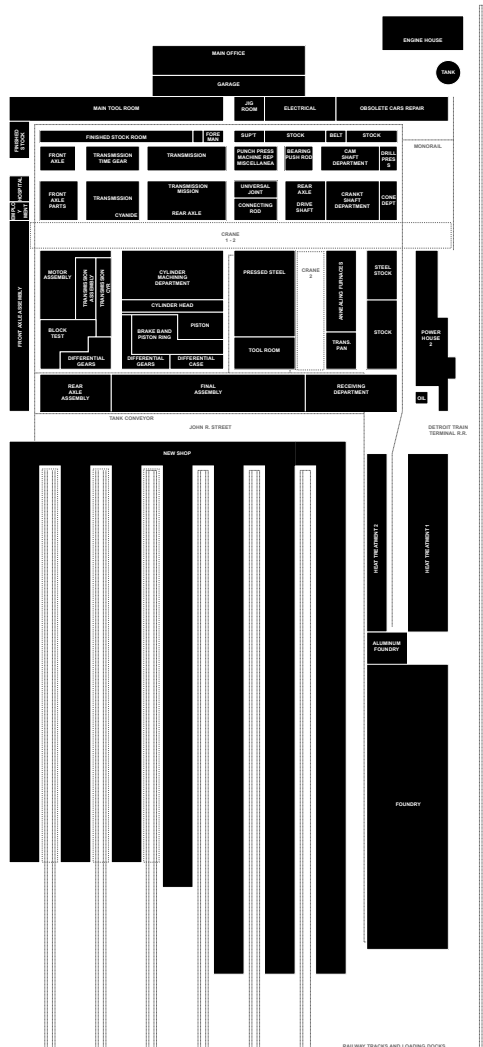
2.8 Layout of the Ford Motor Company Plant, Highland Park Old Shop, Detroit. The scheme shows the main sectors of the factory arranged along the automated manufacturing process [Layout redrawn by the author on the basis of the scheme reproduced by Horace Arnold and Fay Faurote in their Ford Methods and the Ford Shop, (New York: Engineering Magazine Company, 1914)]

other words, the Fordist factory was already post-Fordist.[19]

3. *Object for the masses, masses for the objects* (1910–1929)

> "In this sense the traditional organization of the American workers is the most political in the world, because the load of their struggle is the closest to the economical defeat of their adversary, the closest not to the conquest of power to build up another society on the void, but to the explosion of salary to make subaltern capital and capitalists within this society."
>
> —Mario Tronti

From 1910–1913, production at the Ford Highland Park Plant tripled. At the same time, worker frustration grew, and labor-turnover rose to unprecedented levels. In March 1913, after having organized the famous six-month strike of silk mill workers in Paterson, New Jersey, the Industrial Workers of the World (IWW), also known as Wobblies, arrived at the gates of Highland Park to campaign for the eight-hour day and better factory conditions.[20] The IWW operated on the premise

regime of tasks and techniques was already highly developed in the Fordist factory. In his researches at FIAT and Olivetti, Romano Alquati noted that information contained the very essence of labor-force, being "what the worker – by the means of constant capital – transmits to the means of production on the basis of evaluations, measurements, elaborations, in order to operate on the object of work all those modifications of its form that give it the requested use value." In this sense, for Alquati, cybernetics and bureaucracy would constitute the two sides of a unique system for controlling, coding, evaluating and capturing the information posed by the workers. See Romano Alquati, "Composizione organica del capital e forza lavoro alla Olivetti," part 1, *Quaderni Rossi* 2 (1962), part 2, *Quaderni Rossi* 3 (1963).

19 During these same years, Peter Behrens was building his AEG Turbinenhalle Fabrik in Berlin – still considering the factory as a temple, symbolically "representing" the collective effort of a whole community, whereas the supreme indifference of Albert Kahn's architecture did not represent anything beside itself and the logic of mass production it embodied.

20 Since its 1905 establishment in Chicago (and following the paths of the Knights of Labor, the American Railway Union, the Western Federation of Miners, and the Socialist Party), the IWW attempted to "organize the unorganized" by recruiting all American industrial wage-workers within a single institution and admitting all the workers excluded from the official national syndicates. At the 1908 IWW convention, the movement diverged into two tendencies: a more anarcho-syndicalist Chicagoan branch led by William Haywood and Eugene Debs, and a reformist Detroit-branch under the guide of Daniel De Leon, leader of the Socialist Labor

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that "an injury to one is an injury to all" and believed that because reality was entirely determined by "the nature of industry," a union of general industry employees was the only way the working class could gain enough power over the means of production and distribution to engender a society that utilized the "greatest achievements" of the capitalist economy "for the benefit of all useful members of society."[21]

2.9

At this point, however, simple improvements to the factory space were no longer enough to satisfy pressure from employees on the floor. If mass production, as defined by Henry Ford, consisted of fabricating large quantities of commodities at a minimum cost by means of a "rational factory" – a model that normalized and streamlined the equipment, techniques, and output of production – the necessary next step to absorb this kind of voluminous production would have been to stimulate an adequate degree of consumption by creating a "social factory," which, rather than producing objects for the masses, would shape masses for the objects. Indeed, when he was made aware of the menace of both an internal spontaneous insurrection of his employees and the external threat of unionism, Ford temporarily accepted worker requests and countered with a labor-reform plan to extend the discipline of the factory far beyond the limits of the production floor: wages were increased to five dollars a day, and employees who had met specific requirements (thrift, good service, and sobriety) could buy shares in the company. As a result, Ford gained stronger consensus among his employees, and by replacing the salary differentiation with a meritocratic "skill-wage classification," he ensured a sufficient "human appendage" to his machinery, instilling obedience and self-commitment in his workers. Finally, the Ford Sociological Department was established to monitor the private lives of employees and shape their social habits to suit production.

Party of America. De Leon believed that it was only through strict industrial unions and the legitimacy of the "ballot-box" that the working class would eventually achieve political power – electing their representatives to a central Industrial Congress and never using violence or sabotage, but only the general strike.
21 In *One Big Union,* the IWW's founding general-secretary, William Trautmann, outlined an overall plan for industrial organization across the world. A chart depicted workers as members of one industry divided into different departments (agriculture, land, fisheries and water products, mining, transportation and communication, manufacture and general production, construction, and public service), which were all contributors to the generic act of production. William E. Trautmann, *One Big Union: An Outline of a Possible Industrial Organization of the Working Class* (Chicago: Charless H Kerr & Company, 1911), 5 and *Industrial Union Method* (Chicago: Charles H Kerr & Company, 1912).

2.9 Before the uprising in Paterson, already during the long 'Bread and Roses' Strike in Lawrence, 1912, the IWW organised almost 20.000 immigrant workers against the employers of the textile factories, to protest against the heavy working pace imposed by the new two-loom system and the cut of wages which drastically worsened the life conditions of the workers. In the photograph, the state army intervenes against the workers during riots, Lawrence, Massachusetts, 1912. [Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA]

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2.10 Albert Kahn, Ford Motor Company Plant, Highland Park New Shop, 1914. North indoor crane-way on the railway track. [photograph extracted from Moritz Kahn, The Design and Construction of Industrial Buildings (London: Technical Journal LTD, 1917) plate XLVIII]

Ford answered the frustrations of his workers by implementing strategies that were actually better for production. Fordism, according to Antonio Gramsci, soon translated to Americanism – a hegemonic system of coercion and persuasion aimed at reframing the workers' overall form of life to develop appropriate psychophysical conditions for optimal labor performances. Taking into account the preponderance of immigrant workers at the company, Ford launched an Americanization Campaign: the company organized language schools, civics courses, journals, and advertisements which aimed to educate the non-English-speaking workforce in an effort to rid employees of their native cultures, accents, and idioms. Hence the factory, beyond its manufacture of physical commodities, extended production as a social apparatus that set standards by establishing conventions, behavioral attitudes, sexual prohibitions, racial discriminations, desires, and artificial needs.

From 1913–1914, worker conflict and its subsequent labor reforms required revisions to the Highland Park Plant. Albert Kahn's design for an extension was a sophisticated variation of the multi-story daylight factory. The structure featured a reinforced concrete skeleton, clad in brick with walls of large windows, while a further set of six-story buildings, 260 meters long by 19 meters wide, spanned one side of the Detroit Railway Terminal. As in the earlier structure (also known as the Old Shop), production began and descended down conveyors and gravity slides on the top floor. However, in Kahn's extension, finished products went straight onto railway tracks for immediate shipment. These building units were arranged as a series of structures running parallel to each other and were joined by six-story, glass-roofed craneways equipped with more than 200 cantilevered platforms to support a vertical distribution of material. Here, height distinctions no longer existed between the single pavilions or freestanding structures built inside the plant. Instead, all buildings were serially juxtaposed to each other and internally cleared of partition walls. Even the air-conditioning and ventilation systems were directly embedded within the structural frame of the hollow-columns, ensuring the maximum economy of space at the lowest possible cost. As a result, the general cross-section of the factory revealed an almost continuous interior working environment.

2.10

As labor reforms and the five-dollar day dissolved the factory's "specific

moment," the new buildings of Highland Park dissolved any "specific form" of the factory as a hypothetically mechanized and artificially conditioned reproducible platform within the wider society.[22] The typical open plan and reinforced concrete skeleton implemented autonomous principles that were no longer limited to the industrial spaces of Ford. The model developed by Kahn was suitable for commercial activities, warehouses, and offices as well.

It was no coincidence, then, that the construction of the New Shops in Highland Park paralleled the rapid growth of downtown Detroit, where large profits from the auto industry were invested in the erection of skyscrapers. In 1919, William C. Durant commissioned Kahn to design the new General Motors administrative building for his empire of automobile companies, which included Buick, Chevrolet, and Oldsmobile. In order to avoid the increasing land prices downtown, Durant proposed a new directional center in the north of Detroit. Soon, the world's leading automotive enterprise had bought the block of West Grand Boulevard between Cass Avenue and Second Street, demolished the almost fifty existing structures that stood there, and broken ground. At more than 100,000 square meters, the GM Building was, at the time, the second largest in the world. Upon its completion in 1923, the headquarters hosted fifteen stories of rentable office space above a massive plinth that contained exhibition halls, auto showrooms, an auditorium, shops, restaurants, lobbies, and an expansive annexed laboratory.

2.12

The plan, which closely resembled Holabird and Roche's Stevens Hotel in Chicago, consisted of four crossed wings running perpendicular to a central spine supported by a steel frame and reinforced concrete floors. Kahn designed both the GM Building and the subsequent art-deco Fisher Building, which sat on the opposite side of Grand Boulevard, in an attempt to test the layout of his industrial works against the monumental idea of "great dimension," a concept with which Kahn's close friend Eliel Saarinen (future president and designer of the Cranbrook Academy of Art in Detroit's northern district of Bloomfield) experimented. Both

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22 The Marxist theoretician Raniero Panzieri defines the "specific moment" as a polarizing, concentrated situation heightened by mounting worker frustration. Renato Panzieri, *Lotte operaie nello sviluppo capitalistico* (Turin: Einaudi, 1976).

architects sought to disentangle the skyscraper from its Chicagoan self-referential nature by designing buildings characterized by vertical masses organically connected to the urban context: the steel "mountains" rose from the commercial and living forces of the city in a synthesis of technology, nature and business, depicting infinity simply through their concrete presence.[23]

As a result of its brutal volumetric juxtapositions and the complex articulations of its basement, the civic dimension of the skyscraper was nothing but financial capital turned into stone – architecture done on a "business basis."[24] The rise of the skyscraper not only mirrored the influence of the factory model, but also perpetuated the plan: just as Ford saw the factory as the center of production – a "city under a single roof" – Raymond Hood's Rockefeller Center in New York explicitly conceived of the urban block as the ultimate possibility for the single capital accumulation of rent. In Germany, Ludwig Hilberseimer interpreted the "cores" of the Highland Park Plant machine rooms into the cultural and commercial center of his City Building in Berlin, where narrow office slabs and venues simply replaced assembly lines with think tanks.[25]

Beyond the city of Detroit, the years after the First World War saw a country-wide wave of nearly 1.6 million demonstrating workers, general strikes for better labor laws, and a growing anxiety, the so-called "Red Scare," around the Russian Revolution. While the frustrations of industrial employees were answered with

23 I refer here to the famous distinction between the Greek *kolossos* and the Roman *columna*, reprised from Derrida by Mario Gandelsonas, in relation to the architecture of César Pelli (who worked with Eero Saarinen, son of Eliel Saarinen). The colossal exceeds normal dimensions, something that delivers the concept of infinity through the rough presentation of its size. See Mario Gandelsonas, "Conditions for a Colossal Architecture," in *Cesar Pelli: Buildings and Projects 1965-1990* (New York: Rizzoli, 1990): 9–12 and Manfredo Tafuri, "The Disenchanted Mountain: the Skyscraper and the City," in *The American City,* eds. Giorgio Ciucci, Francesco Dal Co, Mario Manieri Elia, and Manredo Tafuri *(*Cambridge, MA: MIT Press, 1979).
24 Albert Kahn, "Architecture and Business," typewritten speech, December 8, 1927 and "Putting Architecture on a Business Basis," typewritten speech delivered to the Cleveland Engineering Society, December 16, 1930, Albert Kahn Archive.
25 Before his *Vorschlag zur Citybebauung* [Proposal for City-Building] and even in his earlier work *Grosstadtbauten*, Ludwig Hilberseimer considered the metropolis to be the logical anonymous product of capitalist omnipotence, a bio-political apparatus of residential, commercial, cultural, and industrial settlements where its inhabitants could live, work, and reproduce themselves in the most radical social proximity and, at the same time, in the greatest isolation. Regarding Hood's proposal, see Raymond Hood, "A city under a single roof," *Nation's Business* (November 18, 1929).

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important reforms such as the National War Labor Board (issued in 1918 by President Woodrow Wilson, it acknowledged the eight-hour day, the right to organization and union representation, a minimum wage, and female wage parity), the country deeply feared the threat of communism on domestic soil. To eradicate any chance of Bolshevik subversion, major industrial enterprises ensured their fixed capital with large-scale economic interventions by investing in machinery and strengthening their industrial methods. Henry Ford consolidated his domains by expanding the territory his plants covered and commissioned Albert Kahn to design and oversee the construction of the Ford River Rouge – the world's largest industrial settlement at the time. During construction of the New Shops, Ford and Kahn had realized that multi-story buildings were not ideal for a rational deployment of the assembly line; vertical exchanges between floors and loading operations caused too much wasted space and time. In the narrow plots of a dense metropolitan area such as Detroit, the vertical daylight factory still constituted an optimal solution, but with the planned 4.5 million square-meter River Rouge factory in Detroit's southern district of Dearborn, the inefficiencies of the already existing platform could be avoided by designing longer, single-story, steel-framed workshops. Because of their modularity, these buildings could be strategically arranged on a line, individually expanded or customized, and rapidly assembled.

It was at River Rouge that the self-sufficient city and assembly line united; every phase of automotive production could be processed on-site without any dependence on external suppliers, market instabilities, or material shortages. In essence, the factory possessed, contained, and produced whatever it required. The linear plant was comprised of separate factories, arranged along 150 kilometers of internal high-line railroad, which directly connected to national and international commercial routes thanks to a harbor and railway logistics terminal. Among the numerous units designed by Kahn at River Rouge, the rigorous simplicity of the Eagle Plant, better known as B Building, has remained his most paradigmatic achievement. Rapidly erected to produce Eagle Boats for the American Army during the Second World War, the unit was the first to be realized on the site. Despite its impressive length of more than a half-kilometer, steel framework enabled its completion in less than
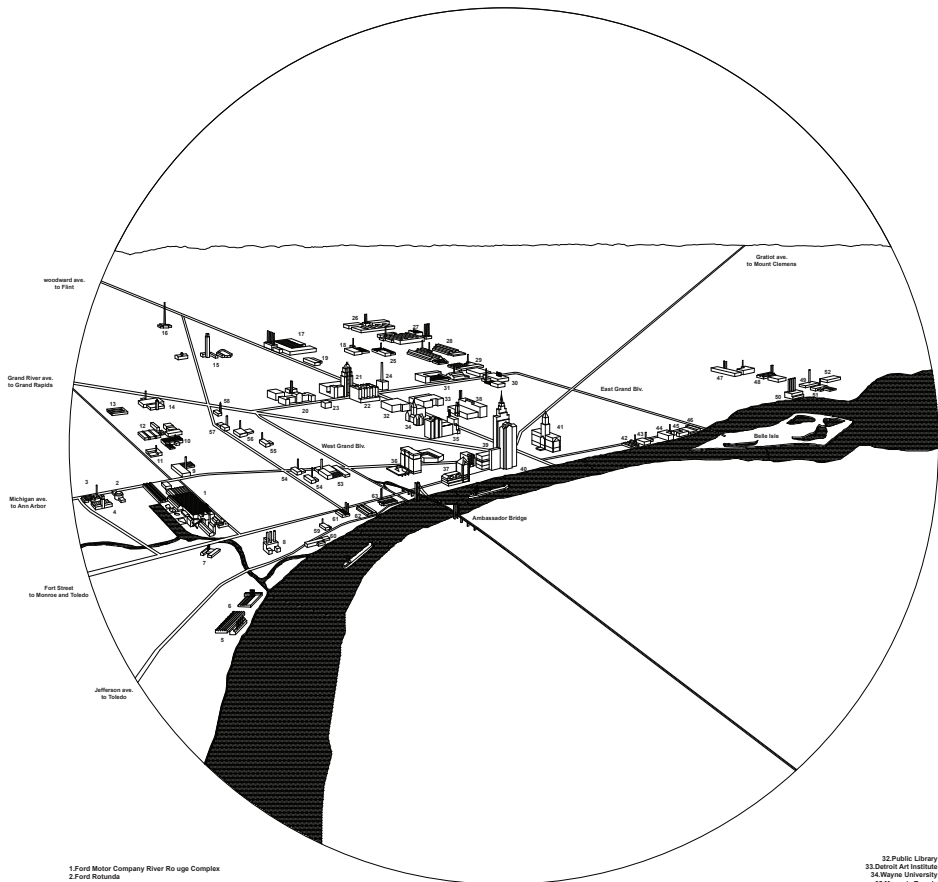
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four months. Two of the factory's five juxtaposed sixteen-meter-wide aisles were equipped with rail tracks to transport the heavy components of the boats; hulls were assembled in the other three. Running the length of the building between the main aisles were low, wooden-framed volumes, eight meters wide, which hosted the entire unit's subsidiary and service functions. Once built, the boats rolled out at the south end of the factory for a direct-transfer to the launch slip. B Building's structural modularity epitomized the logic of the entire River Rouge industrial complex. By rationally coinciding with the function it performed and integrating the assembly line as its infrastructural rule, the typical plan became an urban planning principle extendable across the entire metropolis, giving form to the spaces of consumption, distribution and reproduction.

4. *Assembly-line cities and formulated plans* (1929–1942)

> "It seems like an abstract ballet, lacking any meaningful content. But, like the self-enclosed form of a mathematical formula, the logic of these movements is impeccable."
>
> —Mario Tronti

The intense regime of uncontrolled mass production, which was not met with an adequate increase of customer purchase-power, culminated on Black Thursday – the beginning of the 1929 economic collapse – and in the wave of labor struggles which followed from 1933 to 1938. The British economist John Maynard Keynes proposed a drastic therapy of reversal, assuming that the working class – the "party of catastrophe" – was the real driving force of capitalist development, not its demise. In this sense, Keynes's *General Theory of Employment, Interest and Money* offered the principles for a capitalistic use of the working class. He argued that incentivizing consumer demand, increasing salaries and wages, and reactivating investments at lower rates could enable a strategy that utilized the state as "planner." Based on his theory, market forces and long-term investment in worker wellbeing – i.e. decent

Map labels (within illustration): woodward ave. to Flint; Grand River ave. to Grand Rapids; Michigan ave. to Ann Arbor; Fort Street to Monroe and Toledo; Jefferson ave. to Toledo; Gratiot ave. to Mount Clemens; East Grand Blvd.; West Grand Blvd.; Belle Isle; Ambassador Bridge

1.Ford Motor Company River Ro uge Complex
2.Ford Rotunda
3.Ford Laboratory
4.Edison Museum
5.Great Lakes Steel Corporation
6. Great Lakes Engineering
7Detroit Steel Corporation
8.Sewage Disposal
9.DeSoto Motors Plant
10.Graham Paige Motors Plant
11.Detroit Seamless Steel Tubes
12.Springwells Water Works
13.General Motors Diesel Unit
14.Nash Kelvinator
15.University of Detroit
16.WWJ Broadcasting Station
17.Ford Motor Company Highland Park Plant
18.Chrisler Laboratory
19. McGregor Library
20.Henry Ford Hospital
21.Fisher Building
22.General Motors Building
23.WJBK
24.WMBC
25.GarWood
26.Plymouth Motor
27.Dodge Bros. Chrysler Corporation
28.Chevrolet Motor
29.Hupp Motor
30.Packard Motor
31. Murray Corporation

32.Public Library
33.Detroit Art Institute
34.Wayne University
35.Masonic Temple
36.M.C.Depot
37.Union Depot
38.Harper Building
39.Penobscot Building
40.City Hall
41.County Building
42.Buhl Sons
43.Berry Bros.
44.Parke Davis
45.U.S.Rubber
46.Detroit Stove Works
47.Briggs Manufacturing
48.Budd Wheel
49.Hudson Motor
50.Detroit Edison
51.Chrysler Motor
52. Continental Motor
53.Cadillac motor
54.Federal Motor truck
55.Kelsey Hayes Wheel
56.Heverhot Heater
57.Licoln motor
58.Holley Carburetor
59.Michigan Malleable
60.Portland Cement
61.Ternstedt
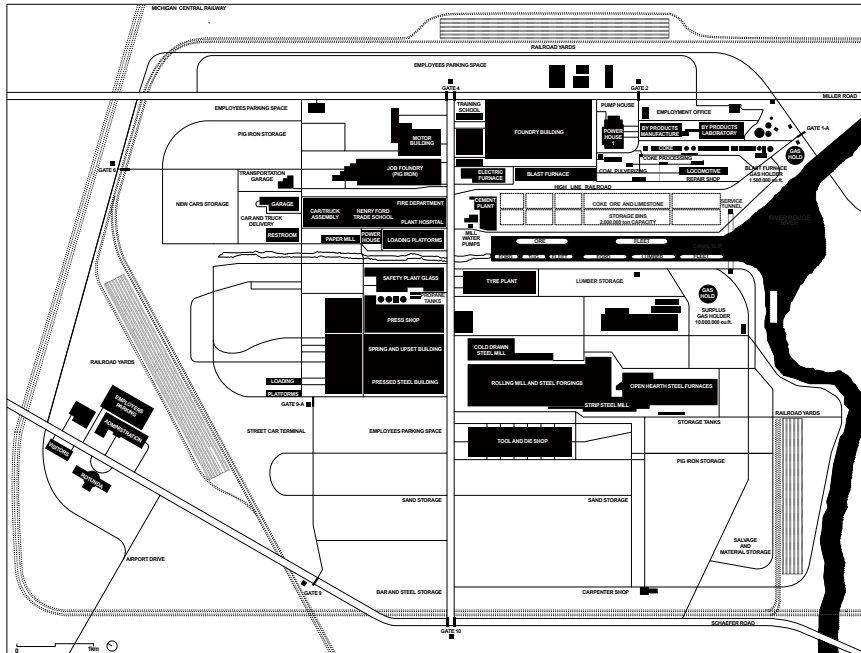62.Michigan Copper & Brass
63.Timken Axle

2.11 The most important buildings and the major Albert Kahn's factories in Detroit at the end of 1930s. (redrawn from the author from a 1939 postcard).

**2.12** Albert Kahn. General Motors Building, Detroit, 1917-1921.
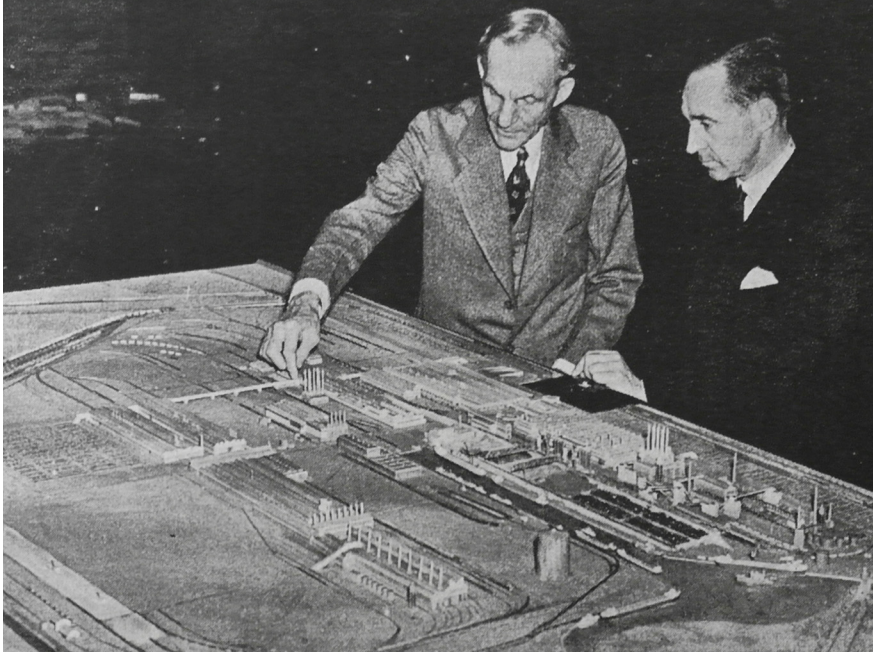
2.13 Henry Ford describing the Rouge River industrial settlement. [Ann Arbor: Albert Kahn Archive, Bentley Library]

RAILROAD YARDS

EMPLOYEES PARKING SPACE

GATE 4   GATE 2

MILLER ROAD   GATE 1-A

EMPLOYEES PARKING SPACE

PIG IRON STORAGE

TRAINING SCHOOL

PUMP HOUSE

EMPLOYMENT OFFICE

POWER HOUSE 1

BY PRODUCTS MANUFACTURE   BY PRODUCTS LABORATORY

FOUNDRY BUILDING

COKE

CORE PROCESSING

BLAST FURNACE GAS HOLDER 1,000,000 cu.ft.

GATE 6

TRANSPORTATION GARAGE

GARAGE

ELECTRIC FURNACE   BLAST FURNACE   COAL PULVERIZING   LOCOMOTIVE REPAIR SHOP

SERVICE TUNNEL

NEW CARS STORAGE

CAR AND TRUCK DELIVERY

CAR/TRUCK ASSEMBLY   HENRY FORD TRADE SCHOOL

FIRE DEPARTMENT

PLANT HOSPITAL

HIGH LINE RAILROAD

CEMENT PLANT

COKE ORE AND LIMESTONE STORAGE BINS 2,000,000 ton CAPACITY

RIVER ROUGE BASIN

RESTROOM

POWER HOUSE 2   PAPER MILL   LOADING PLATFORMS

MILL WATER PUMPS

ORE   FLEET   CANAL SLIP

PROPANE TANKS

SAFETY PLANT GLASS

TYRE PLANT   LUMBER STORAGE

GAS HOLD

PRESS SHOP

SURPLUS GAS HOLDER 10,000,000 cu.ft.

RAILROAD YARDS

SPRING AND UPSET BUILDING

PRESSED STEEL BUILDING

COLD DRAWN STEEL MILL

ROLLING MILL AND STEEL FORGINGS

OPEN HEARTH STEEL FURNACES

LOADING PLATFORMS

GATE 9-A

STRIP STEEL MILL

EMPLOYEES PARKING

ADMINISTRATION

STREET CAR TERMINAL

EMPLOYEES PARKING SPACE

TOOL AND DIE SHOP

STORAGE TANKS

PIG IRON STORAGE

RAILROAD YARDS

SAND STORAGE   SAND STORAGE

SALVAGE AND MATERIAL STORAGE

AIRPORT DRIVE

GATE 9

BAR AND STEEL STORAGE

CARPENTER SHOP

SCHAEFER ROAD

GATE 10

0 ——— 1km

0 ——— 1km

2.14 Ford Motor Company, River Rouge Complex, Dearborn, layout in 1941 [redrawn from the author on the scheme provided by Lindy Biggs, Rational Factory (The John Hopkins University Press: Baltimore and London, 1996]
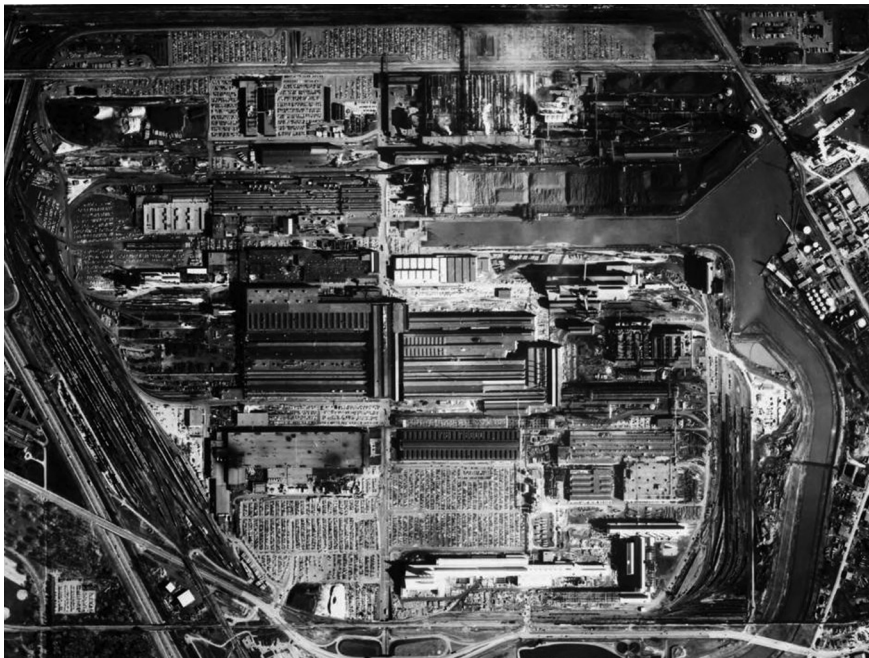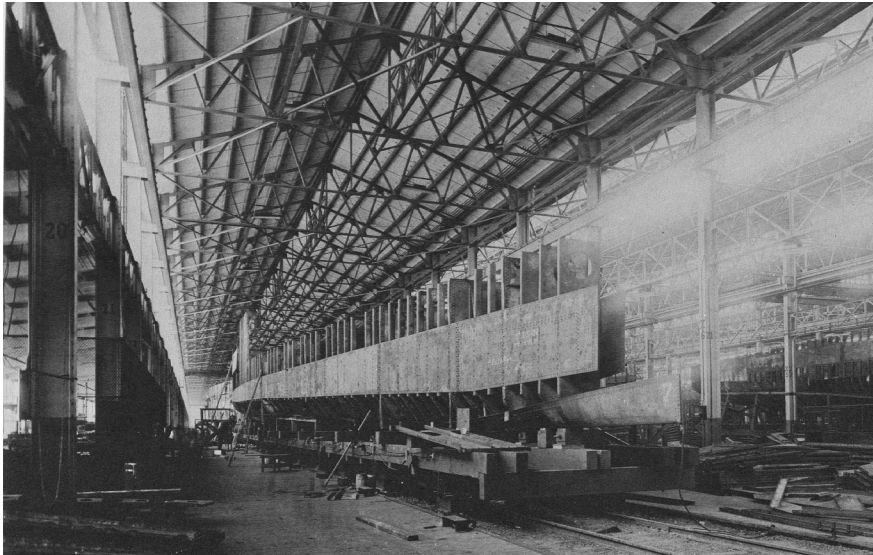
2.15 Ford Motor Company, River Rouge Complex, Dearborn, air view, 1975.
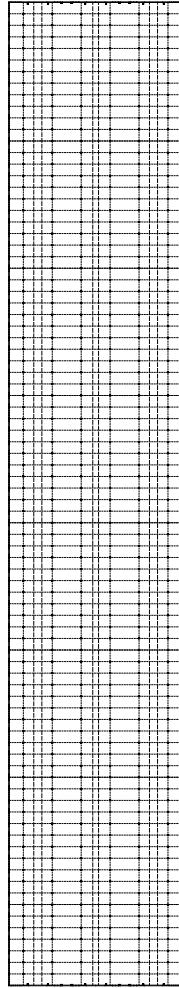
2.16 Albert Kahn, Ford Building "B" at River Rouge Ford Plant in Dearborn, Michigan (1917). Front elevation, cross section and typical plan redwrawn by the author

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2.17 Albert Kahn, Ford Rouge River complex with the Eagle Plant in the center. Aerial view looking north. Dearborn, Michigan (1938). [Ann Arbor: Albert Kahn Archive, Bentley Library]
2.18 Albert Kahn, Interior of the Ford Building "B", Dearborn, Michigan [Ann Arbor: Albert Kahn Archive, Bentley Library]

pay, overtime, and benefits – could converge to transform the factory "plan" into an "operant mechanism to integrate the public at all levels": consumers needed products, which valued employees felt motivated to produce at a fast pace. In a plant that utilized a worker's physical, intellectual and psychological states of being, the management of production could successfully overlap with the economy and the collective conscience of society.

But beyond a restructuring strategy, the Ford Motor Company also faced serious competitive concerns. General Motors controlled higher shares of the automotive market and was attracting new consumers by abandoning the mass-standardization of a single car to instead produce a new, better looking, more affordable model every year. In 1927, after a long period of internal debate, Henry Ford was forced to close his bigger plants in order to retool the machinery for a new line of cars – the Ford model A, whose sinuous shapes and three different paint jobs replaced the boxy model T, famously available only in black. As a result of these plant closures, especially in Detroit, thousands either lost their jobs or took pay cuts. Workers took to the streets in protest and demanded implementation of new welfare measures to protect against the era's rampant economic recession. Ford, however, was already looking overseas to expand and improve his company's standing in the tense financial climate. In 1929, he enlarged his market of mass production precisely where the labor force was the strongest, demand was the highest, and the economic role of the government went uncontested: in a partnership with Gosplan, the State Planning Committee of the Soviet Union, [26] the Ford Motor Company designed and broke ground on three new tractor plants in Stalingrad, Chelyabinsk, and Kharkov. [27]   2.19

26 From 1920 to 1926, Henry Ford had already been selling his Fordson tractors to the USSR, but he only committed to build the first massive Stalingrad Tractor Plant in 1929, after a delegation of Soviet engineers and architects, accompanied by representatives of the Amtorg Trading Corporation, visited River Rouge. Between 1929 and 1932, Ford and Kahn were involved in the design and construction of more than 500 industrial settlements. While the early designs were developed in Detroit, in a second stage, Moritz Kahn and a team of 25 architects and engineers moved to Moscow to join the Gosproyekstroy (State Design Construction Trust).See Allan Nevins and Frank E. Hill, "The Russia Adventures," in *Ford Expansion and Challenge: 1915–1933*, vol. 2, Appendix 1 (New York: Scribner's 1937) and Anatole Senkevitch Jr., "Albert Kahn's Great Soviet Venture as Architect of the First Five-Year Plan. 1929-1932," *Dimensions* 10 (1996): 34–49.
27 The Stalingrad tractor plant, able to manufacture 40,000 tractors per year, comprised a huge 400 by 100 meter assembly building, a foundry, and a forge shop, all of which were assembled on-site with steel and parts imported from Michigan. The Chelyabinsk tractor plant was even bigger. It covered a surface of almost ten

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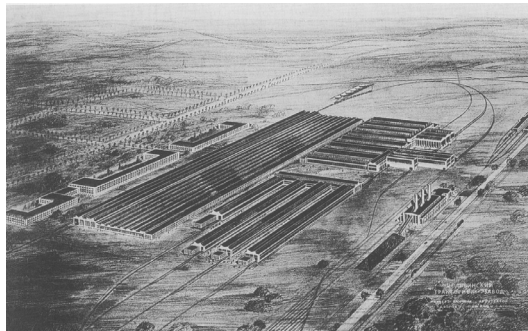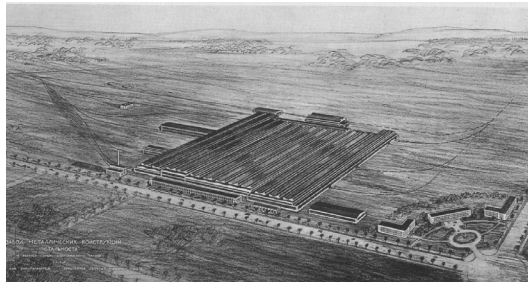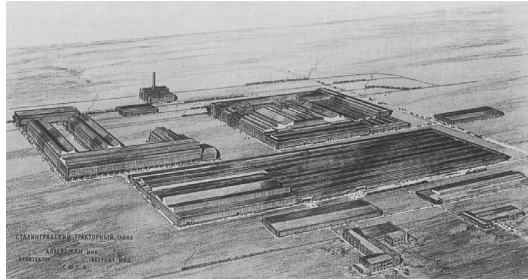
2.19 Albert Kahn, perspective renderings of the Stalingrad, Nihil Tagil and Cheliabinsk Tractor Factories, Soviet Union, 1930-1932. [Ann Arbor: Albert Kahn Archive, Bentley Library].

Construction soon began on hundreds of other American factories throughout the Soviet Union: facilities for automotive, chemical (Kalinin), aeronautical (Kramatorsk, Tomsk), mechanical, steel (Upper Tagil, Kuznetsk, Kamenskoi, Kolomna, Sormonovo), and electrical manufacture all went into production. Because the Soviet Union required a standardized mass-production of commodities to rapidly build the foundation for a national economy, Fordism – when stripped of its parasitical regime of profits and reduced to its strict scientific functionalist method – turned out to be a powerful class instrument to construct a new socialist state based on labor and collective effort (practically an assembly line ethos already) as a unique and ubiquitous form of living. Paradoxically, within both of the major world economic systems at the end of the 1920s, the factory became the essential ideological background for modern economic development, and the architecture of production became the highest achievement of the human general intellect.

Ironically, it was only in the Soviet Union that the assembly line research undertaken by Kahn at River Rouge could be fully realized. The wider territorial extension of the USSR provided the unique possibility of deurbanized metropolitan development and a more balanced distribution of population and productive centers, thus eliminating the differences between cities and agricultural lands – as proposed by Marx and Engels. Kahn's theories on the linear modular arrangement of industrial plants became the model for the *Socgorod* – the Socialist City, which, as described by Nikolaj Miljutin, was based on a territorial alignment of "settlement units."[28] In essence, the Socialist City was comprised of productive and residential components

million square meters; a six-kilometer underground tunnel connected all the shops. Its assembly building was the biggest in the world at that time, 450 meters long and 192 meters wide, with nine casting conveyors, 149 molding machines, four dome-furnaces and 84 transporters running along the whole length of the building.
28 In 1921, Henry Ford, supported by Thomas Edison, envisioned a linear, 120 square kilometer settlement of aluminum industries and agricultural villages to implement the impressive dams planned on the Tennessee River around Muscle Shoals, Alabama. Criticizing the parallel financial investments for the Tennessee Valley Authority, Ford promoted a paradoxical alliance between industrial capital and the American agrarian tradition, reversing the regime of the "money sellers" into the clean and much more rewarding "energy dollar." See Francesco Dal Co, "Dalla Progressive Era al New Deal. La questione di Muscle Shoals," *Casabella,* (May 1977): 425; for the Soviet and American linear industrial settlements, see Nikolaj A. Miljutin, *Sotsgorod. The Problem of Building Socialist Cities* (1930), trans. Arthur Sprague (Cambridge, MA: The MIT Press, 1978): 64-73; and Ludwig Hilberseimer, *The New Regional Pattern: Industries and Gardens, Workshops and Farms* (Chicago: P. Theobald Editions, 1949): 120-182.

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organized in programmatic strips – industry, agriculture, transportation, energy, administration, collective activities, leisure, parks, education, and housing – and connected according to the chaining "logical principle" of the assembly line. Twenty years later, this model returned to the West – specifically to Chicago and Detroit – as a *topos* of modern urban planning underscored by Ludwig Hilberseimer's scenarios for regional development.

The increase in Soviet factory commissions, coupled with a stateside growth in the workforce, required Ford to become a more streamlined and efficient global corporation. Kahn, therefore, reconfigured the hierarchy of the company – using same assembly line principles – to develop a new model for manufacture. The design process for every product was subdivided into specialized departments (i.e. architectural, structural, mechanical, estimating, construction, and management) that simultaneously oversaw the technical and executive aspects of each project. This new configuration shortened delivery times and enabled the development of a "formulated" company design-syntax, which consisted of a limited set of typical plans and protocols to allow a wide and rapid layout deployment that could meet many industrial situations. The factory plan, in a sense, became an algorithm for creating space according to configurable parameters that could be shaped, stressed, reduced, or specialized depending on circumstance. By the mid-1930s, three plants stood out as exemplary applications of a unique, formal vocabulary that worked in accordance with a twelve-by-twelve-meter structural steel bay that could be halved or doubled as needed.

The Chevrolet Commercial Body Plant in Indianapolis (1935), the De Soto Press Shop in Detroit (1936), and Chrysler Corporation's famous Half-Ton Truck Plant, also in Detroit (1937), shared the same flexible parameters: technical equipment and employee facilities were either packed above or below the shop floor, leaving the manufacturing space completely unobstructed. Butterfly-bent roof beams enlarged the structural spans of the buildings and prevented direct sunlight through inclined steel sash monitors. The outer walls were usually clad in brick with continuous steel sashes and finished with gunite. Gradually, electric lighting and air-conditioning were integrated into the structural elements of the plan, thus

2.21

2.20 Sit-down strikers in the Fisher body plant factory number three. Flint, Michigan.

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2.21 Albert Kahn, Half-Ton Truck Plant, interior of the Assembly Building, Detroit, 1937.

maximizing space usage and definitively eliminating any previous dependency on natural daylight or weather conditions. Due to this artificially controlled atmosphere, all points of the floor achieved the same potential, whereas the width and length of the building became indifferent to any structural limitation. The typical plan had become one homogeneous and clear plane.

This series of architectural and managerial evolutions paralleled the elaboration of the National Labor Relations Act (NLRA) passed in 1935 during President Franklin D. Roosevelt's "one hundred days" of reforms. Paragraph 7A of the act granted workers the right to organize, collective bargaining through elected representatives, and the freedom of demonstration. In Detroit, new associations grew out of enthusiasm for Roosevelt's New Deal reforms, including the Mechanics Educational Society of America (MESA), which enrolled a selective "aristocracy" of autoworkers – those who specialized as mechanics – as opposed to any autoworker, and the independent Automotive Industrial Workers Association (AIWA), which protected all ranges of workers at the Dodge auto factory. These groups helped set the stage for a final attack against the open shop regime of Detroit's biggest automotive corporations, which, after decades of unrest, had still not met the demands of the working class. In 1935, industrial unions within the American Federation of Labor (AFL) formed the Committee for Industrial Organization, which later split from the AFL and became the Congress of Industrial Organizations (CIO), partially fulfilling the mission of the Knights of Labor and the Industrial Workers of the World to organize the blue-collar workforce into a single industrial organization. Among the founding members of the CIO was the United Auto Workers (UAW), who, with the support of MESA and AIWA, became the most important independent democratic union in the city.

On November 27, 1936, the UAW and CIO sparked a war against the employers by organizing a sit-down strike at the Detroit Midland Steel plant, where 1,200 employees dropped their tools and sat down at their workplaces in passive resistance. With this new strike strategy of machine-occupation, workers completely changed the rules of protest by using the factory itself as a stronghold against the employers and the police while also protecting their jobs from any strikebreaker.

One month later, in December, another strike – this time in Flint, Michigan – paralyzed production at the General Motors plant for 44 days. The demonstration was seen as the union's first victory and won a new labor contract with the company. Organized protests continued through the winter, and in March 1937, 60,000 workers blocked production in all nine of Chrysler's Detroit auto plants: strikes at Dodge Main, Chrysler Jefferson Avenue, Amplex Engine, Plymouth Assembly, Dodge Forge, Dodge Truck, Chrysler Kercheval Avenue, Chrysler Highland Park, and DeSoto quickly spread across the whole city, involving thousands of people and shutting down offices, department stores, and warehouses. Chrysler's employees were fighting against the company's defiance of the Wagner Act, which prescribed the election of a labor union to represent the majority of the employees at any company in order to guarantee equal bargaining rights. Despite holding the majority of the seats, the UAW was denied by Chrysler, who preferred to deal with a fragmented class-composition. However, the occupations continued for weeks, forcing Walter Chrysler to surrender to the demands of his employees and recognize the UAW as their sole representative.

2.20

The Ford Motor Company managed to escape confrontations with the National Labor Relations Board (NLRB), the organization that enforced agreements between employers and unions. Ford's resistance to union requirements continued for another four years before the company was forced to sit at the bargaining table and accept the situation of the closed shop – the company was legally bound to hire only union workers.[29] Ford's final defeat was made possible by Detroit's African-American autoworkers, who, towards the end of the 1930s, abandoned their unanimous support for Henry Ford to endorse the UAW. For decades Ford had won the favour of segregated black communities by offering jobs and decent wages and funding churches. But the influence of the Unemployed Councils, the growth of the League of Struggle for Negro Rights and the settlement of a National Negro

29 The procedure against Ford's anti-unionism was extremely difficult, and saw several moments of violent conflict between the company and unions. On May 26, 1937, when the UAW arrived at Gate 4 of River Rouge to launch a leaflet campaign called "Unionism, not Fordism," the organizers Robert Kantor, Walter Reuther, Richard Frankensteen, and J. J. Kennedy were severely beaten by the Ford Service Department, a secret-service paramilitary organization of 3,000 men, during what would be later remembered as the "Battle of the Overpass".

Congress in Detroit convinced the overwhelming majority of the black labor force to join the enormous River Rouge walkout in April 1941, which secured Ford's capitulation to the NLRB and the birth of a new Detroit.

In this sense, Kahn's zero-degree industrial architecture – based on a fixed formulaic vocabulary and composed only of technical cores, minimum supporting steel-frames, standardized unlimited envelopes, and unobstructed production floors – corresponded to the greatest working-class opposition of the Great Depression as well as the highest level of unionization. The apogee of this architectural simplification culminated with the construction of the Arsenal of Democracy during the Second World War, as part of the armaments industry. Among the numerous military plants designed by Kahn, the 1938 Glenn L. Martin Co. Assembly building in Baltimore, designed to produce the PBM Mariner and the PB2 Mars airplanes, remains his greatest achievement. Its single monolithic rectangular space, 140 by 90 meters and 22 meters in height, was supported by a series of parallel Pratt trusses (90 meters long and nine meters high, placed at fifteen-meter intervals) and allowed an assembly space entirely free of columns.[30] The absolute emptiness of the Glenn Martin building epitomized the evolution of Kahn's industrial architecture from an apparatus of exploitation to a mechanism of subject management by clearly illustrating how the struggle and unionization of the working-class engendered the gradual rarefaction of the industrial typical plan into a few structural elements. This shift in architecture can be understood in a series of phases linked to the volatile but essential relationship between capitalism and the working class: in the initial stages of Fordism, industrial giants such as the auto industry reinforced "fixed" structures with the rigid opposition of machines and constraints against the mass of the workers. In the second phase, the factory addressed its workers' potential, integrating the general intellect and pulses of the whole society by shaping individuals rather than objects. Finally, the Fordist factory assumed an almost diagrammatic form, reducing its fixed capital to an algorithmic formula that was neutrally applicable to any urban settlement.

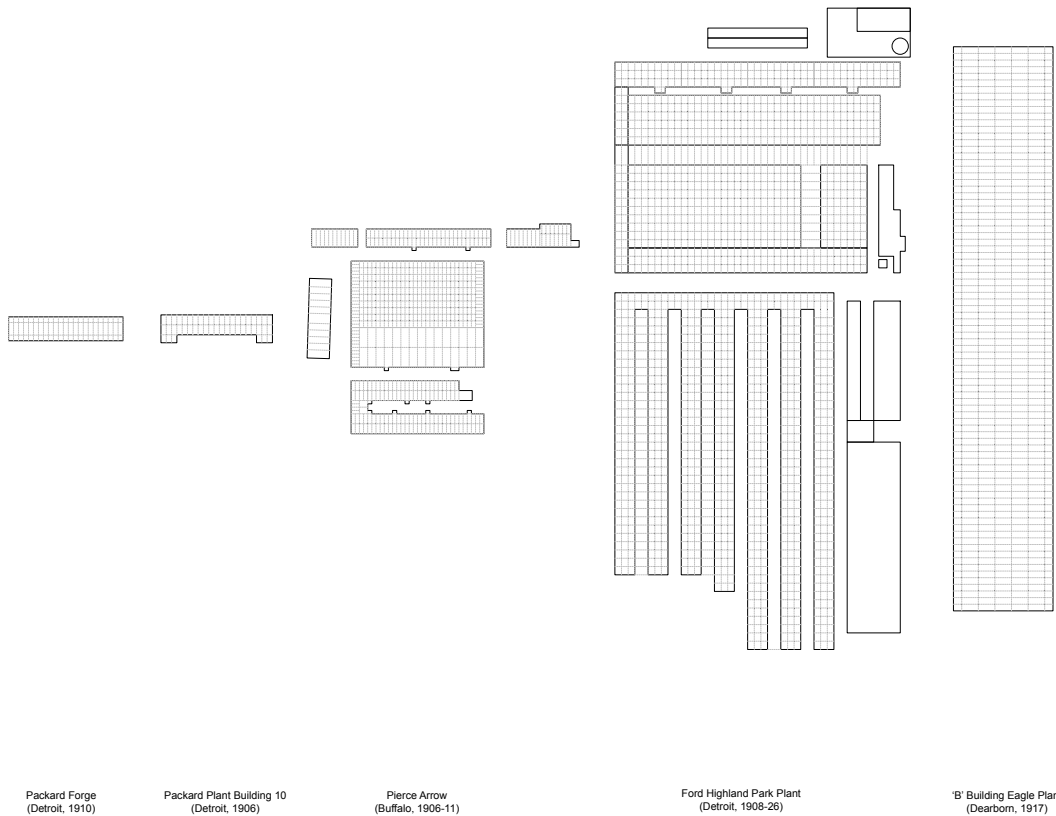
30 The severe nobility of this "box" profoundly impressed Mies van der Rohe, who utilized a photograph of its interior hall as a background for his perspective collage of the Concert Hall project in 1942.
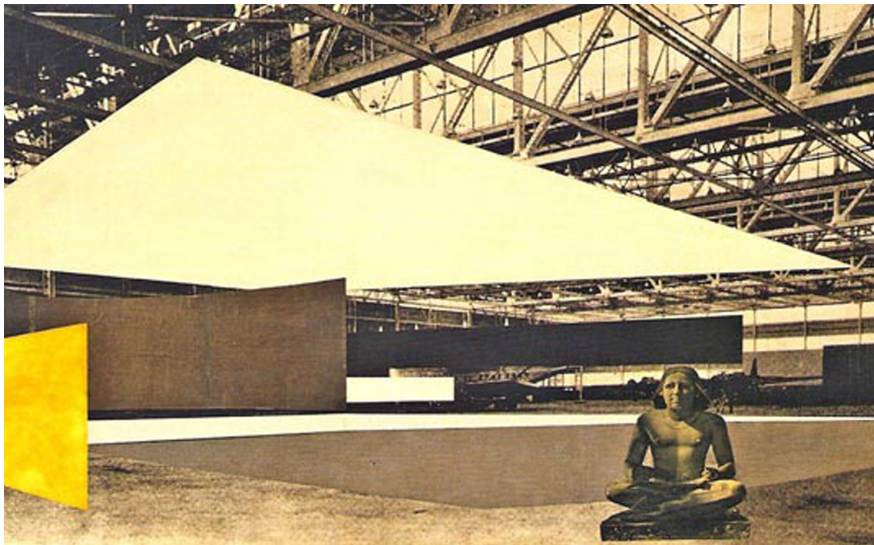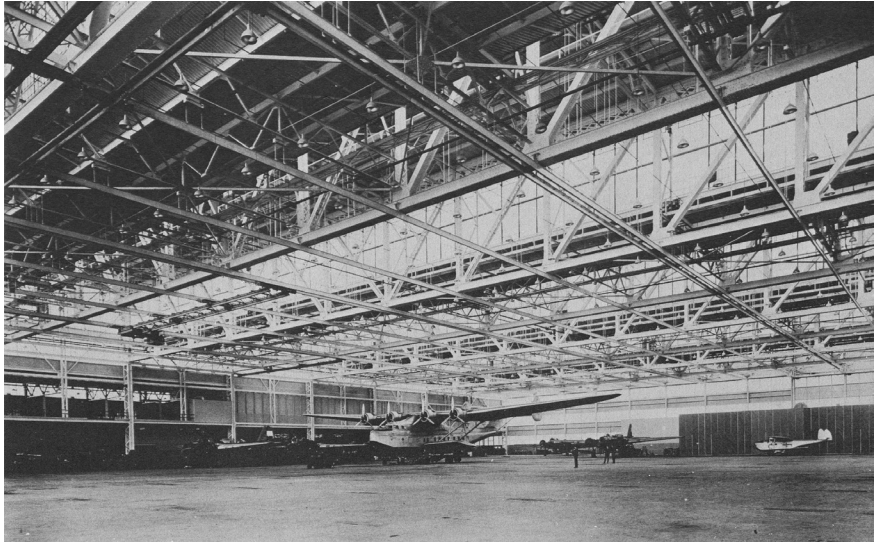
**2.22** Albert Kahn. Glenn Martin Aircraft Plant, Assembly Building, Baltimore, 1939.
2.23 Ludwig Mies van der Rohe, Project for a Concert Hall, Interior Perspective. Collage on a photograph of the Albert Kahn's Glenn Martin in the background, 1942. [New York: Mies van der Rohe Archive, MoMA, no. 571.1963]

Typical plan as index of generic

Packard Forge
(Detroit, 1910)

Packard Plant Building 10
(Detroit, 1906)

Pierce Arrow
(Buffalo, 1906-11)

Ford Highland Park Plant
(Detroit, 1908-26)

'B' Building Eagle Plant
(Dearborn, 1917)

0   50m

2.24 Genealogy of the Albert Kahn's industrial typical plan, from the Packard Forge Plant to the Glenn Martin Aircraft Plant. Typical plans redrawn by the author
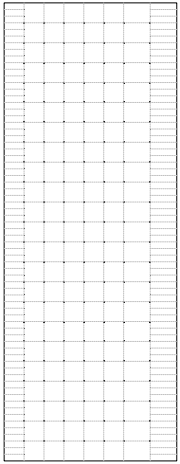
Chrysler Tank Arsenal
(Detroit, 1940)
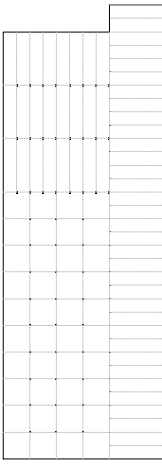
De Soto Press Shop
(Detroit, 1936)
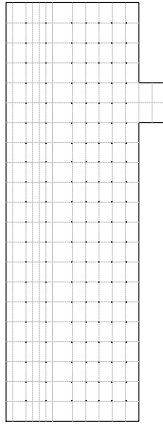
Half-Ton Truck Plant
(Detroit, 1937)
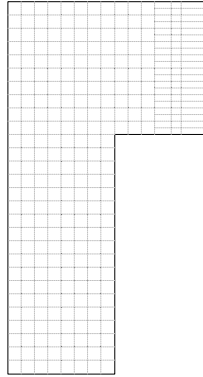
Chevrolet Commecial Body
Plant
(Indianapolis, 1935)

Glenn Martin Assembly Building
(Baltimore, 1939)

Typical plan as index of generic

149

5. *The singularity of generic*.

Between July 1932 and March 1933, at the peak of the Great Depression and just after the Hunger March massacre at River Rouge, [31] the Mexican muralist Diego Rivera completed his *Detroit Industry* fresco, depicting Kahn's industrial architecture as the direct crystallization of the deepest "geological composition" of the city itself.[32] After months of studying and sketching the masses at work in Detroit's plants, Rivera praised the factory as the greatest manmade environment ever created, as well as the most tangible expression of human nature's potential substratum, which Marx named "labor power": the aggregate of material and intellectual endowments common to the human species from which individuals construct and define their own singularity. Such a generic disposition to produce, in fact, can only exist in the body of the worker as a "possibility to be actualized," proliferating through the existences and performances of individuals according to the material conditions of their lives.[33]

<div style="text-align: right">2.25</div>
<div style="text-align: right">2.26</div>

31 Called by the Unemployed Councils and the United Auto Workers, the Hunger March demanded "Jobs for all laid off Ford workers; immediate payment of fifty per cent of full wages; seven-hour day without reduction in pay; slowing down of deadly speedup; two fifteen-minute rest periods; No discrimination against Negroes in jobs; relief, medical service; free medical aid in Ford hospital for employed and unemployed Ford workers and families; five tons of coal and coke for the winter; abolition of Service Men; no foreclosures on homes of Ford workers; immediate payment of lump sum of fifty dollars for winter relief; full wages for part-time workers; abolition of the graft system of hiring; and the right to organize." The march was heavily repressed by the Ford Service Department, who killed three people and injured more than fifty.

32 The fresco, preserved at the Detroit Institute of Arts, consists of 27 panels roughly divided into three levels. It depicts the history and industrial development of Michigan and was commissioned by Edsel Ford in 1931, under the patronage of William Valentiner. As Diego Rivera claimed, "the principal manifestation of this fact which gives the city of Detroit its special and unique character is the automotive industry, that is to say, the industry of speed, together with the chemical and pharmaceutical industry, which effects its results by means of changes in speed caused by the structure of the materials which it synthesizes, analyzes and transforms." See Diego Rivera, *My Art, My Life: An Autobiography* (New York: Citadel Press, 1960) and his description of the fresco in "Dynamic Detroit: An Interpretation," *Creative Art* (April 1933).

33 The same etymology of the term "generic" – from the Greek substantive *genos* (γενος, "race," "kind," or "species") and the verb *gignomai* (γιγνομαι, "coming into being," "generating," or "producing") – confirms this twofold meaning. It indicates both the innate potential of the human genus, the Marxian *Gattungswesen*, and the common ability to produce – "life-engendering life." See Karl Marx, *Economical and Philosophical Manuscripts of 1844* (Moscow: Progress Publishers, 1959). For the notion of labor-power as the potential aggregate of mental and physical capabilities "existing in the physical form, the living personality, of a human being," see Karl Marx, *Capital: A Critique of Political Economy*, vol. 1, ch. 6 (Hamburg: Otto Müller Verlag, 1867).

For these reasons, Marx used the particular definition of the "social individual" to indicate the twofold nature of man (the worker), who is composed of singular determinations and universal faculties, continuously negotiated through a process of adaptation. In this sense, man is indeterminate.[34] To remedy his innate lack of specialized instincts and assigned environment, he is constantly forced to "produce" not only the world in which he lives, through his own industry, but also what he is, his own form of life. Similar to Rivera's scene, which depicts early forms of agricultural toil and automobile production beside the latest chemical and pharmaceutical experimentations, the worker's own living labor is objectified not only into instruments, technical objects, landscapes, and architectures that are built, developed, spent, and solidified across centuries, but also in different subjectivities, cultures, and mass behaviors. The worker plays the essential role as an individual in the manufacturing process, while functioning as part of a larger collective. Even in their emptiest states, Kahn's factory plans reveal that industry could not survive without every single person on the assembly line. In turn, it was precisely the work of the individual that strengthened the bonds among workers and created a common, basic force – among employees and employers – of production.

From this perspective, the "typical plan" of the factory signifies the capitalist attempt to crystallize and exploit the social forms of production, acting as an "index" of the generic human labor power. Resulting from the designed combination of both a permanent layer (a structural core, an envelope, and a supporting frame) and a relatively "open" one composed of an indeterminate and empty field of possibilities, the typical plan of the factory incorporates inner pressures and outer contextual contingencies as synergic conditions for its functioning as a coherent, flexible, and reproducible scheme.[35]

34 Marx refers to the notion of "social individual" in a famous passage of the *Grundrisse. Foundations of the Critique of Political Economy* (1857-58), (New York: Vintage Books, 1973): 705: "In this transformation, it is neither the direct human labour he himself performs, nor the time during which he works, but rather the appropriation of his own general productive power, his understanding of nature and his mastery over it by virtue of his presence as a social body – it is, in a word, the development of the social individual which appears as the great foundation-stone of production and of wealth".

35 These characteristics coincide with what Gilbert Simondon defined as a "technical object," which converges from an "abstract" mode of existence, constituted by the juxtaposition of different independent functions, towards a "concrete" one, which is a self-sufficient synergic system coherent with itself, through a progressive

In the early stages of industrial capitalism, the primary measure of the typical plan was the body of the worker, whose physical performance was dissected into spatial and temporal intervals that were further translated into wages and profits. But in addition to entering a relationship with capital as the singular owner and seller of his labor power, in factories he was also exploited as a "social individual," where he produced, one among many, as part of a unique yet collective force with capabilities far beyond his own efforts. As employees specialized in certain areas of production and were distributed along assembly lines, their generic potential was not only put to work but also enhanced by their concerted action. It was this mutual cooperation that truly gave birth to the daylight factory and the modern metropolis as "theatres" for production.

Due to the internal struggles, activities, and collective performance of its occupants, the typical plan became effective only when each individual performed a certain role by "individuating" his own potential into a productive form of life – i.e. the repetitive toil of a worker, the action of a user, the affectivity of a dweller, the purchases of a consumer, the distraction of an observer. In this sense, the intentional emptiness and incompleteness of the typical plan enabled and controlled, while stimulating and conceiving, the proper human industriousness, framing but not restraining man's generic tendency to produce the world and his own singularity.

Yet despite its internal rarefaction, the typical plan maintained its regular delimitations, exemplifying the latest "spectacular" form of liberalist production and concluding the series of "neutralizations and de-politicizations" which, from the beginning of 20th century, had sedated the domain of market competition and technological religion by replacing politics with policy, conflict with civilization, enmity with humanity, and state with society.[36] From the mechanical choreography of factory workers to the desires of supermarket consumers or the distracted wandering of the cognitive worker, the typical plan gradually moved away from its

redistribution, differentiation, reduction, and condensation of its inner forces in relation to its associated milieu, as in the process of human individuation. Gilbert Simondon, *Du mode d'existence des objets techniques* (Méot, 1958; Paris: Aubier, 1989, second edition).
36 Carl Schmitt, "The Age of Neutralizations and Depoliticizations," *The Concept of the Political,* (1929); expanded edition, (Chicago: University of Chicago Press, 1996): 80–96.

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2.25 Diagram of production and manufacturing processes at River Rouge, 1932. Composed of clippings pasted on paper glued to cardboard, the diagram was used to explain Rivera the different phases of production at Rouge. [Photograph from the Rivera Archive extracted from Linda Bank Downs, *Diego Rivera. The Detroit Industry Murals,* Detroit Institute of Arts (NY, London: W.W.Norton & Company, 1999]

2.26 "As basic plan for the mural decoration of the garden court of the Detroit Institute of Arts I chose the plastic expression of the undulating movement which one finds in water currents, electric waves, stratifications of the different layers under the surface of the earth and, in a general way, throughout the continuous development of life. The central reason for the choice of this theme was the objective fact that the different manifestations of matter are, in the last analysis, only differences of speed in the electronic systems of which

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matter is formed; the principal manifestation of this fact which gives the city of Detroit its special and unique character is the automotive industry, that is to say, the industry of speed, together with the chemical and pharmaceutical industry, which effects its results by means of changes in speed caused by the structure of the materials which it synthesizes, analyzes and transforms." Diego Rivera, "Detroit: Man and Machine" (north and south wall), 5.40 x 13.72m. (The Detroit Institute of Arts, Detroit, 1932)

Typical plan as index of generic   155

rigid industrial nature towards more open regimes of indeterminacy and neutrality, eventually losing its peripheral enclosure and becoming a technical background for production – a sort of continuous "tempered environment" suitable for any generic human activity. In this sense, the shift of production, which Koolhaas envisioned in the typical plans of 1950s Manhattan, not only coincided with the first industrial outsourcing, but also with the massive demise of the same forces which produced those architectures: the workers' movements and the combative front of labor unions were deprived of power by a financial capitalism interested in controlling all aspects of life rather than the movement of individual workers on the assembly line.

Even the typical plan was undermined by its own principles. It was forced to surrender the clarity of its controlled delimitations to extend, as a continuous plateau, in order to integrate wider parts of the city within its system of production – as witnessed by the ruined factories and wastelands in Detroit, now paradoxically aestheticized through photographic profiteering. When life and its singularities were put to work in their entirety, not only would any traditional form of labor organization or resistance vacillate (thus exacerbating violence, precarity, and exploitation), but any fixed space of production would also lose its own clear boundaries.

In this sense, rather than arousing a nostalgic memory, the "ruins" of Detroit at present engender a clear concern for the future, emphasizing an entropic and ubiquitous state of uncertainty that was foretold long before their physical demise, and evoking the renowned passage by Robert Smithson, "these buildings don't fall into ruin after they are built, but rather rise into ruin before they are built."[37] Rather than indulging in what has been lost, it would be more fruitful to investigate the revolutionary principles and power relations that generated these ruins in order to reflect on a possible strategy of exodus. In assuming living labor as its own force and using struggle to trigger development in the contemporary cognitive economy, the genericness of the typical plan achieved a totally new potential as a device for emancipation, transforming itself into a battlefield for the advancement of different modes of organization and resistance. "Detourning" the vagueness of the typical

37 Robert Smithson, "The Monuments of Passaic," *Artforum*, December (1967):72.

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plan to recover its delimited emptiness and singularity can give form to new institutions and labor unions, provide space for cohesive and collective movements, defend the productivity of the general intellect, and construct Trojan horses within and against the all-encompassing regime of exploitation.
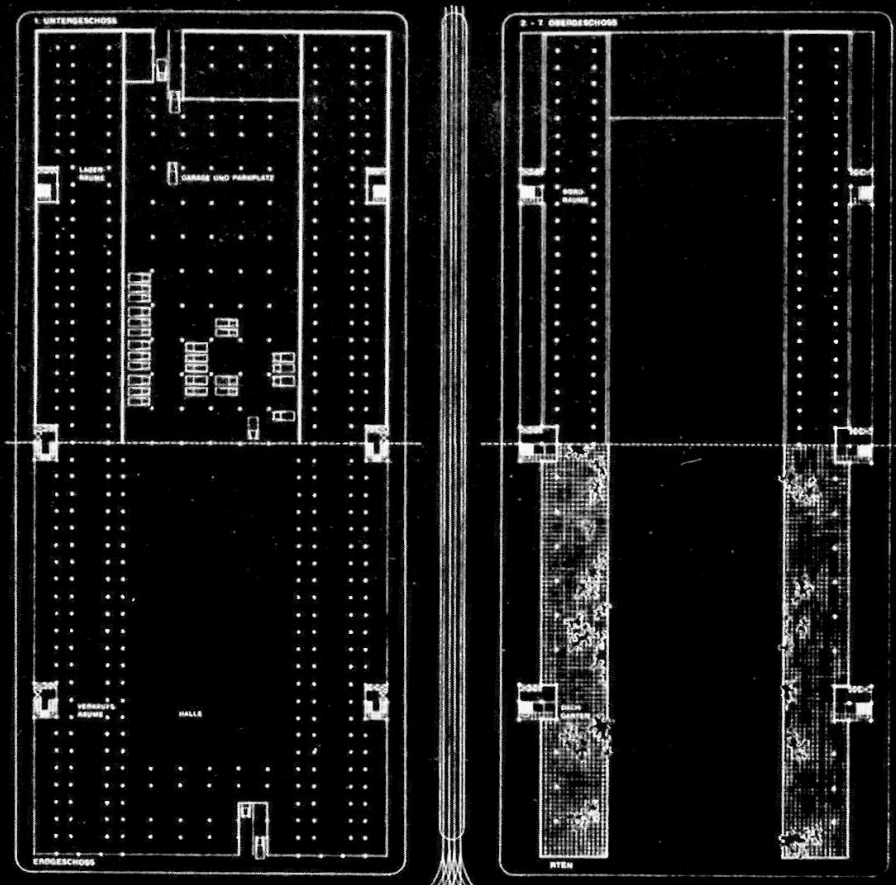

2.27 "Glory Super Market" above the ruins of the Ford Highland Park (main building) in Detroit. In the back is visible the still operating multistory frame of the Old Shop. (photograph of the author)

III

Homeostatic bureaucracy

Typical plan as enabling frame

Ludwig Hilberseimer, Proposal for a *Generic City Building*. Typical Plans (Berlin, 1928)

Any act of architecture begins by framing and dwelling an interval of territory. For Bernard Cache, walls and partitions constituted the necessary elements to isolate a space out of chaos, to protect an established order from a plethora of unknown forms and differences. Yet, through the evolution of technology and the inner lives of its inhabitants, those horizontal and vertical boundaries progressively opened and dissolved, transforming the frame into a continuous permeable surface disposed for activities. In this sense, within an imaginary vocabulary of modern urban forms, the idea of frame lies at the antipodes to the one of the linear city wall. The frame in fact does neither include nor exclude anything but it simply shelters a spatial extension, controlling and measuring people, movements and goods and thereby modifying "from within" the very contextual conditions in which it is placed, as a sort of internal threshold.[1] In this way, space is not ordered via an imposed equilibrium but it is internally governed by an homeostatic principle, which constantly modulates instabilities through a diffused surface of control, as in a typical plan.

3.1   In an article entitled *Chicago Frame,*[2] Colin Rowe meditates on the increased importance of steel structure as organizational matrix in modern architecture, considering the frame as a device able to establish a common ratio among all the parts of a single building. Although the steel construction achieved its first considerable results in Chicago at the end of the 19th century, Rowe claims that its autonomy and spatial potentiality were fully accomplished only within the European International Style. If the frame in Chicago was frankly accepted as a given real-estate conditions of the laissez-faire economy, on the contrary in Europe the frame and the high-rise building posed difficult problems of integration within a much more historical urban fabric and the architecture of the city as a whole. Whereas in the Loop the three-partied skyscrapers grew spontaneously as "natural geological formations" without never really questioning their inner structure, in Germany the first office building competitions of the 20th century stimulated ingenious experimentations of typical

3.2 plans to either integrate or totally neglect the surrounding urban environment.

1 Bernard Cache, Earth Moves: The Furnishing of Territories, (Cambridge MA: The MIT Press, 1995): 21-30.
2   Colin Rowe. "Chicago Frame," *The Mathematics of the Ideal Villa and Other Essays*. first published in *Architectural Review*, 1947 (Cambridge: MIT Press, 1976): 89-117.

The difference between the introverted American skyscraper and the extroverted openness of the German office-plan was not just architectural, but it was also reflected by the cultural, political and social distinctions between the American white-collar workers and the German Angstellten, namely the "salaried employees": two parallel expressions of the same professional middle-class subjectivity which culminated with the Weimar economic rationalization (1924-1928) in Germany and the New Deal experiments (1933-1937) in United States. At that time, in fact, mass production and mass consumption arose the demand of salaried workers to cover the activities of distribution, storage and circulation of commodities, from logistics to trading and sale services. These sectors required a moderately cheap labor-force, devoid of any particular education or professional experience, but with good relational abilities, language competences and spirit of commitment. Moreover, the developing sectors of culture industry, communication, business and financial economy, also increased the demand of employment for functionaries and clerical employees, igniting new professional specializations in consultancy, planning, business administration, human and public relations, and all those activities devoted at improving the image of the firm and at promoting the internal cooperation and the external network of commissions.[3]

Yet, following to the sociological studies of Jürgen Kocka, while the American white-collar workers developed an idiosyncratic life-style and a substantial cohesion within the wider ranges of the working-class composition, in Germany the salaried workers had a stronger affinity to the State and its bureaucratic organization, which resulted in a tendency for a social and class distinction, especially in relation to the manual workers.[4] In this sense, in Germany the notion of frame had an intrinsic political character, being embedded in the very notion of welfare-system, an hypothetically extended over each individual as a network of freedom and control.

3 Hans Speier, "The salaried worker in modern society" in *Social Order and the Risks of War,* (New York, 1952), but previously printed as an appendix in German translation from the French, to "Allgemenier Freier Angestelltenbund", *Angestellte und Arbeiter,* (Berlin, 1928).
4 In Germany, especially the rising petty-bourgeoisie groups always sought an obstinate differentiation from the lower strata of the labor force, afraid of a general proletarization of society and of an eventual devaluation of the specificity of their status. See Jürgen Kocka. *White Collar Workers in America 1890–1940: A Social–Political History,* in *International Perspective,* trans. Maura Kealey (Beverly Hills, CA: Sage, 1980)

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The rigidity of such an institutional structure, inherited from the feudal and Prussian tradition, radically influenced the preeminent role of the Social-Democratic party, which always tended to formalize the workers' struggle and the class antagonism into a compromising reformism or, to use Tafuri's words, into a "socialization rather than socialism" based on "construction industry and mass housing, technical and bureaucratic solutions to social problems, state management of conflicts within Fordist economy, and rationalization in place of class struggle".[5] The plan to reduce the whole society to a salaried army was indeed part of the Social-democratic intentions, aimed at converging not just the unemployed but also competences of thousands of self-employed workers within the disciplined apparatus of the welfare system, promising them freedom while taking control over their actions, time and spaces in change of collective facilities.[6]

Within this perspective, it is clear why the most important American endeavor

5 Already between 1917 and 1923, in fact, the reorganization of finance capital and the fear of an internal Bolshevist insurrection engendered a series of large reforms of the lowest strata of the working class composition, coinciding with an indiscriminate defense of the 'labor sans phrase' both in its material and cognitive derivations. According to Massimo Cacciari, the Social-Democratic reformism, in parallel to the general technological advancement of industry, endorsed a social project of economic rationalization (*Rationalisierung*) at all levels of production, aimed at dismantling the hierarchies of qualified labor-forces by leveling wages and salaries, undermining the power of trade unions and workers' councils, and finally introducing the unskilled mass-worker as subject of a new systems of manufacture. See Manfredo Tafuri. "Sozialpolitik and the City in Weimar Germany", in *The Sphere and the Labyrinth* (Cambridge Mass: MIT Press, 1987), 197-223, originally published in Manfredo Tafuri, *La Sfera e il Labirinto*, (Turin: Einaudi, 1980). See also Manfredo Tafuri, "The Disenchanted Mountain. The Skyscraper and the City", in *The American City: from the Civil War to the New Deal*, ed. Giorgio Ciucci, Francesco Dal Co, Mario Manieri-Elia, (Cambridge Mass.: The MIT Press, 1979), 389-528. On the Weimar *Rationalisierung* see Massimo Cacciari, *Pensiero Negativo e Razionalizzazione*, (Venice: Marsilio, 1977).

6 Many of the salaried employees, in fact, came from traditional and well consolidated autonomous professions – from farmers, small merchants and manual technicians, to doctors, craftsmen, architects, etc. – whose independent business perspectives had been drastically narrowed by the rising market competition. On this account, large part of the earlier studies and research by Sergio Bologna, one the members of the Italian Operaismo, dealt with the condition of the independent labor both in the past and in the present knowledge economy. Tracing back the origin of the freelance labor, Bologna largely studied the conditions of the autonomous workers in Germany, between the two world conflicts, and the shift from an independent to a salaried contract, from the *wirtschaftlich* Berufstädige to the *unselbständig* Berufstädige. See Sergio Bologna, "Per un'antropologia del lavoratore autonomo" in Sergio Bologna, Andrea Fumagalli (eds.) *Il lavoro autonomo di seconda generazione. Scenari del post-fordismo in Italia,* (Milan: Feltrinelli, 1997), but also Sergio Bologna, *Ceti medi senza futuro? Scritti, appunti sul lavoro e altro*, (Rome: Derive & Approdi, 2007), "The social pattern of knowledge workers: myth and reality", proceeding from the Humanities Conference held in Prato, Italy (20th-22nd July, 2004)
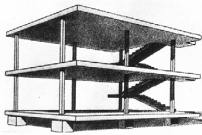
3.1 Colin Rowe, *Chicago Frame*. (The Architectural Review, 1971)
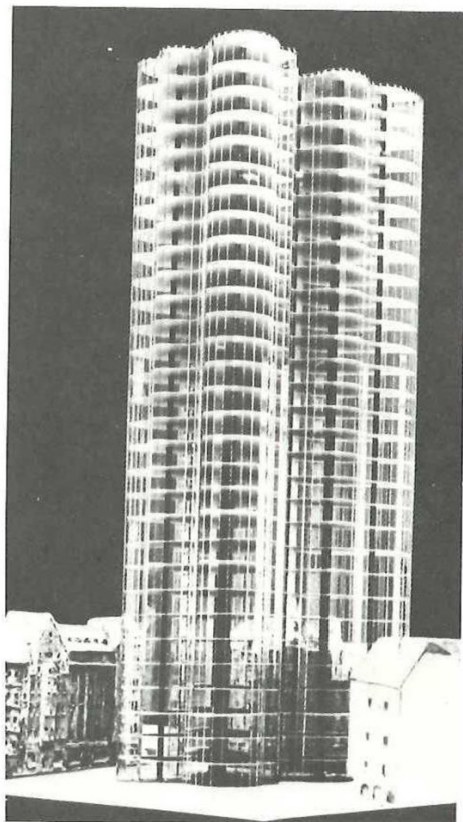
3.2 *Reliance Building*. Daniel Hudson Burnham (Chicago, 1895)
3.3 *Friedrichstrasse Skyscraper*. Mies van der Rohe (Berlin, 1919)

to conceive the skyscraper as a comprehensive architecture for the city occurred only in 1929 with the "disenchanted mountain" of the Rockefeller Centre building in New York, whereas in Berlin, already in 1923, Mies van der Rohe drew an office building of bare concrete plateaux as the definitive typology for production, or few years later Hilberseimer postulated the typical office plan as the generic prototype for the capitalist metropolis. If the RCA, at peak of the financial crisis, anticipated the future central organization of the State predicted by the Keynesian theories and only successively applied in the large-scale New Deal projects, on the contrary in Germany the office space – the *Büroraum* – gradually evolved towards a continuous interiorized environment, a sort of "office landscape" – or *Bürolandschaft* – able to metabolize the continuous creative destruction of the modern enterprise, as theorized in those same years by Alois Schumpeter, but also to extend the technology of production across the city at large.[7]

1. *Homeostasis*

Before the introduction of the Bürolandschaft, the two traditional office configurations were the corridor-plan and the open-plan. The first had the advantage of serving single customizable rooms either along or aside a corridor, providing high privacy, a limited variety of internal arrangements and a secluded environment. Nonetheless, communications were awkward, the labor supervision resulted difficult and there was a large waste of usable space. The open-plan instead, ensured wide and undivided working areas, equipped with ordered arrangements of furniture, offering a much more exploitable surface, an easier communication flow and a broader supervision of the activities.

7 Congestion was reduced through a juxtaposed variety of programs, from housing to industry, all based on a central organizational plan that endured "a form of amalgamation such as occurs every day in the business world" that realized a 'disenchanted mountain' free from any architectural 'objecthood' and unrelated from the limits of the block. Moving from his previous proposal *City of Towers* of 1928, and inspired by Saarinen's *Chicago Tribune* entry in 1922, Hood considered the typical plan as the supreme management instrument for a 'city under a single roof', the most appropriate tool to tame the wild forces of capitalism. See, Raymond Hood, *The City under a roof,* in Manfredo Tafuri, *The Sphere and the Labyrinth. Avant-Gardes and Architecture from Piranesi to the 1970s* (Cambridge MA: MIT Press, 1987):171.

Homeostatic bureaucracy
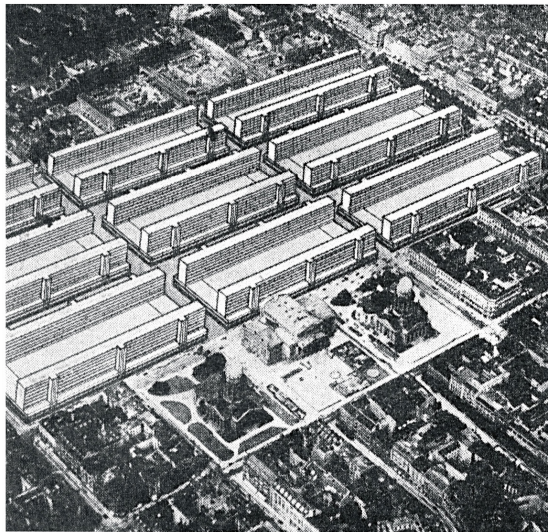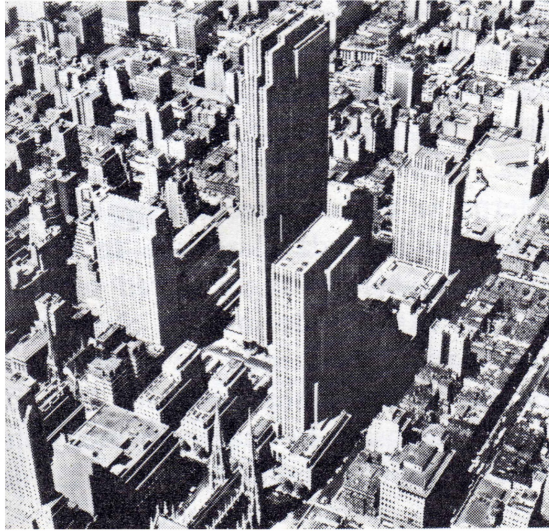
3.4 *RCA Building* Raymond Hood (New York, 1929)
3.5 *Generic City Building.* Ludwig Hilberseimer (Berlin, 1929)

If the first solution was inherited from Taylor's theories of industrial scientific management, the second was related to Elton Mayo's experiments at Hawthorne Works and the sociological theories about human working relations emerging at the end of the 1920s.[8] The passage from the industrial assembly lines of mass-workers to the think-belts of immaterial labor fostered in fact numerous researches upon the psychological and anthropological factors involved in individual and cooperative working routines, radically influencing the physiognomy of the American paper factories of the 1950s. Cognitive production required a wider attention on personal interactions and communication, that had to be mediated via new spatial frames and ubiquitous modular systems, extending from curtain-walls to internal partitions, from lighting fixtures to multi-purpose mobile furniture: in the open-plan everything became measurable and quantifiable according to standards.

On the opposite, Bürolandschaft drew its plans out of unbalance, assuming entropy as its very principle of development. As a true sociological experiment aimed at creating a "domesticated democracy" through an horizontal network of cooperation, devoid of strict hierarchies or rigid functional compounds, the office-landscape was essentially a calculated disposition of working furniture – desks, plants, chairs, sofa, shelves, copy and printing machines – arranged according to the flows of communication, the patterns of movement and the visual proximity of the employees. Such a renewed attention upon the material, physical, perceptive networks of communication inevitably linked the evolution of Bürolandschaft to the rising studies of cybernetics, a new model of governance based on the information exchange within human and mechanical systems, developing since the end of the 1940s. One of the fundamental concepts of cybernetics was the *homeostasis,* referred to the self-regulatory capacity of a system to interrelate with external conditions. In fact, instead of a perfect equilibrium, as something set, immobile or stagnant, the homeostasis resembled more to a sort of *condition,* something that might change while keeping constant its internal relations.[9] Within homeostasis, constancy or

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8 Elton Mayo. *The Social Problems of Human Civilizatio*n (London: Routledge and Kegan Paul, 1949).
9 The same etymology of the word homeostasis confirms such a dynamic balance, being composed by *stàsis* (στάσις), or 'standing still', and *omóios* (ὅμοιος), 'similar', but never exactly omós (ὁμός) 'one and the same'.

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regularity did not exist as "default" but as almost episodic coincidences, as temporary intervals which had to be artificially achieved and maintained in order to ensure an independent economy.

The concept of homeostasis was first advanced by Claude Bernard at the end of 19th century and later developed by Walter Bradford Cannon in his 1929 *Organization for physiological homeostasis.* Bernard, since his first studies concerning the functions of the pancreas juices within human digestion, explored different important self-regulatory bodily processes, from the hepatic production of sugar to the thermoregulation of the blood flow, which led him to conclude that "what we see from the outside is merely the result of physic-chemical stimuli from the inner environment",[10] a *milieu intérieur* regulated by the nervous system communicating with the external world and stimulating its internal organs to react accordingly. On this account, in his *Leçons sur ler phénomènes de la vie communs aux animaux et aux végétaux,* Bernard distinguished three forms of life: *la vie latente,* where there were not chemical transactions; *la vie oscillante,* where the living processes were dependent from the external environment; and *la vie constante ou libre,* characterized by self-regulating systems which continually compensated and counterbalanced the exogenous variations, ensuring the independence and the full development of forms of organizations in intimate relation to the environment.[11]

Cannon continued Bernard's studies and further developed the notion of the human body as a substantially unstable material: an open system which engages in free exchanges with the outer world and whose structure is continuously broken

10 Claude Bernard. *Introduction à l'étude de la médecine expérimentale* (1865) eng. transl. by H.C. Greene *An introduction to the study of experimental medicine.* (New York: Macmillan,1927).
11 "[H]ere life is never suspended, but flows steadily on apparently indifferent to alterations in its cosmic environment or changes in its material surroundings. Organs, structural mechanisms and tissues all function uniformly and their operations show no sign of the considerable variations present in organisms where conditions are inconstant. This is due to the fact that the milieu intérieur surrounding the organs, the tissues and their elements never varies; atmospheric changes cannot penetrate beyond it and it is therefore true to say that the physical conditions of environment are unchanging in a higher animal: each one is surrounded by this invariable milieu which is, as it were, an atmosphere proper to itself in an ever-changing cosmic environment. Here we have an organism that has enclosed itself in a kind of hothouse. The perpetual changes of external conditions cannot reach it: it is not subject to them. but is free and independent". Claude Bernard. *Lecons sur ler phénomènes de la vie communs aux animaux et aux végétaux (*Paris, Baillière, 1878-1879)

down and built up again by local processes of destruction and repair.[12] Also for Cannon the idea of equilibrium coincided with a continuous struggle of minute reassessments and preservations according to external conditions. He believed, in fact, that the human adaptive faculties were able to develop and *learn* from the received stimuli and ultimately to evolve, constructing more complex and sensible organisms according to the contextual mutations. From his theories arose the idea of an immanent net of interwoven relations among elements, individuals, objects, and ecologies, able to self-balance themselves through adaptive feedback loops within a controlled competition and a mutual dependency.[13]

In 1948, shortly after Cannon's researches and in collaboration with Arturo Rosemblueth concerning control and communication studies, Norbert Wiener introduced the concept of *cybernetics*, a word inherited from Plato's definition of *kubernètes*, standing for "steersman", "navigator" or, in a general terms, "government".[14] For Wiener, any pattern or language transmission carried a certain dose of information embodying a form of order against entropy, the degrading natural tendency towards disorder and destruction: as he put it "*Organization as message*".[15] Information was managed through continuous stimuli of action and reaction called "feedbacks", sort of human links in the chain of the transmission and return of information which were able to either accelerate the tendency towards disorganization or temporarily reverse the entropic degradation upon the received

12 Bradford Cannon. *The Wisdom of the Body* (New York: Norton, 1932).
13 *Ibidem,* 24-24; "It seems not impossible that the means employed by the more highly evolved animals for preserving uniform and stable their internal economy (i.e., for preserving homeostasis) may present some general principles for the establishment, regulation and control of steady states, that would be suggestive for other kinds of organization - even social and industrial - which suffer from distressing perturbations. Perhaps a comparative study would show that every complex organization must have more or less effective self-righting adjustments in order to prevent a check on its functions or a rapid disintegration of its parts when it is subjected to stress. And it may be that an examination of the self-righting methods employed in the more complex living beings may offer hints for improving and perfecting the methods that still operate inefficiently and unsatisfactorily. At present these suggestions are necessarily vague and indefinite. They are offered here in order that the reader, as he continues into the concrete and detailed account of the modes of assuring steady states in our bodies, may be aware of the possibly useful nature of the examples that they offer."
14 Plato used for the first time the word κυβερνήτης in his *Alcibiades,* indicating the individual learning process of self-governance to enter the political and public life. Norbert Wiener. *Cybernetics, or Control and Communication in the Animal and the Machine.* (New York: John Wiley Sons, 1948) :11
15 Norbert Wiener. *The Human Use Of Human Beings: Cybernetics And Society (*Boston, MA: De Capo Press, 1954).

information: "we have already seen that certain organisms, such as man, tend for a time to maintain and often even to increase the level of their organization, as a local enclave in the general stream of increasing entropy, of increasing chaos and de-differentiation. Life is an island here and now in dying world. The process by which we, living beings, resist the general stream of corruption and decay it is known as homeostasis".[16] But feedback might also have been be either a simple unconscious reflex or a complex layered order, which regulated its action on the base of past experiences developing certain policies of behavior.[17] In this way, Wiener associated the implicit act of learning, or the ability of certain systems to retain a memory from previous feedback loops, with the very idea of dwelling, the construction of habits and new patterns of information which entailed development, progress and entrepreneurship against the natural tendencies towards decay, opening the field of cybernetics to social theories.

Indeed, these results had important spatial consequences as well. If human bodies began to be considered as "communicative organisms", as the medium between a *milieu intérieur* to a surrounding network of information, then any distinction between an outside and an inside space become unnecessary. In architecture, as Reinhold Martin pointed out in his *The Organizational Complex*, this innovative logic of connection replaced the previous tendencies of compartmentalization and the vertical subordination of parts to the whole, leaving spaces entirely open and free to the interactions which could have been established in all directions. Within these indoor landscapes of possibilities, control should have no longer to be exerted from without, imposing molds or rigid enclosures, but rather *from within*, through the configuration of internal structures, objects, furnitures. The typical plan, in this sense definitely turned into a neutral frame of control, a breeding ground for sociological experiment and a laboratory for "domesticated democracies", artificially created through horizontal networks of cooperation, devoid of hierarchies or rigid functional compounds. On this account, the Bürolandschaft could be rightly

16 *Ibidem*, 33
17 Reinhold Martin. *The Organizational Complex: Architecture, Media, and Corporate Space.* (Cambridge: MIT Press, 2003).

considered as the ultimate phase of a larger homeostatic project of neutralization, enacted since the end of the 19th century by the German social democratic party to control the evolution of the labor-struggle and the organization of the working classes with its social relations.

2. *Neutrality*

> "Once fully established, bureaucracy is among those social structure which are the hardest to destroy. Bureaucracy is the means of transforming social action into rationally organized action. Therefore, as an instrument of rationally organizing authority relations, bureaucracy was and is a power instrument of the first order for one who controls the bureaucratic organization."
>
> –Max Weber[18]

In his 1929 article "The Age of Neutralization and Depoliticization," Carl Schmitt considered the European situation of crisis as the result of a series of historical and ideological shifts, which in turn determined different cultural reference fields and relative warfare phases: from the theological domain and the religious wars of the 16th century to the technical revolution and the economic imperialism of the 20th century.[19] Following a progressive secularization of political theological categories, passing through metaphysical, moral, and ultimately economical paradigms, Schmitt claimed that each epoch attempted to undermine the previous one by dislocating its center of conflict on a neutral field of knowledge and thus depoliticizing its referential principles. Such an evolution reached its apogee between the 19th century and the first decades of the 20th century, or, in other

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18 Weber, Max. *Economy and Society.* edited by Guenther Roth and Claus Wittich (New York: Bedminister Press, 1968), vol. 1, 987.
19 Carl Schmitt, "The Age of Neutralizations and Depoliticizations" (1929), in *The Concept of the Political.* Expanded Edition, trans. by G. Schwab (Chicago: University of Chicago Press, 2007): 80–96. See also Chantal Mouffe, *On the Political*, (London - New York: Routlege, 2005).

words, between the affirmation of the "agnostic liberal State" and the dominion of the techno-economical paradigm which transformed the political battlefield into a "competition in the domain of economics and discussion in the intellectual realm."

Culminating the series of shifts, the objective rationality of technique embodied the highest level of neutrality, for it found *in itself* the only form of legitimization as a distorted form of anti-religion. Technology represented the apotheosis of the non-political since it could have indifferently served anyone and whatever purpose despite the relevance or the value of its content, undermining any antagonism through the self-referentiality of its frame. The essence of technology in fact, was purely tautological, aiming only at its own development and at providing new scopes for affirmation.

Thus, once combined with economy, the instrumentality of technology for Schmitt did not simply displace conflict, as all the former epochal domains did, but it *made use* of conflict as source of dynamism and evolution: through technology any opposing force was leveled on the terrain of efficiency, its potential absorbed and analyzed, its violence smoothed into mutual competition. Moreover, while the old instrumental technology – like art or craftsmanship – developed according the hidden forces of natural elements, modern technology seemed not only able to modify the laws and the elements of nature, but also to self-determine its own finalities, displacing human decision as a mere appendage of control. According to Schmitt, technology imposed itself first as a device and later as a whole approach to the world, considering reality as an appropriable and quantifiable substance to be dissected, assembled and expropriated of its hidden resources.

As described in the previous chapters, it was within this perspective that machines and factories inevitably became predominant paradigms for management. At the beginning of the 20th century, the sinuous forms of the American grand silos and the homogeneous facades of the Ford's factories rapidly diffused all over the world, landing in Europe through Walter Gropius and Eric Mendelsohn's first photographic reportages. There, in those images, the power of technology appeared immediately tangible, albeit their serene indifference concealed a totally disciplined new-world: the one of the factory, which would soon achieve the aura of "pagan

sacrality", as an immanent repository of the efforts and the social cooperation of a whole collectivity. For Sigfried Giedion, for example, the clear and mechanized order of the factory embodied the most positive and authentic expression of modernity, whose large and empty floors permitted the simultaneous intersection of volumes and masses creating a totally encompassing environment. Describing the spatial openness of the new industrial buildings, with their iron, glass and concrete structures which allowed a total permeability between interior and exterior, in his *Bauen in Frankreich* Giedion used the term *Durchdringung* (literally "inter-penetration") to evoke the emerging spatial and temporal dimension of architecture, able to completely surround and subtly condition the actions and the subconscious of its inhabitants.[20]

Whereas Giedion was enthusiastically endorsing the spatial and temporal qualities characterizing these new functional architectures, in those years Carl Schmitt offered a drastically disenchanted reading of the same capitalist evolution, which he believed it would have soon extended its standardized architectures and its industrial discipline all over society. Through mass production and mass consumption in fact, for Schmitt the political sphere would be progressively subjugated to the technical frames and the homeostatic conditions of the emerging State-enterprise, ceasing to be the stage for political decision and antagonism, as also witnessed by the large proliferation of office and administrative buildings realized during the Weimar Republic to fed the flourishing culture industry with masses of salaried "brain workers".

20 The German term derives from László Moholy-Nagy who, in his coeval *Von Material bis Architektur*, describes the over-imposition of photographic films that creates the illusion of new spaces. See Sigfried Giedion, *Building in France, Building in Iron, Building in Ferroconcrete,* trans. J. Duncan Berry, with an introduction by Sokratis Georgiadis (Santa Monica: Getty Center for the History of Art and the Humanities, 1995): 87; translated from *Bauen in Frankreich, Bauen in Eisen, Bauen in Eisenbeton* (Leipzig: Klinkhardt & Biermann, 1928): 3.

Homeostatic bureaucracy

3. From the *Halle* to the *Bürohaus* (1880-1912*)*

> "The architect who wants space, has consequently begun
> a struggle against what it appears, has started to shift
> and move this weight which has encircled his freedom,
> and he moves the weight in such a way as to leave space
> between its parts, he removes all six sides at a time: thus
> the remaining space between the walls becomes the aim,
> and that which we call walls, floor, and ceiling are the
> sides of a cube, and therefore the unfilled and the empty
> represent the aim of man's movement."
>
> –Kazimir Malevich[21]

It could be conjectured that the project of an homeostatic State arose in the late 19th century Imperial Germany, when the Chancellor Otto von Bismarck instituted the *Sozialstaat*, a sort of Republic of Labor "to bribe the working classes, or (...), to win them over, to regard the state as a social institution existing for their sake and interested in their welfare."[22] Secretly moved by the social ideas of Ferdinand Lassalle and inspired by his former predecessors Frederick William I and Frederick the Great of Prussia, in 1880 Bismarck signed the first modern welfare legislation, providing national health insurance, pensions, minimum wages, labor regulations, vacations, unemployment insurances, special laws for women and children. In a time of deep misery and discontent, when trade industry and agriculture were bordering on the ruin, Bismarck was forced to adopt a form of State Socialism aiming at "the re-establishment of a friendly relationship between social classes, the removal or modification of injustice, a nearer approach to the principle of distributive justice, with the introduction of a social legislation which promotes progress and guarantees the moral and material elevation of the lower and middle classes".[23] In other words,

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21 Kazimir Malevich, *The World as Non-objectivity: Unpublished Writings 1922-25,* Volume 3 (Copenhagen: Borgen, 1976): 287.
22 Otto von Bismarck. quoted in William Harbutt Dawson, *Bismarck and State Socialism: an exposition of the social and economic legislation of Germany since 1970* (London : S. Sonnenschein, 1891).
23 Gustav Schmoller. "Uber einige Grundfragen des Rechts und der Volkswirthschaft"(1875) quoted in William Harbutt Dawson, *Bismarck and State Socialism: an exposition of the social and economic legislation of*

he used the technical apparatus of State bureaucracy as an instrument to destitute both allies and enemies of their power keeping unaltered his authoritative control.

According to Max Weber, a homeostatic system of government required both an efficient administrative apparatus and a political intermediary to hold the balance between the State and its productive forces, on the model of a modern enterprise (*Betrieb*), whose organization was based on bureaucracy just like a factory was based on calculation.[24] The State officialdom was in fact a sort of civil army "devoid of condottieri": obedient trained functionaries-soldiers operating *sine ira ac studio,* with abnegation and without regard for persons, and on the base of written files, word-orders, duties and roles, relations and hierarchies, salaries and pensions, promotions and procedures, super and sub-ordinations.[25] For Weber, at the antipodes of such a dehumanized bureaucracy, which was good in fulfilling tasks but not to evaluate or decide responsibly, stood the necessary guiding role of the parliament, the supreme organ of political decision, instituted to polarize all the forms of internal antagonism within the limits of the State direction.

In this way, any advancement of labor-struggle was punctually translated into a general reassessments of the employment relations, coordinated at an institutional level by the trade-unions and favored by the German advanced labor aristocracies of skilled workers, who impeded the rapid diffusion of the Taylorist scientific management and the introduction of the uprooted and flexible Fordist worker. Hence, if already in 1848 it was discussed a draft law to elect factory committees with participatory rights at the Constituent Assembly in Frankfurt, that initiative was partly realized in 1891 when the State intervened and regulated the working contract through an industrial Labor Code (Arbeitsordunung), which compelled all the factories and business enterprises with more than 20 workers to issue a work statute in collaboration with elected works councils, the Räetesystem. At the Erfurt Program, the same year, Eduard Bernstein, August Bebel and Karl Kautsky claimed the socialist ownership of the means of production through the "legal political

Germany since 1970 (London : S. Sonnenschein, 1891).
24 Max Weber. *Economy and Society. An outline of interpretative sociology,* edited by Guenther Roth and Claus Wittich (New York: Bedminister Press, 1968): Appendix II, 1394.
25 *Ibidem,* 975.

participation" of the workers instead of a violent revolution. For the rising social-democracy, in fact, at that point it was more important to improve the workers' consensus and their class-consciousness than attempting any insurrection: "It is the task of the Social Democratic Party to shape the struggle of the working class into a conscious and unified one and to point out the inherent necessity of its goals".[26]

In a way, precisely such a "unified and conscious effort" promoted by the SPD before the Weimar Republic, found a proper spatial expression in the space of the *Halle,* or a wide interior void space occupying the predominant position of a building complex, similar to the Roman basilica or the most common "aula"*,* here desacralized of its religious meanings and symbolizing the ambitions and the efforts of a collectivity within its unique and magnificent emptiness. Ludwig Hilberseimer,

3.6   who wrote an entire compendium on the *Hallenbauten* in 1931,[27] found the genealogical antecedents of the Halle in Paxton's Crystal Palace in London (1850)

3.7   and Berlage's Stock Exchange in Amsterdam (1895), which were both expressions of the modern metropolis and its capitalist expansion: the one based on mass consumption and the exhibition of industrial products, while the other based on goods exchanges and immaterial trade relations. The Crystal Palace was a colossal glass-house, built up of standardized pieces directly assembled on site, in Hyde Park: the internal hall literally coincided into a pure isolated form. The main aisle was 500 meters long and 140 meters wide in its transversal central bay. The structure was rather elementary but the unity of its unvaried iron-frame converged in a unique absoluteness of the complex, which provided a homogeneous background to the various exhibited products. Conversely, the Beurs van Berlage was built in a careful continuity with the Amsterdam XVII century urban fabric, in the very core of the historical trade center. Berlage had to confront a particular historical moment of "chaotic confusion",[28] trying to reconcile the separation between the commercial

26 "Erfurt Program", in Minutes *of the Party Congress of the Social Democratic Party of Germany: Held in Erfurt from October 14-October 20, 1891* (Berlin:1891) available online at http://www.marxists.org.
27   In 1931 Ludwig Hilberseimer would publish a compendium titled *Hallenbauten* (*Hall Buildings*), as a further elaboration of his previous *Beton als Gestalter*, written with Julius Vischer in 1928, in parallel to Sigfried Giedion's *Building in France. Building in Ferro-Concrete*. See Ludwig Hilberseimer. Hallenbauten, (Leipzig: Julius Verlag, 1931).
28 Hendrik Petrus Berlage, "Considerazioni sullo Stile", *Casabella,* n.249 (1961).

conservative forces of the historical Dutch bourgeoisie and the rising collective interests of the labor classes. In this sense, the three large halls of the Commodity, Grain and Stock Markets were an attempt to express a superior convergence of the economic and trade forces into the unique social interest of the collectivity. This clearly appeared in the external fragmentation of the volume, modulated through different heights and extrusions according to the internal functions but respecting the commercial parcels of the historical urban context and thus without losing the coherence of the whole: a characteristics that Berlage would praise as the "unity into multiplicity".

Thus for Hilberseimer the Halle represented the culminating point of an intense improvement of the architectural technologies of construction, which allowed a simplification of the internal volumes, the clearing of the interiors, the extension of the spatial flexibility and a better management of circulation. The necessity of a brighter, wider and cleaner production space, which arouse with in industrial architecture, progressively extended to the whole urban fabric through the proliferation of large internal voids, framed spaces which could indifferently accommodate any possible function: a generic form which conceptually overtook typological variation, rendering the "collective uses" trough a unique typology. On this account, in his final remarks of *Grosstadtarchitektur,* Hilberseimer defined architecture as the clear organization of masses within a definite form, devoid of unessential decorations and immediately understandable in its functional arrangement. In its cubic volumetric configuration, in fact, the Halle was simply a room of large dimensions, technically designed to shelter wide surfaces and hosting large masses: its nude form was an attempt to strip architecture from everything which was not immediate, aspiring to a rigorous, essential, space for the collective.[29]

Indeed, such a primitive economy of means witnessed the familiarity of Hilberseimer with certain Suprematist themes and his admiration for the writings of Malevich,[30] who considered the proper idea of economy as the innate tendency of

29 Ludwig Hilberseimer. *Grosstadtarchitektur* (Julius Verlag: Stuttgart, 1927), reprinted as *Metropolisarchitecture and Selected Essays,* (New York: GSAPP, 2012).
30 Kazimir Malevich. *The Non-Objective World: The Manifesto of Suprematism*
Introduction by Ludwig Hilberseimer (Chicago: Paul Theobald Company, 1959); Ludwig Hilberseimer,
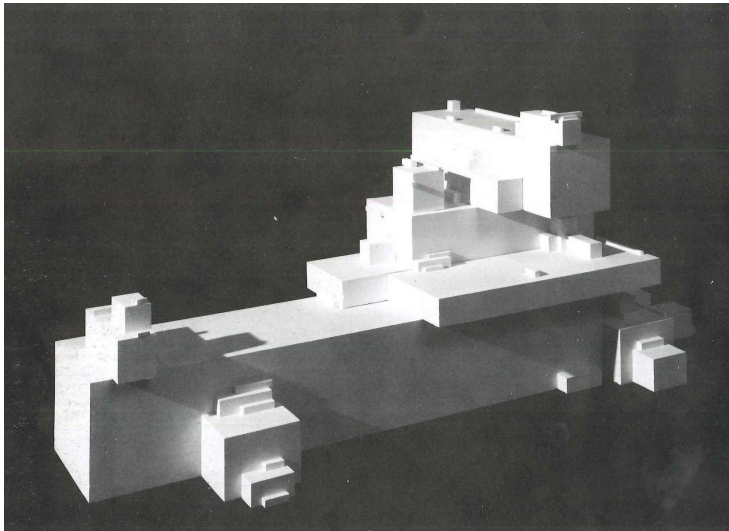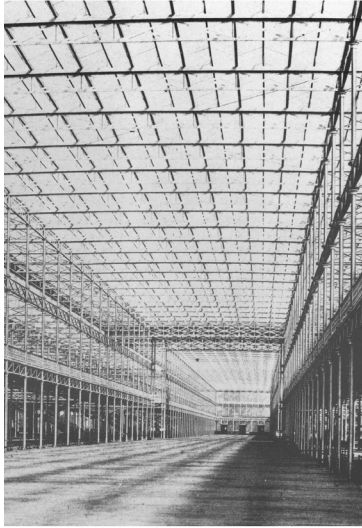
3.6 *Crystal Palace.* Joseph Paxton (London, 1850)
3.7 *Beurs.* Hendrik Petrus Berlage (Amsterdam, 1896)
3.8 *Alpha.* Kazimir Malevich (Leningrad, 1923)

Typical plan as enabling frame   179

a living form towards self-subsistence, which continuously regulates its inner efforts according to the external constraints, decreasing waste and allocating resources in order to preserve its own existence: in one word production, life activity, labor, as explained in Marx.[31] In Malevich's *arkhitektona* of 1920s, for example, as in Hilberseimer's Halle, the extension of a form – its *plan* – was neither depending on an external composition nor on imposed constrains, but it rather emerged from an inner process of definition based upon an effort of growth, on a living energy: "Every system consists of units constructed in such a way that each one moving in its appointed place cannot go beyond the limit of the system. If one unit goes beyond the system's limit, its destruction is inevitable, and there can be no system which does not bring its units within its limits. The system's perfection is marked by the fact that every unit, having free movement and not experiencing pressure, is nonetheless unable to leave the system's limits. I will call such a system generic".[32]

3.8

<center>*</center>

The Deutscher Werkbund, founded in 1907 and inspired by the theories of Hermann Muthesius and the Christian socialist Friedrich Naumann, was essentially a collective pedagogical experiment: an ideological translation of the "worldly ascesis" described by Max Weber as the absolute devotion of an individual towards his own labor and duties.[33] Promoting a spiritual synthesis of modern technical reproducibility with art, and by liberating craftsmanship of its aristocratic aura, the Deutscher Werbund advocated the rise of a superior notion of form (*Gestalt)*, no longer considered as something "applied" to ennoble the rough industrial product

"Kasimir Malevich and the Non-Objective World", *Art Journal*, 20 (1960): 82-83.

31 Karl Marx, *Economic and Philosophic Manuscripts of 1844*, I, XXIV.

32 "God is Not Cast Down". Malevich repeatedly defined *Economy* as the founding principle of Suprematism: "Economy the primary source of all movements, which affirms that every activity is the result of bodily energy, but that all bodies attempt to preserve their energy; therefore all my actions must be the result of economic method. This is the way in which nature, and bodies, and the whole man's creation move. For a long time human creative thought has been trying to escape from weaving confused, if beautiful, patterns and designs to the simple *economic expression* of the action of energy, so that all forms of this action are composed not of *aesthetic*, but of *economic necessity*." Kazimir S. Malevich, "On New Systems in Art*" (O novykh sistemakh v iskusstve*), (Vitebsk, 1919).

33 Max Weber. *The Protestant Ethic and the Spirit of Capitalism* (1905) online at http://www.marxists.org

but rather as a result deduced from the very process of mechanization, and whose inner objectivity (*Sachlichkeit*) entailed a renovated relation to life, politics, working activities, bodily efforts and mental practices: a new "ethos".[34]

The garden city of Hellerau for example, one of the Werkbund epicenters rotating around the figure of Karl Schmidt and his Dresdener Werkstätten, constituted a true living experiment founded on the ideology of labor and on a collective program based on physical education. The workers' colony was an appendix of Schmidt's furniture factory, composed of communitarian buildings designed by renowned architects such as Theodor Fischer, Hermann Muthesius, Richard Riemerschmid and Heinrich Tessenow.[35] According to Naumann and Schmidt, the burden of labor could have been redeemed through the common spirituality of a collectivity by sharing and harmonizing the daily rhythms of life as in a total work of art. In this respect, it was not a coincidence that they asked Jacques Dalcroze, the famous Swiss pedagogue who developed an educational method based on Eurhythmy through gymnastic and solfeggio, to move his famous Institute from Geneva to Hellerau.[36] Schmidt wanted the Institute to be the most significant building of the town and its internal hall a sort of representative stage for the community, a celebratory "house of labor", appointing Tessenow as the main

architect. Nevertheless, for the construction of the main Halle Dalcroze preferred to rely on his friend and consultant Adolphe Appia, the Swiss architect famous for his scenic designs of Wagner's operas that would have influenced the whole theater

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34 "To help form to recover its rights must be the fundamental task of our era; in particular it must be the content of any work of artistic reform embarked upon today (...) Purpose, material and technique might be beyond criticism, yet without form we should still be living in a crude and brutal world. Thus we are ever more clearly confronted by the far greater, far more important task of reviving intellectual understanding and reanimating the architectonic sense. For its architectonic culture is and remains the true index of a nation's culture as a whole". See Hermann Muthesius. "Wo stehen wir?" in *Die Durchgeistigung der deutschen Arbeit: Wege und Ziele in Zusammenhang von Industrie, Handwerk und Kunst,* (Jena: Diederichs, 1912, 1-10), eng. transl. "Aims of the Werkund", in *Programs and Manifestoes on 20th-century Architecture,* Ulrich Conrads (ed.), (Cambridge, Mass.:The MIT Press, 1964).
35 Marco De Michelis. *Heinrich Tessenow 1876-1950,* (Milano: Electa, 1990)
36 The Dalcroze Institute at Hellerau attracted many intellectuals of the time, like Mies van der Rohe, whose future wife Ana Bruhn was dancer at the Institute, or even Le Corbusier paid several visits to his brother Albert Jeanneret, who was a disciple and later a teacher at the Institute as well.
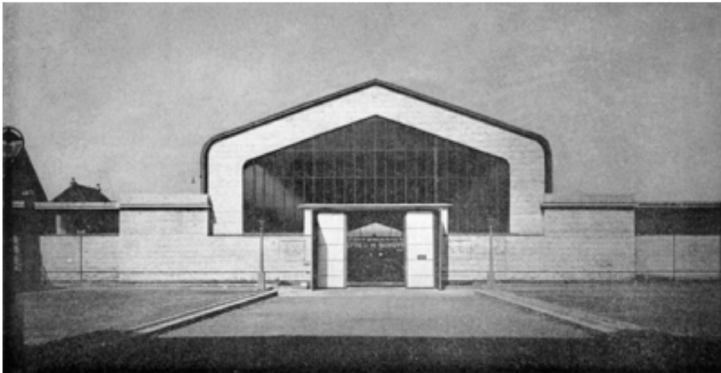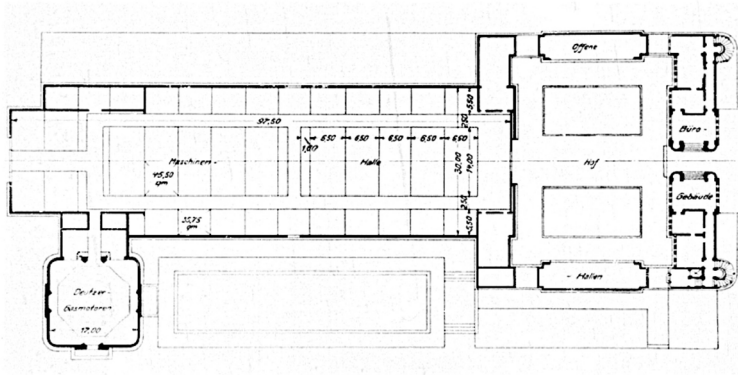
3.9 *Deutscher Werkbund Exhibition. Machhinen Halle.* Walter Groupius, Adolf Meyer. (Cologne 1914) (Bauhaus-Archiv).
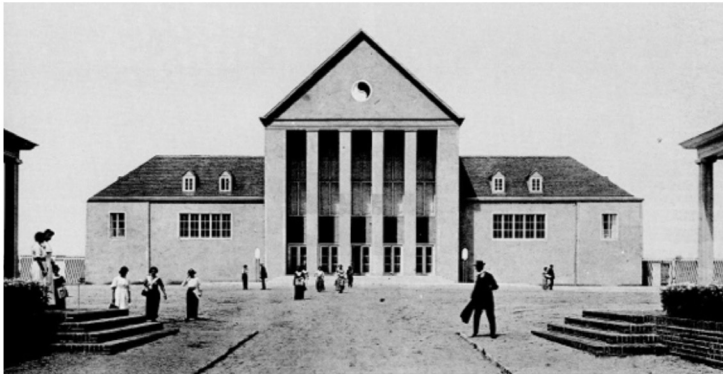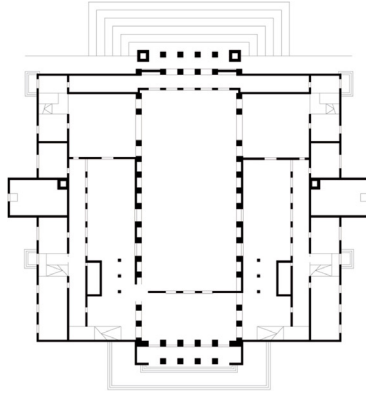
3.10 *Festspielhaus Halle* at Dalcroze Institute. Heinrich Tessenow, Adolphe Appia. Dresdener *Werkstätten* (Hellerau, 1910). Plan redrawn by the author.

3.11 *Festspielhaus Halle* - Dalcroze Institute - interior Heinrich Tessenow, Adolphe Appia, Dresdener Werkstätten. (Hellerau, 1910).

researches of the 20th century.[37]

Appia's spatial sensibilities were in fact extremely close to the rhythmical studies of Dalcroze. He conceived architecture as the art of "grouping masses according to their weight", rejecting the traditional fictitious applied scenography and claiming for a minimized three-dimensional arranging of the stage where the play, the action and the setting could have become a unique expressive form. The stage had to be as empty as possible in order to leave the actor the necessary space to *just* be himself with his body: "only an empty room, waiting".[38] In this way, music could suggest its successive units of time through the body movements, while the body could interpret the music in terms of space and rhythm. The inanimate forms on the stage, by simply opposing their solid volumes to the performers on the foreground, would have affirmed their own presence *per via negativa*: mass, volumes and lights would have emphasized the movements and the gestures of the dancers simply by modulating distances, depths and shadows.[39] Hence, the hall of the Institute resulted in an oblong, bare and hollow box. There was neither a stage nor curtains: the floor was continuous and completely free from installations or structures, as a pure mirror-plane for the community consciousness.[40] Any distinction between the actors and the spectators was removed. Both the auditorium and the scene had not real fixed installations and the orchestra pit could have been entirely hidden beneath an operable floor platform: the whole city could have been eventually represented on the stage, while the workers could have been reconciled with the rhythms of the factory.

37 Mary E. Tallon. "Appia's Theatre at Hellerau*"* in *Theatre Journal*, Vol. 36, No. 4, Dec., (1984).
38 Adolphe Appia. "Living Art or Frozen Nature", in *Players Magazine 33*, no. 4 (1962): 126.
39 "Architecture is the art of creating fixed and circumscribed spaces, planned as background for the presence and the movements of the living body. It expresses this purpose by its height, depth and weight, and by the effect of its solidity. It is a realistic art; in architecture, the use of fictions is a luxury. By definition, it embraces space; in its practical applications, it embraces time as well. It is consequently the most richly endowed of all the fine arts." Adolphe Appia. *L' oeuvre d'art vivant,* (Genève: Atar,1921): 14.
40 *Ibidem,* 54: "In dramatic art, too, we alone exist. There is no auditorium, no stage, without us, without us and beyond us. There is no spectator, no play, without us, without us alone. We are the play and the stage, because it is our living body that creates them. Dramatic art is a spontaneous creation of the body; our body is the dramatic author. The work of dramatic art is the only one that is truly identified with its author (...) The work lives for itself, without the spectator."

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In 1907 Walther Rathenau, leader of the A.E.G. which at that time was one of the biggest energy providers in the world and an absolute representative of the Prussian capitalist industrialization, appointed Peter Behrens as artistic consultant for the company.[41] The highest ambition of Rathenau was to find a synthesis between the cultural aspirations of his epoch and the technical civilization imposed by modern production: his whole political project aimed at a dialectic convergence between capital and labor within the coherent form of the enterprise, sublimation of the anarchic forces of the market within a unique coherent managerial form.[42] During WWI, Rathenau was the main responsible of the KRA, the Office for the Military Supply, a revelatory experience from which he learned that a properly administrated State should have been planned as an industrial enterprise, with a concerted system of productive forces and a calculated logistic circulation of raw materials. In this sense, Rathenau wanted to establish a whole national program of development, in order undermine the anarchy of the market and tame the antagonisms of the worker's masses through the socialization of technology and the balancing management of the enterprise. The abandonment of the laissez-faire, the rationalization of production, the public control of the major enterprises, the state regulation of the market competition, the end of financial speculation and the equalization of salaries: according to Rathenau these were the founding principles for a "new economy", a primitive form of state capitalism which would have largely influenced Lenin, Keynes, Gramsci and the American New Deal.[43] Yet, Rathenau

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41 The A.E.G. (*Allgemeine Elektricitäts-Gesellschaft)* had just concluded an agreement with the G.E.C. (American General Electric Company) to control the electric demands of Germany, Austria, Russia, Netherlands, Denmark, Switzerland, Turkey and the Balkan Countries. See Lucio Villari's Introduction to *Walther Rathenau. L'Economia Nuova,* (Einaudi, 1976). For a general account on the work of Behrens see Stanford Anderson. *Peter Behrens and a New Architecture for the Twentieth Century*, (Cambridge Mass: MIT Press, 2000).
42 "The State, when advisably directed, could adapt itself, with its organs and institutions, and moves through every task. I do not want to remind that the most important concern of our War Economy was the provision of raw material." Walther Rathenau. *Die Neue Wirtshaft,* 1918, it. transl. *La Nuova Economia,* (Einaudi, 1976). See also Walther Rathenau, *The New Society,* transl. Arthur Windham (New York: Harcourt Brace and Company, 1921) and Massimo Cacciari. *Walter Rathenau e il suo ambiente,* (De Donato, 1979).
43 *Ibidem:*54.

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was aware that a pure technical civilization would have been useless without the parallel construction of a *Kultur,* meaning a collective conscious engagement towards progress and the socialization of the advantages of mechanization in terms of welfare, once assumed the value of labor and the discipline of the factory as supreme principles for a universal organization of production.

Behrens, who at that time already achieved a large reputation for his pavilions for the Northwest German Art Exhibition in 1905 and for the Crematorium in Hagen the year later, seemed perfect to Rathenau to sublimate the faceless spirit of industrialization within a geometric and abstract idealism, deploying art to transform the brutality of mechanization into an instrument of collective consciousness.[44] Behrens was in fact designing almost everything: from teapots to advertisements, from exhibition pavilions to factory buildings. Among his first architectural intervention for the A.E.G., the famous Turbine Factory, built between 1908-1909 in the northern Mohabit district in Berlin, was perhaps the best embodiment of this pedagogical project, materializing the ideology of labor into the longitudinal technical form of the Halle.

3.13

The circumscribed pedagogical experiment in Hellerau was to Adolphe Appia's *Festhalle* as the industrial capitalist Gesamtkunstwerk in Berlin was to Peter Behrens' *Turbinenhalle Fabrik*: while in the first, the Halle represented the symbolical core of the workers community town, in the latter it was conceived as a laic temple of social labor, the true propelling force of the capitalist metropolis.[45] Nevertheless, in Behrens the theme of the Halle was entirely developed within the objective requirements of the industrial shop floor, which demanded the rational integration of the wide-span overhead traveling cranes with the supporting structure and the meticulous planning of storage allocation, material transportation and the ground operations.[46] In this sense, the representativeness of his architecture coincided with

44 "Art must elevate technique into culture", claims Peter Behrens in "Kunst und Technik", *Elektrotechniske Zeitschrift,* n.31, June (1910).
45 Ludwig Hilberseimer. *Hallenbauten,* (Leipzig: Julius Verlag, 1931).
46 Behrens divided the plan in two different sectors: the main long hall, a pure volume 207m long, 23m high and 26m wide, covered with three-hinged iron arches recurring every 9.22 meters combining the external structure of the continuous glazing with the internal crane-way, and a side lower volume in brick and iron structure with facilities and technical rooms.

3.12 *A.E.G. Humbolthain Complex.* Peter Behrens, (Berlin, 1897-1920).

the magniloquence of its structural forms, with the materials and the technical solutions employed in construction, to such an extent that the same façade of the building turned into a *brand* logo for the company. The configuration of the Turbinenhalle was further developed in the other commissioned four buildings for the A.E.G. at the Humboldthain complex on the in the north of Berlin: the High Voltage Factory, the Assembly Hall for Large Machines, the New Factory for the Railway Equipment and the Small Motors Factory. While the biggest companies in Berlin were relocating their facilities in the outskirt of the consolidated urban fabric, Rathenau instead preferred to keep the facilities within residential districts, in order to reinforce the relation with the workers' population and profiting of the regulations of the 1860 Holbrecht's master-plan, which allowed the possibility to merge housing and productive activities within the same compound. The A.E.G. Humbolthain complex, in fact, literally developed within the inner courtyard of an urban block, to later expand by acquiring properties and reconverting Mietskasermen into industrial units, often preserving the same proportional dimensions.[47]

3.14
3.15
3.16

3.12

Among the different factories at Humbolthain, the Kleinmotorenfabrik (Small Motors Factory) built between 1910-1913, would mark a real paradigm for the whole architectural evolutions of Behrens' work.[48] The plan of the building was simple: an almost 200 meters long and 50 meters wide multistory unit with triangular pediments. The free plan was subdivided in two aisles, and supported by a long series of almost circular brick-pillars on both sides. All the staircases, service rooms and workers' facilities, were contained either in polygonal side extrusions

47 Rathenau would be later forced to relocate part of his porcelain production to the center of Henningsdorf, a village within the north-western periphery of Berlin, to comply with new manufacturing process. He commissioned to Peter Behrens the project for an annexed workers' village and Le Corbusier would work at the Behrens office precisely at that time, while Behrens was elaborating affordable solutions for standardized housing. The research would even culminate in a 1918 report titled *Vom sparsamen Bauen* ("On the affordable construction"), in which Behrens and his colleague at the Düsseldorf academy Heinrich de Fries claimed that the quality and the comfort of a modern house should have been extended to all the workers, opening the way for a future housing industrialization, not dissimilarly from what Le Corbusier would hypothesize with his Maison Domino. See Peter Behrens, Heinrich de Fries, *Vom sparsamen Bauen. Ein Beitrag zur Siedlungsfrage.* (Berlin: Verlag der Bauwelt, 1918).
48 See Stanford Anderson. *Peter Behrens and a New Architecture for the Twentieth Century,* (Cambridge, Mass.: The MIT Press, 2000), 154-156: but also Silvia Malcovati, "Type, Technique, Tradition: the Mannesmann administration building in Düsseldorf 1910-1912", in *La Rivista di Engramma,* Vol.81 (2010): 20.

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juxtaposed to the main hall, as previously realized in the High Voltage Factory, or at the extremities of the hall, in correspondence to the main entrances. [*fig.*14] The severity of the continuous facade on the Voltastrasse provided an homogeneous background to the animated life of the district, reflecting what Massimo Cacciari praised as the "the perfect rationality of labor executed under a *shelter*, but also the *value* of labor itself, not just conceived as mechanization, conforming its particular relation to an urban context".[49]
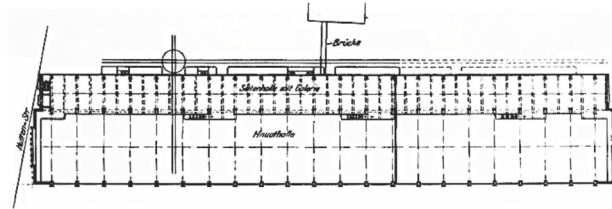
The other contemporary Behrens' projects, in fact, were nothing but reductions or developed articulations of the Kleinmotorenfabrik, yet converted to commercial, administrative or clerical programs. Once emancipated from its industrial applications, the typical plan of the *Halle* resulted appropriate to the majority of urban public necessities, eventually configuring what Behrens defined as the new generic monumental 'type' for the modern metropolis, exemplified in his Mannesmannröhren-Werke in Düsseldorf, the headquarters of the Continental Koutchuk-und Guttapercha-Kompanie in Hannover or even in the Imperial German Embassy in Saint Petersburg. In his speech delivered at the Mannesmann opening ceremony, on the 10th December 1912, Behrens defined architecture as the expression of the "powerful interests in an epoch" which were, at that time "industry and modern administration".[50] To use Cacciari's jargon, the Arbeitsideologie was reversed into the built forms of bureaucratic institutions, and the Halle became the house of work, or a *Bürohaus.* [*fig.*16-17-18]

3.17

For the Mannesmannröhren-Werke*,* Behrens dimensionally configured the office building starting from the spatial module of the Normalzimmer*,* a working

3.18

room furnished with a desk at which six persons could work, 3.70m wide and 7m long.[51] Thus, the volume was assembled from within, and supported by a sequence

49 Massimo Cacciari. *Walter Rathenau e il suo ambiente,* (De Donato, 1979): 44 (emphasis in the original, translation mine)
50 Peter Behrens. "Administration Buildings for Industrial Plants" in *American Architect*, n.128, (1925), 167-184.
51 *Ibidem;* "exact measurements were made of the surface of the desk, of the depth of the chair and of the room required to permit one to pass between the chair and the wall. The distance from the windows and the radiators beneath them was determined, as well as the space required for the typewriter tables and tables for letters and documents. In addition, it was found what space was required for an unobstructed passage from door to door and for filing cases. The total gave a minimum but adequate floor area for a normal office room."

3.13 *A.E.G. Turbinenhalle Fabrik*. Peter Behrens, Berlin (1910). Typical plan and interior view of the Halle.

Homeostatic bureaucracy
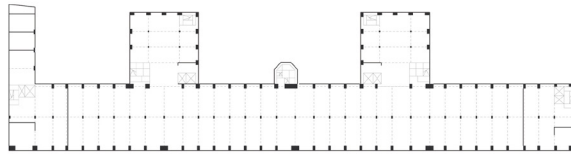
0   10m

3.14 *A.E.G. Kleinmotorenfabrik* Peter Behrens Berlin (1912) Typical plan redrawn by the author and elevation on the Voltastrasse.
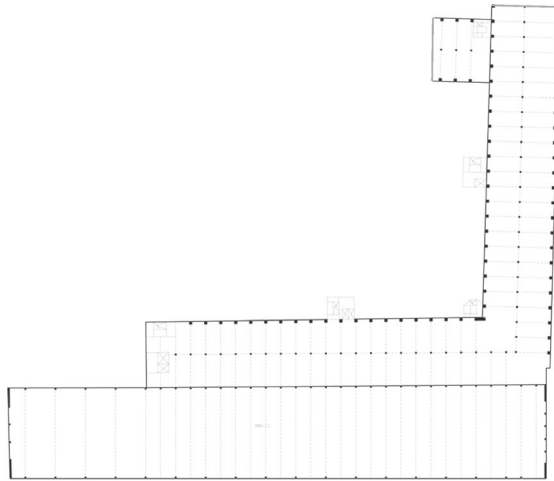
<div style="text-align:center">0   10m</div>

3.15 *A.E.G Montagehalle für Grossmaschinen* Peter Behrens Berlin (1912). Typical plan redrawn by the author and external view.
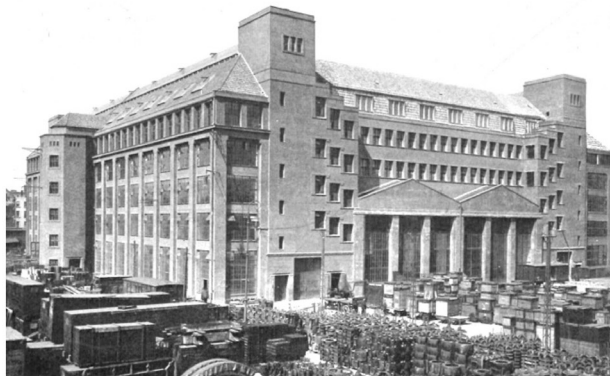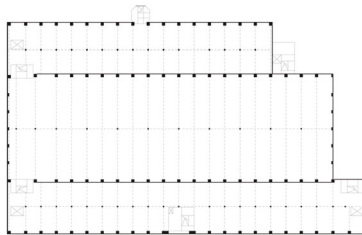
3.16 *A.E.G. Hochspannungsfabrik* Peter Behrens Berlin (1909) Typical plan redrawn by the author and external view.
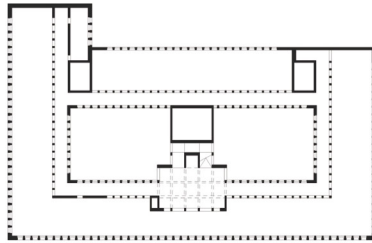
3.17 *Mannesmannröhren-Werke.* Peter Behrens Düsseldorf (1912). Typical plan and external view.

Homeostatic bureaucracy
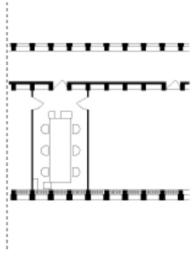
3.18 *Normalzimmer*, Peter Behrens Düsseldorf (1912), Mannesmannröhren-Werke. Plan of the office unit and internal view.

of 40cm structural piers placed at 1m intervals, which allowed a complete freedom of the internal partitions. Leaving fixed only the central courtyard and the services, the rest of the space resulted entirely rentable to different companies or programs, similarly to the large industrial Halle but this time entirely rearranged for clerical activities: "Therefore I shall build you a building which is arranged like a big *hall* in which you can partition off rooms as you like to meet the requirements that may arise at any moment."

It was not a coincidence that this spatial system, which would largely influence the future evolution of the office architecture, paralleled the first legislative differentiation of the salaried employees, the Angestellten, as a distinct social group within the State insurance system in respect to the blue-collar workers, the Arbeiter, deepening a deep fracture in the working class composition, which would be determinant during the Weimar Republic.[52] Differently from the blue collars, the salaried workers received a *salary* rather than a *wage*, or a retribution calculated on a longer span of time rather than in working-hours, and comprising larger union guarantees, safety insurance, paid holidays and overtimes, which were often neglected to the factory workers. Already in 1912, the pioneer studies of Emil Lederer attempted a very first analysis of this particular professional sector of intellectuals, technicians, clerks, bankers, businessmen, salesmen, which constituted the fruit of the new financial and industrial capitalist turn and thus the propelling force of the same State capitalism praised by Rathenau,[53] being an hybrid class in-between capitalists and manual workers, as owners of both their means of production and of their own labor-force: namely their intellectual faculties and their relational activities, not differently to the modern "brain workers".

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52 Jürgen Kocka. "Class Formation, Interest Articulation, and Public Policy. The Origins of the German White-Collar Class in the Late Nineteenth and Early Twentieth Century" in Suzanne D. Berger (ed.) *Organizing Interests in Western Europe: Pluralism, Corporatism, and the Transformation of Politics* (Cambridge: Cambridge University Press, 1981): 63-82.
53 Emil Lederer, *Die Privatangestellten in der modernen Wirtschaftsentwicklung*, (Tübingen, 1912: 1-10, 36-38) Italian translation in Mariuccia Salvati, *Da Berlino a New York, Crisi della classe media e futuro della democrazia nelle scienze sociali degli anni Trenta,* (Bologna: Nuova Universale Cappelli, 1989).

4. *Büroraum* (Office Space 1917-1923)

> "What then is the purpose of these unheard-of constructions? In large part, they directly serve production. In part they serve transport and trade and thus indirectly production. In part, they serve administration, domicile, and health care, and thus predominantly production. In part they serve science, art, technology, education, recreation, and thus indirectly once again production."

–Walther Rathenau[54]

Walter Rathenau believed that a State conceived as an *enterprise*, as an homeostatic system of bureaucracy and political power, would have solved to exceeding forces of the market and tamed any social discontent through a balanced technical apparatus of governance and reforms. On the contrary, for Rudolf Hilferding, German Minister of Finance in 1923 and in 1928-29, it was precisely the modern enterprise that destroyed the free competitive system of the previous Bismarck administration and progressively unified industrial, commercial and finance capital by means of joint stock companies, cartels and trusts. The enterprise "took command" whereas the market, the traditional platform of encounter between offer and demand, was definitely replaced by the concentration of few monopolies, which established their own rates and prices, supported an imperialist expansion of the investments and imposed a new class of administrators and functionaries.[55]

During the Weimar Republic, in parallel to the increasing importance of culture industry and communication, the sector of governance and finance consultancy marked not only the rise of managers and brokers, but also of ranks of accountants, clerks and civil servants, which constituted a sort of double-character of the unskilled

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54 Walter Rathenau. *Gesamtausgabe*, (Munich: Hans Dieter Hellige and Ernst Schulin, 1977-83) vol. 2 (translation mine).
55 Rudolf Hilferding. *Das Finanzkapital. Eine Studie über die jüngste Entwicklung des Kapitalismus* (Vienna,: Wiener Volksbuchhandlung, 1910) engl. transl. *Finance Capital. A Study of the Latest Phase of Capitalist Development*. Ed. Tom Bottomore (London: Routledge, 1981)

industrial mass workers: a new modern slavery, underpaid, precarious, highly exploited and mostly lacking of a political or professional representation. With management, in fact, the administration of a company became totally separated from its ownership, requiring specialized knowledge expertise, while the traditional figure of the "entrepreneur", namely the charismatic leader able to drive investments beyond routinely trends and favoring the creative destruction of the company assets – was gradually absorbed within the average professionalism of the Kopfarbeiter, the generic brainworker.[56]

On the other hand, between 1917 and 1923 the reorganization of finance capital and the fear of an internal Bolshevist insurrection corresponded also to a large reform of the lowest strata of the working class composition, and to a general endorsement of "labor sans phrase". According to Cacciari, the capitalist rationalization of economy (Rationalisierung) aimed at dismantling the hierarchies of qualified labor-forces by leveling wages and salaries, imposing new relations of production and introducing the unskilled (ungelernte) mass-worker as subject of a new system of production. Technology, in this sense, succeeded where Bismarck had failed, in suppressing the well rooted German labor aristocracies and integrating the power of the trade unions and of the workers' councils within the same process of development.

At the same time, the Social-Democratic reformism was fundamental to support the plan of rationalization and to integrate the unorganized and unskilled strata of workers. The SPD, in fact, politically understood both the position of the November labor-councils, the Betriebsräte,[57] whose entrepreneurship could had been turned into a precious instruments for an internal manipulation the industrial workforce, and the difficult position of the new salaried masses, whose "spiritual

56 The most radical innovation of the modern enterprise, according to Hilferding and contrary to Schumpeter, lay precisely in this progressive separation of role of the "entrepreneur" from the one of "capitalist" as such. While in the past the owner and the manager of the enterprise coincided in the same person or family, in the modern corporation the capitalist was only the main shareholder or creditor of the enterprise, a detached figure who lent capital to only get it back with interests. The entrepreneur, instead, was responsible for the use of capital in production and for the administrative and technical apparatus. He was able to innovate the enterprise through bureaucracy itself, the human framework of a socially planned economy. *Ibidem:* 367.
57 Guido De Masi and Giacomo Marramao, "Councils and State in Weimar Germany," in *Telos*, no. 28 (Summer 1976) pp. 3 - 35

Homeostatic bureaucracy

homelessness" devoid of solid values was eroded by the same economic principles which generated its own existence. On one side, the party actively favored the integration of the councils within the national economic plan through the proposal of co-determination agreements (Mitbestimmung), which would be definitely ratified in 1920 with the Works Council Act (Betriebsrätegesetz) and the Works Constitution (Betriebsverfassung). These measures instituted common agreements concerning working rules, safety and health protection, administration of welfare solutions, cooperation with employers, promotion of industrial pace, voting rights, supervision of execution for a mutual development. On the other side, the SPD issued a free trade unionism, which for Cacciari clearly expressed "the strategy to integrate the working mass of *ungelernte,* which had been abandoned and unorganized by the Communist party" within a social system of production, officially legalizing the "labor without quality" of the mass workers.[58]

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Berlin in the Twenties was the city counting the highest number of salaried employees, with its almost 4 millions inhabitants, just after London and New York: a metropolis with almost 900 square kilometers to be administrated. In order to drive capitalist investments and mass production within what Tafuri defined "the calculated plan of the social-democratic socialization of production", both the Greater Berlin Building Plan, by Martin Mächler in 1917, and the following Martin Wagner's New Berlin in 1924 endorsed the construction of a new business and directional center.[59] In the same years, between 1922-1923, at the peak of the hyperinflation, when the Deutschmark was substituted by the abstract currency

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58 The SPD found in 1919 the *Allgemeiner Deutscher Gewerkschfts-Bund* (ADGB), which included 400.000 members of the *Allgemeine Freie Angestelltenbund* (Afa-Bund), also affiliated with the *Zentralverband der Angestellten und Beamten* (Butab) and the *Allgemeine Verband der Deutschen Bankangestellten*, which constituted the only left-wing union organizations among the salaried employees.Cacciari, Massimo; Pensiero Negativo e Razionalizzazione, (Venice: Marsilio, 1977): 90-91.
59 "the construction industry and mass housing, technical and bureaucratic solutions to social problems, state management of conflicts within the Fordist economy, and rationalization in the place of class struggle - in short, socialization instead of socialism". See Manfredo Tafuri. *Sozialpolitik and the City in Weimar Germany,* in *The Sphere and the Labyrinth* (Cambridge Mass: MIT Press,1987) originally published in Manfredo Tafuri, *La Sfera e il Labirinto*, (Turin: Einaudi, 1980)

of the Retenmark, Mies van der Rohe and Ludwig Hilberseimer postulated their radical projects of "destruction", aimed at unmasking the hideous rules of the metropolis through an architecture of pure enabling construction (ermöglichenden Konstruktion).[60]

In 1923 Mies van der Rohe was collaborating with the magazine *G*, with Hans Richter, Lerner Gräff, El Lissitzky and Theo van Doesburg. Their intention was clear since the first issue: mechanization was devoid of spiritual purposes and demanded for a further conceptual theorization.[61] An investigation of technology in its pure elementary forms (elementare Gestaltung) and in its intrinsic economy of power and materials, which inevitably produced a "Total control of means. Elemental order and regularity."[62] The problem at stake was not to impose new or better forms of space, but rather to derive coherent formal principles from the same productive potential of the metropolis and the forces propelling its political and economical instability. In this sense, a architecture conceived solely in its terms of construction and real-estate speculation, as a procedure of binding together the raw materials and the energies of an epoch towards with the maximum economy of means and materials.

Mies' proposal for a Bürohaus, a concrete office building for the Grosse Berliner Kunstausstellung, thus appeared the clearest demonstration of these assumptions: a pure shelter for the human activities in the foreground, an architecture reduced to simple art of organization. As Mies himself declared, the office building was "a house of work, of organization, of clarity, of economy. Bright wide workrooms, uncluttered, undivided, only articulated according to the organism of the firm. The greatest effect with the least expenditure of means. The materials are concrete, iron, glass. Ferroconcrete buildings are essentially skeleton structures. Neither noodles

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60 Ludwig Hilberseimer; "The Highrise" in *G. Material for Elemental Form-Creation*, 2, Sept (1923).
61 The autobiography of Henry Ford, translated and published in the same year, in a certain sense indicated what would not have to be the real purpose of the magazine, as commented by Mies: "What Ford wants is simple and illuminating. His factories show mechanization in dizzying perfection. We agree with the direction Ford has taken, but we reject the plane on which he moves. Mechanization can never be goal, it must remain means. Means toward a spiritual purpose. While we want to stand with our feet firmly on the ground, we want to reach with our head to the clouds".
62 Hans Richter, Lerner Graff, Lazar M. Lissitzky. *G. Material for Elemental Form-Creation*, 1, Jul (1923).

nor tank turrets. Supporting girder construction with a non supporting wall. That means skin and bone structure." [63]

Despite his previous skyscraper glass projects, here Mies fully accepted the bare exigencies of the commercial urban speculation, providing the maximum exploitable floor area within the six-story limit of the building regulations. The result was a pure hollow multi-story factory, a rentable volume entirely flexible and disposable for the most varied uses, scrupulously calculated in the correct distribution of its bearing supports: the minimum effort of energy out from the perfect combination of structure and materials. With its layered floors, few discreet supporting points, the cleared floor plan, and the free facade for advertisements, the exoskeleton of the Bürohaus was so appropriate to the estate logic of the Grosstadt to be further articulated, between 1927 and 1929, for several competitions like the Bank in Stuttgart and the Kaufhaus Adam, the Alexanderplatz, the Friedrichstrasse Office Building in Berlin.

In 1929 also Hilberseimer elaborated a proposal for the commercial and administrative center of Berlin, a project that epitomizes all his theories and hypotheses on the city: a project for a city building (Vorschlag zur Citybebauung).[64] Already in *Grosstadtarchitektur* (1927)*,* but even in his previous *Grosstadtbauten* (1925), Hilberseimer considered the metropolis as the logical anonymous product of the capitalist omnipotence, a bio-political apparatus of residential, commercial, cultural and industrial settlements where its inhabitants live, work and reproduce themselves in the most radical social proximity and, at the same time, in the greatest isolation. His architecture, profoundly influenced by the revisionist social-democratic theories of Eduard Bernstein, could be conceived as a continuous effort to deduce a definitive ruling system to solve the problems of the city by understanding living and

63 Mies van der Rohe. "Office Building" in *G. Material for Elemental Form-Creation*, 1, Jul (1923).
64 Ludwig Hilberseimer. The problem of the business center needed a theoretical solution, affirmed Hilberseimer in *Das Kunstblatt,* (1929)*: "*only demonstrative hypotheses could be opposed to the chaos of the Grosstadt. Their aim is to develop abstract principles from the present conditions in order to find possible solutions to the disorder of the city. Only abstraction of a particular case allows to show how the disparate elements, which constitute a Great City, could be reduced to an order full of connections." Ludwig Hilberseimer *Grosstadtbauten* (Hannover, 1925), transl. *Scritti sull'architettura e sull'arte,* Michele Caja (eds.) (Naples: Clean, 2009); *Grosstadtarchitektur* (Julius Verlag: Stuttgart, 1927), reprinted as *Metropolisarchitecture and Selected Essays*, (New York: GSAPP, 2012). See also "Das Hochhaus", *Das Kunstblatt*, (1922): 525-531.
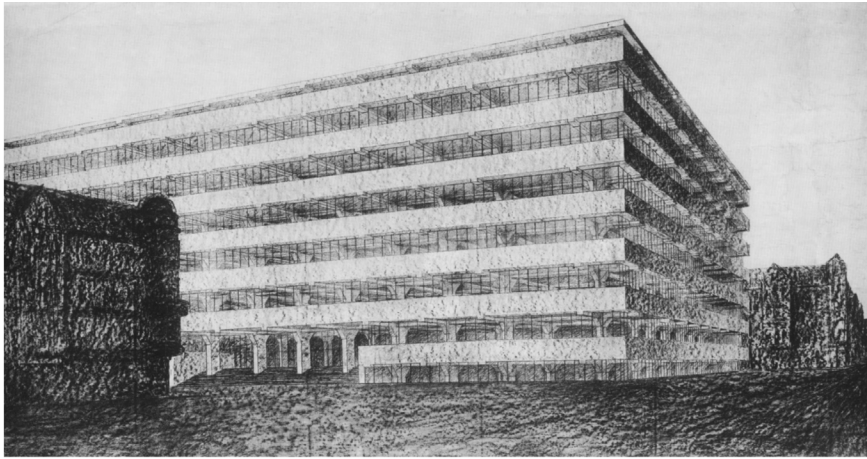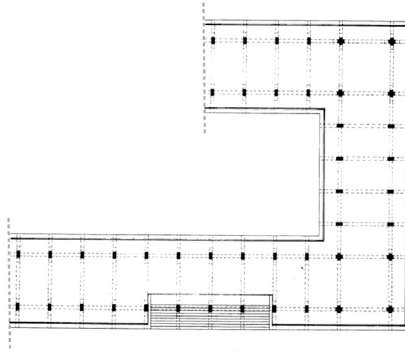
3.19 *Bürohaus* (Concrete Office Building) Mies van der Rohe. (Berlin, 1923) Typical plan redrawn by the author and perspective of the whole complex.

3.20 *Friedrichstrasse Office Building* Mies van der Rohe. (Berlin-Mitte, 1929)
3.21 *Stuttgart Bank and Office Building* Mies van der Rohe. (Stuttgart, 1924)
3.22 *Alexanderplatz Competition* Mies van der Rohe. (Berlin, 1928)

Typical plan as enabling frame   205
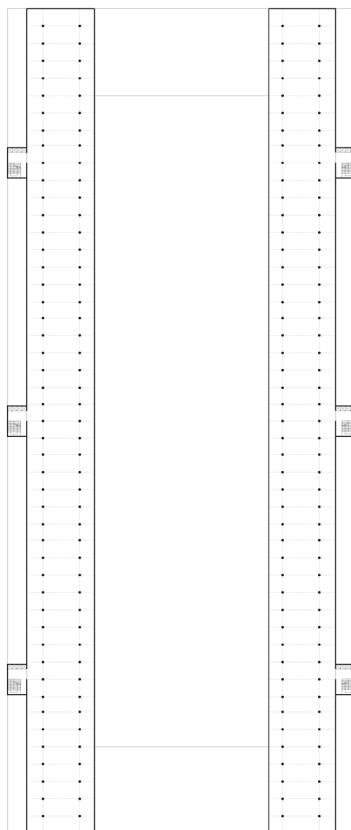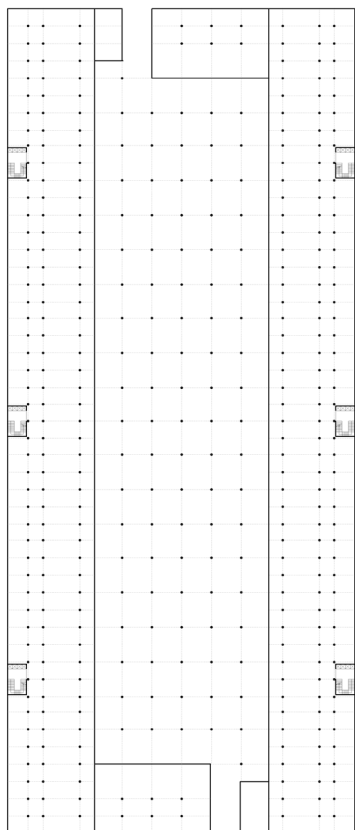
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3.23 *Vorschlag zur Citybebauung* (Proposal for a City Building) Ludwig Hilberseimer. (Berlin, 1928) Typical plans redrawn by the author.
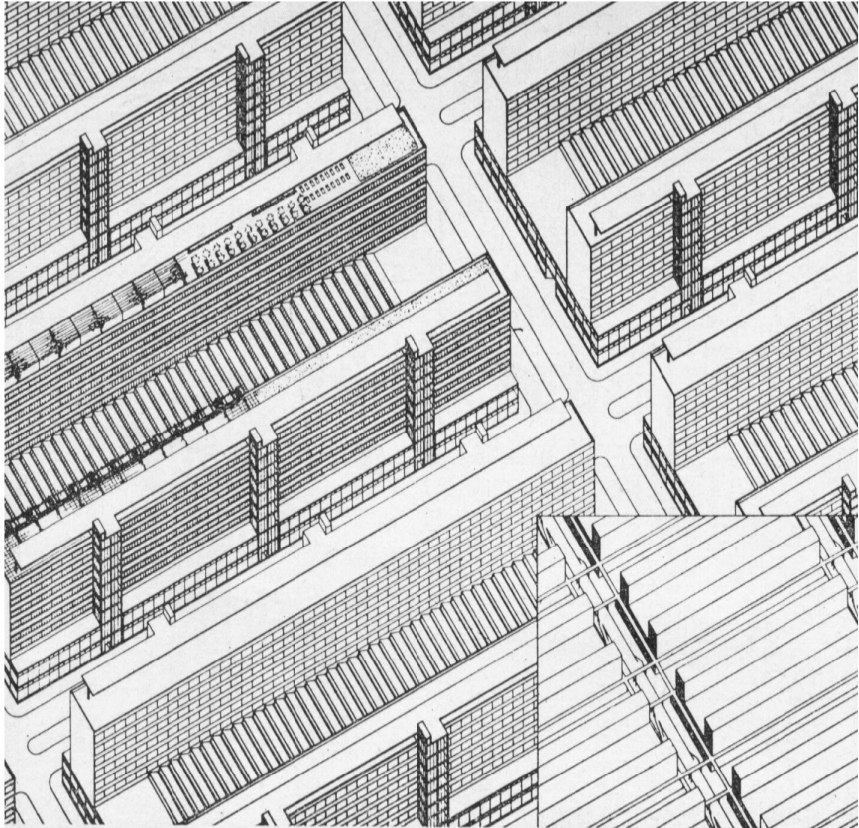
3.24 *Vorschlag zur Citybebauung* (Proposal for a City Building) Ludwig Hilberseimer, (Berlin, 1928). Axonometric view and section of the whole complex.

working spaces within a unique generic plan, because *generic* were also the human productive and creative faculties continuously at work in the Grossstadt.[65]

His "Vertical-City", in this sense, represented the ultimate culmination of such a logic, in which the metropolis was totally transformed into an all-encompassing machine, based on a substratum of industrial and tertiary activities. The city stood on a naked industrial plinth, source of its own growth, while the conditions for its reproduction arose just above it, in stacked vertical slabs hosting facilities and residential units. Along the same line, the projects for the Chicago Tribune competition and for an Industrial Building, executed between 1923 and 1924, were nothing but elaborations on the constitutive emptiness and the abstract logic of the contemporary tertiary city, whose architecture tautologically coincided with its simple structure: supports and beams (Gefüge).[66]

By clearing the plan from any obstruction and ordering the working space just through concrete frames – columns and beams – Hilberseimer totally subverted the inward logic of the traditional office space, configuring the plan as a totally permeable surface for the circulation and the activities of its inhabitants: the organization of the layout no longer relied on partitions or rooms but instead on roles, duties and relations among subjects. In this sense, the office itself was no longer conceived only as a space, but it also recover its original function of "officium", a service. Those absolute vacant spaces reduced the idea of the office to a duty, to a "praxis" more than a thing:[67] an action which coincided with its own performance, which defined

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65   Ludwig Hilberseimer. *Grossstadtarchitektur* (Julius Verlag: Stuttgart, 1927), reprinted as *Metropolisarchitecture and Selected Essays,* (New York: GSAPP, 2012).

66 The progressive reduction of the plan was also evident in his parallel project for a suburban residential settlement (*Vorhort*), in 1923, where the housing units were provided of a unique living space, a sleep-cabin (*Schlafkabine*), devoid of internal circulation and divided by wooden equipped partitions.

67 As recently pointed out by Giorgio Agamben, the Latin term *officium* was traditionally linked to the verb *efficere*, meaning "to work out, to make efficacious, effective", rather than to opificium, or the proper "production of an opus, a work". The difference is not irrelevant. The intrinsic operativity of the former, in fact, coincides with neither the "acting" nor the "doing" of the latter, but with the particular idea of "sustaining, administering, conducing" (*gerere*) or "conveying something to effect" (*aliquid ad effectum adducere*). Agamben investigates the origin of the concept of the "officium" and its theological development by way of the term of "liturgy" (from the Greek λειτουργία *leitourghia*, comprised of *laos*, or people, and *ergon*, or work) or the Christian ministerial public cult that realizes the effectuality of the Opus Dei. In the liturgy, the priest's identity is defined by the act he is performing and, vice versa, the liturgical act could only exist thanks to the role of the priest: the liturgy or sacraments are never re-presented, but always "presented" in their effectuality.

itself and its agents only when effectively performed. The office, as cognitive labor in general, does not refer to specific end-products but rather on the action of a subject and the conditions in which it is takes place.

Such an hypothesis was eventually refined in his project for a Citybebauung, which could be conceived as the "cognitive" translation of a typical Albert Kahn factory, widely known at that time and reproduced by Hilberseimer himself in his *Beton als Gestalter,* one year before.[68] The two-floors glazed plinth, in fact, closely resembled the sky-lighted machine room of the famous Ford Highland Park Plant in Detroit, whose mechanical core was transformed in an interrupted hypostyle rentable space for cultural and commercial programs, with an annexed sunken garage. On the other hand, the typical plans of the two eight-story slabs definitively replaced the assembly department of the Fordist factory with human think-belts, through a simple architectural apparatus enabling undefined spaces for business and cognitive labor.

The counterpart to such radical simplification of the office architecture was the vast proletarization of the German class-composition that, rather than feeding solidarity, deepened the distance between the salaried employees and the manual workers. Despite their attempts of unionization and active self-coordination during the political movements in 1918, the Angestellten progressively moved towards reactionary positions, especially after the inflation, the fall of salaries and the crisis occurred between 1922 and 1933, supporting nationalist unions like the *Deutschnationaler Handlungsgehilfen-Verband* (DHV) or the rising national-socialist party.[69] Nevertheless, as Sergio Bologna pointed out, besides the salaried employees, there were other two social groups which supported the rise of the Nazi regime. The first were a large number of autonomous workers, whose micro-enterprises scattered across the German territory remained excluded from the

Therefore, in both the civil and holy *officia*, the agents and their actions were mutually blurred within a unique duty: the priest, as the functionary, was both an "animated instrument" of a superior power and a subject individualized by his single performance. See Agamben, *Opus Dei: Archeologia dell'ufficio*, vol. II.5 of Homo Sacer series (Turin: Bollati Boringhieri, 2012).

68 Julius Vischer, Ludwig Hilberseimer. *Bauten in Eisenbeton und ihre architektonische Gestaltung* (J. Hoffmann : Stuttgart, 1927).

69 Sigfried Kracauer. *The Salaried Masses: Duty and Distraction in Weimar Germany* (London: Verso, 1998).

large economical socialized plan of the Social-Democracy which mostly protected salaried labor-relations. The other group were the masses of unemployed workers, victims of the heavy obligatory insurance measures (Arbeitslosenversicherung) issued between 1924 and 1927 by the German Ministry of Labor, which anticipated the capillary procedures of identification, the hygienic examinations, and the bio-political selections of the future Nazi regime already during the great depression and the crumbling Weimar republic.[70]

5. *Bürolandschaft* (Office-Landscape 1946-1952)

> "We need a standard contained in that political type of industrial reality which marks the steps, the path, and the development of contemporary society. We must avoid measuring the present with the past, labor struggles with proletarian movements. We must not compare today's reality with the earlier 'glory' to which we are sentimentally bound. Also, we must avoid judging the present with the yardstick of the future and refuse modern management's invitation to turn labor struggles into a kind of cybernetic – a psycho-industrial automatism at the service of collective profit. – Today we must shy away from the two easy temptations: the historical tradition and technological futurism".
>
> –Mario Tronti[71]

Contrary to the diffused Keynesian post-war policies and after the long oppression of the Allied Control Authority, after the second world conflict West Germany undertook a long process of de-cartelization and de-nazification according to the principles of the Social Market Economy, or Ordoliberalism,[72] elaborated by

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70 Sergio Bologna. "Class composition and the theory of the party at the origin of the workers-councils movement", in *Telos,* 13 (1992), originally published in Sergio Bologna, *Operai e Stato* (Milan, 1972); and also Sergio Bologna "Nazismo e classe operaia", paper presented to the Camera del Lavoro in Milan (3 June 1993).
71 Mario Tronti, "Poscritto di Problemi", in *Operai e Capitale*, (Turin: Einaudi,1971): 269-315.
72 The *Freiburg School* or the *Ordo-liberal Schoo*l was founded in the 1930s at the University of Freiburg

the Freiburg school in the 1930s.

Ordoliberalism substantially recovered the institutional patterns of the 19th century *organized capitalism,* proposing the State as economical framework for a controlled market competition, moderately open to private sector activities, industrial and employers associations, international commercial relations, large finance and public investments. The State could have directly intervened only to reassess the stability and legality of the social order, providing a general security system. At a large scale, after introduction of the Marshall Plan and the currency reform of the Deutsche Mark, in 1949 Ordoliberalism managed to reduce the inflation and to encourage new economical investments, accumulations and technological improvements during the whole 1950s. At a smaller-scale, after the reintroduction of the works-councils with the law no.22 of the Allied Control Authority in 1946, and the approval of the Federation of Trade Unions (*Deutscher Gewerkschaftsbund* or DGB) in 1949, Ordoliberalism recovered the glorious workers' co-determination rights (Mitbestimmungs) proposed by the labor-councils during the November Revolution, instituting first the modern Coal Steel and Mining Codetermination Law (Montan-Mitbestimmungsgesetz) in 1951 – for industries with more than 1000 employees – and later the Works Constitution Law in 1952, which gradually extended the reforms also to private sectors.

Operating within the boundaries of the local enterprise, the labor-councils provided not only a form expression and a system of organization for the workforce on the shop floor, but they also ensured political representatives within the supervisory boards, allowing consultative agreements with the employers, the safeguard of human resources and the monitoring of the main economical investments, allowing the workers themselves to achieve a large awareness of the line of evolution of the company. In this sense, co-determination was rapidly adopted as a sort of micro-corporative instrument to undermine the trade unions' bargaining power (Tarifvertrage) and to increase the efficiency of production by involving

in Germany by economist Walter Eucken (1891-1950) and two jurists, Franz Böhm (1895-1977) and Hans Großmann-Doerth (1894-1944). Although not member of the Freiburg School Wilhelm Röpke (1899-1966), Alfred Müller-Armack (1901-1978) and Alexander Rüstow (1885-1963) largely contributed to the foundations of the theories of ordoliberalism.

the workers within the trusting logic of the enterprise. It was precisely within this "reformist" frame of the working jurisprudence, that the *Bürolandschaft* and the socialization of entrepreneurial responsibilities should be considered as a twofold instrument to both emancipate but also neutralize the workers' control over the means of production and their "participative" co-operation.

<p style="text-align:center">*</p>

For these reasons, Wolfgang and Eberhard Schnelle, with their Quickborner Team of planning consultants in Hamburg, considered the office organization as a diagram rather than a simple plan, a layout that could have been configured and changed according to the specific or local contingencies. Whereas the American open office plan was rigid and rectilinear, the office-landscape was fundamentally homeostatic, planned through the disorder of "irregular rhythms".[73] While the first still expressed the unquestionable order of the corporation, the latter promoted the horizontality of the collective production, exposing the shared efforts of the enterprise towards common goals and beyond any departmental divisions.

3.25

The Schnelle brothers distinguished three different phases in the elaboration of the layout. The first coincided with a survey of the individual tasks, operations, inward and outward interactions, usual movements, frequencies of contacts. This phase resulted in a sort of abacus where the workstations were associated to relative spatial requirements, routine operations and necessary equipment. The second phase aimed at the elaboration of a shop floor 'zoning' based on the departmental areas of competence, working proximities and informational exchange, but also on the exact position of the technical apparatuses, the administrative areas and the circulation routes: similarly to the flow of raw material in the Fordist plant, in the office-landscape the analogical and digital traffic of information needed to be efficiently conveyed without obstructions.[74] Only in the last phase, the plan could

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73   Eberhard Schnelle. "Organisationskybernetik" in *Kommunikation,* no.1, sept 1965 (Verlag Schnelle: Quickborn), quoted in Andreas Rumpfhuber *Architektur immaterieller Arbeit,* Phd dissertation at The Royal Danish Academy of Fine Arts, School of Architecture (Copenhagen: 2008).

74   Wolfgang Schnelle. "Die organisatorischen Forderungen an den Neubau" in Kurd Alsleben, Erhard Büttner, Claus W. Hess, Wolfgang Schnelle, Curt Siegel, Rudolf Wonneberg. *Bürohaus als Großraum*

Homeostatic bureaucracy

have be eventually furnished with modular elements according to the zoning plan, establishing the positioning of workstations, hardcopy machinery, accesses, primary and secondary routes, light screenings and acoustic protections, receptions, special-zones and resting areas.

In this way, the final plan was the result of an alleged *participatory* process that, beside the commissioned requirements and the spatial contingencies, involved the constant confrontation and collaboration of employers and employees,[75] coinciding with a sort of horizontal democratization of space. Somehow, the lack of limits, excesses or conflicts, reflected the whole social and economical conditions of a resurrecting country, but also presented the first feeble symptoms of the future neoliberal globalization and the collapse of political antagonism within the apology of a fake democracy of the 'irregular rhythms': the typical plan, in all its negative character of absorption and exploitation reached, through the office-landscape, its most creative results.

The Schnelle brothers first applied these principles in their project for the Büronebau der C.F. Boehringer & Soehne Gmbh in Mannheim, between 1958 and 1960, a commission from which they also derived a publication collecting some of their lectures and writings about the spatial organization of large office buildings (*Büroraum als Grossraum*). The project, which had been largely influenced by the Skidmore Owings and Merrill's Connecticut General Life Insurance Co. built some years before, was a two-story high rectangular box, 52 per 32,75 meters, supported by a steel frame raised on a one meter high plinth and equipped with a sunken basement hosting service rooms and an auditorium. The two floors were lay out around a sky-lighted central void and four fixed cores, containing toilet facilities, emergency stairs, shafts, and technical ducts, while the rest of the plan was completely devoid of fixed partitions. The building offered also the possibility to be extended according the same modular court-unit. The air condition and ventilation system were embedded within the ceiling structure, whose structural truss cavities were

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(Hamburg: Verlag Schnelle, Quickborn, 1961) .
75 Frank Duffy, *Office Landscaping: A New Approach to Office Planning* (London: Anbar Publications Ltd, 1966).

3.25 *OSRAM GmbH Administration.* (Munich, 1962)The building has 6 floors and a basement. There are 134 work stations, 26 typists, 1 rest room area with 15 seats, 76 planters, 53 screen (31 low, 22 high). The useable space is 1960 sqm and an average of 14.6 sqm per work station on a 2 x 2m electric grid.

3.26 Phase 1: defining workstations (above) Quickborner Team OSRAM GmbH Administration (1962)
3.27 Phase 2: departmental grouping (above)
3.28 Phase 3: defining accesses and main routes (below)

also used for acoustic insulation. The practical advantages of the office-landscape were an optimal *lighting*, thanks to the horizontal extension over one floor and the balance of the zenithal light which ensured perfectly lit spaces; an efficient *cable network*, which allowed the maximum flexibility of technical devices at any point of the working floor; a comfortable system of *ventilation and air-condition*, providing a constant temperature and a minute control of humidity with clean and fresh air in every season; and finally an easier *efficient maintenance*, due to the lack of partitions and to the uninterrupted extension of the plan.[76]

From the cell-structure of the Normalzimmer postulated by Peter Behrens for the Mannesmannröhren-Werke, through the internal office variations proposed by Ludwig Hilberseimer for his *Citybebauung*,[77] the limits of the office had been progressively dissolved, increasing permeability towards the external conditions and turning the workspaces into indoor 'fields' of production. The architecture of business, in its perpetual necessity of changing and innovating its assets, ultimately minimized its internal organization into purely engineered environment, which rather than separations and partitions began working through densities and rarefactions, distances and proximities, fostering exchanges by means of its overall laxity.[78] Besides the supporting frame and the technical cores, the plan was purified of all its fixed elements, leaving only people and low false-ceilings, a continuous background noise and unlimited smooth carpets. The loosening of the office organization from the previous rigidity of the scientific plan, allowed to relieve transgression and integrating all spheres of life within the working routine, including services and functions which once were totally separated from the working space, such as meeting and resting areas (Pausenräum) or annexed facilities for the leisure and the reproduction of labor-force. [79]

It might be thus affirmed that the Bürolandschaft concretely marked the

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76 Francis Duffy, *The Changing Workplace* (Phaidon Press, 1992).
77 Ludwig Hilberseimer, *The New City* (Chicago: Paul Theobald, 1944).
78 Patrik Schumacher. *Business, Research, Architecture,* in *Daidalos,* no. 69-70 (1999); also "Arbeit, Spiel und Anarchie"in *Work Culture Buero.Inszenierung von Arbeit Herausgeber,* edited by Herbert Lachmayer, Eleonora Luis (Klagenfurt: Ritterverlag, 1998)
79 Siegfried Schulze, Carl Krause. *Burobauten* (Stuttgart: Karl Kramer Verlag, 1967).

conceptual passage from industrial capitalism to the neoliberal *bio*-capitalism,[80] where work and life merged in an ubiquitous condition, whereas the space of production influenced and mediated any process of *subjectification*. In this sense, the laxity of the office-landscape and the indeterminacy of its typical plan, did not only generate a democracy of production, but they also entailed an aleatory neutrality concealing implicit obstructions,[81] transforming the ethos of the *officium* into subtle and psychological relations of coercion far beyond its traditional Weberian hierarchic conceptions.

The coincidence between the professional "vocation" and the whole life of the worker, opened the way for his complete integration within the rhythms of production: modern bureaucracy did no longer operate through disciplinary orders and rigid apparatuses of containment as described by Foucault, but it became a modulative system, able to subsume not only the bodies of the employees but also their affects, scopes, desires and personal relations. [82] Bureaucracy became insidious, imposing behaviors, redirecting motivations, indicating goals, defining duties, but also leaving freedom of interpretation and possible transgression, stimulating subjective elaborations and distortions.[83] Humans were involved in organizations qua *roles* rather than qua *persons,* and precisely such a non-inclusiveness opened the way for a total precarization of the labor market itself, with higher modulations of contracts and mobile or reversible employment procedures. The typical plan of the office-landscape definitely transformed bureaucracy in a homeostatic architecture, in parallel to the evolution from a production of goods by means of men to a

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80 For the definition of *bio*-capitalism see Sergio Bologna, Andrea Fumagalli, *Bioeconomia e Capitalismo Cognitivo* (Rome: Carocci, 2008)

81 Patrik Schumacher. "Productive Patterns*"* in *ARCH+,* 136 April (1997).

82 Gilles Deleuze, "Postscript on the Societies of Control", *October*, Vol. 59. (Winter, 1992): 3-7.

83 It is interesting here to draw an hypothetical parallel between the homogeneous conditions of the office-landscape and the atmospheres of coercion in Kafka's *The Trial* (*Der Prozess*), or even more in his precedent *The Castle* (*Das Schloß*), which were both built on the subterranean continuity of a bureaucratic apparatus. The legal offices were contiguous although accessible from different doors or from different parts of the city. Their internal boundaries moved beyond the rigidity of doors and walls, they had loose and shifting frontiers. In *The Castle* the bureaucratic apparatus loses even its external spatial configuration generating an "architectural condition" that penetrates not only the quiet countryside village, with unquestionable missives and vague functionaries, but the soul of the citizenship itself, which turns to be perennially guilty and timorous. Bureaucracy was both an apparatus and a sensation, a space but also a condition, a law but also a doubt.
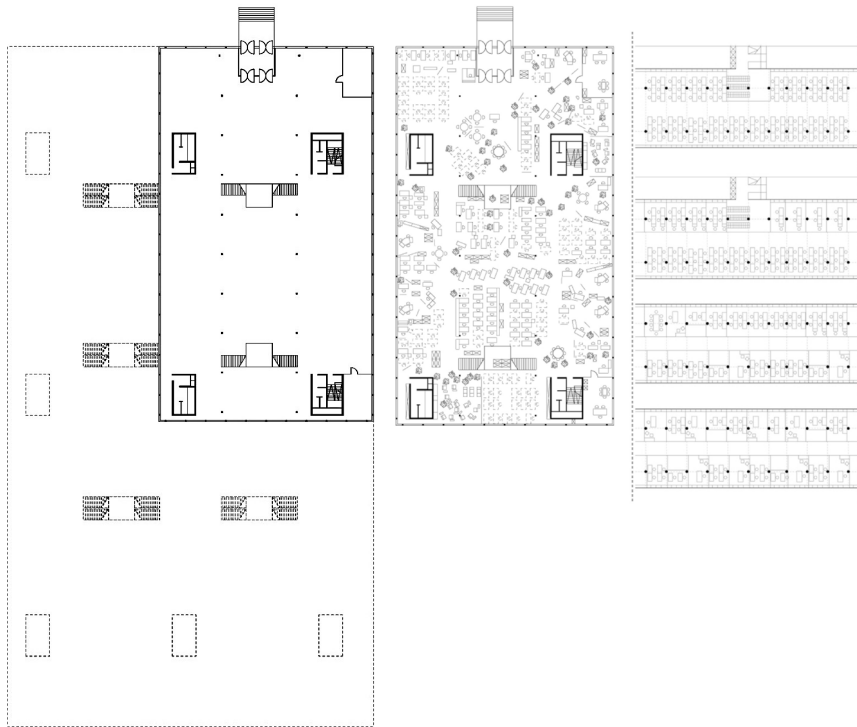
3.29 *Büronebau der Boehringer & Soehne*, Quickborner Team, (Mannheim, 1960). Scheme of possible expansion, typical floor plan and comparison with Hilberseimer's studies of office arrangeent for the Citybebauung. (Plans redrawn by the author).
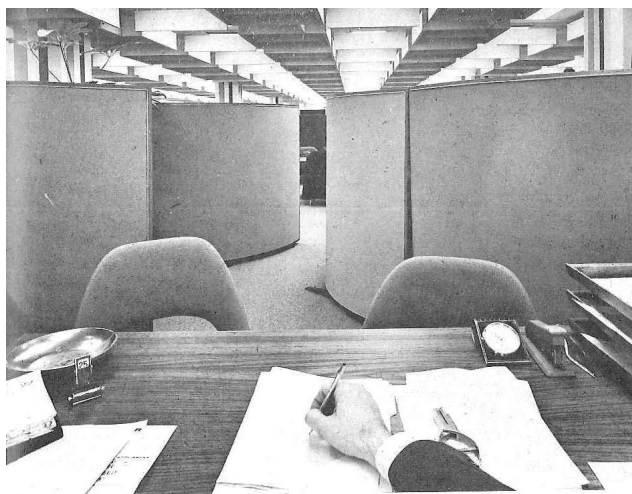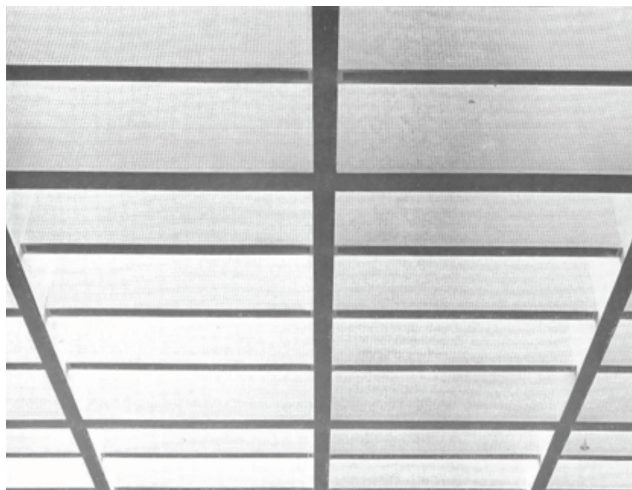
3.30 *Bertelsmann AG,* Quickborner Team. (Gütersloh, 1966). False ceiling and workstation.
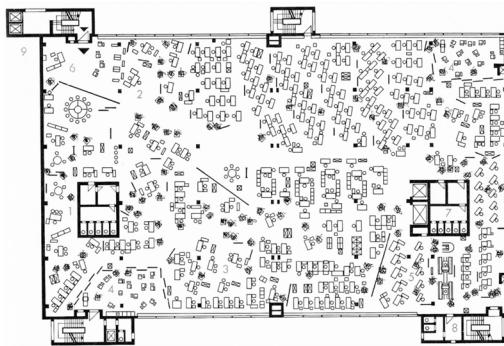
3.31 *Bertelsmann AG,* Quickborner Team. (Gütersloh, 1966).
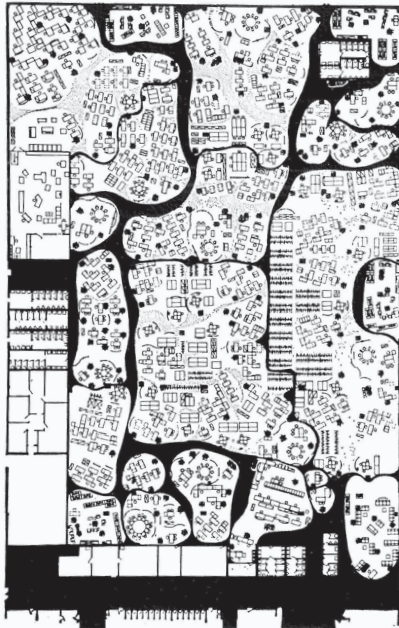
3.32 *GEG Mail Order building,* (Kamen, 1962-1065).Typical plan with 342 work stations, 66 typist, 4 rest rooms with 39 seats, 185 planters, 196 screens (139 low, 57 high). The floor area is 4600 sqm, 13.4 sqm per work station on a 2 x 1.5m electric grid.
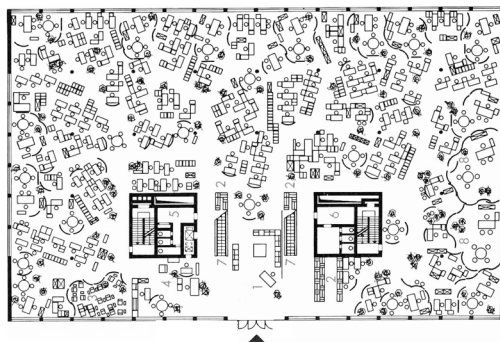
3.33 *Orenstein-Koppel Building.* (Dortmund, 1962-1965). Ground floor plan hosting 171 workstations, 61 typists, 1 rest room with 17 seats, 90 planters, 110 screens. The floor area is 2100 sqm, 12.2 sqm per workstation on an electric grid 2.5 x 2.5.
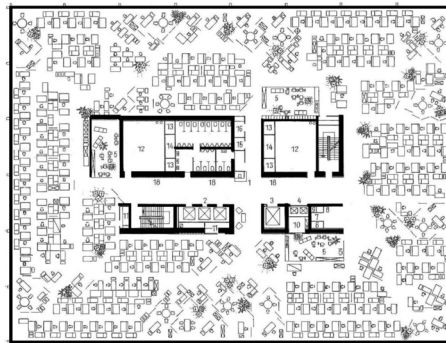
3.34 *Krupp Building.* (Rheinausen, 1960). Typical plan of a six-storey building, housing 221 work stations, 23 typists, 3 rest rooms with a total of 30 seats, 147 planters, 65 screens (41 low, 24 high). The floor area is 2600 sqm, 11.2 sqm per work station on an 2.5 x 2.5m electric grid.

production of men by means of other men.[84]

<div style="text-align:center">*</div>

Democracy ultimately surrendered to technology, reducing its genuine confrontation among opposing parts into a management of consensus. Moving from the same reflections of Schmitt upon neutrality, in a famous article Mario Tronti affirmed that in the notion of democracy there have always been coexisting two opposite claims: a project of dominion and a tendency towards freedom. Whereas in the past, either the one or the other prevailed, in the last decades they ended up neutralizing each other in a horizontal stasis, into a technical administration devoid of antagonism.[85] Moreover, finance economy progressively annihilated the role of political parties and the already demised power of the national parliaments, which have been forced to adopt exceptional governmental decrees, to undertake heavy monetary reforms and, in some cases, to abdicate for provisional technical executives.

In a way, the typical plan provided an appropriate spatial paradigm for such a "post"-political scenario. As Koolhaas claimed, in its ambitious effort to reproduce the metropolitan complexity within a controlled environment, the typical plan was a laboratory for the virtues and dangers of the 20th century democracy: a generic horizontal surface where everything lies at the same level but from which nothing can escape its overall homeostatic system.[86] From the "technology of the fantastic"

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84 Robert, Boyer. *La croissance, début de siècle.* (Paris: Albin Michel, 2002).

85 "That is because within democracy, within its history, we find knotted together a practice of domination and a project of liberation- they always present themselves together, they are co-present. In some periods (periods of crisis, states of exception) these two dimensions are in conflict. In others (such as in the contemporary situation, which is a state of normality, or at least that is the way I read it) they are integrated. And these two dimensions- practice of domination and project of liberation-are not two faces; they are the single face, a janus bifrons, of democracy. Depending on the way that the balance of forces between the top and the bottom of society is established, articulated, and constituted, sometimes one is more visible than the other. I think that at this juncture the balance of forces is so weighed to one side-the side hostile to us- that we can only see a single face. This is the reason why democracy is no longer the best of the worst; it is the only thing there is. That is, there is nothing else outside it." Mario Tronti, "Towards a critique of political democracy", in *The Italian Difference*, ed. Lorenzo Chiesa and Alberto Toscano. (Melbourne: re.press, 2009): 97-106.

86 The post-political scenario, where flat regimes of democracy neglect differences, sedate enmities and exclude antagonism within entropic systems of governance, truly resembles the fading last scenes of Rem

to the sociological experiments of the office-landscape, the typical plan always constituted an incubator of metropolitan subjectivities: as in the past for "the man in the gray flannel suit", thereby in the present for the freelancer worker. Not by chance, the project Koolhaas choose to illustrate the concluding remarks of his essay on the Typical Plan, was a project for a bank: the quintessential program of financial economy or, a space made of nothingness. Located in Amsterdam, within the Berlage modern extensions, the L-shape layout and the homogeneous 7,5 per 7,5 structural grid of the Morgan Bank resulted from an application of the office-landscape principles to a "simply abstract office space", whose dimensions "enable a maximum of permutations, introducing in Holland, unusual (and ultimately welcome) depth" and constrained the traditional corridor-distributions in the back, leaving a much wider emphasis on the common working room, connected with a roof patio and a series of leisure activities.[87]

Since his earlier experiences in architecture, Koolhaas had always been obsessed with the capacity of the typical plan to self-generate programs and juxtapose different "ecosystems" along the same surface, as in a script. The discovery of the typical plan and its omnivorous potential occurred in fact not in Manhattan but in the post-war Berlin, along the desert wasteland of the wall and through the empty visionary plans of Mies or Hilberseimer across the border. The wall ensured the highest flexibility of program with the least architectural effort, indifferently sequencing various situations of spatial, social, historical and geopolitical character: it was "a script, effortlessly blurring divisions between tragedy, comedy, melodrama".[88] In a similar

Koolhaas' *Generic City*. See Rem Koolhaas, "Typical Plan", *S,M,L,XL,* (New York: Monacelli Press, 1995), 337; and "Generic City":1248-64.

87   After having shown Mies van der Rohe's skyscraper proposal for Berlin Friedrichstrasse, 1921; Ivan Leonidov's House of Industry in Moscow, 1929; and Archizoom's No-Stop city, 1970; Koolhaas concludes his meditation upon the Typical Plan with his project for a bank in Amsterdam, in 1985, which also included an housing block and an underground parking besides the administration offices. Moreover, the 45 degrees corner along the main facade was eliminated through a 90 degrees indent, leaving a representative empty square before the main access. See "Une Angle de Place", in *Architecture d'Aujourd'hui*, no. 242, (December, 1985): 50-57. For a deeper analysis, see the Office for Metropolitan Architecture Archive at NAI, Rotterdam: OMAR 1919-1953.

88   "In my eyes, the wall also forever severed the connection between importance and mass. As an object the wall was unimpressive, evolving toward a near dematerialization; but that left its power undiminished. In fact, in narrowly architectural terms, the wall was not an object but an erasure, a freshly created absence. For me,

way, Mies and Hilberseimer's projects offered another strategy by which to "imagine nothingness", using the flat extension of the typical plan and the subtle rhythm of its supports to generate congestion and unforeseeable forms of organization. Not by chance these same projects, which marked the evolution of the office-landscape and of its horizontal working environment, would be faithfully reproduced by Koolhaas in his entry for the Kochstrasse-Friedrischstrasse competition across the Berlin Wall, just few years afterwards.[89] The absoluteness of their architectural frame, in fact, postulated as a modern air-conditioned tabula rasa, was nothing but an unconscious preposition for the outdoor script of the wall (and for the future script of the skyscraper section of the Downtown Athletic Club).

Before getting to architecture, Koolhaas was actually dealing with written forms of scripts, typesetting and writing for the liberal journal De Haagse Post, while being an active member of a group of cineastes known as the *Eentweedrieenz*, which translates to "1, 2, 3, etc.".[90] This name not only referred to the openness of

it was a first demonstration of the capacity of the void – of nothingness – to 'function' with more efficiency, subtlety and flexibility than any object you could imagine in its place. It was a warning that – in architecture – absence would always win in a contest with presence" (emphasis in the original). See Rem Koolhaas, "Field Trip A: (A) MEMOIR (First and Last . . .) The Berlin Wall as Architecture" [1993], *S,M,L,XL*, (New York: The Monacelli Press, 1995): 228–31.

89 "RK: Nous les avons fait ensemble, Elia et moi, Elia une nouvelle fois représentant l'intéressant et moi, l'ennuyeux. Depuis mon travail sur le "Mur" à l'AA School, j'avais une grande affinité avec cette ville que mes rapports avec Ungers avaient encore affirmée. J'y trouvais fascinante la coexistence de l'histoire, dé la destruction et de cette reconstruction des années 50/60 dont la qualité était contestée par Krier. Nous savions que l'IBA et Kleihues étaient déterminés à prouver la réussite définitive de leur urbanisme des blocs fermés. Celui-ci s'est pourtant révélé totalement inadapté aux deux sites auxquels nous avons été confrontés. (...) Si notre project de Lützowstrasse était une réponse polémique au mouvement de la restauration de la ville européenne, celui des Koch et Friedrichstrasse voulait essentiellement s'inscrire dans la modernité telle qu'elle s'était incarnée à Berlin et c'est la raison pour laquelle notre premier travail fut te rechercher où avaient été prévus des projects aussi célèbres que l'ensemble d'Hilberseimer et le gratta-ciel triangulaire de Mies van der Rohe – ce que personne n'avait jusque-là eu l'idée de faire! Nous avons découvert que tous deux avaient justement été projetées sur cette avenue, le premier face à un ensemble monumental ancien auquel il répondait, le second s'intégrant dans le jeu des figures géométriques – cercle, octogone, carré, triangle – qui marquent régulièrement l'aboutissement de la trame de ce quartier. Ce fut très amusant de présenter notre project à un jury composé de professeurs et d'historiens qui ignoraient tout de cela: une chose vraiment incroyable!" See Rem Koolhaas, "Habitat Social" in *Architecture d'Aujourd'hui,* no. 238, (April, 1985): 22-27; and "URBANISME. Imagíner le néant" in the same issue, 38; "Two Project for Berlin", in *Express Extra O.M.A.,* (New York: Express Newspaper, 1982): 20-23; "Shipwreked", in *S,M,L,XL*: 1305-1329.

90 Besides curating a page entitled "People, Animals and Things" – another example of the awkward form of cataloguing that the *Eentweedrieenz* favoured – Koolhaas was actually working at the very layout of the journal, which was also another form of "typical plan". In an interview for the Financial Times Koolhaas said,

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3.35 *Kochstrasse-Friedrischstrasse competition*, Office for Metropolitan Architecture, (Berlin, 1908).
In the panel, beside the housing intervention, figured also Mies van der Rohe's *Glass Skyscraper* (1921),
Ludwig Hilberseimer's *Citybebauung* (1928), Eric Mendelsohn's *House of the German Metal Workers' Union*
(1928). [OMA Archive, Netheralands Architecture Institute, Rotterdam]

the group – whose number of members varied according to the project – but also declared a statement of intent about how to make a film: as in a generic catalogue of *nth* elements, without any hierarchy or fixed positions, the group's members were swapping the roles of actors, directors and cameramen among themselves while shooting, claiming that "the politics of the author are over" and "a movie is a great, mobile entity that is constantly changing positions and functions".[91]

What truly mattered for Koolhaas and his fellows was the sequence itself, namely, the screenplay – the scaffold of the movie – which was indispensable for structuring the plot, deciding how intervals of time and space were broken down, establishing the direction of events and how to create a montage of the episodes, just like in a generic architectural layout. Of course, screenplays had their own logic and work in a particular way, being composed by both the conventional forms of a written language and, indirectly, the potential forms of a visual language – something which is not literally "there" and might be completed only beyond the script itself by way of a reader's agency or through the making of the movie. As typical plans, scripts were both precise and approximative, including an intentional emptiness that induced a desire for form, a tendency to become something else.

In this sense, the screenplay always speaks the language of a structure-in-movement, or, as Pasolini described in those years, "a structure endowed with the will to become another structure",[92] one that engenders new ways of envisioning,

"I was asked to do the layout and, at 23, that's what I was doing – typesetting, learning that everything you do has an impact somewhere else on the page, reading everything upside down in lead". The *Eentweedrieenz* were mainly composed of Rene Daalder and Kees Meyering with the occasional participation of Frans Bromet, Jan de Bont, Pim de la Parra and Robbie Muller, and their movies were recently screened at the *OMA/Progress exhibition* in London in 2011.

91 The five principles of the *Eentweedrieenz* were: "1. The film director is a coordinator and not a personality whose will is imposed on the other members of the team; 2. All the creative forces of the crew have to be mobilized and integrated; 3. Actors and cameramen deserve a larger importance; 4. The politics of the author are over [literally *dood in de pot*]; 5. A film is a great mobile entity with a continuous shift of positions and functions". Translated by the author. For a detailed discussion of their film manifesto, entitled "1,2,3, Rhapsodie", see Rein Bloem, "Eentweedrie in de nederlandse film", *Skoop* 3, no. 3 (1965): 18–20.

92 In the same year, in fact, Pier Paolo Pasolini wrote his important essay "The Screenplay as a 'Structure That Wants to Become Another Structure'", in which he remarked upon the particular autonomy of the film script as a consequence of its twofold nature: one one level, it referred to the written signs, and on the other, to the visual sign, or kineme, a form-in-movement, a form-in-process, that was not dissimilar from a real *revolutionary* will: "That an individual, as author, reacts to a system by constructing another one, seems to me simple and natural in the same way in which men, as authors of history, react to a social structure by building another
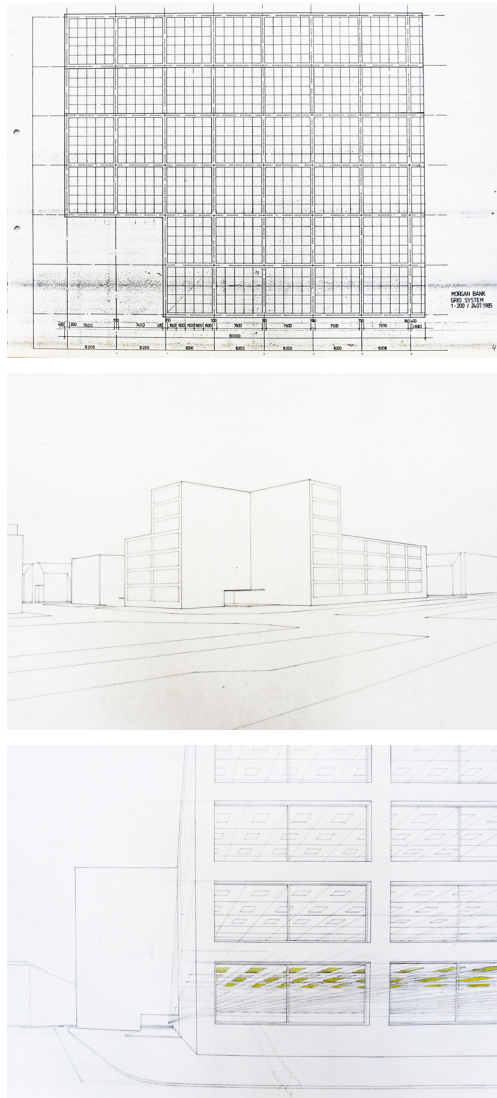
3.36 *Morgan Bank Competition*, Office for Metropolitan Architecture, (Amsterdam, 1989). Preparatory drawings: structural grid scheme - typical plan; external view of the "negative" 90 degrees corner; perspective of the access with false ceiling. [OMA Archive, Netheralands Architecture Institute, Rotterdam].

Typical plan as enabling frame

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organizing and even contesting reality via the imagination of a director and the actor's performance. For Koolhaas, the openness of a screenplay and the emptiness of a typical plan were one and the same, for the potential of both lay in the living content that filled their frames as well as in the way they both provided the possibility of opposing, refusing or critiquing the scheme itself through their autonomous repetition

Even as a journalist for De Haagse Post, Koolhaas followed the same logic, trying to minimize his personal involvement in order to arrive at a description of a more poignant reality by literally reporting bare facts, sampling and filtering raw information with abstract detachment, as if he were composing the layout of a page. Indeed, he was largely influenced by the painter Armando and the poet-writer Hans Sleutelaar, who were both editors of the Haagse Post at the time as well as exponents of the *Nul-beweging* – the Dutch Zero Movement – and who both were connected to the magazine *De Nieuwe Stijl*, which sought a total poetry of reality through an absolute directness and brevity in the use of language, purified of any stylistic preference and aspiring to the austerity and mechanical objectivity of a tape recorder. The articles, poems and paintings of the group were mostly composed as neutral arrangements of elements, like the homogeneous series of bolts in Armando's paintings or Hans Schoonhoven's obsessive ink line-drawings and white-paper structures. "Zero is first of all a new idea of reality, to which the individualism of the artist is reduced to its minimum", Schoonhoven wrote in 1964: "[T]he Zero artist only chooses and isolates parts of reality (material as well as the ideas derived from reality) and presents them in the most indifferent way possible. Avoiding the disturbance of personal feelings is fundamental to Zero."[93]

through revolution, that is, [react] to the will to transform the structure . . . I am speaking of a 'revolutionary will,' both in the author as creator of an individual stylistic system that contradicts the grammatical and literary-jargon system in force, and in men as subverters of political systems." See Pier Paolo Pasolini, "The Screenplay as a 'Structure That Wants to Become Another Structure'", in *Heretical Empiricism* (Washington, D.C.: New Academia Publishing, 2005; English translation of the Italian *Empirismo eretico,* 1972). Koolhaas's interest in the screenplay is traceable all the way back to one of his first published manifestoes, "Een Delftsblauwe Toekomst", *Skoop* 3, no. 1 (May 1965): 14–21.

93 The Nul-beweging mainly included the painters Jan Schoonhoven, Armando, Jan Henderikse, Herman de Vries and Henk Peeters, who constituted the Dutch "extension" of the German Zero Movement founded at the end of the 1950s by Heinz Mack and Otto Piene and based in Düsseldorf. They cooperated internationally
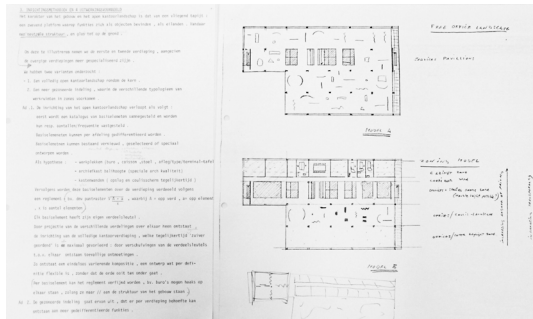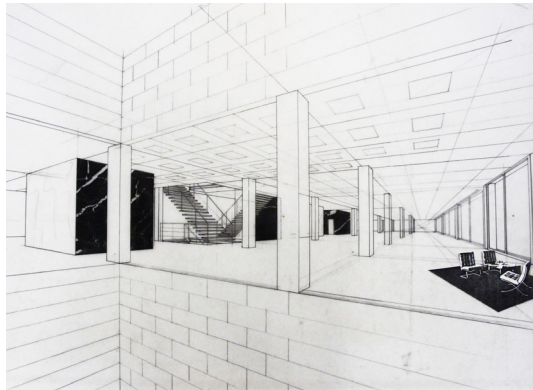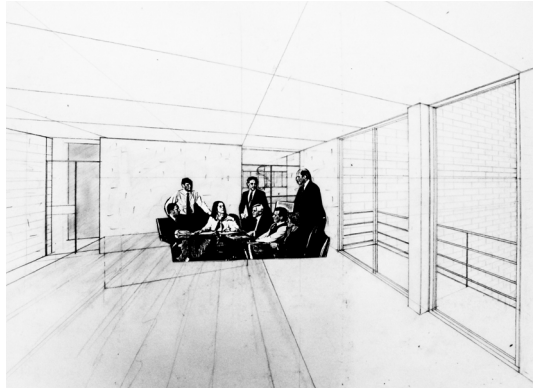
3.37 *Office for Metropolitan Architecture,* Morgan Bank (Amsterdam, 1989) Studies of interior perspectives and schemes of office arrangements, from a linear series of rooms to the office-landscape. [OMA Archive, Netheralands Architecture Institute, Rotterdam].

(The threads of journalism, script-writing and architecture finally intertwined in 1966, when Koolhaas was invited to give a lecture on the *Eentweedrieenz's* movies at the Technische Universiteit Delft by Gerrit Oorthuys, who, together with Max Risselada, was one of the first architectural historians to study Russian Constructivism in the Netherlands.[94] It was, in fact, Oorthuys who introduced Koolhaas to Soviet architecture and the work of Ivan Leonidov, which soon became his only obsession, convincing him to undertake the architectural career.[95])

with the Nouveau Réalisme movement in France and the Azimuth group in Italy. See J. J. Schoonhoven, "Zero", and Armando and Hans Sleutelaar, "aanwijzingen voor de pers (Nos. 1–5)" (Instructions for the Press, Nos. 1–5), in *De Nieuwe Stijl, Deel 1: Werk van de Internationale Avant-Garde* (Amsterdam: De Bezige Bij, [1965]):118–23, 137; see also the longer version published in Sjoerd van Faassen and Hans Sleutelaar, eds., *De Nieuwe Stijl, 1959–1966* (Amsterdam: Busy Bee, 1989): 21–22: "Facts are more interesting than comments and conjectures . . . Traditional criticism makes no sense. Information instead is necessary: not through opinions, but through facts." For a complete account of the work of Koolhaas as a journalist and film director, see Bart Lootsma "Le Film a l'envers: Les années 60 de Rem Koolhaas", *Le Visiteur* 7 (2001): 90–111.

94 "In 1966 I first heard of a brief moment of time – the Constructivists in the Soviet Union, 1923 – where the most intimate details of daily life became the legitimate subject of the architect's imagination. I could not resist my late participation – to think of architecture not as a form, but as organization, to influence the way lives are lived, an ultimate form of script writing". Rem Koolhaas, "A Brief History of OMA: Prologue", *Content* (Cologne: Taschen, 2003): 44. In a moment of the students' struggle and the internal reorganization of the educational apparatus, Oorthuys and Risselada curated an important exhibition on Soviet architecture in 1969 (*USSR 1917–1933: Architectuur en Stedebouw)* at the Technische Universiteit Delft, which was received positively and was later brought to the IAUS in New York by Kenneth Frampton in the summer of 1971. In those years they established strong connections with Moscow and, via some colleagues at Prague University, they managed to get close not only to Rodchenko's family but also to Ivan Leonidov's widow and son.

95 From 1970 to 1972, Koolhaas repeatedly travelled to Moscow with Oorthuys to collect material for a book while taking courses at the Architectural Association in London and writing screenplays as a hobby. Gerrit Oorthuys, personal conversation with the author, Amsterdam, 24 April 2013. Their collaboration resulted in Koolhaas's first extended article on architecture published in *Oppositions* in 1974, and in a retrospective at the IAUS in 1977 entitled *Ivan Leonidov: A Russian Visionary Architect 1902–1959.* See Rem Koolhaas and Gerrit Oorthuys, "Leonidov's Dom Narkomtjazjprom Project", *Oppositions*, no. 2 (January 1974): 95–103.

IV
Domestic labor and forms-of-life
Typical plan as pedagogical rhythm
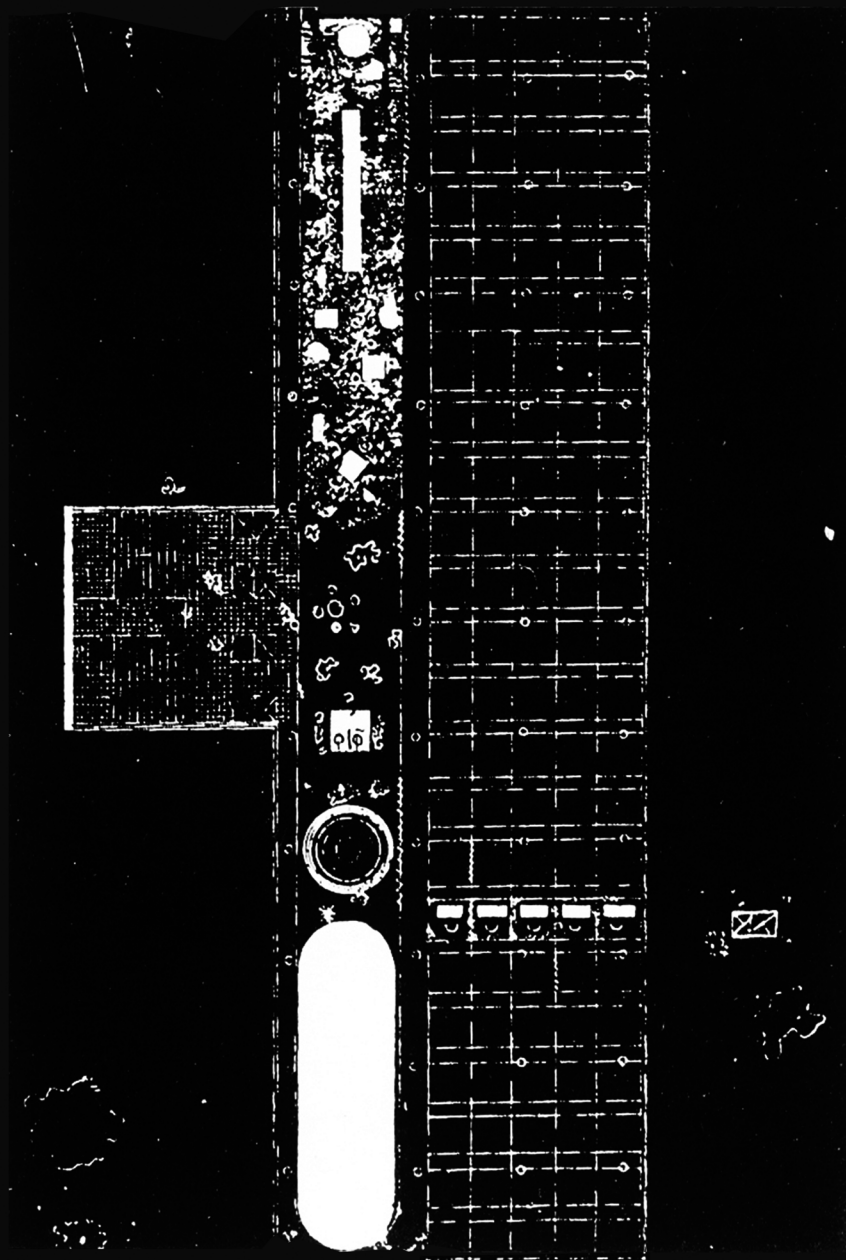
Ivan Leonidov, *House of Industry*. Typical Plan (Moscow, 1929)

What is generally understood as "rhythm" is often equivocal. In itself, rhythm does not uniquely imply measurement or cadence. It was Plato who somehow inferred this particular meaning to the word, linking the idea of rhythm to a distinctive form that could be numerically determined. But the etymology of the word rhythm, as the linguist Émile Benveniste demonstrated, is much more complex and older than its simple synonymy to measure. In Greek *rutmòs* (ῥυθμός) is an abstract noun deriving from the verb *rèo* (ῥέω) that means to flow. Nevertheless, it has been never used to indicate something that materially flows, like the sea or a river, but rather to reveal the generic internal organization of a living being, or what Democritus defined as *form* and later Aristotle as *scheme*, assuming that all living beings were in fact characterized by *rutmòs, tàxis, thèsis*: a form, an order and a position. Thus, the word rhythm stands for a dynamic configuration, the arrangement of parts within a whole, without presupposing a sequential repetition or a regularity of movements. It is only the suffix (*th)mòs* (θμός) that indicates the modality through which a form organization is accomplished at a particular moment and location, like for example for the word *stàsis* – the "state of being in one position" – in relation to *stàthmos*, which is the "position" properly assumed.[1]

Therefore, rhythm is not something fixed or regular but varies according to the context in which is given, designating the instantaneous organization assumed by something moving, like a provisional disposition. In this sense, it might be argued that the notion of rhythm reflects two primary characters of architecture: its tendency towards stability, by means of repetition and peaks; as well as its enabling potential, through intervals of intensities. Architecture always results in an act of framing, creating a certain rhythm within reality, either by crystalizing movements and forces into established repetitions, or by leaving life occur in a sequence of compounds. As Bernard Cache put it, "life is that intercalar phenomenon that causes alone can never produce" and what architecture can do is just to circumscribe frames

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1 "Form in the instant that it is assumed by what is moving, mobile and fluid, the form of that which does not have organic consistency; it fits the pattern of a fluid element, of a letter arbitrarily shaped, of a robe which one arranges at one's will, of a particular state of character or mood. It is the form as improvised, momentary, changeable". See Émile Benveniste, "The Notion of Rhythm in its Linguistic Expression", *Problems in General Linguistics* (UMP: Coral Gables, 1971): 285-6.

of probability to enable life to freely emerge.[2] To dwell is nothing but framing an interval of land and making it inhabitable, in order to not only ensure the survival of its occupants but also a mutual exchange and cohabitation with whom and what lives beyond the interval itself.

The ambivalence of rhythm becomes crucial precisely within domestic architecture, the ancient domain of *oikonomia*. Household management, in fact, corresponds to the most generic expression of human labor, namely the production and reproduction of the self: an activity that does not have any end-object beyond its own process, beyond its pure performance. Beside the simple domestic chores, reproductive labor also implies numerous duties like affect, care, sex, pregnancy, breastfeeding, childbirth, education, activities which are never realized in a product and that do not exists outside the body and the personality of the subject performing them.[3] Similarly to rhythm, domestic labor always alternates between recognizable patterns and unforeseeable movements, and because of such an unmeasurable and not-tangible nature, it remained unconsidered for centuries, gratuitously accumulated and exploited by the capitalist system as a way to reproduce life and feed its machines with disciplined bodies. The hidden side of the capitalist evolution was, in fact, the enslavement of the body of the worker and the homogenization of his labor, as witnessed by the violent capitalist reorganization of life occurred in England, Holland, France between the 16th and 18th centuries. To eradicate any resistance against the emerging order of the manufactures and the regulated slavery of wages, the lowest human instincts had to be eliminated in favor of rational behaviors and mild attitudes: the wild nature of Caliban had to be tamed by the rational control of Prosper.[4] Both in Hobbes and Descartes, the body was seen as an

2 Bernard Cache, "Architectural Image", *Earth Moves. The Furnishing of Territories* (Cambridge MA: The MIT Press,1995): 24.
3 See, for example, the recent contributions on the theme by Leopoldina Fortunati, "Immaterial Labor and Its Machinization", in *Emphemera. Theory & Politics in Organization,* Vol.1, 7, (2007), 139-157 or Christian Marazzi, "Ammortamento del corpo macchina", in Jean-Louis Lavalle and oth. (eds.) *Reinventare il Lavoro*, (Rome: Angelo Ruggieri, 2005): 111-125.
4 Among the numerous studies concerning the capitalist primitive accumulation, especially within a feminist critique, we are here mainly referring to the work of Silvia Federici, *Caliban and the Witch: Women, the Body and Primitive Accumulation* (New York: Autonomedia, 2005), *Revolution at Point Zero. Housework, Reproduction and Feminist Struggle,* (Brooklyn, NY: Common Notions, 2013); Leopoldina Fortunati,

idle materiality, as a pure assemblage of limbs and an entanglement of forces that, without the government of a superior apparatus, could not produce anything. In order to be controlled, both the single body of the citizen and the collective body of the population, had to be analyzed and exposed in their inner functioning biological mechanisms, dissected on anatomical tables or through demographical and statistical enquiries, corrected via sexual rules or urban planning.[5] The violent enclosures and expropriations described by Marx in his chapter on primitive accumulation were coupled by a much more drastic suppression of rituals, habits, festivities, traditions and corporeal activities, together with all that magical, superstitious and symbolical conception of the world embedded in Medieval sorcery and alchemy. [6]

Within this long story of exploitation, architecture provided the necessary spatial infrastructure to beget bodies and discipline of their potential. In this sense, the household represented one of the primary spatial domains where the concept of typicality was transformed into a technical device to shape life within well-established constraints. This chapter will focus on a short passage, occurred between the World Wars, when a proper idea of "domestic typical plan" was enforced within a larger project of mass standardization in order to eliminate housing shortage and to open new trends of consumption. The dwelling layout was devised as a mechanical unit and its inner life rationalized in rigid chores, not dissimilarly to the rhythms of the industrial assembly lines.

Yet, at the same time but within different economical and political circumstances, the working class struggle created the premises for a totally diverging approach to the domestic typical plan, employed more as a pedagogical tool to let

L'arcano della riproduzione. Casalinghe, prostitute, operai e capitale (Venezia: Marsilio, 1970); Mariarita Dalla Costa, Selma James, *Women and the subversion of the community,* (Bristol: Falling Wall Press Ltd, 1972).
5 Despite common beliefs, Foucault claims that the emergence of social engineering and machinery did not actually repress or concealed sexuality. On the contrary technology and the industrial "dressage" emphasized the discourse on sexuality, considering the rational control of bodies and sexual activities as central in the management on the city, as demonstrated by the rising policies controlling the population and the birth rates, regulations of behaviors and total institutions, the studies on sexual diseases and perversions and so on. See Michel Foucault, *The History of Sexuality. Volume 1 An Introduction,* trans. Robert Hurley, (New York: Vintage Books, 1990).
6 Karl Marx, *Capital. A Critique of Political Economy* (Hamburg: Otto Müller Verlag, 1867): Volume I, Chapter 26.

inhabitants learn and attain consciousness by dwelling than as a device to manage the burdens of reproduction. There, rhythm was considered in its architectural and psychological implications, as a strategy of organization and emancipation of their new forms of life.

1. *Rhythms of production*

Beyond the acclaimed purity and functionality of its forms, one of the proper characteristics of the modern factory was rhythm, or its capacity to sequence a multiplicity of materials, bodies and spaces in a unique choreography. The pace and the measure of the manufacturing process, in fact, did not only ensured an ordered distribution of workers and machineries within the shop, but it also established the premises for expanding of the industrial discipline at territorial scale and across diverse social milieu. When the factory abandoned its early single multi-story configurations towards horizontal settlements of separated units with different purposes, rhythm was able to homogenize the most disparate entities on a measured cadence without compromising the specificity of each single unit. In this sense, from Claude-Nicolas Ledoux to Albert Kahn, the modern evolution of the space of production was nothing but the progressive replacement of the architectural unity with a system of independent elements, able to control wider extensions of territory by means of the dynamic interrelations of its constituting parts.[7] Similarly to machines, through time it became no longer important how architecture appeared but rather how it performed and which were the laws of composition woven among the diverse variables and the autonomous development of its inner organs.

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7 Emil Kaufmann describes how Ledoux and Durand progressively dismantled the supposed unity of baroque architecture into a set of smaller and independent units, juxtaposed but often not immediately connected through circulatory systems. Beside the famous Royal Saltworks, the most evident examples in Ledoux were his series of bipartite houses that, while keeping regular proportions and the symmetry of the overall form, implicitly undermined the unity of the house through an articulation of masses. On the same line, Durand transformed the plan into a logic of rectangular modules, joined according centrifugal mechanisms of combination. See Emil Kaufmann *Von Ledoux bis Le Corbusier. Ursprung und Entwicklung der autonomen Architektur*, (From Ledoux to Le Corbusier. Origin and Development of Autonomous Architecture), (Wien, Leipzig: Verlag dr. Rolf Passer, 1933).

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The mechanized rhythm of production reinforced the internal unit of the industrial typical plan and widened its potential, favoring the integration between different spaces and users through the construction of an all-encompassing experience. This for Sigfried Giedion represented the most authentic expression of modernity: the simultaneous intersection and juxtaposition of volumes, masses and elements within a unique condition. Describing the spatial openness of the new industrial buildings, whose iron, glass and concrete structures allowed a continuous interrelation between interior and exterior, in his *Bauen in Frankreich* Giedion used the term *Durchdringung,* "inter-penetration", to evoke an emerging spatial and temporal dimension of architecture, able to completely surround and subtly condition the activities and the unconscious of its inhabitants.[8]

Yet, such a pervasive absorption of the space and the rhythm of production was not as innocent as depicted by Giedion. In the last part of his *Philosophy of Money,* for example, Georg Simmel described how the rapid development of industrialization, finance capitalism and money exchange at the turning of the century had drastically intensified the daily pace of life, abruptly destroying any previous biological or psychological equilibrium, and inducing individuals to construct self-defensive nervous "shields" over their spontaneous emotional reactions. If once living beings were able to control themselves according to their natural milieus and necessities, Simmel claimed that the rampant urbanization, the circulation of commodities and the automation of production gradually dissolved the regularity and diversity of human activities within an abstract indetermination where everything flowed simultaneously and at a generic equivalence.[9] In this respect, the same interpenetration and acceleration of life rhythms welcomed by Giedion, for Simmel would have resulted in a disappearance of rhythm itself, camouflaged and dissolved by a homogeneous condition of total disorientation and continuous presentness typical of the modern blasé attitude.[10] Hence, if on one side rhythm was useful to

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8 Sigfried Giedion, *Bauen in Frankreich, Bauen in Eisen, Bauen in Eisenbeton*, (Leipzig: Klinkhardt & Biermann, 1928); (Nachdruck: Berlin: Gebr. Mann, 2000).

9 Georg Simmel, *The Philosophy of Money* (London: Routledge, 1978): 494.

10 *ibidem,* 493: "In short, if culture, as one is accustomed to saying, overcomes not only space but also time, then this means that definite periods of time no longer determine the compelling framework for our activities and enjoyments, but rather they now depend only upon the relationship between the will and our ability

coordinate masses, workers and materials within the general plan of production, on the other side it turned into an instrument of mass-deception, through which the factory subtly penetrated the bodies and the souls of its employees, conforming their physical and psychological behaviors while impeding them to attain cognition of their own constraints.

It was not the case that Simmel took most of his reflections on rhythm from the renowned economical theories of Karl Bücher who, in *Arbeit und Rhythmus* pointed out that labor in its primitive form was indiscernible from the rhythmical forms of play, music or poetry since it facilitated the assimilation of movements while enabling the performance of a task "with joy and without reluctance".[11] Chants, songs, percussions and dances were all indispensable acts for achieving consciousness of the performed actions, to better control the body and its expenditure of energy, but also to share the burdens and efforts of work within a group: rhythm, for Bücher, was a primitive form of spontaneous cooperation, a tendency towards a common goal. On the contrary, the social extension of the factory and its derived metropolitan activities uprooted man from his biological cycles and instinctive social nature to intense nervous stimulations and higher levels of individualization, approximating life and toil to the compulsory movements of machinery and the artificial fluctuations of the market exchanges. This coincided with an ever-increasing importance of management, not only as an instrument to coherently distribute goods, exchanges and spaces, but also to exert a psychological control over individuals, through patterns of behavior, attitudes and protocols. As Simmel put it, the power of money resided in its relentless capacity to separate individuals from their own lives not just via their working activities but also through their most banal daily performances, ordering common gestures into alienating routines. Inevitably, the most efficacious way to mold the conscience of workers and transform them into menial consumers was to inject the rhythm and the order of

and upon the purely objective conditions for carrying them out. Thus, the general conditions of life are freed from rhythm; they are more even and provide individual freedom and possible irregularity. The elements of regularity and diversity that are *united* in rhythm are now separated by means of this differentiation."
11 Karl Bücher, *Arbeit und Rhythmus. Abhandlungen der philologisch-historischen Classe der königlichen sächsischen Gesellschaft der Wissenschaften* (Leipzig: S.Hirzel, 1897).

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the factory in the most intimate and undisciplined milieu, at the very source of the labor-force production: the household domain.

2. *Domestic Typical Plans*

Since XIX century, the evolution of modern industry in United States was paralleled by the rationalization of the domestic domain and the proliferation of studies on house management. In this respect, Catharine Beecher was among the first material feminists attempting to elevate housework from drudgery to the "honor and remuneration" of any other male profession. Already in her *Treatise on Domestic Economy*, but even more in *The American Woman's Home*, she literally sought to transform the household domain into a scientific field of knowledge, believing that a true emancipation of women from their social confinement was only possible through a rationalization of their domestic work, once purified from the old preconceptions, maximized in productivity and deprived of unnecessary fatigues.[12]

Influenced more by the nomad life of the American pioneers and the balloon-frame technology of the Middle West than by the writings of Charles Fourier or the experiments of Robert Owens, Catharine Beecher formulated a model for a true

4.1 "domestic typical plan" centered around a workshop-like kitchen. She envisioned a mechanized Gothic cottage equipped with a unified central core of services, which combined a Franklin stove, a kitchen, a central heating and ventilation system.[13]

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12   An extensive study of material feminism could be found in Dolores Hayden, *The Grand Domestic Revolution: A History of Feminist Designs for American Homes, Neighborhoods, and Cities,* (Cambridge, Mass. and London UK: The MIT Press, 1981). Concerning Beecher's work, see Catharine Beecher, *The American Woman's Home* [1869] (Hartford, Conn.: Stowe-Day Foundation, 1975); *A Treatise on Domestic Economy, For the Use of Young Ladies at Home and at School* (New York: Harper, 1846), and also "How to Redeem Woman's Profession from Dishonor", *Harper's New Monthly Magazine,* 31 (November, 1865). See also the *Julia Child's Kitchen* installation at the Smithsonian's National Museum of American History (2001), or the recent *Counter Space* exhibition at the MOMA New York (2011).
13   Catharine Beecher expressly refers to rational models of workshop kitchen, such as the one on boats (the Mississippi paddle steamer) or even the mobile cooking unit in military camps. For the "domestic typical plan" see also Reyner Banham, *The Architecture of the Well-Tempered Environment,* (London: The Architectural Press, 1969): 96-100.

The idea of Beecher was to connect together all the usual domestic chores into an assembly line of actions, as in a factory, eliminating any useless space in-between, so that all floors could be totally cleared, unobstructed by fixed partitions and reduced to minimum fixed elements. In this way, the main level of the house resulted in an open layout, with specialized built-in furniture and rigorously classified equipment orbiting around a compact technical core, a mechanized "campfire", which determined not only the horizontal but also the vertical arrangement of the whole building.[14]

Following the rigid line of her protestant education, Beecher rejected the collectivist arrangements of the boarding mansions preferring the simple multiplication of detached suburban family cottage in small village aggregations with shared facilities. This logic would mark not only the American anti-socialist campaigns of the 1920's, but also the beginning of an uncontrolled urban sprawl, fed by the rising speculation of builders and bankers who turned the myth of the suburban home ownership into an incredible resource for consumption: "the home was not considered a workplace but a retreat" – claims Dolores Hayden on this account – "the housewife's unpaid isolated labor was still not considered work but consumption".[15] In this sense, the same American feminist reformism which fought for the social and economical recognition of domestic labor, eventually endorsed the total rationalization and individualization of the house conceived as an ante-litteram "machine for living", paradoxically contributing to the future creation of a very particular form of subjectivity: the housewife as producer-consumer.

14 For Reyner Banham such a centripetal organization of the house truly revealed the American Mid-West archetypical figure of the "campfire", which suggested a totally different relation between man, architecture and the environment. Banham claims that man began dwelling the planet either refuging under a rock or a tree, or by constructing a tent or a shelter, or by directly interfering with the local meteorology, by means of a campfire. But by set on fire, man learned how to control the environment and mastering its natural resources through the help of technology, modulating light, warmth and wind as in an open territory: the house was more an expanded field than a primitive hut. Far before Wright horizontal houses, the American obsessions for gizmos and large interior spaces was already present in the fires and kerosene lamps of the colonizers: "the 'house' is little more than a service core set in infinite space, or alternatively, a detached porch looking out in all directions a the Great Out There." See Reyner Banham, "A Home is not a House", *Art in America,* no.2, April, (1965).
15 Dolores Hayden, *The Grand Domestic Revolution: A History of Feminist Designs for American Homes, Neighborhoods, and Cities,* (Cambridge, Mass. and London UK: The MIT Press, 1981): 26.

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Not by chance, Catherine Beecher's theories on household management landed in Europe filtered either through the spatial and temporal experiments of Lillian Gilbreth, or the writings of Christine Frederick, whose *Household Engineering* – a self-improvement domestic course in twelve parts – was translated and largely diffused especially in Germany, during the Twenties.[16] Whereas Gilbreth dissected the household chores into series of calculated trajectories, Frederick attempted to domesticate the rhythm of the factory through a scientific taylorization and spatial zoning of the dwelling layout. In both researches, the kitchen was definitely elected as the primary female labor domain, rigidly separated from the rest of the house and subdivided into standardized compartments. Despite their emancipatory aims, those studies stereotyped even more the role of the housekeeper, emphasizing her spatial isolation as a worker, her moral obligations as a mother and wife, and her psychological constraints as a consumer.[17]

Once translated into trajectories and classified into pieces, it was easier to camouflage the rising market for domestic appliances under an alleged female independence, as in the renowned case of Schütte-Lihotzky's prefabricated kitchen. Actually, during Weimar Republic, and particularly after the introduction of the women suffrage, the debate on the social and economical emancipation of the "neue frau" promoted large housing reforms and studies on standardization. The war, in fact, consolidated the women social responsibilities and created new working roles and duties that rapidly developed into corresponding uninhibited and unconventional lifestyles. In this sense, the coeval social-democratic management of the housing question became fundamental not only to control the working-class

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16   Lillian M. Gilbreth, "The Psychology of Management" (1914), in *The Writings of the Gilbreths,* (Homewood, Ill: William Spriegel and Clark, 1953); *The Home-Maker and Her Job.* (New York: D. Appleton, 1927); *Living with Our Children.* (New York: Norton, 1928); *"Efficiency Methods Applied to Kitchen Design."* in *Architectural Record,* March (1930): 291-94; and also Christine Frederick, *Household Engineering: Scientific Management in the Home* (Chicago: American School of Home Economics, 1920); *Selling Mrs. Consumer* (New York: The Business Bourse, 1929).
17   "It is most important that the homemaker of the servant-less home see all its advantages for family cooperation and child training, and the chance it is for her to show to the community in her homemaking, her executive ability, her expression of what a home in the highest sense should be. Here is her best chance to be " A productive citizen of the State, not a social debtor." Catherine Frederick, *Household Engineering,* (Chicago: American School of Home Economics, 1920): 480-481.
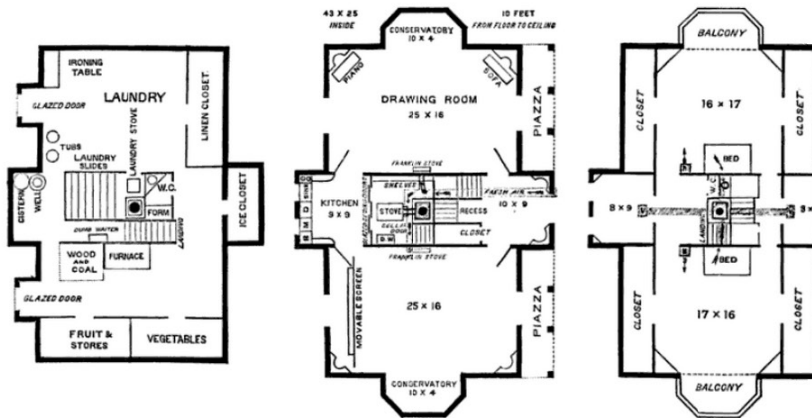
4.1 *American Woman Home* (1896) Catherine Beecher. Domestic Typical Plan.

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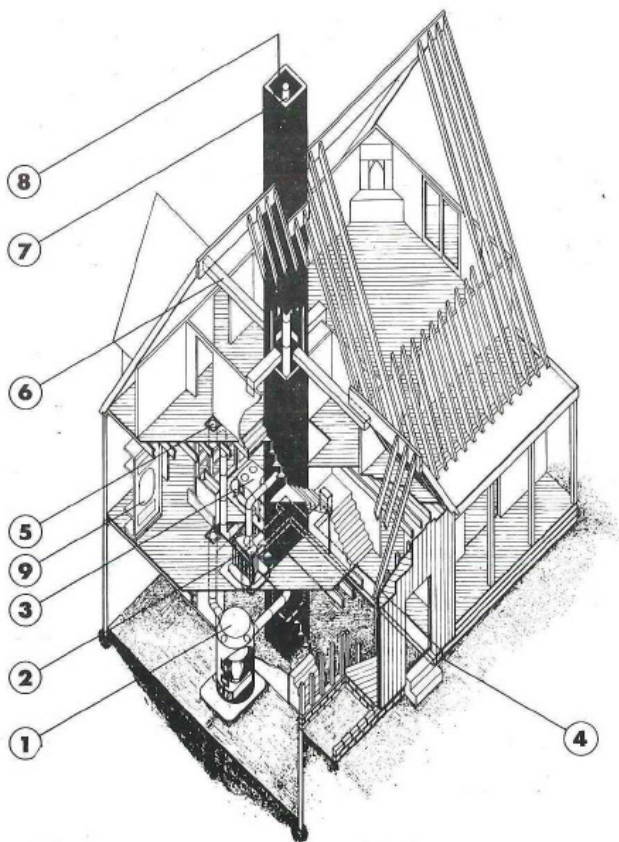
American Woman's Home: cut-away show-ing the complete house as an environmental system.

1. Hot air stove
2. Franklin stove
3. Cooking range
4. Fresh air intake
5. Hot air outlet
6. Foul air extracts
7. Central flue
8. Foul air chimney
9. Movable wardrobe

4.2 *American Woman Home* (1896) Catherine Beecher. Axonometric drawing of the cottage unit.

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discontent and increase their consensus by providing affordable shelters, but it was also crucial to house the new masses of salaried workers, profitable subjects to be instilled with consumption trends and artificial gender demands. Thus, a modern household rationalization in Germany, as the historian Mary Nolan pointed out, had been univocally endorsed both by the feminist movements and the social-democratic parties, yet also by major industrial companies, which even promoted educational institutes to literally "produce" housewives as main target group for consumption. Along the same line, in 1921 the State officially promoted the scientific management and rationalization of the modes of production by instituting the RKW, the National Advisory Board for Productivity, and just few years later, in 1926, a special subdivision – the Home Economics Group – in charge to conduct a series of analysis on domestic labor and to organize educational courses concerning household activities.[18]

These efforts culminated in the 1929 CIAM congress in Frankfurt, which definitely ratified social housing within the broader capitalist plan of social integration. If the salary corresponded to the amount of money necessary for the survival of the worker, then the alleged *existenzminimum* constituted the minimum amount of space to let the worker reproduce and accomplish his biological requirements. All the proposals were based on typical housing plans, hypothetically reproducible in series at a urban scale: the industrial rhythm of measured working activities found its domestic replication in the detailed ordering of the dwelling layout, in the functional arrangement of furniture and the mechanized connection of the different living spaces. The number of beds, the amount usable surface, the window area and the total cubic volume were elected as "standards" enabling the minimum biological necessities.[19] Nevertheless, among the numerous plans

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18 Mary Nolan, "Housework Made Easy. The Taylorized Housewife in Weimar Germany's Rationalized Economy", *Feminist Studies*, Vol.16, No.3, (Autumn, 1990): 549-577. See also Leif Jerram, "Kitchen sink dramas: women, modernity and space in Weimar Germany", *Cultural Geographies,* 13, (2006): 538-556.
19 In his seminar at the CIAM Congress, Walter Gropius claimed "The problem of the minimum dwelling is that of establishing the elementary minimum of space, air, light and heat required by man in order that he be able to fully develop his life functions without experiencing restrictions due to his dwelling, i.e., a minimum modus vivendi in place of a modus non moriendi." Walter Groupius, "Sociological Premises for the Minimum Dwelling of Urban Industrial Populations", originally published as "Die soziologischen Grundlagen der Minimalwohnung," in *Die Justiz*, Vol. 5, No. 8 (1929), now in *The Scope of Total Architecture*, trans. Roger

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submitted, there were no attempts to question neither the economical conditions, nor the class composition and not even the cultural characteristics of the future inhabitants. Moreover, although the premises of the congress manifested a clear intention to promote sexual equality and acknowledge the evolving conditions of the nuclear married family, in none of the plans the institution of family was explicitly contested, in favor of a neutral agreement of the universal right to an affordable living space. Hence, all the plans, even in their smallest variations, kept an explicit gender connotation crystalized into a rigid division of functions – like cooking, eating, resting, sleeping, working – delimited and partitioned in rooms and zones always entailing the kitchen and technical appliances as essential technical cores.

In the CIAM layouts the main element was the grey arrangement of furniture, which achieved an incredible level of detail, implicitly anticipating, as the Frankfurter-kuche, the mass production of housing units. On this account, in his *L' Art Décoratif d'aujourd'hui,* published in 1925 as a collection of extracts from his magazine *L'Esprit Nouveau*, Le Corbusier dedicated an article titled "Type-Needs, Type-Furniture" in which furniture was literally considered a mechanical extension of the body, developed on the average measures, scale and necessities of human beings. For Le Corbusier, biological needs were primary expressions of the "typical", being reducible to a limited range of universal dimensions and thus reflected into corresponding objects-type: "*needs-type*; that is to say they are the same for all of us; *we all need means of supplementing our natural capabilities*, since nature is indifferent, inhuman (extra-human), and inclement; we are born naked and with insufficient armor."[20] The typicality of the *human-limb object* was thus opposed to the traditional *sentiment-object* or *life-object*, which instead represented the obsolete customized tool – the object of art – still evoking a certain authority among the daily life paraphernalia.[21] Instead, through the complete standardization

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Banham, (New York: MacMillan Publishing Company, 1980): 91-97.

20 "The human-limb object is a docile servant. A good servant is discreet and self-effacing, in order to leave his master free". Le Corbusier, *L'Art Décoratif d'aujourd'hui* (Paris:Édition Crés, 1925), Engl.trans by J.I. Dunnett, *The Decorative Art of Today* (Cambridge, Mass.: The MIT Press, 1987): 70-79

21 *ibidem,* 76: "The *human-limb objects* are type-objects, responding to type needs: chairs to sit on, tables to work at, devices to give light, machines to write with, racks to file things in. If our spirits vary, our skeletons are alike, our muscles are in the same places and perform the same functions: dimensions and mechanism are

4.3 *Frankfurt Kitchen* (1929), Margarete Schutte-Lihotzky. Photograph of the interior.

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4.4 *CIAM studies on the Existenzminimuum*, (Frankfurt 1929). Typical plans of the dwelling units.
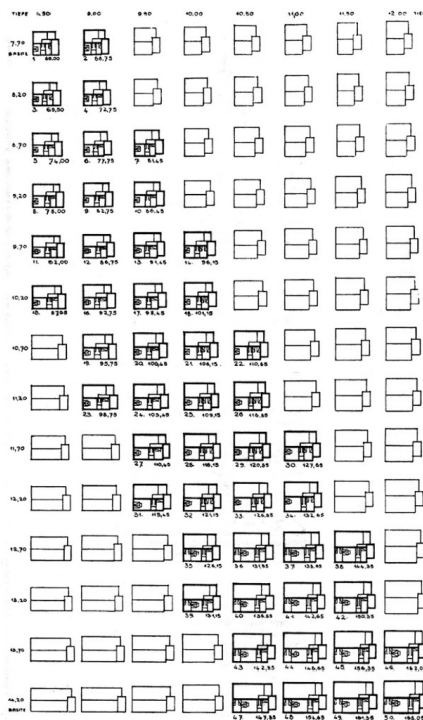
ИССЛЕДОВАНИЕ
ГЛУБИНЫ
КОРПУСА

Среди наших архитекторов и строителей чрезвычайно распространено мнение, что глубину жилого корпуса нужно делать как можно большей. Между тем вопрос глубины корпуса жилого здания есть функция площади квартиры и конструктивной схемы, принятой для данного типа.

Чем меньше площадь квартиры и ее отдельных комнат, тем меньше и должна быть глубина корпуса, если и желательно сохранить санитарно-гигиеническую эффективность квартиры. В этом смысле архитекторы западной Европы находятся на гораздо большей высоте, чем наши. Там мы имеем колебания глубины жилого корпуса небольших рабочих квартир от 6—6,5 м—до Большая глубина допускается лишь 10 м при очень больших площадях квартир.

Причем ссылка на удорожание постройки при малой глубине имеет некоторый смысл лишь при нашей обычной стене в 2½ кирпича — самой дорогой, какую можно себе представить.

При переходе к более легким и дешевым конструкциям стен вопрос этот теряет какую бы то ни было остроту, — а при каркасной системе, либо при статической нагрузке внутренних поперечных стен и при предоставлении наружным стенам лишь изоляционных функций, — вопрос этот представляется в совершенно ином свете.

Тогда оптимальная глубина и в экономическом смысле вовсе не будет наибольшей глубиной, и для целого ряда конструкций увеличение глубины корпуса будет прямо невыгодным.

Прилагаемая здесь схема архитектора Клейна показывает, что наиболее пригодные планы находятся сверху этих рядов расположены неэкономичные, негигиеничные и неблагоприятные планы, а снизу их планы, хотя и гигиеничные, но неэкономичные вследствие преувеличенной длины фасада, связанного с кишкообразными помещениями. Схема, помимо этого, указывает, что глубина блока не может быть постоянной и зависит от величины жилищ. Так, например, возможно установить, что для квартиры с общей площадью в 100 кв. метров глубина здания не должна превышать 10 метров.

Само собой разумеется, что планы, находящиеся в диагональных рядах, безукоризненны в жилищно-техническом отношении.

ОТВЕТЫ РЕДАКЦИИ на дискуссионные статьи художников Малевича и Клюна, помещенные в СА 5 и СА 6 в 1298 г. будут помещены в

СА-3

4.5 *Optimal Dwelling Analysis*, Alexander Klein (1929). Analysis of typical domestic plans.
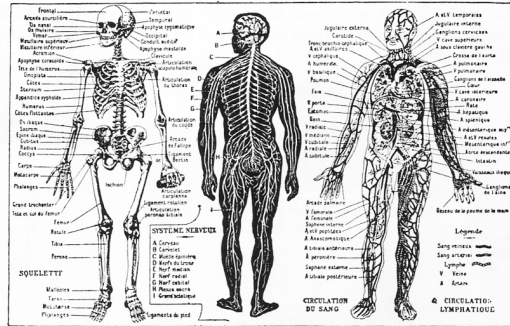
TYPE-NEEDS
TYPE-FURNITURE

Here we quit the anguished realms of fantasy and the incongruous, and resume a code with reassuring articles. The poet goes into decline, it's true; he chucks up cornices and baldacchinos and makes himself more useful as a

4.6 *Type-Needs Type-Furniture* (1925) in *L'Art Décoratif d'aujourd'hui,* Le Corbusier. Objects as simple extensions of human limbs.

of furniture, or what he called the 'orthopedic' mediation of technical objects, Le Corbusier envisioned the elimination of unpleasant tasks, the efficient organization of affairs and thus the possibility of available time to "think about something - about art for example".

Nevertheless, such an acquired freedom was totally inscribed within the requirements of technology and paid with the automation of certain gestures. Precisely in this passage, the technical abstraction of consumption reached a further level, establishing itself as the only and unique frame of reference, producing artificial needs and selling corresponding means of satisfaction. At that point, the typical became a way to suppress the consciousness of the users in relation to specific of activities, which became absorbed within automatic routines. Although referring directly to the human body and its instinctive sense of harmony, objects-type were in fact either indifferent to the users, or demanding their forced participation, as machinery in factories. In this sense, the images of commercials, patents, standards and average formats illustrating the article clearly revealed the embedded ordering power of the new instruments and the future control of technology over human gestures, an authority which would gradually extend from the scale of objects-type to rooms and buildings in form of typical plans.[22]

The logical consequences of the object-type were the *maison-outil* and the housing standardization that would be celebrated at the CIAM congress. In his *Architecture d'Époque Machiniste*, written one year later for the Journal of Psychology, which for the first time provided a complete description of his famous

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thus fixed."

22 *Ibidem,* 76-77: "When the typewriter came into use, letter paper was standardized; this standardization had considerable repercussions upon furniture as a result of the establishment of a module, that of the *commercial format.* Typewriters, file-copies, filing trays, files, filing drawers, filing cabinets, in a word the whole furnishing industry was affected by the establishment of this standard; and even the most intransigent individualists were not able to resist it. An international convention was established. These questions are of such importance that international commissions meet regularly and establish the standards. The *commercial format* is not an arbitrary measure. Rather, let us appreciate the wisdom (the anthropocentric mean) that established it. In all things that are in universal use, individual fantasy bows before human fact. Here are some sheet of Ingres paper is 1/29, That of the sectors of the plans of Paris established by Napoleon I painting is 1/33; that of the Taride plans 1/33. That of most magazines 1/28. That of canvases for figure painting (time-honored sizes) is 1/30. That of daily newspapers from 1/30 to 1/45. That of photographic plates 1/50, that of books 1/40 to 1/50, that of kitchen tables in the Bazaar de l'Hotel-de-Ville 1/50 etc."

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"five points", Le Corbusier considered the house as mechanical instrument, "a domaine de pure technicité", fruit of the human natural tendency to act towards a goal, to *irradiate* purposes for his actions: "Irradier, c'est dire j'existe, prétention qui ne s'arrête (apparenmment) qu'à la mort."[23] There, almost echoing Henry Ford, Le Corbusier explicitly declared that making architecture basically corresponded to build houses for people, ordinary and generic houses for ordinary and generic men: not palaces or decorative excesses but the outmost "typical", needs-type, functions-type, emotion-type, the direct extrusions of average gestures and average measures.[24]

3. *Forms of life*

In his three famous articles written in 1872, Friedrich Engels lamented the fact that the bourgeois and social-democratic reformism never understood the "housing question" in its real terms, translating it always into ad-hoc solutions, partial plans, racial or moral issues of dignity and segregation rather than contextualizing it in its broader political implications.[25] In short, for Engels the problem was not to ameliorate the qualitative conditions or to increase the quantity of available rooms, but to suppress the system of working-class exploitation at its very roots.[26] Thus, it was not necessary to construct a "better" architecture or to solve the housing shortage with a more efficacious balance between offer and demand, but instead

23 Le Corbusier, "Architecture d'Époque Machiniste", in *Journal de psychologie normale et Pathologique* (1926), (Turin: Bottega d'Erasmo, 1975): 332-336.
24 *Ibidem,* 336: "La maison à deux fins. C'est d'abord une *machine à habiter,* c'est-à-dire une machine destine à nous fournir une aide efficace pour la rapidité et l'exactitude dans le travail, une machine diligente et prévenante pour satisfaire aux exigences du corps: confort."
25 See Friedrich Engels, *The Housing Question,* a series of articles published between 26th June 1872 and the 22nd of February 1873 for the *Volksstaat* journal in Leipzig and republished in *Zur Wohnungsfrage* (Hottingen-Zürich: Volksbuchhandlung, 1887).
26 See L.M. Sabsovič, "La Questione della città", ["Vopros Goroda", *Planovoe khoziaistvo,* 2, 1934], translated in Paolo Ceccarelli (edited by) *La costruzione della Città Sovietica* (Padova: Marsilio, 1970) "What is a socialist habitat? It is a form of habitat where no trace of domestic or familiar economy subsists. It is a house of women (and men) occupying their own places within the social economy; the house of a member of the collective production. It is a house where the individual develops its own personality. It is a house in which there would not be place for the petit-bourgeois individualism". See Vieri Quilici, *L'Architettura del Costruttivismo* (Bari: Laterza, 1969): 545.

to remove any discrimination between city and countryside, destroying private property and labor division, and eventually eliminating the family unit as principle of primitive accumulation by emancipating the woman form the burden of domestic labor.[27]

What Engels claimed seemed to perfectly describe to what occurred in Soviet Union after the grandiose cataclysms of the World War and the Russian Revolution, when the country was forced to a political and financial reorganization for the constitution of a Socialist economy. Within those conditions, architecture was invested with new important social responsibilities and with the task to create frames, rhythms and institutions for a "new man", considering his whole life and the entire national territory as unlimited fields of action.

There were to be no more isolated settlements but instead an infrastructural system of productive epicenters: a cohesive extension to balance the metropolitan growth with natural resources, to distribute population and productive centers according to the needs and the potentials of each community. Already in 1920, strongly supported by Lenin, the State Commission for the Electrification of Russia (GOELRO) elaborated the first large-scale master plan to devise the localization of the main power plants, industrial poles and the infrastructural distribution of electric energy across the whole national territory. The plan considered the underground resources and the geological characteristics of the soil as the necessary strategic platform for any further economical and political advancement: Soviet plus electrification equals communism. One year after, the GOSPLAN, or the State Planning Commission, articulated the territorial organization defining economical regions and administrative provinces, considering the productive specialization of each local compartment in relation to the overall national economy, and identifying main routes, industrial and logistical nodes as well as the major points of mineral

27 Drawing from the anthropological theories of Lewis H. Morgan, but also from the writings of Charles Fourier, Karl Marx and Friedrich Engels often claimed the social-historical construction of the family, considered as a reduction of the collective primitive communities into a limited number of individuals, and the very first social institution which introduced private property and the division of labour: the sexual separation of role and age between males, females and children. See Friedrich Engels *The Origin of the Family, Private Property, and the State,* (1884) and François Marie Charles Fourier, *Théorie des quatre mouvements et des destinées générales,* (Liòn: 1808).

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extraction. In this sense, the factory became a general frame mediating between masses and technology, agricultural traditions and mechanical progress, dwellings and collective facilities: it was the converging point of economical investments, political propaganda and planning strategies, as well as the testing ground for architectural experiments, massive housing construction and new forms of life. Not by chance, it was precisely at this moment that Henry Ford landed in Soviet Union to build his first Tractor Plant in Stalingrad, and that Nikolaj Miljutin adopted the Fordist industrial assembly-line as theoretical paradigm for the rising Socialist City, the *Socgorod*.[28]

Nevertheless, contrary to United States, in Soviet Union the factory was immediately assimilated as unifying spatial principle, as a rhythm permeating all spheres of life and thus providing not only the outlines for a general territorial coordination but the true basis for a social revolution. The industrial settlement (*Promkombinat*) determined form and dimension of cities, the amount of population, the public facilities, the system of collective education and the general arrangement of the surrounding agricultural lands, whose food production, plants and green fields had to complete and integrate the factory working cycle (*Agrokombinat*).[29] Yet, most of the urban solutions endorsed by Miljutin were only the logical consequences of a series of social reforms issued by Lenin already in the aftermath of the Revolution, especially related to gender issues and the recognition of women's equality to men. The 1918 *Code on Marriage, the Family and Guardianship,* for example, constituted one of the most advanced family legislation ever elaborated at that time, which acknowledged civil marriages and de facto relationships, enabled divorce and abortion, transferred the child-care

28 The factory made of different settlement units and organized in programmatic horizontal strips – industry, agriculture, transportation, energy, administration, collective activities, leisure, green, education and housing – aligned along a unique infrastructural network. See Nikolaj A. Miljutin, *Sotsgorod. The Problem of Building Socialist Cities* [1930], trans. Arthur Sprague (Cambridge, MA: The MIT Press, 1978).
29 As promptly suggested in his famous intervention, Strumlin proposes to solve the historical antithesis between city and country not by fragmenting the city in many agricultural cells, but rather through a gradual progress of industrialization and mechanization of the traditional agricultural communities (kolkhoz). See S.G. Strumlin,"Il problema delle città socialiste", ["Problema socialističeskich gorodov", *Planovoe khoziaistvo*, 5, 1930], transl. in Paolo Ceccarelli (edited by) *La Costruzione della Città Sovietica* (Padova: Marsilio, 1970)

from the family to the State and separated property ownership from marriage.[30] Influenced by the positions of Marx and Engels on the family, Lenin understood the fundamental role of women in the organization of the working-class, especially within the critical economic conditions of the country after the Revolution and during the Civil war. He thus encouraged not only the employment of women in factories but also endorsed their active political involvement in the party, promoting the rise of commissions, activist groups and journals to diffuse the principles of the revolution house-to-house, experiments which would eventually culminate in the *Zhenotdel*, the Women's Section of the Communist Party in 1919, led by Alexandra Kollontai.[31] Those reforms stimulated some visionary spatial proposals, focused on the possibility of a totally collective life rotating around few common facilities and large-scale dwellings, rationally organized around productive urban epicenters: in this sense, the bare genericness of these architectures was a proper reflection of the collapse of any gender division and thus of a possible hypothetical return to the common indeterminate nature of the human species-being.

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30 This would pose the basis not only for the emancipation of women, but for a radical liberation from the Freud psychological domination of the Oedipus triad, as conjectured in those same years by Wilhelm Reich, who dedicated one of his most important work *The Sexual Revolution* (1936) to the Soviet study case before the Stalinist repression. Concerning the Soviet reforms, here we refer to Lisa Macdonald, "Women and the Russian Revolution: 'Our task is to make politics available to every working woman'", *On the Emancipation of Women,* (Resistance Books, 2003)

31 "The communist women's movement itself must be a mass movement, a part of the general mass movements ... She who is a communist belongs as a member of the party, just as he who is a communist ... However, we must not shut our eyes to the facts. The Party must have organs - working groups, commissions, committees, sections or whatever else they may be called - with the specific purpose of rousing the broad masses of women, bringing them into contact with the party and keeping them under its influence. This naturally requires that we carry out systematic work among the women. We must teach the awakening women, win them over for the proletarian class struggle under the leadership of he Communist Party, and equip them for it. When I say this I have in mind not only proletarian women, whether they work in mills or cook the family meal. I also have in mind the peasant women and the women of the various sections of the lower middle class. They too are victims of capitalism ... We must have our own groups to work among them, special methods of agitation, and special forms of organisation. This is not bourgeois `feminism'; it is a practical revolutionary expediency." Clara Zetkin, *My Recollection of Lenin,* in V.I. Lenin*, On the Emancipation of Women (*Moscow: Progress Publishers, 1965). See also V.I.Lenin, *The Tasks Of The Working Women's Movement In The Soviet Republic,* speech delivered at the 4th Conference of Non-Party Working Women, held in Moscow, 1919 and published in *Pravda* (213, September 25, 1919).

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4. *Two typical plans.* Ivan Leonidov's House of Industry (1929)

Leonidov never built anything except a flight of stairs in Kislovodsk. Nevertheless, his white-on-black drawings and the resolute dynamism of his plans were never conceived as impossible exercises but always as consciously planned "steps towards socialism". Leonidov's idea of architecture, in fact, revolved primarily around the issue of labor and workers' organization [32] or, reflecting Lenin's political project, around how to converge the spontaneity of the working class opposition within the common line of the party. Organization, in this sense, did not simply coincide with a form of spatial arrangement, but it referred to a wider strategy to unite the fragmented workers' collective within a cohesive structure, aimed at overcoming the capitalist hideous mechanisms of exploitation. After having socialized the means of production and thereby destroyed the anarchy of private ownership and its class differences, workers had to "extinguish" the role of the State and dismiss its apparatus of control and coercion – army, police, bureaucracy, clergy, and judicature – through the organization of Soviets.

Yet, according to Lenin, to accomplish such an ambitious project it was first necessary to understand the inner rules of the State machine, and construct an opposition by dismantling the same internal mechanisms of "registering, filing and checking", getting rid of the functionaries and redistributing their administrative responsibilities to the Soviets. This transitional phase after the Revolution was also indispensable to prepare and sufficiently instruct the working class to govern and lead the rising "Commune".[33] On this respect, in parallel to the national industrialization

32 "(SA): 'How is one to account for your use of identical forms for different functions, except by formalist aesthetic considerations?' (L): 'The question indicates that the questioner is primarily interested in external form, in tasting rather than in organizing. Such a question is appropriate where one is concerned with idealistic architecture 'as art', whereas we are concerned with form as a product of the organization and functional interdependence of workers' activities and structural factors. It is not the form one should consider and criticize, but the methods of cultural organization." See Ivan Leonidov, "Project for a Club of a New Social Type", ("Klub novogo sotsial'nogo tipa", *Sovremmenaja Arkhitektura*, no. 3, 1929, 105–11), translated in Andrei Gozak and Andrei Leonidov, *Ivan Leonidov: The Complete Works* (London: Academy Editions, 1988).
33 This vision deeply influenced Leonidov's first works, beginning with his thesis project at the VKhUTEMAS in 1926 – the Lenin Institute, or the collective scientific centre of the USSR – for which he designed an a-centric, cruciform arrangement of a spherical auditorium, a slender library tower and a horizontal slab of laboratories conceived as a strategic communication outpost connected to the centre of Moscow via an aerial

plan, which would have provided a common infrastructure to the whole country, Lenin endorsed a series of social and cultural reforms for the institution and the propagation of a Soviet education, from workers' clubs, studios and theaters to assembly halls, cinemas, libraries and learning centers.

Nevertheless, rather than disappearing in a classless society as Lenin prophesied, the socialist State ended up being inflated beyond measure precisely because of its managerial class, whose power had been reinforced by the Stalin's policies imposed at the end of 1920s to control the nationalization of production and the supervision of economic planning, taking advantage of the relative underdevelopment of the workers' administration. In other words, to paraphrase George Orwell, if capitalism was disappearing, it was not replaced by the expected order of socialism.[34] The Stalinist betrayal of the Revolution gave birth to another monstrous version of the State, whose economy was still based on the nationalized ownership of the means of production yet totally controlled by a ruling class of managers, technicians and functionaries: a new planned, centralized system of "bureaucratic collectivism".[35] Precisely within and against such a managerial revolution, the young Ivan Leonidov formulated his most important proposals, as different parts of a unique project aimed at envisioning new Soviets' institutions while countering traditional petit-bourgeois life-values and destroying the Stalinist systems of coercion.

Above all, the idea of *club*, which Leonidov conceived as a territorial epicenter

tramway and to the whole country by way of a radio station. The sphere and the tower – the future Koolhaasian archetypes of Manhattan's typical plan – converged here as the two opposed polarities of Lenin's strategy: technology and program, politics and praxis, "Soviet power plus electrification". See Vladimir Lenin, *State and Revolution* (1917): chap. III, section 2; but see also Antonio Negri, *Trentatré lezioni su Lenin* (Rome: Manifestolibri, 2004).

34 "Capitalism is disappearing, but Socialism is not replacing it. What is now arising is a new kind of planned, centralised society which will be neither capitalist nor, in any accepted sense of the word, democratic. The rulers of this new society will be the people who effectively control the means of production: that is, business executives, technicians, bureaucrats and soldiers, lumped together by Burnham, under the name of 'managers'. These people will eliminate the old capitalist class, crush the working class, and so organise society that all power and economic privilege remain in their own hands. Private property rights will be abolished, but common ownership will not be established." Georges Orwell, "Second Thoughts on James Burnham", in *Polemic,* (London: summer 1946).

35 This is what Bruno Rizzi claimed in 1939 in a self-published pamphlet entitled *The Bureaucratisation of the World*, which Guy Debord defined one of the most influential yet unknown books of the century, and which James Burnham largely reprised in his renowned work *The Managerial Revolution* (1941).

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enhancing the organization, the cultural education and the political awareness of the workers at national scale. The club was not just another element of the city but an indispensable collective infrastructure to link the assembly-lines of the factory to the household domain:[36] when asked whether the club was a place of leisure or relaxation, Leonidov promptly replied that there was no such a thing as an 'absolute rest', since life was a constant stream of activities and labor that acknowledged no difference between production and its reproduction.[37] This became explicit in his 1928 proposal for a "Club of New Social Type", which clustered all sorts of cultural facilities – libraries, lecture rooms, laboratories, botanical gardens, study areas, auditoria and cinemas – in a raised, two-level platform connected to sports fields, parks, pavilions and culminating in the gigantic parabolic volume of the mass assembly hall. The plan further developed two years later in his project for the Palace of Culture in the Ploretarsky District, where the raised platform became a flat portion of land organized in strips with different programs, ranging from educational purposes to areas for mass-demonstrations: as in a simple sequence of items, or a script, the order of the frame ignored the limits of building-objects, defining spatial intervals to simply let activities to happen. In Leonidov, the idea of typical plan was already implicit in this way of serially partitioning the horizontal platform or in the squared autonomous repetition of plots, both acting as condensers for activities and orbiting around few fixed technical points.[38]
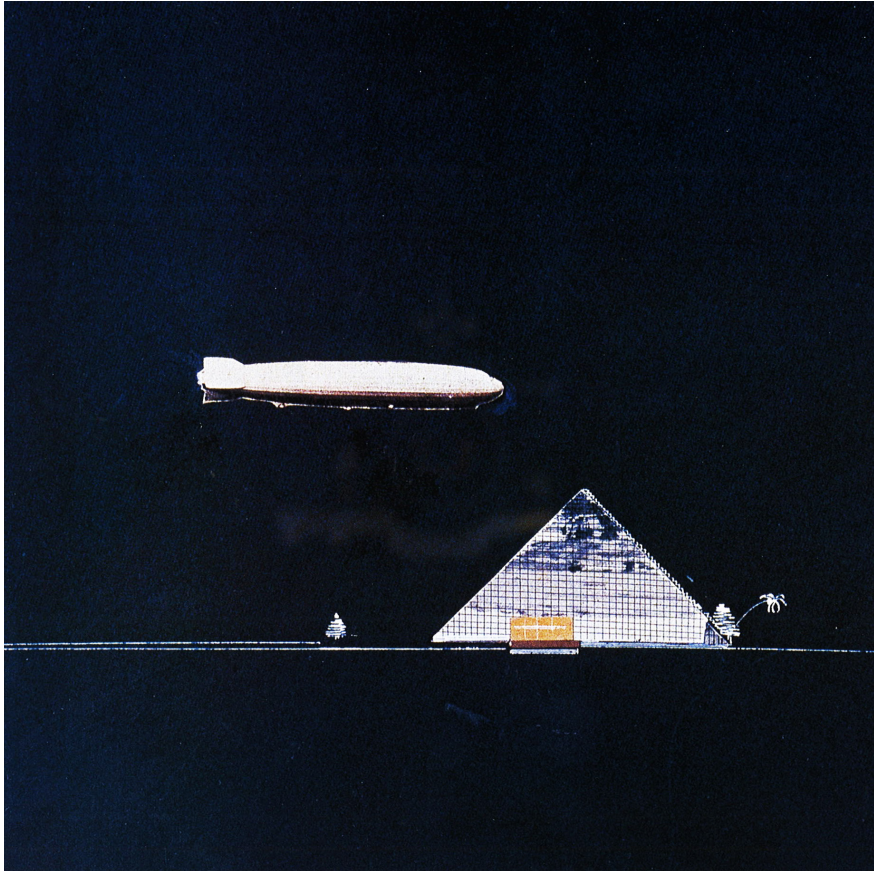
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36 "[I]n order to involve those strata of workers who are not so far being properly served", he claimed, "it is essential that cultural work should not be confined within the framework of the clubs, but be developed within the enterprises themselves, the workshops, workers' barracks and hostels, and workers' settlements". Ivan Leonidov, interview for a "Club of New Social Type" quoted in Andrei Gozak and Andrei Leonidov, *Ivan Leonidov: The Complete Works* (London: Academy Editions, 1988): 61.

37 *Ibidem*, 65: "Whatever a person does he gets tired. But one gets relative rest from one kind of work by engaging in another (one can rest from 'physical' work by engaging in 'mental' work). A person's working day, cultural development and leisure can only be organized by taking the processes of work as starting point."

38 Koolhaas effectively turned to architecture only in the mid 1960s after he came across the drawings of Leonidov, whose work he approached from a rather unusual perspective, untainted by any theoretical prejudice or building experience yet profoundly affected by his previous experience as a journalist and filmmaker. In Leonidov's projects, collages and concise texts, Koolhaas unexpectedly encountered the same instruments, tactics and issues he had been exploring in his movies and scripts – the same effort to index the unpredictability of reality via the simplicity of a frame, whether through a text, a screenplay or a plan. In this sense, OMA's later proposal for La Villette was nothing but a depoliticized application of the same principle: taking "the section of the typical skyscraper and put[ting] it on its side" corresponded to horizontally aligning typical plans side by side in order to accumulate "congestion without matter". See Rem Koolhaas and Bredan
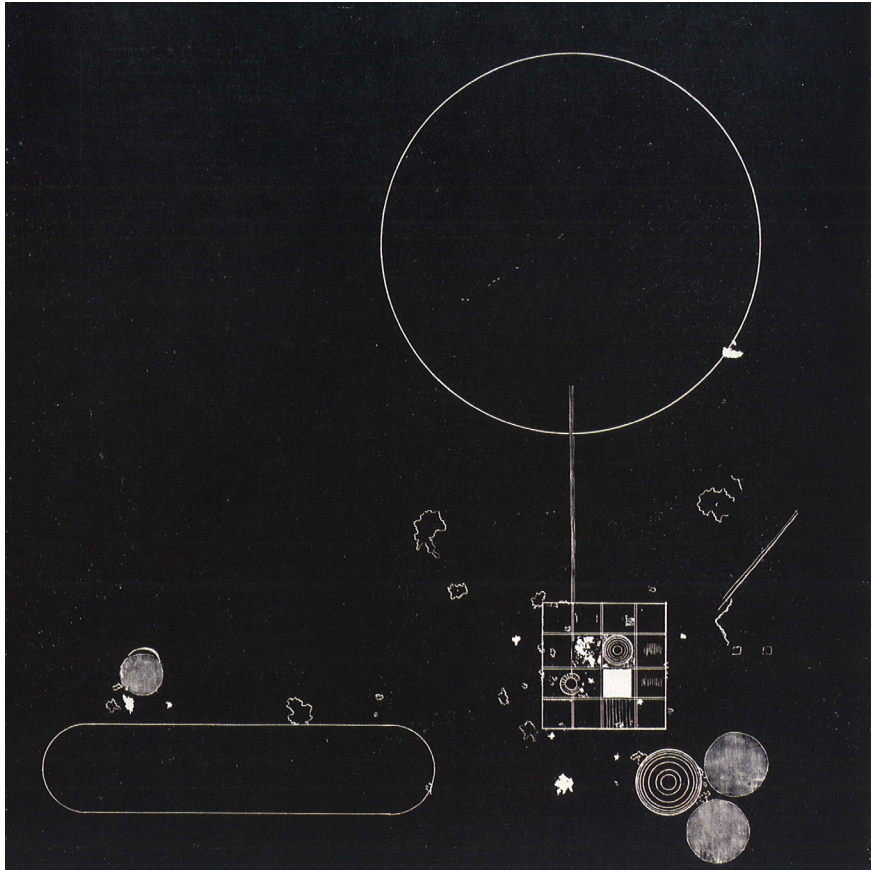
4.7 *A New Type of Social Club,* Ivan Leonidov. General plan. (Moscow, 1928).

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4.8 *Palace of Culture in the Ploretarsky District,* Ivan Leonidov. Elevation. (Moscow, 1929)

1.
Scientific and historical Sector with Museum Complex

II.
Mass Activities Section with Auditorium and Assembly Hall

III.
Demonstration Field (for parades, displays, etc.)

IV.
Physical Culture Sector with Swimming Pool and Winter Garden
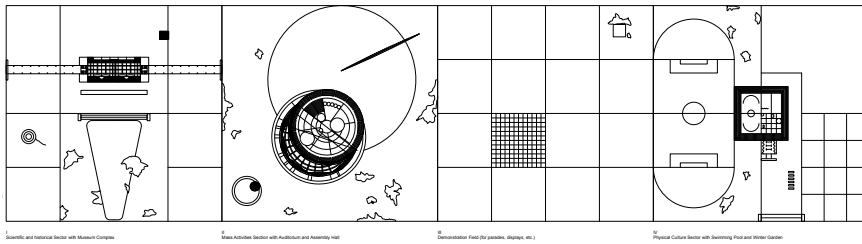
0   50m

4.9 *Palace of Culture in the Ploretarsky District,* Ivan Leonidov. (Moscow, 1930) General plan redrawn by the author.

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Along the same line, Leonidov's submission for the Tsentrosoyuz Building Competition, the Central Union of Consumer Cooperatives, was a first attempt to transpose the principles of the club within the envelope of a single building. Differently from the formal articulation that characterized Le Corbusier's proposal, Leonidov opted for the absolute simplicity of a vertical slab, in which he concentrated all the administrative, commercial and cultural functions, juxtaposed to a perpendicular horizontal volume for exhibitions. In this sense, the project conveyed the previous geometrical complexity of the club's proposals into the simple repetition of stacked typical plans: floors were totally uncluttered and corridors abolished in order to allow the maximum flexibility and the greatest possibility of rearrangement, keeping the main circulation flowing through six paternosters in the hallway.[39]

Yet, the logical culmination of Leonidov's work was his 1929 project for the House of Industry. Despite hosting one of the most important centers of the Stalinist bureaucracy – the headquarters of the Supreme Soviet of the National Economy of the Russian Republic (VSNkh RSFSR) in Moscow – Leonidov's typical plan blew apart any official hierarchy or customary labor division, causing him harsh critiques and the accuse of exerting a harmful influence upon his students at the new VKhUTEIN. The plan of the Dom Promyšlennosti was, in fact, not *just* a typical plan, for it embodied the whole political and economical project of a society based on the workers and their Soviet institutions. In the text accompanying the project, Leonidov claimed that labor should have not be conceived as a regrettable necessity, but as the very essence of the human nature, demanding a coherent physical and psychological integration of all spheres of life, from the rhythms of domestic and leisure activities to the time dedicated to the cultural formation: "in our conditions, every new building is a step in the direction of socialism, and it must respond to

McGetrick, "Patent Office", *Content* (Cologne: Taschen, 2003): 73; see also Rem Koolhaas and Bruce Mau, "Congestion Without Matter", *S, M, L, XL* (New York: The Monacelli Press, 1998): 921.

39   "And from an ideological point of view, whilst planning solutions can lead to a culture of pure architecturalism, these spatial solutions, when functionally fully validated, keep the work firmly directed on the task, forcing attention away from the properties and specifics of space as such, and onto the properties and specifics of those social, domestic and working processes for which the space is being organized." Excerpt from F. Ialovkin's article in Ivan Leonidov's "Dom Centrosojuza" (Tsentrosoyuz, *Sovremmenaja arkhitectura*, no. 2, 1929), 43–45, 47).

the new conditions of work and everyday life. An architect who disregards these conditions is conservative". [40]

The project consisted of a gigantic rectangular scaffold served by a lateral stone wedge that hosted all the technical installations, leaving the floor completely empty and permeable, not dissimilarly from the factories being built at the same time during the first five-year plan. And it was not a coincidence that the plan, albeit on a different scale, conceptually resembled Leonidov's proposal for the chemical and metallurgical settlement of Magnitogorsk, which he draught few months later. As in the House of Industry, where the employees were assigned five-by-five-meter areas within a bipartite plan of working and resting spaces, in the linear city of Magnitogorsk a series of leisure, recreational and cultural programs run alongside collective housing units, residential towers and gardens.[41] Getting rid of the traditional office layout, with its "enclosed courtyards, no views, small cubicles, too little fresh air, barrack-like corridors", in the House of Industry Leonidov subtly delimited the workspaces with rows of potted plants, as in an ante-litteram *Bürolandschaft*. Deploying the same strategy, in the project for Magnitogorsk he denied the capitalist speculative conglomerations of housing blocks by proposing a linear twenty-five-kilometer-long settlement, subdivided in three strips stretching between the metallurgical complex and the collective farms, and composed of a series of dwelling units comprising individual cells orbiting around shared spaces.

Leonidov's typical plans never aimed at controlling users or imposing specific

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40 Ivan Leonidov, "House of Industry", ("Dom Promyšlennosti", *Sovremmenaja Arkhitektura*, no. 4 1930, 1–2); translated in P.A. Aleksandrov and S. Khan-Magomedov, *Ivan Leonidov* (Milan: Franco Angeli, 1975), 86–90. Leonidov's typical plan embodied the purest demonstration of what Koolhaas wanted to achieve with architecture: "a project that could have been pure program and almost no form, which could indifferently coexist with whatever other type of architecture... opposing the intelligence of Leonidov to the intimidations of Tafuri" he would claim in an interview. Not by chance, the House of Industry, figures in the last passages of Koolhaas's essay "Typical Plan" in *S,M,L,X*. See Rem Koolhaas "The Future's Past", *The Wilson Quarterly*, Vol. 3, No. 1 (Winter, 1979):135-140 .

41 "On one side of these working areas there is a zone for relaxation and recreation, structured by sofas for lying down; there is also a library, spaces for meals served from below, showers, a swimming pool, walking and running tracks and spaces for receiving guests. There is every opportunity for regular half-hour and ten-minute breaks, for exercise, a shower, to eat, etc.". Ivan Leonidov, "House of Industry", ("Dom Promyšlennosti", *Sovremmenaja Arkhitektura*, no. 4 1930, 1–2); translated in P.A. Aleksandrov and S. Khan-Magomedov, *Ivan Leonidov* (Milan: Franco Angeli, 1975): 86–90.

Domestic labor and forms-of-life

functions, operating instead by punctuating and framing portions of territories and thereby creating the conditions for the construction of a collective sphere within and beyond the ruins of the monarchic state. His projects were clearly pedagogical, designed through legible grids and modular repetitive structures, which not only instructed and facilitated work, but also ensured the inhabitants the constant consciousness of their own efforts and behaviors within the context of broader common goals. In this sense, the plan and its formal arrangement provided space as such, the concrete possibility for the inhabitants to potentially make use of it and thus, to organize it.[42]

4.15 In the plan for Magnitogorsk, Leonidov designed houses, office buildings, collective facilities and outdoor compounds according to the same module, being different parts of a unique collective strive for growth and thus expressions of the same principle of labor. Similarly, in the House of Industry, Leonidov juxtaposed cognitive work, physical exercise, leisure activities and household chores across the same horizontal floor, emphasizing the subjective entrepreneurship of the inhabitants but also declaring the substantial indistinction between labor and life. Like Lenin, Leonidov was convinced that the true construction of a new socialist city had to begin from the consideration of the body and its living necessities, the socialization of domestic economy and the disposition of its shared facilities, in order to subvert the bastions of individualism and bureaucracy, to dismantle the family as a nuclear economic unit and to emancipate women from their centuries-old slavery.

4.16 Hence, the strategy of the party was only possible if initiated at a domestic scale, by instilling and promoting forms of publicness within the household domain and replacing the obsolete cultural values with new collective daily rituals. Therefore, Leonidov's "rectangles" – as Koolhaas renamed his plans – were in fact frames designed to engender new forms of life, rhythms to be used, varied, intensified or eventually ignored by the unpredictable will of its inhabitants. The typical plan was

42 This is a motif that Leonidov would investigate in his last projects, from the Greater Artek Pioneer Camp (1937) – where landscape itself was conceived as a geographical atlas for teaching the students the morphology of the world – to his visionary drawings for the City of Sun (1947–59) – which were inspired by the homonymous novel by Tommaso Campanella in which knowledge was disseminated through the parks, passages and architectures of a commonly built environment.
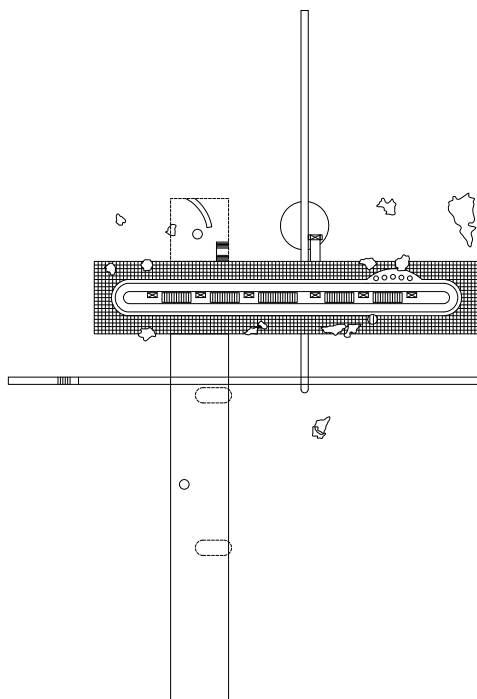
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4.10 *Tsentrosoyuz,* Ivan Leonidov. (Moscow, 1928). Typical plan redrawn by the author.
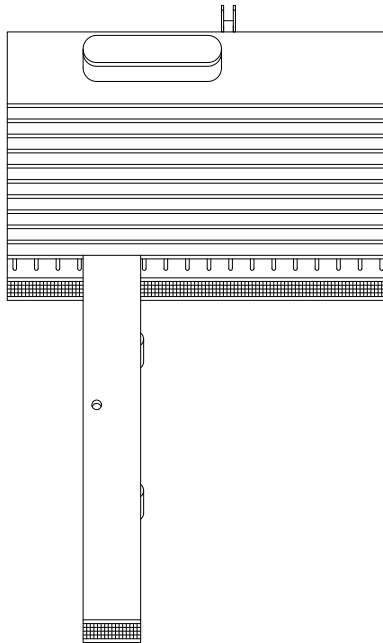
4.11 *Tsentrosoyuz,* Ivan Leonidov.(Moscow, 1928). Flatten axonometry drawn by the author.
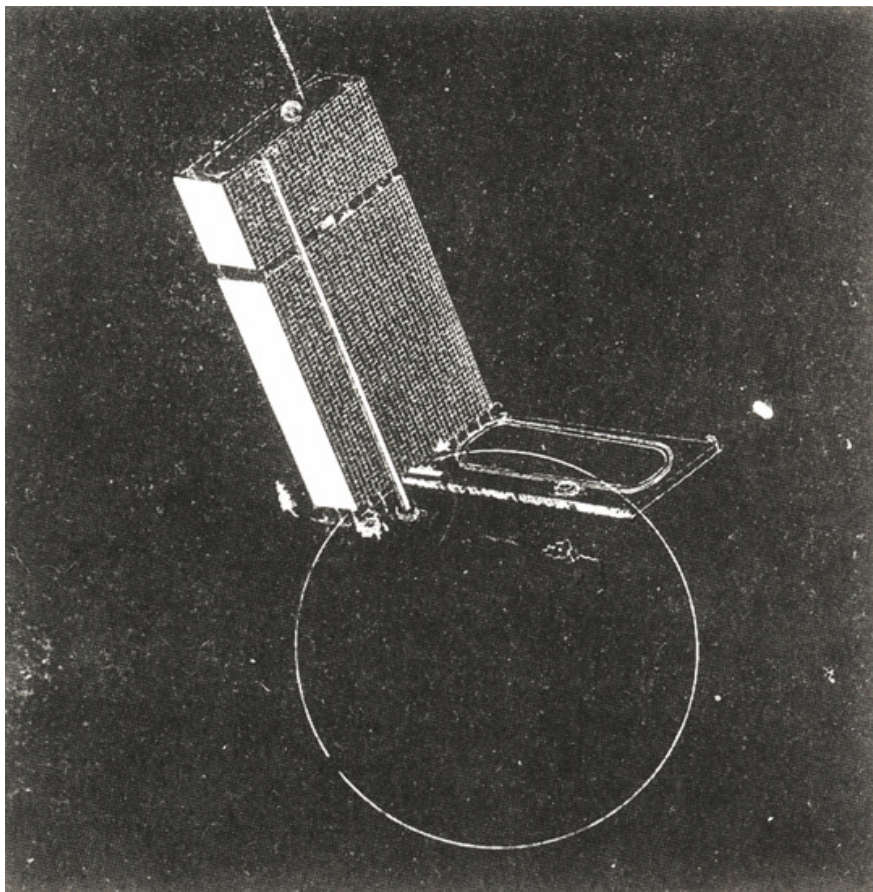
4.12 *House of Industry,* Ivan Leonidov. (Moscow, 1929). Axonometric view.

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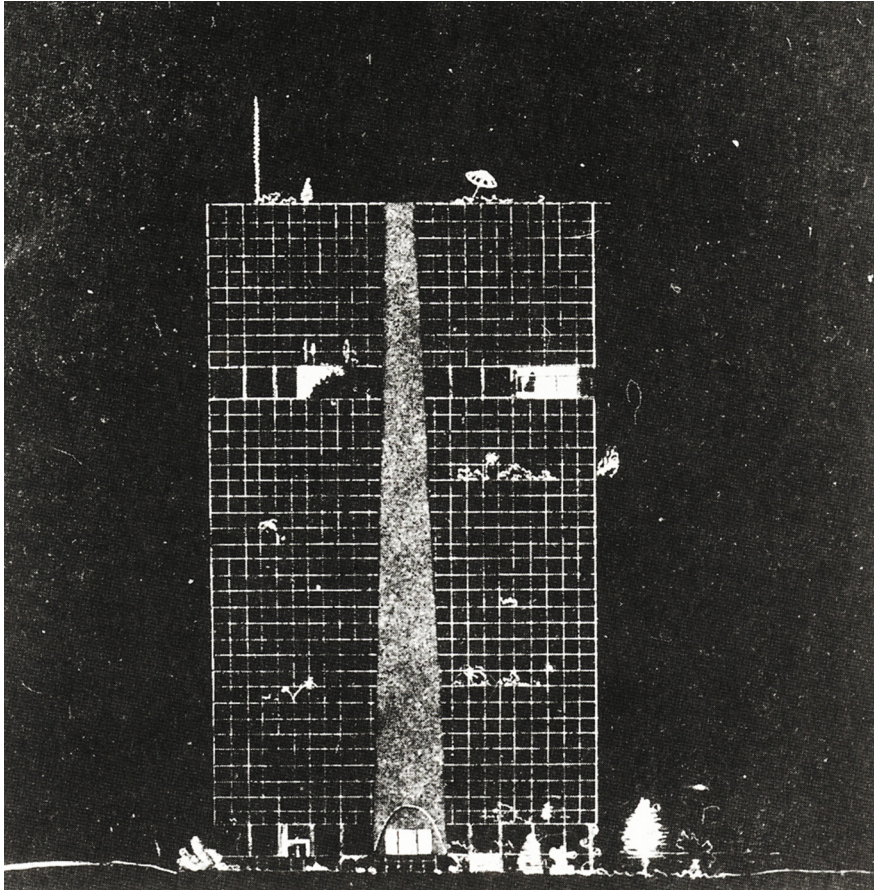
4.13 *House of Industry,* Ivan Leonidov. (Moscow, 1929). Elevation.
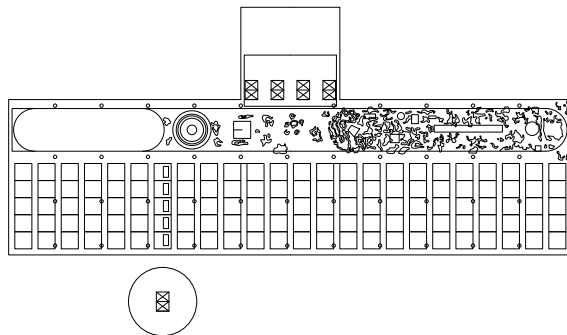
4.14 *House of Industry,* Ivan Leonidov. (Moscow, 1929) Typical plan by the author.

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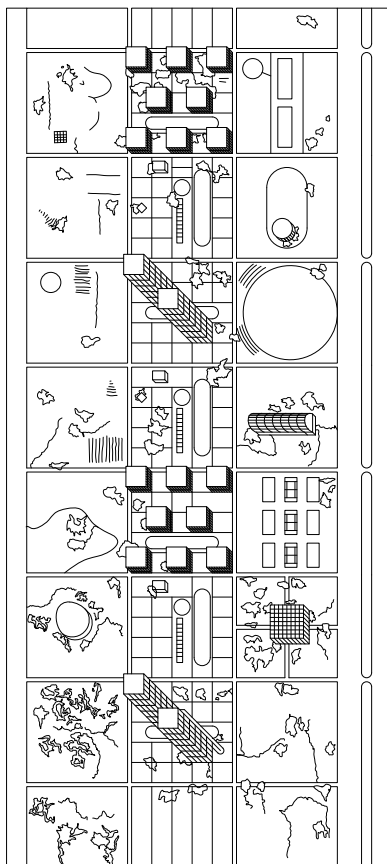
4.15 *Magnitogorsk Kombinat. Chemical and metallurgic industrial settlement.* Ivan Leonidov. (Magnitogorsk, 1930) General plan of the city, redrawn by the author.
4.16 *Magnitogorsk Kombinat. Chemical and metallurgic industrial settlement.* Ivan Leonidov. (Magnitogorsk, 1930) Typical plan of a dwelling unit, redrawn by the author.
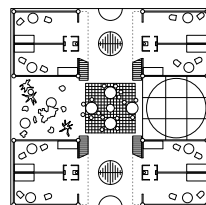
Typical plan as pedagogical rhythm

then an architecture stripped of any quality to allow *quality as such* to emerge from its plethora of immeasurable expressions, as a rhythm.

4. *Two typical plans.* Moisej Ginzburg's Green Moscow (1929)

Constructivism for Ginzburg coincided with the whole development of an epoch, the fruit of the struggles and efforts of a social revolution which engendered new cultural conceptions, different economical and productive relations, and a new historical subject: the worker, or, as he defined it, the "new social consumer of art". Besides the aesthetic premises claimed in the Alexei Gan's manifesto, a Constructivist architecture was no more than the "construction of life and the organization of new forms of life", the creation of spaces to accommodate the rhythms of a community based on labor, which for Ginzburg were mainly houses for workers and houses for work: cities and factories.[43]

Adopting the theories of Alöis Riegl, Henrich Wölfflin and William Wörringer, read through the historical materialism of Georgi Plekhanov,[44] Ginzburg explained Constructivism through the concept of *style*, the "will to form" characterizing each phase of the human evolution as an unconscious synthesis of all the cultural

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43 Moisej Ginzburg, "Il construttivismo come metodo di lavoro sperimentale e pedagogico" (*SA Sovremennaja Arkhitektura,* no.6, 1927), translated in Guido Canella, Maurizio Meriggi (edited by), *SA Sovremmenaja Arkitektura, 1926-1930* (Rome: Edizioni Dedalo, 2007) and also in Vieri Quilici, *L'Architettura del Costruttivismo,* (Bari: Edizioni Laterza, 1969).

44 Ginzburg had been heavily influenced by the theory of aesthetic volition elaborated by Alöis Riegl and the writings Heinrich Wölfflin, which were widely known in Russia at that time. There are also many affinities with the notion of empathy and abstraction, naturalism and style in relation to the generic human perceptive tendencies as elaborated by William Wörringer. See Alöis Riegl in his *Problems of style: foundations for a history of ornament,* (*Stilfragen. Grundlegungen zu einer Geschichte der Ornamentik,* 1893), transl. Evelyn Kain, (Princeton, Princeton University, 1992); *Late Roman art industry,* (*Die Spatromische Kunstindustrie,*1901), transl. R. Winkes,(Rome, 1985); Heinrich Wölfflin, *Reinaissance and Baroque,* (*Renaissance und Barock,* 1888), transl. Kathrin Simon, (Glasgow: The Fontana Library, 1964); *Principles of Art History. The Problem of the Development of Style in Later Art,* (*Kunstgeschichtliche Grundbegriffe: Das Problem der Stilentwickelung in der neueren Kunst*, 1915) transl. M. D. Hottinger (New York: Dover Publications, 1932); William Wörringer, *Abstraction and Empathy. A Contribution to a Psychology of Style,* (*Abstraktion und Einfühlung,* 1907), transl. Michael Bullock, (Chicago: Ivan R.Dee Publisher, 1997. Morevoer, see George V. Plekhanov, "Historical Materialism and the Arts" (1899), *Art and Society & Other Papers in Historical Materialism*, (New York: Oriole Editions, 1974).

tendencies, the creative endeavors and the productive relations reached within certain historical and economical conditions.[45] If architecture had the primary task to create a shelter – meaning to isolate a space, organize materials and set up an environment – then, according to Ginzburg any architectural perception corresponded to the natural, social and psychological milieu in which it was conceived and took place.[46] Hence, "style" was never considered as a fully accomplished category but rather as an expression always developing into new forms, trends, motives. For Ginzburg style often assumed the characters of a perennial "genetic evolution", moving from earlier weak formulations, progressively achieving a consistent fashion to eventually fall into fragmented variations. The continuity of the cycle was ensured by the interweaving play of laws of permanence and independence, which consolidated the forces and the experiences accumulated, but also destroyed lines or stimulated innovation, deviating from previously established paths.

In this sense, for Ginzburg the cataclysms of the Russian Revolution unleashed demands and energies for a total renovation of life and the emergence of a new style, welcoming the civilizing rationality of machinery and the monumental purism of industrial complexes "which condense within themselves, in an artistic sense, all the most characteristic and potential features of the new life", as logical components of the Soviet organization of society and production. In machinery, for example, Ginzburg found the same coherence and harmonic interrelation of parts that Vitruvius or Leon Battista Alberti advocated in the architectural plan: a way to

45 "Thus, the word style signifies certain kinds of natural phenomena that impose definite traits on all manifestations of human activity, large and small, quite irrespective of whether or not their contemporaries might have aspired to or even have been at all aware of them. Nevertheless, the laws eliminating "chance" from the creation of any man-made product assume their own concrete expressiveness for each facet of creative activity. Thus, a musical work is organized in one way, and a literary work in another. Yet in these rather different laws, engendered by differences in the formal method and language of each art form, can be discerned certain common, unified premises, something crystallizing the whole and binding it together-in other words, a *unity of style* in the broad sense of the word." Moisej Ginzburg, *Style and Epoch,* (Cambridge Mass: The MIT Press, 1982): 41-42.
46 *Ibidem,* 43-45: "The organization of isolated space, of the crystalline form that envelops what is essentially an amorphous space, is the characteristic that distinguishes architecture from the other arts. That which establishes the particular character of *spatial experiences* so to speak the sensations derived from the interiors of architectural works, from being inside buildings, from their spatial boundaries, and from the system illuminating this space – all this constitutes the primary indication, the primary distinguishing characteristics of architecture, which does not recur in the perceptions of any other art."

converge natural forces and human ingeniousness in a condensed and undecorated form. The paradigm of the machine, in fact, summoned the idea of the working-class organization, reflecting the "poetry of the hammer and anvil" into the clarity and the dynamic precision of its internal arrangement: principles that should have been translated in the socialist city and injected in every worker institutions, from the places of collective production to the individual dwellings.

Acknowledging the critical conditions of the housing stock after the revolution, Ginzburg was also aware that dwelling architecture constituted one of the least receptive domains to the advancement of technology and mechanization, characterized by a stubborn continuity and adherence to traditional customs which demanded a gradual psychological transition in parallel to the changing social rhythms and modes of production. For these reasons, in his 1928 book on dwelling, *Zilišče,* Ginzburg heavily criticized the coeval results of the CIAM congress in Frankfurt, reading those Western researches on the *existenzminimum* as the logical contradiction of the capitalist accumulation, which planned the denigration of the workers and the inhibition of their labor-force right beside the finest elaborations of bourgeois architecture. The main problem for Ginzburg were the drawings themselves, which attempted to rationalize the whole life of the inhabitants around a unique living-space rigidly specialized in day-night, male-female or parents-children activities, remarking the unavoidable individualism of Western domestic economy and "its support to the bourgeois family as economical unit, in which few members economically depend on other members". CIAM experiments, in fact, did not sufficiently consider neither the psychological spatial implications on the inhabitants, nor the insertion of the architectural proposals within a real urban or social context. Two requirements that for Ginzburg represented the indispensable premises for a socialist city, in which the integrity of the individual and the careful integration of architecture with the collective settlement were both part of a unique plan of development: only within a Soviet economy, a program of housing industrialization might have been efficiently applied without its capitalist corruption.[47]

47 "Every settling process of whatever amount of workers becomes part of the general organization of the

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In this respect, already after the 1926 competition for a communal-house, launched from the pages of the magazine *Sovremennaja architektura*, some of the OSA members (namely the Organization of Contemporary Architects) formed a study-group within the RSFSR Stroikom Building Committee to investigate techniques of housing standardization.[48] Rejecting the homogeneity of the traditional boarding houses, the group managed to elaborate six main typologies for different users – from larger three-room family apartment on one floor with isolated kitchen (type A, or B), to multiple collective apartments with internal common spaces and facilities on three floors (type E), to individual studios (type F) on two floors – all presupposing accessory collective facilities like common kitchen, canteen, laundry, reading and leisure rooms, restrooms, etc. Through the different combination of the types and an accurate study of the internal circulation, the group hypothesized a series of "transitional" buildings intended to accommodate "indispensable moments to *stimulate* the passage towards higher forms of social life" (emphasis mine). For Ginzburg, in fact, a Socialist collectivization should have not been universally imposed or forced through standard quantifications, as in the CIAM examples, but rather suggested through a slow changes in the daily rituals and the gradual increment of the provided common space within the intimate spheres of dwelling.[49] To facilitate this behavioral change, in each volumetric configuration the amount of light and air, the height length of the living and working rooms, the colors and tones of the surfaces, were scrupulously considered to provide a serene

region, where industry, agriculture, transportation and residential zones constitute an integrated whole". Moisej Ginzburg, "L'abitazione" (*Zilišče,* 1928), in *Moisej Ginzburg. Saggi sull'Architettura Costruttivista,* edited by Eugenio Battisti, (Milan: Feltrinelli, 1977): 251.

48 M. Baršč, V. Vladimirov, A. Pasternak and G. Sum-Sič composed the research team, which culminated with the concrete realization of several typological variations in the renowned project for the Narkomfim in Moscow. See Anatole Kopp, *Town and Revolution. Soviet Architecture and City Planning 1917-1935* (London: Thames and Hudson, 1970)

49 The research, led by Ginzburg himself, deepened the concrete possibility of cost maximization and the proportional rationalization of inhabitable spaces by reducing the accessory areas, eliminating internal corridors and concentrating kitchen, bathroom and toilet. Subsequently, by lowering the height of the technical equipment and taking advantage from split-level arrangement, it was possible to get better vertical combinations with larger collective spaces and a varying intimacy for each typology. As he claimed himself: "The technique of Socialist collectivization is not a rude arithmetical operation".

psychological environment and a sharper perception of the spatial limits.[50]

After having formulated techniques for housing standardization, the second phase of the research focused on the "Socialist distribution of the population" and on the scientific localization of the workers settlements at a territorial scale. The group tried to apply the modern infrastructural technologies of Western capitalism but reversed against the same principles of urban concentration and functional zoning, in what they defined a "Socialist system of prophylaxis".[51] Influenced by the disurbanist theories of Mikhail Ochitovič, they attempted to dismantle any territorial hierarchy through the dilution of the largest urban centers and the decentralization of the major industrial poles along lines of transportation and communication, in parallel to the distribution of cultural, scientific and administrative points across networks of energy and electricity.[52] Facilities were rhythmically planned according to a linear diagram of frequencies, which subdivided the different programs in relation to scale, amount of users and range of influence.

Moreover, the drastic growth of industrial settlements not only increased the demand of dwellings but it also required immediate solutions for the numerous temporary workers' barracks that were being erected on the building sites. Hence, considering the backwardness of the construction techniques and the scarcity of materials, in this phase the group proposed a series of individual and collective dwelling typical plans, simple shelters made of local available materials and light standardized elements, directly mountable at the working site and without qualified workforce to minimize costs.[53] Most of the prototypes were designed with wood

50 Ginzburg dedicated a large part of his studies on the use of color in architecture and on its psychological effects on human consciousness. See "Spazio, Luce e Colore" in Emilio Battisti (ed.) *Saggi sull'architettura costruttivista*, (Milano: Feltrinelli, 1977): 211-221; but also "Il Colore nell'Architettura" in Guido Canella, Maurizio Meriggi (edited by), *SA Sovremmenaja Arkitektura, 1926-1930* (Rome: Edizioni Dedalo, 2007)

51 See the four 'tactics' for the rising socialist settlement – *disurbanist, decentrated, acentric, disperse* – in "Rapporto della Sezione dell'Insediamento Socialista del Settore Edilizio del Gosplan dell'RSFSR" in Guido Canella, Maurizio Meriggi (edited by), *SA Sovremmenaja Arkitektura, 1926-1930* (Rome: Edizioni Dedalo, 2007): 580-589.

52 See Michail Ochitovich, "Editorial Favoring Deurbanization", *(Sovremennaja Architektura,* 1-2, 1930) translated in Anatole Knopp, *Town and Revolution. Soviet Architecture and City Planning 1917-1935* (London: Thames & Hudson, 1970) and *Constructivist Architecture in the USSR* (London-New York: Academy Editions, 1985).

53 The second phase research was developed within the GOSPLAN Section for the Socialist Distribution of

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frameworks and pressed-fiber wooden panels, such as the individual squared one-room cell, 4 meters by 4, which included a 12 square meters living space, hallway, shower box, toilet and an outdoor terrace. There was also a larger variation for two people, equipped with internal partitions to subdivide the internal 19 square meters inhabitable space, but also other combinations, such as the one-story inline block for families, or the unit for temporary guests.

These experiences would culminate in the 1929 competition for the Green City in Moscow, whose main idea was to leave the center of Moscow as a gigantic open-air museum and cultural park, while linearly distributing 100.000 houses along the main infrastructures. The project was purposely elaborated not only as a critique versus the recent aestheticization of the common-houses, which compromised the socialist political principles by repressing rather than emancipating the freedom and the individuality of their inhabitants, but also against the CIAM biological parcelization of space, light, air, and land. On the opposite, Ginzburg, Barsch and Vladimirov proposed a settlement entirely based on independents pods for single

persons: sorts of platforms in the forest which could have been freely clustered according to rhythms, the uses and the private relations among the inhabitants.[54] Essentially, a pod was an inhabitable simple frame, made of materials found on the site – wood, mud, sand and vegetal fibers – and connected with the other units

through an infrastructure of facilities.

According to Ginzburg, the proposal was not meant to be realized, and that was formulated more a projection, as an attempt to institute new forms of life via the rhythmical repetition of typical plans. Yet, precisely within such a sedated

Population of the RSFSR Planning Commission, and the team was composed by Afanas'ev, Baršč, Vladimirov, Ginzburg, Sundblat, Milinis, Orlovskij, Ochitovič, Savinov, Sokolov.

54 "The living unit has two exposures... Only by glazing two opposite walls of the unit can an adequate impression of space and communion with nature be created. Sunrise and sunset, nature all around, these are not luxuries but the satisfaction of undeniable needs. Windows extend from wall to wall and from floor to ceiling. Sunlight permeates the living unit. The windows fold back and the unit becomes a covered terrace surrounded by greenery. The room almost completely loses the specific characteristics of a "room", it is diluted into nature, reduced to a simple horizontal covered surface". M. Baršč, M. Ginzburg, "La città verde. La ricostruzione socialista di Mosca"("Zielionyi Gorod. Socialističeskaia Reconstrucija Moskvy", Sovremennaia Architektura, 1-2, 1930), translated in Paolo Ceccarelli (edited by) *La Costruzione della Città Sovietica* (Padova: Marsilio, 1970). In the same volume see also M. Baršč, M. Ochitovič, N. Sokolov, "Magnitogorsk" ("Magnitogorsk", *Sovremennaia Architektura*, 1-2, 1930).
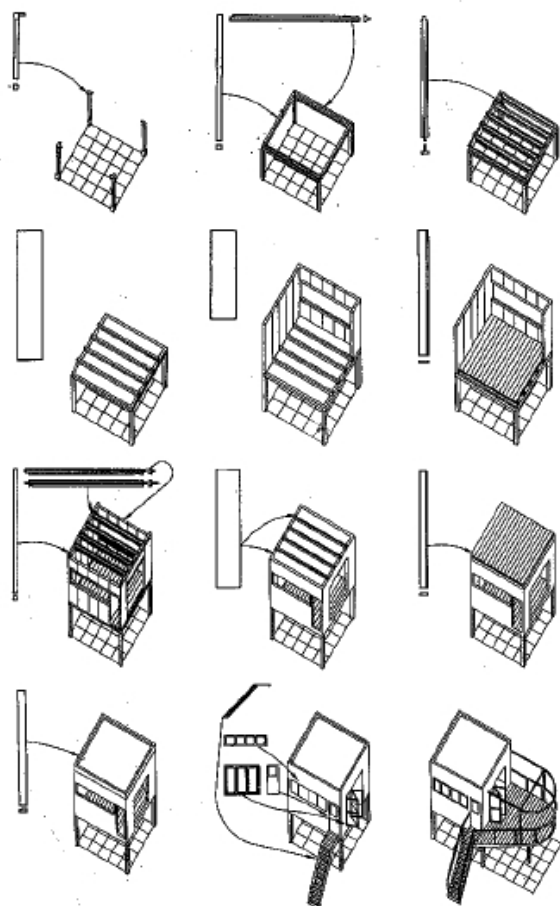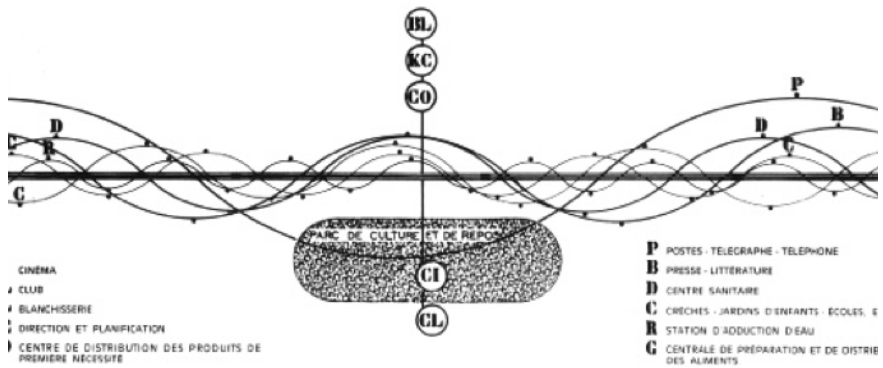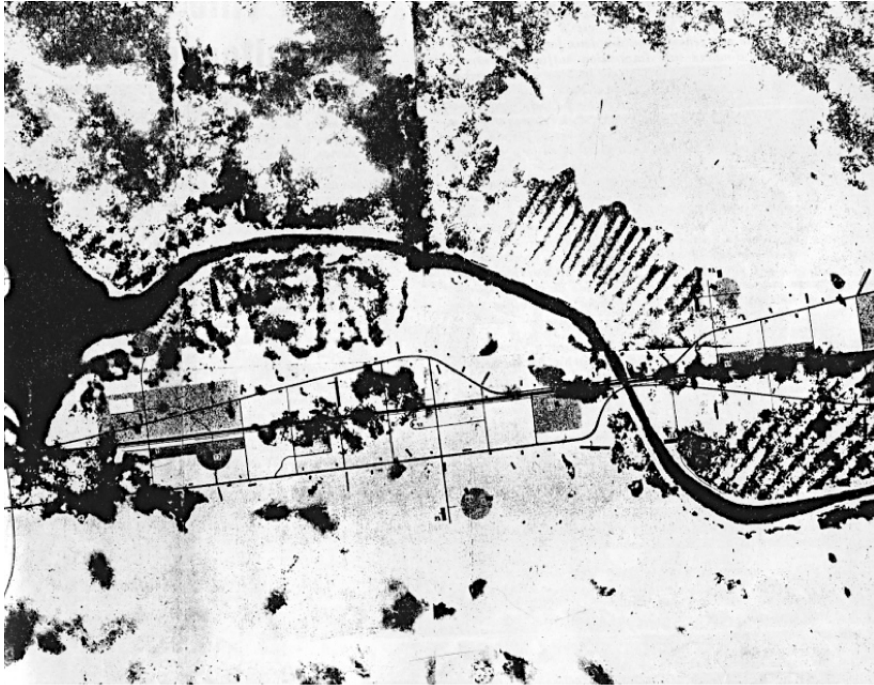
4.17 *Socialist distribution of the population,* Moisei Ginzburg research team. (Moscow, 1930) Assemblage procedure of the module dwelling unit.
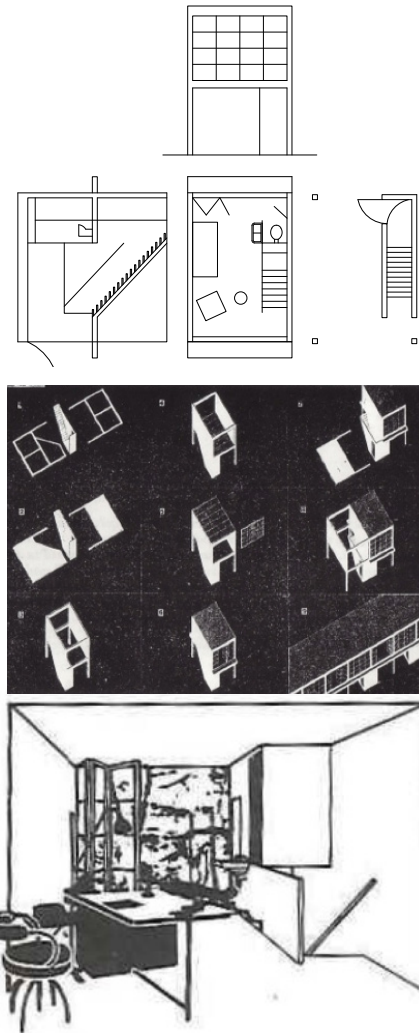
green city – *a city in the form of forest* – human labor-power was not dismissed in standardized minimums of existence nor within constraints for consumption, but instead exposed and put at work, revealed in its generic faculties and let free to be exercised or collectively shared. Nature was thus considered as the necessary field to leave the potential of the common stemming between individual dwelling and collective settlements, proliferating around the leisure points along the motorway. In this sense, the black background of Leonidov drawings, as the white vacant space surrounding Ginzburg's perspectives, ultimately manifested their political efficacy: what capitalism did not have and could not obtain was the power of a unified common territory, a rhythm that gave force and expression to each individual unit. Paradoxically, this proposal acutely understood and positively made use of the human general intellect much more than any other coeval capitalist project at that time, postulating the human biological indeterminacy as unique and sufficient principle to construct relations, habits and habitats. In this sense, leaving aside all the accuses of naivety or excessive radicalism, Ginzburg and Ochitovič unconsciously prefigured the post-socialist and neo-liberalist "communism of capital", in which precisely the generic traits of human nature and the common proliferation of knowledge, would have been posed as primary sources of profit, extracted and exploited through an artificial continuous field of production – a sort of abstract second nature – emulating the proposed park in Moscow or the black disurbanist diagrams.[55]

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55 I am here expressly referring to Paolo Virno, and in his particular question about how a meta-historical concept as the one of human nature, or in other words, what constitute the biological invariant of the human species-being "from the Cro-Magnon onwards", could be manifested within an historical and social formation, avoiding the historical oppositions between Foucault and Chomsky. Neither the dissolution of the biological invariant on the empiricist history nor the absolute reduction of history to meta-historical grammar: Virno is looking for a 'natural-historical diagram', able to conjugate the "always already" (human nature) and the "just now" (the bio-linguistic capitalism after Fordism), the eternal in time. Referring to the "cultural apocalypses" of Ernesto De Martino, Virno described how the modern social and cultural constructs progressively conflagrated beyond their boundaries, being not able to associate the semantic excess of the worldly life to the restricted domains of the episteme. See Paolo Virno, "Natural-Historical Diagrams: the new "global movement" and the biological invariant", *Cosmos and History: The Journal of Natural and Social Philosophy*, vol.5, no.1 (2009); but also *Mondità. L'idea di "mondo" tra esperienza sensibile e sfera pubblica,* (Rome: Manifestolibri, 1994).
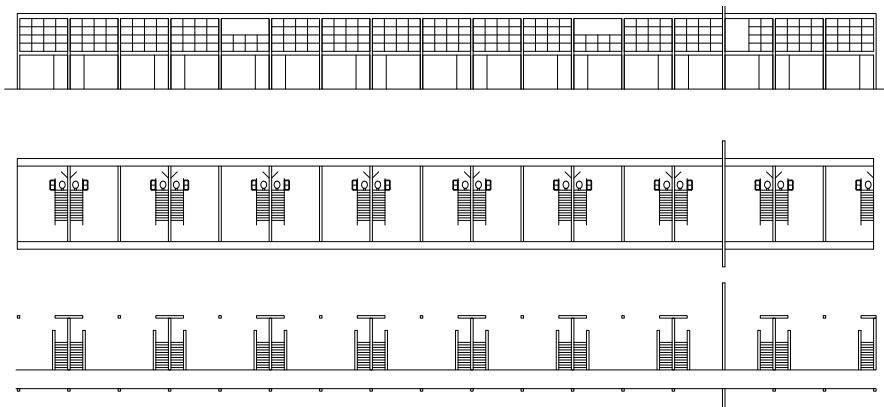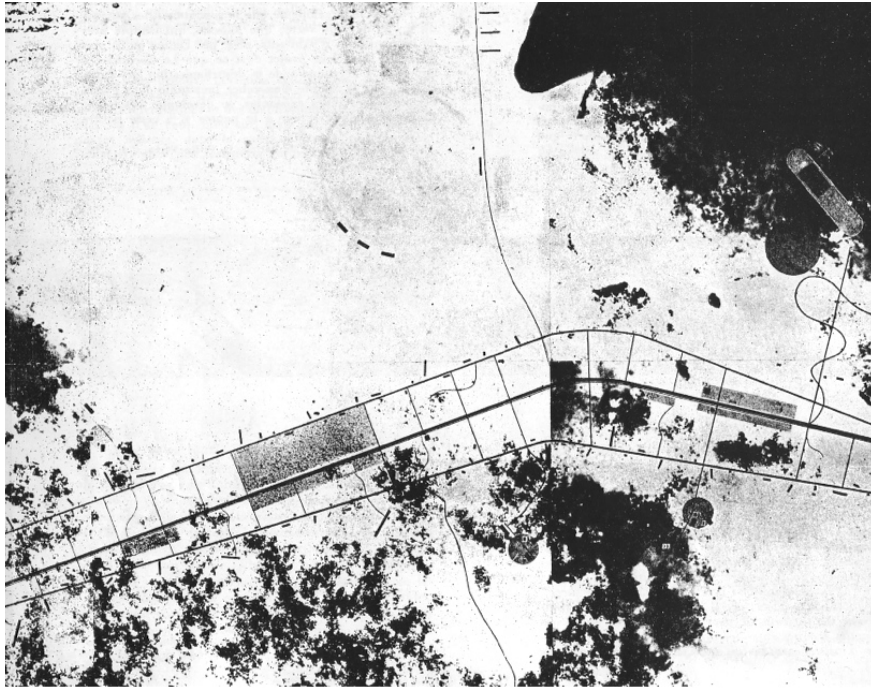
4.18 *Green Moscow,* Moisei Ginzburg, Mikhail Barsh. (Moscow, 1930). The linear infrastructure of housing and facilities proposed for the competition. Below on the left, general ground and first floor plans of the settlement redrawn by the author. Opposite, the rhythmical system of programmatic distribution and main facilities.

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DES ALIMENTS

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4.19 *Green Moscow,* Moisei Ginzburg, Mikhail Barsh. (Moscow, 1930). Typical plan, section and elevation of the dwelling unit. Axonometric scheme of the unit assemblage and interior view. Plans are redrawn by the author.

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5. *Typical plan as a pedagogical instrument.*

In his *Prolegomena to a psychology of architecture*, Heinrich Wölfflin claims that physical forms possess certain characteristics only because we ourselves possess a body, or in other words that we look and interpret reality according to physical features we know in the first place, like for example gravity, compression, strength, etc. For Wölfflin the body constituted the indispensable medium to feel and therefore to act in the world, recalling Robert Vischer's theory of empathy (*Einfühlung* or "in-feeling"), according to which sensations were the lower stage of perception before being transformed into positive or negative feelings by means of nervous processes combining stimuli and physical reactions. To Vischer, this engendered an innate "projection" of the self *towards* the object, translating and objectifying the organic norms and the psychological ego of the sentient body into external spatial forms, as in dreams.[56] Such an act of empathic projection became fundamental for Wölfflin because it implied a meaningful synthesis of self-cognition with the affects, memories, and bodily emotions of the experiencing subject: "Forms become meaningful to us only because we recognize in them the expression of a sentient soul" – Wölfflin affirms – and "instinctively we animate each object" because we read ourselves in each phenomena, projecting our own bodily organization to the external world and thus penetrating objects with our bodily feelings.

Yet, in Wölfflin more than Vischer, there was an intention to eliminate any intellectual supremacy over the formal process and to explain the sympathy towards the external world only on the basis of the physical arrangement of space and its

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56 Robert Vischer distinguished sensation from feeling, assuming the former as simple response to outside stimuli while the latter presume a first mental and emotional elaboration - as in the act of 'seeing' and 'scanning', for example - preparing the ground for the act of imagination and projection. Vischer, as accurately described by Mallgrave and Ikonomou, derived his notion of *empathy* from the studies of dream interpretation enhanced by Karl Albert Scherner, who assumed that in dreams, once imagination is liberated from the restraints of ego, translates stimuli into projections, external images or symbols. Referring to Scherner, Vischer claimed "Here it was shown how the body, in responding to certain stimuli in dreams, objectifies itself in spatial forms. Thus it unconsciously projects its own bodily form - and with this also the soul - into the form of the object- From this I derived the notion that I called 'empathy'." Robert Vischer, *[Über] das optische Formgefühl,* (*On the optical sense of form*)(Leipzig: Herman Credner, 1873) in Harry Francis Mallgrave and Eleftherios Ikonomou, *Empathy, form, and space : problems in German aesthetics, 1873-1893* (Chicago: University of Chicago Press, 1994).

influence upon the nervous system. Every human emotion, being always conveyed through nervous stimulations and reactions, for Wölfflin witnessed "a physical manifestation of a mental process": not an abstract projection nor an imaginative creation but only a pure material exchange between reality, the body and the affected internal organs.

According to Wölfflin this was visibly explicit in architecture, where the opposition between the forces of matter and the tendencies of formal organization – what he called *Formkraft* – replicated not only the same organic principles of the human body but coincided with the same conditions for life to subsist: a coherent whole of matter and form supporting the body and its existence.[57] Form, as in the Aristotelian entelechy, found in itself the reason of its own determination, expressing the conformity to a living purpose: there were no regulatory traces nor golden sections to be respected but simple organic necessities, the actualization of the inner potential of matter. "Matter is heavy" – Wölfflin explains – "it presses down and wants to spread out formlessly on the ground. We know the force of gravity from our own body. What holds us upright and prevent a formless collapse? It is the opposing force that we may call will, life, or whatever. I call it force of form (*Formkraft*)" – and concludes – "Form is action." Therefore, we perceive formal arrangements thanks to our inner biological organization, vicariously adopting the regularity, symmetry, proportion and harmony of our bodies to measure and compare what we experience in the world. "Ideal" proportions for Wölfflin existed only a posteriori, as *real* abstractions built upon concrete facts and generalized emotion. The "typical", within this perspective, corresponded to the most successful arrangements of form

57 "After all that has been said, there can be no doubt that form is not wrapped around matter as something extraneous but works its way out of matter as an immanent will. Matter and form are inseparable. In all matter there lives a will that aspires toward form, but it cannot always fulfill itself. Nor must we imagine that matter is the enemy; rather form without matter is inconceivable. Everywhere the image of our own physical existence presents itself as a type by which we judge every other phenomenon. Matter is the evil principle only insofar as we experience it as life-negating gravity. The effects of gravity are always associated with a decrease of vital energy. The blood runs more slowly; the breath becomes irregular and wheezing; the body has no support and collapses. These are moments of imbalance when gravity seems to overcome us. Language has expressions for them: heavyhearted, depressed moods, and the like. I shall not inquire further as to what physical disturbances are present here: suffice it to say that this is the state of the formlessness." Heinrich Wölfflin, *Prolegomena to a Psychology of Architecture,* in Harry Francis Mallgrave and Eleftherios Ikonomou, *Empathy, form, and space : problems in German aesthetics, 1873-1893* (Chicago: University of Chicago Press, 1994): 163-164.

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and matter, to something that managed to become an "average" experience and thus conformed to man in general.[58] The typical was a stabilized emotion out of different and multiple variations, consolidated through rhythmical patterns. In many ways, rhythm represented for Wöllflin the quintessential organ of human organization, materializing the very act of breathing, which changed according to emotional reactions, but also expressing the spatial and temporal disposition of form in relation to the bipartite structure of the human limbs: if form was a combination of force and matter, then rhythm provided the tension and the speed of expression, both for singular elements and sequential compositions.[59]

These considerations strongly influenced Moisej Ginzburg, who actually devoted his first studies precisely on the aesthetic analysis of rhythm and its effects upon architectural composition. He began his book on *Rhythm* by affirming that "Rhythm permeates the whole universe, connecting all living beings and movements" – understanding it not as a beat or a cadence but as a relation between different entities, an interval which explained how things were actually made – "Rhythm is that fundamental force, that set of laws that control the spatial distribution of the formal elements, creates assemblages, selecting and condensing them in a point or spreading them in another".[60]

Ginzburg mainly distinguished two kinds of rhythm: an active-dynamic rhythm, in which elements succeeded to each other through time, like in a dance; and a static-spatial rhythm, in which the temporal succession of the elements achieve a visible extension, like in a curved line. Architecture was mainly composed by static rhythms, in the sense that each of its elements, figures and volumes was in fact a frozen movement of points, lines or surfaces whose articulation in space economized the energies perception. In short, rhythm to both Ginzburg and Wölfflin, was simply a form of symmetry, since any reiteration, alternation or singular movement

58 *ibidem,* 169: "Therefore, the golden section with its proportion between restful matter and ascending force perhaps presents an average measure conforming to man."
59 *Ibidem,* 155: "The rhythmic waves press on us, take hold of us, and draw us into the beautiful motion; everything formless dissolves and for a few moments we enjoy the good fortune of being freed from gravity and the downward pull of matter."
60 Moisej Ginzburg, *Il Ritmo in Architettura* (italian translation from *Ritm v Architekture,* 1923), in Emilio Battisti (ed.) *Saggi sull'architettura costruttivista,* (Milano: Feltrinelli, 1977): 5-66.

implied either a rotating or a mirroring axis or a culmination point. This was also the reason why complex and asymmetrical figures whose rhythm was not immediately graspable or not axially distributed, were difficult to be understood and created fatigue or tensions in the perceiving subject.

Similarly to Wölfflin, also for Ginzburg the observer was an active receiver, absorbing, elaborating, assembling and decomposing external sensations in his imagination: the simpler and clearer were the figures perceived, the more he could participate in their composition. Rhythm allowed people to perceive and to interact with the surrounding collective environment, since what primarily impressed human sensibility were the position and the proper constitution of single items in isolated or coherent ensembles. In architecture, this was evident not only in the singular conformation of details and ornaments, but especially at the larger scale of a building, where series, repetitions and alternations of elements engendered an overall spatial perceptive experience. In this respect, Ginzburg developed an experimental system of notation to reduce architecture to a "stenographic" diagram, translating volumes and masses into series of lines of different extension and frequency. From simple linear sequences of motives and ligatures of menhirs or trilite structures, to the intensification and rarefaction of cadence in the Erekteion or the Cappella Pazzi, Ginzburg reread a series of exemplary buildings solely on the basis of rhythmical relations, whose increasing complexity never dismissed the conscious perception of the beholder, thanks to a balanced relation between the plan and the repetition of its constituting elements.

4.20

The question of rhythm was not at all new in Soviet Union at that time. Beside the studies of Alexei Gastev, and his Central Labor Institute funded by Lenin and Trosky, rhythm was actually a consistent part of the educational program at the Vkhutemas (Higher State Artistic and Technical Institution): the school established by Lenin after the Revolution in Moscow and where Ginzburg began teaching and Leonidov studying in 1921. The so-called Base Section, the preparatory compulsory course for all first year students, was in fact meant to provide the fundamentals notions for scientific and artistic disciplines, assuming the laws of form, color, volume, rhythm and space as primary subjects of research. Among the main tutors of
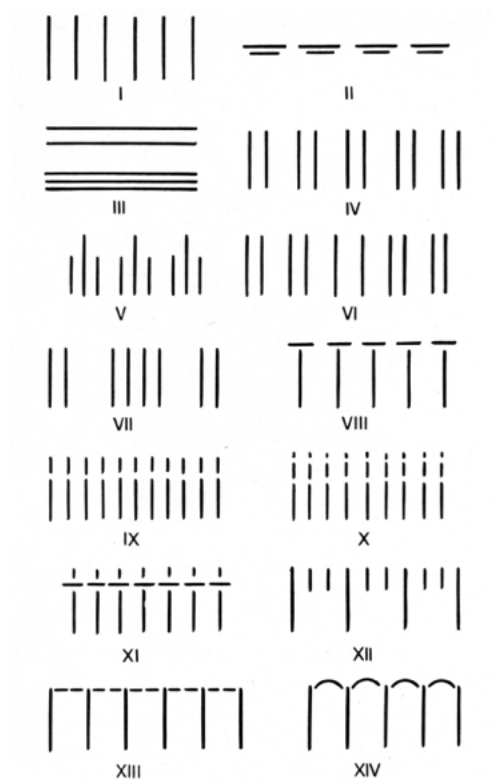
4.20 *Rhythm,* Moisei Ginzburg. (Moscow, 1930). Stenographic notation of architectural elements.

the Base Section figured Nicolai Ladovsky who, between 1920 and 1923, established a totally new pedagogical approach based on the psychological perception of form and its affects on spatial organization.[61]

Ladovsky taught his course using a series of abstract assignments, each of them aiming at revealing particular formal aspects of architecture and composition, explored through drawings and material maquettes which immediately provided the students a theoretical but also practical access to the discipline.[62] The course was entirely focused on geometrical figures, on their volumetric and physical properties, on their characteristics of mass and stability as well as on their dynamic, proportional and rhythmical interrelations. In this Ladovsky was largely influenced by the studies in industrial psychology of Hugo Münstenberg, a fellow of Wilhelm Wundt, the pioneer of physiological psychology, whose writings were also heavily quoted in Wölfflin and Ginzburg's texts on *Rhythm* and *Style and Epoch*. Wundt, in fact, beyond demonstrating the "bodily substrate" of the temporal and spatial perceptions, focused on the mental decomposition of experience, considering rhythm as a crucial element for transforming typical sensorial information into emotions and thus for constructing higher level of consciousness.[63] Ladovsky psychological approach was so successful to be not only adopted as main didactical framework for the institute, but also to influence all the other departments, from the most "productivist" fringes of Rodchenko and Popova to Ginzburg himself who, in his 1926 course program for a *Theory of Architectural Composition*, explicitly

61 Between 1920 and 1923, Nicolai Ladovsky, Vladimir Krinsky and Nicolai Dokuchaev established their pedagogical fundamentals in the internal but independent department of the OBMAS (United Left Workshops Обмас, Объединенные левые мастерские). See the extensive research by O. Chan-Magomedov, *Vhutemas. Moscou1920-1930,* (Paris: Editions du Regard, 1990) but also *Nikolay Ladovsky* (Moscow: 2007).
62 The methodology would further develop into the Psycho-Technical Laboratory of Architecture at the Vkhutein between 1927 and 1930, where Ladovsky entirely focused on the faculty of orientation in space, and thus on "the horizontal and vertical coordination, orientation, representation, imagination and spatial combinations". Ladovsky even built himself some instruments to measure and develop perception, such as the *line video-meter,* the *surface video-meter,* the *angle video-meter,* the *volume vide-meter* and the *agora video-meter.*
63 Wilhelm Wundt, *Grundrisse der Psychologie* (2. Aufl.) (Leipzing, 1897), eng. trans. *Outlines of Psychology,* (New York, 1897). For a general account on the concept of *rhythm* in 19th century see also Michael Gubser, "Rhythm in the thought of Alois Riegl and his contemporaries" in Peter Noever, Artur Rosenauer, Georg Vasold (edited by), *Alois Riegl Revisited. Beiträge zu Werk und Rezeption,* (Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2010).

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defined the creative process in architecture as the "result of the interaction between the world of external forms with the internal world of the artist" – and rhythm as being – "the very essence of architecture."[64]

Therefore, already in the aftermath the Revolution, it was evident how both the concept of *plan* in its generic form and the idea of *typical* as real abstraction of experience, constituted the two main principles of the architectural discipline, whose educational program entailed not a simple objective materializations of space and time – in volumes, objects, buildings, or cities – but also a deeper psychological understanding of the structures affecting the mind and the body, life and actions. Only within this wider cultural perspective, Ginzburg could have affirmed that constructivism was a way "to construct forms of life", to achieve a proper awareness of the self and the surrounding reality: inferring a totally worldly abstraction, a *concrete* abstraction because immediately deduced from common sensations and restituted in drawings and actions. This was at the antipodes of the coeval proposals of the European architects, who instead deployed the standardization and the mechanical reproduction of the "typical" as quantitative techniques to solve social issues. In Soviet Union, instead, at least in principle, the aim was the opposite: abstraction was used as a working-class instrument of reversal, to let the inhabitants focus on their own lives and on the relations of production through which they were linked to a wider collectivity.

64 See O. Chan-Magomedov, *Vhutemas. Moscou 1920-1930*, (Paris: Editions du Regard, 1990) but also Nikolay Ladovsky (Moscow:2007) : "I: *The psychology of the creative process in architecture*. 1. The creative process as a result of the interaction between the external world of forms and the interior world of the artist. The three factors of the creative process. The nature of the influence from the external world of forms on the architect's creative process. 2. The material world and its interpretation by the architect. The limits of creativity. The character of need. Material possibilities in creative work.3. The external world as submitted to the legitimate interests of the artist. Objective and subjective factors. 4. The creative personality. The psycho-physical element. The abstract and cognitive element. The emphasis on abstract beauty. The interior world of the artist as a spiritual world. The philosophical dimensions of cognition. The abstract and formal field. 5. The evolution of architectural form. Its boundaries, aesthetic concerns, and decorative character. Creative conception and material realization. II: *Rhythm as the essence of architecture* 1. The cosmic and universal character of rhythm. Active and dynamic rhythm, static rhythm. 2. The rhythm of a closed architectural form. Repetition and alternation. Harmony. The rhythm of symmetry. Arrhythmia. 3. The rhythm of an architectural grouping of spatial forms. The quantitative influence of symmetry. Integration of the rhythm. Rhythms of progression and unifying rhythms. Architectural details as rhythmic sequences. Partial rhythms. 4. Mastery of rhythm. The mathematical essence of rhythm. Rhythmic modules and harmonic modules. Harmony. 5. Attempt at systematizing rhythm. The transcription of rhythms."

In this sense, the psycho-analytical teachings of Ladovsky, aimed at isolating the architectural form in its tangible and sensible "objecthood", somehow reflected the formalist language theories of Viktor Shklovsky, who also tried to discern the inner logic of the "poetic word" as an object secluded from the banality of the daily spoken language as in a laboratory. In this sense, while all the other productivist vanguards were reverting their "intrinsic negation into constructive proposals", as Tafuri claimed, following the same path of Shklovsky, Ladovsky with the OBMAS and the ASNOVA groups attempted to reduced architecture to its zero-degree language, to a pure intrinsic materiality extracted from the "congeries of life" and thus from a simple automated reception. If the new technological conditions induced a total subjection of the individual, transforming commodities and biological rhythms into automated habits – as for the aforementioned Giedion's *Durchdringung* – then both for Ladovsky and Shklovsky the task was to estrange the subject from his everyday-life, to make unfamiliar his habitual universe of things and forcing him to achieve awareness of his own role and action in the world. Thus, real abstraction turned into a political and pedagogical device not to avoid or exceed reality but actually to penetrate it even more deeper in its very constructive rules: an instrument to make things visible and to dis-alienate the self from the encompassing frames of commodities. According to Shklovsky, only through such an estrangement from the routinely rhythms of everyday-life, it would have been possible to create forms of poetry and project new rhythms into the routinely prose of the real.[65]

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65 It is worth here to mention Shklovsky renown passages from *The Resurrection of the Word* (1914): "People pay too little attention to the death of forms in art, they all too flippantly contrast the old with the new without thinking whether the old is alive or has already vanished, as the sound of the sea vanishes for those who live by its shores, as the thousand-voiced roar of the town has vanished for us, as everything familiar, too well known, disappears from our consciousness" and from *Art as Technique* (1917): "Habitualization devours works, clothes, furniture, one's wife and the fear of war (...) The purpose of art is to impart the sensation of things as they are perceived and not as they are known. The technique of art is to make objects "unfamiliar", to make forms difficult, to increase the difficulty and length of perception because the process of perception is an aesthetic end in itself and must be prolonged. *Art is a way of experiencing the artfulness of an object; the object is not important.*" See Viktor Shklovsky, *Theory of Prose,* (1925), eng.transl. by Benjamin Sher (Elmwood Park, IL: Dalkey Archive Press, 1998).

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6. *Projection*

Beside Ladovsky, another important figure of the Base Section of the Vkhutemas was Pavel Florensky, a mathematician and theologian who began teaching at the polygraphic department of the institute in 1921, after having worked for the State at the elaboration of the GOELRO plan. Despite his marginal role within the institute and his reluctance towards the productivist groups, his lectures exerted a wide influence upon the whole didactic program of the school, led at that time by his friend Vladimir Favorsky, also director of the polygraphic department. In 1923, Florensky taught a course on the Theory of Perspective,[66] in which he actually contested the hegemony of the Renaissance vanishing point and the principles of Euclidean space, in favor of the more dialectic and less univocal medieval forms of representations. For Florensky the perspectival representation of the world with its forced geometrical artifice, epitomized the progressive hegemonic advancement of the capitalist economy, based on the homogeneous, isotropic, infinite and boundless extension of its exchanges and circulation. "The world is life, not frozen stasis" – claimed Florensky – and in reality there were neither single fixed points of reference nor steady uniform objects which the artists could copy or reproduce, but sensations the artist himself received and projected back to reality itself.

Hence, describing the polycentredness and the distorted space of Russian icons and medieval paintings, Florensky demonstrated how the presumed ignorance of

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66 The main program of the course were: 1) Geometrical Spaces; psycho-physiological spaces; physical spaces; 2) Mathematical Representation (correspondence and projection); 3) Perception as psychophysic synthesis. The different moment of perception; the aesthetic understanding as modeling of the perceived work; the composition of perception; 4) The psychophysical and gnoseological premises of the artistic representation; 5) The linear perspective, its scopes, its roles, it premises. Its link with the understanding of the world within a determined epoch; 6) The impossibility of a coherent organization within an artistic representation based on linear perspective; 7) Other perspectives (non-linear), analysis of the concept of "reversed perspective"; 8) The historical connotation and the sense of linear perspective, its relation with the Renaissance culture; 9) Possible perspectival (and non-perspectival) representations of space in relation to the composition and the architecture of representation; 10) Methods of spatial rendering and figurative art (technical procedures, texture, absolute size of the figurative plan etc.). The manuscript of these lessons are preserved at the RGALI (Russian State Archive of Art and Literature): f.681, ed. chr. 118, 1.19. The treatise *The analysis of space and time in the works of figurative art,* written between 1923-24 and conceived as a manual for the course, had been never published. For a complete analysis of the work see Pavel A. Florenskij, *Lo Spazio e il Tempo nell'arte,* (Milan: Adelphi,1995): 353.

perspectival laws was instead a conscious choice of the artist to avoid the lack of temporality and the static imprisonment of perspectival construction. On the opposite, precisely the transgression of perspectival rules, as in Giotto's frescoes for example, allowed an elaborated composition of the painting through autonomous elements, whose formal clarity could have been read and reorganized in the conscience of the beholder as an interior rhythm: "the defenders of perspective forget that artistic vision is an extremely complex psychic process of merging psychic elements, accompanied by psychic resonances. In the image reconstructed in the spirit there accumulate memories, emotional echoes of inner movements, and around the dust motes of all the above the effective psychic content of the artist's personality is perceptibly crystallized. This clot grows and acquires its own rhythm, and it is rhythm that expresses the artist's response to the reality he depicts".[67] In an homogeneous space flowing at a constant time, rhythm would have been imperceptible: yet reality for Florensky was not flat and rhythm presupposed concentrations and dilatations, acceleration and decrease, unleashing intensities and forces directly related to our sensory organs, as also claimed by Wölfflin and Wundt. Thus, the core of the work of art laid on its inner rhythm, and on the organization of the visual material, able to bridge physical, psychological and mental exchanges with an external subject.

A figurative work for Florensky was never a steady representation of the real, but always "the transcription of a certain rhythm of images", aimed at establishing a sensorial and mental relation with the observer. [68]At the same time, the beholder was not only affected by the object he looked at, but he also *projected* his own will on the object itself, as in Vischer. Inevitably, the role of the body achieved a large

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67 "This means that the visual image is not presented to the consciousness as something simple, without work and effort, but is constructed, pieced together from fragments successively sewn one to another, such that each of them is perceived more or less from its own point of view. Furthermore, facet is synthetically added to faced by a particular act of the psyche, and in general the visual image is shaped in succession, not produced ready-made. In perception, the visual images is not viewed from a single viewpoint but, in accordance with the very essence of vision, it is an image of polycentric perspective." See Pavel Florensky, "Reversed Perspective", *Beyond Vision. Essays on the Perception of Art,* compiled and edited by Nicoletta Misler (London: Reaktion Books, 2002).
68 See "L'analisi della spazialità e del tempo"*,* in Pavel Florenskij, *Lo spazio e il tempo nell'arte,* edited by Nicoletta Misler, (Milan: Adelphi, 1995).

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importance also in Florensky's writings, constituting the true platform of perception: the material allowing the artistic gesture to take place and to develop through time. On this account, in one of his most visionary texts titled *Organoproektcija*, literally "organ projection", Florensky assumed that technology was nothing but an extension of the human body, a projection of its inner functions and an amplification of its perceptive faculty.[69] Human labor, in fact, was a reflection of inner bodily impulses, whose conscious repetition and implicit thought had been progressively externalized in actions or objectified in utensils and tools, as the same Greek word *organon* suggested, designating indifferently both "instrument" and "body part". On this account, Florenskij reprised the theories of Ernst Kapp, who claimed that each object created by technology like a camera, a piano, an organ, or electric wires, were imperfect organ-projections of the eye, the ear, the throat and the nervous system. Florensky thus defined the living body as the archetype of any technology – the measure of all things – being the technical object an approximate reproduction of its generative principles and of its inner biological laws:[70] "fictitious forms of a creative impulse (...) in the form of this retained action." In this sense, a perfect awareness of the body potential for Florensky would have allowed man to extend his influence far beyond the limits of the limbs, being vitally connected to the natural creative forces of the world:[71] consciousness was all that mattered. As he explained, impulses did not immediately become actions but generated corresponding *thoughts* for actions,

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69 Florensky admittedly reprises the theories of Ernst Kapp who, in his 1877 *Philosophy of Technology,* was the first to coin the term *Organonprojection.* Another important source quoted in the text is Ernst Haeckel and his theories of natural forms and ontogenesis, which also had large influence on the work of Ivan Leonidov. As Nicoletta Misler explains, the article was part of a wider text titled *U vodorazdelov mysli. Certy konkretnoj metafiziki* (*At the threshold of thought. Plan for a concrete metaphysics*) on which Florensky elaborated his course at the Theology Academy in 1917. See Pavel Florenskij, Nicoletta Misler (edited by), *Stratificazioni. Scritti sull'Arte e sulla Tecnica* (Reggio Emilia: Diabasis, 2008).

70 *Ibidem*, 268 "Instruments are fabricated on the model of organs, whose same soul, whose same creative principle descended to the instinct, unconsciously generates the body and its organs, while at the level of the intellect, it gives origin to technics and its instruments." (*translation mine*)

71 *Ibidem*, 268-269: "Our *mastery* on the bodily organs and the absence of an analogous power on other bodies of the external world, are not determined from the fact that the limits of our body coincide with the limits of our power. On the contrary. The limits of our body are just an indicative sign, secondary and depending from our limited power on ourselves. (...)The limits of our body would then restrain to the point of excluding a great part of his volume, but they can also infinitely extend. In this sense, magic could be defined as the *art of moving the limits of our body in relation to their habitual position.*" (translation mine)

attaining first a status of awareness to be later projected in possible means, tools, or instruments to concretize themselves.[72]

This was radically different from the already mentioned Le Corbusier's "irradiation" into object-types, which always entailed an economical connotation of the "typical" without alluding to any critical estrangement of the subject from his instruments, but actually implying his total absorption within a larger domain of standardized and automated operations. Here instead, technology was considered as an instrument of self-cognition, which revealed the unexpressed potential of the body and its continuous negotiations with the surrounding milieu. The same act of "projection", for Florensky represented the most proper expression of the common nature of men: what exceeded any single individuality as a shared productive potential with the whole domain of nature.[73] Technology, in this sense, was a trans-individual construction, rising from the rhythm of life, the interactions among people and their milieu, and evolving through different levels of concretization, from simple impulses to material constructions. Hence, there was no schism between culture and technology, or between technology and environment, being all expressions of the same evolutionary productive human process: "human reality resides in machines as human actions fixed and crystalized in functioning structures"[74] technical objects were both human and natural, anticipating what Gilbert Simondon would declare only sixty years later.

Floresnky implied that the genesis of technical objects was totally embedded

72 *ibidem,* 270: "our thought is thus the sum of a series of impulses (the conatus of looking for food); perhaps they are not only our personal stimuli, but the ones of other innumerable analogous impulses felt by whoever surrounds us or of the past generations accumulated in the history of a population. The mental projection of hunger, amplified according to the individual stimulus perceived at a given moment, attains a concrete embodiment in an external space, transformed in the instruments of technology. Instruments that execute the same task demanded to the solicited organ."

73 *Ibidem,* 270: "Each of us is endowed of a plurality of organs which did not reveal in his body, but which nevertheless might manifest themselves in form of technical projections."

74 Florensky remarks this aspect and criticizes the tendency of the 18th and 19th centuries to hypostatize technology as something *precedent* than its human origin, privileging the technical object over the organism, or the automatism to the mutual integration with human actions. But in themselves, all technical objects are only simple schematizations of living forces, reproductions of prototypical organs. See Georges Canguilhem 1947 lecture titled "Machine and Organism", in J. Crary and S. Kwinter (eds) *Incorporations*, (New York: Zone Books, 1992) and, for the trans-individuality of technology, Gilbert Simondon, *Du mode d'existence des objets techniques* (*On the Mode of Existence of Technical Objects*), Paris: Aubier, 1989, second edition).

within the same evolution of the human species, whose concretization oscillated between sensorial elaborations and conscious projections:[75] the more man evolved, the more he refined his instruments, improving their internal synergy and therefore better employing his own potential. Therefore the house, according to Florensky, represented the primary instrument, the synthesis of all tools as a literal reflection of the body in all its functions.[76] Recalling Vitruvius and Michelangelo's analogies between the plan of a building with its inner parts and the structure of the human bodies with its limbs, Florensky conceived the house as "the complex of devices that extends *all* our organs". Since its oldest examples, like the courtyard house or the temple, which gathered the triadic structure of a typical plan – a threshold (envelope), an atrium (extension) and a closed cell (core) – the house embodied the most primitive expression of technology and the highest form of human consciousness, the first requirement to build a "project of the common".

Within this perspective, it could be conjectured that both Ivan Leonidov's and Moisej Ginzburg's typical plans were series of rhythms enlivened by a specific political and social dimension lying on the principles of labor and body potential. Differently from the CIAM *existenzminimuum*, their research was more concerned on the rhythmical interval and the qualitative internal variations of the architectural frame instead on the exact measurement of repeatable quantities. Their plans were "typical" because designed considering the psychological integrity of their inhabitants and thus formulated according simple elementary repetitions to give

75 *ibidem,* "The primitive technical object is no a physical natural system but a physical translation of an intellectual system. It is an application, or a bunch of applications. It is a consequence of knowledge and it can teach nothing. It is not subject to inductive examination, as a natural object is, and the reason for this is that it is nothing if not artificial (...) Further, it incorporates part of the natural world which intervenes as a condition of its functioning and, thus, becomes part of the system of causes and effects. As it evolves such an object loses its artificial character: the essential artificiality of an object resides in the fact that man has to intervene in order to keep the object in existence by protecting it from the natural world and by giving it a status as well as existence."

76 Nicoletta Misler specifies that this part of the text had the side annotations "written on the 19th of September, 1917": "what is projected in the house? By definition, it should group in itself the *totality* of our instruments, all our equipment. And if each tool, singularly considered, represents the reflection of one of our bodily organs, then our instruments, considered as an organized ensemble, constitute a coordinate reflection of the totality of our organ-functions. As a consequence, the house has its prototype in the *body,* conceived in its *entirety.*"

them a support for constructing their own spaces rather than imposing specific boundaries or disciplined instructions. The force of the typical laid in such implicit indetermination, in the variation and difference that it could absorb without falling in any standardization or automatism.[77] A typical plan was the result of an inward-outward relation: the projection of dwelling, as a conscious action upon the world; the extension of a frame, as the political agreement of collective institution. In this sense, Leonidov and Ginzburg used rhythm as a form of organization, to structure the modular emptiness of the typical plan and make the inhabitants realize their position in space and therefore to emancipate their own will.

77 Not dissimilarly from what Gilbert Simondon would claim: indetermination and openness constituted the real core of the technical object, based on the interaction with a user and on the possibility to be operated and modified according to external subjects as an *open machine.*
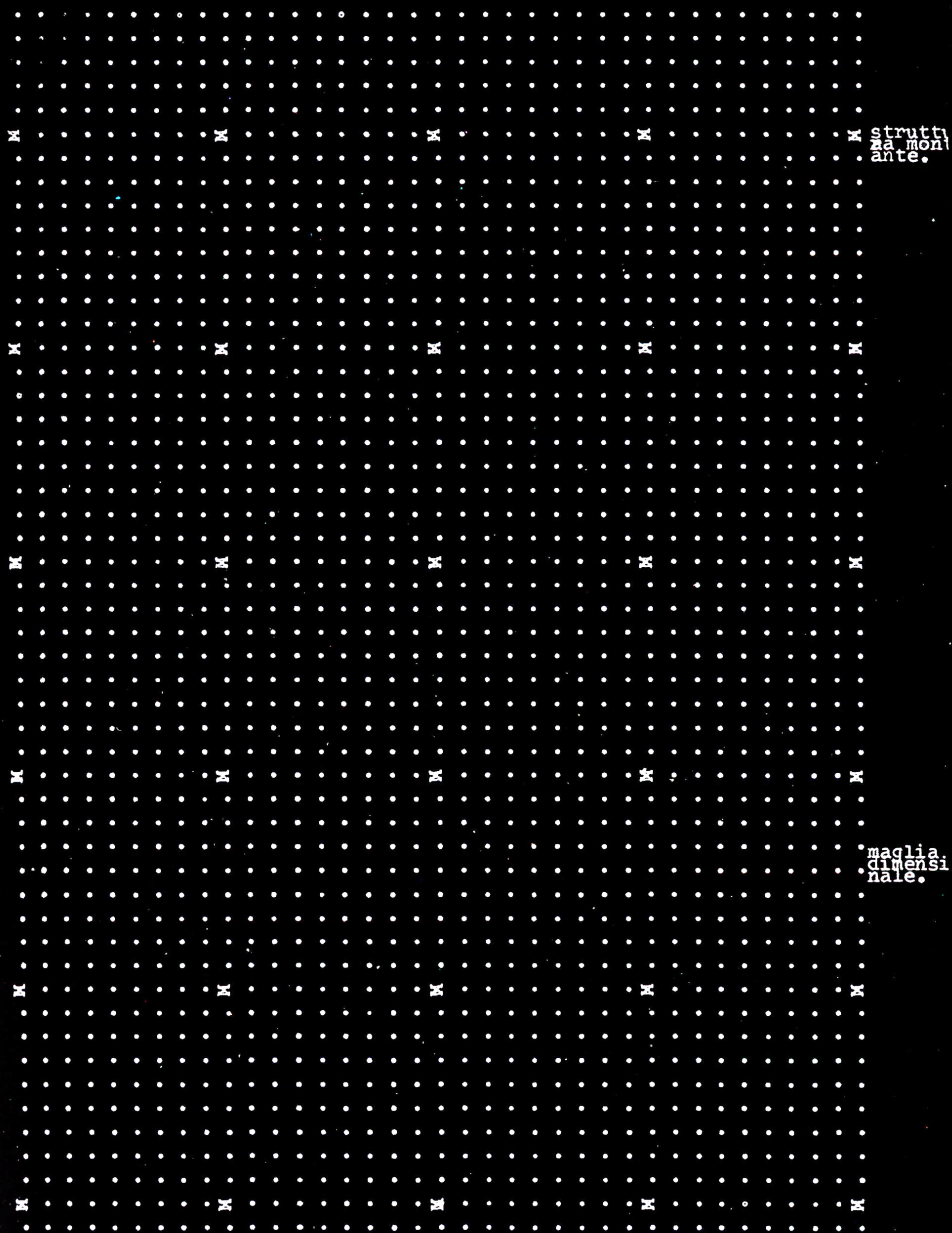
Domestic labor and forms-of-life

V

Background

Typical plan as battlefield for living knowledge

Archizoom Associati, *Homogeneous Inhabitable Diagram* (1968)

Knowledge is not measurable and exceeds single individuals. For these reasons, its objective accumulation and control always engendered struggles and divisions. In a renowned passage of his notebooks, the *Grundrisse*, Karl Marx notes how machinery and fixed capital were nothing but crystallizations of a collective intelligence proliferating beyond the walls of the factory: tangible expressions of what he named a unique "general intellect".[1]

Arguing that knowledge would have rapidly become the true source of capitalist development, Marx actually predicted the present expansion of the system of production from the closed disciplinary apparatus of the factory towards the much more flexible and open apparatus of society, able to control and modulate life in all its aspects. Yet, for Marx, the assessment of the general intellect as primary engine of production would have also implied the gradual displacement of labor-time as measure of value, undermining the very principles of the capitalist accumulation.[2] In other words, the general development of scientific research and technology would have soon demonstrated the incommensurability between wealth and labor-time, revealing that production was effectively relying on sources totally external and even independent from the time spent at the assembly line.

As we mentioned in the previous chapters, the core of contemporary *bio*-capitalism does not rely on specific kinds of labor or particular material activities, but on those innate generic faculties anyone is able to actualize and perform in different ways – like language competences, creativity, behaviors, affects, care, skills and desires – or, in other words, what Marx broadly defined as labor-power, the generic potential to work. The creation of value by means of material production

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1 "The development of fixed capital indicates to what degree social knowledge has become a direct force of production, and to what degree, hence, the conditions of the process of social life itself have come under the control of the general intellect and been transformed in accordance with it". Or elsewhere: "To the degree that labor time – the mere quantity of labor – is posited by capital as the sole determinant element, to that degree does direct labor and its quantity disappear, as the determinant principle of production – of the creation of use values – and is reduced both quantitatively to a smaller proportion and qualitatively, as an, of course, indispensable but subordinate moment, compared to general scientific labor, technological application of natural sciences, on one side and to the general productive force arising from social combination in total production on the other side – a combination which appears as a natural fruit of social labor." Karl Marx, *Grundrisse. Outlines of Political Economy,* (London: Penguin, 1973): 690-712.
2 *Ibidem,* 700: "*Capital* thus works towards its own dissolution as the form of dominating production".

has been gradually overcome by the creation of value through the production of "brains" and there is almost no need to remark how, in these last decades, both knowledge and education have been transformed into commodities and services to be either exchanged, sold or purchased, while the university has been paradoxically transformed into one of the heaviest instrument of accumulation. The increased privatization and industrialization of the academic apparatus have in fact turned students into consumers, precarious cheap workers who have to invest and to in-debt their lives in perennial learning processes, evaluated through credits and titles which measure their competences.[3] Actually, the status of contemporary university offers an authentic cross-section of the hideous conditions of the current employment market, which became a breeding ground for mutual competition and labor performativity, continuous training and innovation, professional entrepreneurship and cognitive slavery, but also the premise for a defenseless and fragmented unionism, for an increasing lack of political awareness and efforts of organization.

Nevertheless, knowledge is not death labor as the university is not a factory. If in the factory in fact, machinery were the most adequate form of fixed capital, as fixed capital was "the most adequate form of capital as such", within the infinite field of cognitive exchange, ideas, images or information could be neither simply reduced to a fixed apparatus nor delimited within steady configurations. Knowledge is not scarce, but alive and common: any imposed system of property or measurement, like credits, copyrights, patents, or even architectures and spatial boundaries, would unavoidably obstruct and diminish its embedded value. As Michael Hardt put it: "the more the common is corralled as property, the more its productivity is reduced; and yet expansion of the common undermines the relations of property in a fundamental and general way."[4] This unveiled an increasing internal contradiction within cognitive capitalism: since knowledge could not be constrained, coinciding with the extension of living reality itself, the only viable solution for a lucrative

3 For a genealogy of the notion of debt, from Nietzsche to the Post-fordist economy see Maurizio Lazzarato, *The Making of the Indebted Man: An Essay on the Neoliberal Condition,* (Los Angeles: Semiotext(e), 2012); Michael Hardt and Antonio Negri, *Declaration* (Self published, 2012); but also the recent activities by the collective Strike Debt! with their *The Debt Resistors' Operations Manuals,* (New York: Common Notions, 2012) and George Caffentzis, "Debt and/or Wages: Organizing Challenges", *Tidal,* Issue 4, (February, 2013).
4 Michael Hardt, "The Common in Communism", (2010) online at www.seminaire.samizdat.net

accumulation of its potential would be a progressive minimization of fixed capital and its spatial extension across the whole society.[5] The same recent "rarefaction" of the architecture for education into a simple container, paralleled by the vast proliferation of corporate learning-centers, knowledge campuses or institutes of research, witnessed such a progressive refinement of the capitalist assault to the general intellect as well as the definitive transformation of the university space into a generic productive environment: a sort of "climatic system"

1. *From anti-city to continuous structure.* Three lectures.

> "For a country with an authoritarian and right-thinking as our nation, the upheaval of the University is inconceivable: like an uprising of military academies, of police or prisoners. If the University is on struggle, the whole structure of the nation vacillates (…) The reasons of architecture are much more complex and stimulating than the proposed academic hibernation."
>
> – Giancarlo De Carlo[6]

A revolt is an act of insurrection, something that exceeds the consuetudinary notion of time and space opening unexpected perspectives. The act of revolt is also the moment in which the city is enlivened by a new consciousness: when its streets, squares and palaces are suddenly taken back by its inhabitants. Many words have been spent upon 1968 students' movements, either overemphasizing or heavily criticizing their efficacy. Indeed, that moment of insurgence revealed a radically different conception of the educational institution, reconsidering not only the way

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5 *Ibidem,* 5: "Whereas in the case of industrial capital and its generation of profit, the capitalist plays a role internal to the production process, particularly in designating the means of cooperation and imposing the modes of discipline, in the production of the common the capitalist must remain relatively external. Every intervention of the capitalist in the processes of the production of the common, just as every time the common is made property, reduces productivity. Rent is a mechanism, then, to cope with the conflicts between capital and the common."

6 Giancarlo de Carlo, *La Piramide Rovesciata*, (Bari: De Donato Editore, 1968): 5. (translation mine)

knowledge was produced and distributed away from any authoritative restriction, but also envisioning a university free and accessible to everybody, as a collective infrastructure extending across the whole city, as a platform where to share competences and exchange experiences.

If already after Second World War, numerous European countries initiated legislative processes to regulate the primary and secondary education, the reforms for a new mass-university reached its apogee only between the 1950s and 60s, opening a large political, cultural and also architectural debate concerning what possible "form" those new educational institutions should have assumed to coherently combine the students' pressures for a higher education and the national economic agendas.

Commenting the recent accomplishment of seven new universities in Sussex, East-Anglia, York, Kent, Essex, Coventry and Lancaster, in 1968 Joseph Rykwert defined the university itself as the true institutional archetype of our age, the place where finding a new paradigm for the city.[7] Voluntarily omitting any political implication, Rykwert noticed how those structures lacked of a meditated architectural quality, often juxtaposing forms, styles, typologies and materials in questionable compositions. All the buildings presented similar characters, like the marked industrial standardization of construction and the modular arrangement of the plan; or the tendency for semi-closed arrangements of buildings, still typical of the English collegiate tradition; or even the peripheral localization in relation to urban centers, which presupposed a careful elaboration infrastructural connections via private or public transportation. Along the same design principles, in fact, would develop a whole series of future explorations in the standardization of the university space, as the ones proposed by Arup Associates in Birmingham, Loughborough or Cambridge, where they devised a unique prefabricated concrete module to be horizontally or vertically repeated, equalling the architectural space of education to very its technical and structural organization, namely a repetition of typical plans.

Despite the bare structural approach, dictated also by limited budget and the

7 Joseph Rykwert, "Universities as the institutional archetypes of our age", *Zodiac,* No.18, (1968): 61-63. See also Bianca B. Raboni, "Le Università in Inghilterra. Un problema aperto", in the same issue, 212-219.

short times of delivery, for Rykwert those projects had anyway the ambition to create an environment for 3000 people living and working together, which concretely relaunched the idea of the university as a "self-conscious community" where to experiment again the game of freedom and dissensus often negated in the city itself.

During the same year in Milan, in a famous lecture titled *Passato e prospettive dell'anti-città universitaria* Guido Canella tried to delineate a genealogy of the university architecture. The history of educational institutions continuously oscillates between growth, institutionalization and segregation from the rest of the city: in order to preserve the autonomy and the uncontaminated character of the knowledge produced, the first universities tended to strongly delimit their communities into rigid enclaves, in sort of *anti-cities* within and against the consolidated urban settlements.[8] A dialectical relation that nonetheless, through the economical expansion and the historical evolution of society, had been gradually dismissed in a linear process of integration and fragmentation within the urban dynamics. From the first secluded and autonomous schools, typical of the Carolingian Renaissance in the 9th century, through the institutionalization of academies and specialized campuses of the 18th-19th centuries, and finally to the latest experimental networks of knowledge dispersed at urban scale, the university broke its walled isolation to become an extended infrastructure. In short, as the typical plan of the factory passed from a unique unit of production to a territorial frame of different entities, so the typical plan of the university moved from the isolation of monasteries and the introversion of cloistered forms – as in the famous plan St. Gallen – through the institutional archipelagoes of scientific academies within the bourgeois modern urban expansions – as in the University of Kaiser-Wilhelms in Stasbourg – to the recent horizontal mat-structures – such as the Freie Universiteit in Berlin – where city and university mutually fulfilled each other.

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8 Guido Canella, Lucio Stellario D'Angiolini (eds.), "Passato e prospettive dell'anti-città universitaria", (lecture held in Milan on April 19th, 1968) in *Università, ragione, contesto tipo*, (Rome: Dedalo Edizioni, 1975), originally published in *Architecture d'Aujourd'hui,* no. 173, April-May (1968), and also "*In margine al concetto di 'anticittà Universitaria'*", lecture held on March 28th, 1969, and contained in the same volume. Concerning the development of the University typology see also Olaf Pedersen, *The First Universities. Studium Generale and the origins of university education in Europe,* (Cambridge: Cambridge University Press, 1997); Hastings Rashdall, *The Universities of Europe in the Middle Ages,* 2 Volumes, (Oxford: Clarendon Press, 1895).

Nevertheless, Canella's notion of *anti*-city suffered of a certain passivity, conceiving the university architecture more as a defensive reaction towards particular imposed social conditions rather than a true propelling "character" of the urban development itself and therefore as a constitutive agent of crisis. Within this linear reconstruction, Canella praises the mobility and the flexibility of the recent educational systems as logical products of the mutated modes of production without sufficiently acknowledging that, since its early foundation, the university had been already an expression of extremely dynamic realities, being juridically established in associations of vagrant students, traveling intellectuals or temporary tutors, and thus naturally characterized by an indeterminate architectural form.

In the Roman legislation, the Latin term *universitas* was in fact used to indicate a union of persons legally bound by a common interest, office or occupation and thus forming a juridical institution: in other words, a private affair, a company. Following the intensification of trade relations, the growth of population and the expansion cities, the increased circulation of books and scientific notions, universities developed within urban centers in forms of corporations of students and masters, according to the fluxes and the exchanges of knowledge. Similarly to the other traditional collegia, municipes, religious bodies or merchant guilds, the medieval universities were literally "enterprises", gathering regional free unions of students (*nationes*) who paid scholars and traveling teachers to lecture concerning specific subjects. The first universities (*studia generalia*), in fact, did not have a proper architecture, taking place in rented lecture halls or even in private domestic spaces. The ancient academic institution of Bologna, for example, which was based on juridical studies and the analysis of the Justinian *Corpus Juris Civilis,* was initiated from local lawyers and advocates who tutored groups of students in their homes, giving notions of law and rhetoric in change of money.

Therefore, as a legal enterprise, the university was not only economically embedded within urban centers since its first constitution, but it also actively challenged the form of the city to affirm its institutional power across the territory and to protect the position of its members: namely the professional roles of tutors and the living conditions of students. Differently from the *clerici vagantes,* who benefited

of an ecclesiastic protection and of specific religious status, the first universities were composed by masses of itinerant laymen students and teachers who lacked of any juridical protection and citizenship rights, traveling at their own risk and expenses – as sort "freelancers" – selling and buying their knowledge across different *comuni* and legal systems of citizenships. To stay in Bologna, for example, students had to demonstrate to be able to finance their own expenses and support their own studies, otherwise they could have been either rejected from the municipality or forced to undertake canonical studies within a religious jurisdiction, renouncing to their laymen freedom.[9] On the other hand, as primary "clients", students had also an enormous power within the first university enterprises, being free to choose whether to remain or leave the association: and a mass exodus of students, in this sense, would have resulted in a dramatic economical loss for the city and in the ruin of the tutors. Conflicts and secessions concerning citizenship rights were not sporadic, and were frequently used by the students' corporations to consolidate and expand their position and freedom, as it occurred in the two famous exodus of 1204 and 1222 when, groups of scholars and students abandoned Bologna to found new independent universities in Vicenza and Padua.[10]

Canella's dialectical notion of *anti*-city added a political consciousness to Rykwert's considerations, vis-à-vis the recent processes of integration and spatial organization of the university within the new regimes of production, as the result of two opposed strategies of power: a first one, which aimed at expanding and reinforcing the juridical frame for students and tutors against civil or ecclesiastical authorities; versus a second one, which attempted to control the access to knowledge,

9 The question of citizenships and local rights was of mandatory importance. The first reform concerning this matter was the ordinance issued in 1158 on the plain of Roncaglia by Frederic Barbarossa after having received a delegation of scholars from Bologna: titled *Authentica Habita,* the decree established that all the itinerant *scholares* might have be legally protected "in the places to which they come, and where they live and study". See Hilde de Ridder-Symoens, *A History of the University in Europe*, (Cambridge University Press, 1992):Vol. I, 137-141.
10 It is significant, in this respect, that already in 1189, in Bologna there were prescriptions for tutors concerning their teaching Roman jurisprudence beyond the limits of the city in order to prevent students to emigrate. There were even attempts to fix some average rent prices for the students' accommodations, in order to reduce the speculation of tenants and convince students to stay. These were exceptional characteristics of the oldest university in Bologna: in other important centers, like Paris, Oxford, Cambridge, the leagues of teachers had the absolute mastery over the students.

formalizing its distribution and extension into an academic apparatus.

Building upon Canella's conclusions, was a famous intervention by Giancarlo De Carlo at the Harvard University, republished few years later on the Italian magazine *Casabella* under the provocative title *Ordine Istituzione Educazione Disordine,*[11] in which the very principles of a mass-university were harshly questioned.[12] De Carlo moved from the assumption that education and learning were fundamental results of experience, and thus inevitably linked to the places, the perceptions and the physical interaction among different subjects: the larger was their field of action or the intensity of contacts, the wider and various would have been the knowledge accumulated and shared.

Despite the openness of their structures, the modularity of their aggregations and the flexibility of their expansions to host considerable amount of users, most of the new university proposals were nonetheless conceived as detached enclaves, often located far from consolidated urban settlements and indifferent to the contextual necessities or the existing network of relations. In this way, the academic order remained substantially untouched and still relying on fixed subjects, pre-established programs of activities, typified norms and disciplinary boundaries, which would eventually ignite the refusal and the future protests of students.[13] For De Carlo it

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11 Giancarlo De Carlo, "Order Institution Education Disorder. The vitality of spontaneous civilizations and the role of disorder. The self-management of education as an alternative to the bureaucratic and paternalistic teaching", *Casabella,* 368-369 August - September(1972) originally published as "Why/How to build School Buildings", *Harvard Educational Review,* 4, 1969; also in Livio Sichirollo, *Gli Spiriti dell'Architettura,* (Rome : Editori Riuniti, 1992): 201-221. See also "Università di massa e scuole di architettura", *Casabella,* 357, (1971); "Disordine distruttivo e disordine creativo", *Rinascita,* 17 May (1974).
12 See for example the ISES Convention on the theme, held in Rome on 1-2 October (1970) or the numerous reactions to the International Competition for the University in Bruxelles the same year. See Giuseppe Rebecchini, Francesca Sartogo, "La progettazione degli organismi universitari", *Casabella,*357 (1971): 9-18.
13 "The student revolt which is flaring up all over the world at every level of education, and which has begun to infiltrate the professions as well, reveals a radical refusal of the condition of exclusion cause by an aprioristic, codified limitation of the field of cultural action. Perhaps specialization is indispensable, but the opinion is growing increasingly strong that it is acceptable only when the specialist has first achieved a broader understanding so that he is capable of maintaining the capacity to criticize – to accept, reject, or somehow choose, with a political consciousness of his action – the role which the individual assumes in the social context. The equation "specialization/participation" is replacing the equation "specialization/estrangement", implying the revolutionary overthrow of the whole existing institutional system and in particular the revolutionary overthrow of educational institution." (emphasis original) See Giancarlo De Carlo, "Order Institution Education Disorder", *Casabella,* 368-369 August – September (1972): 69.

was unconceivable to substitute old institutions with new ones simply by means of more efficient *forms*, without first having dismantled or revised their founding principles, their juridical and operative *structure:*[14] forms could have never been autonomous, but always embedded within their social, economical and political "structures" which made "actual the potential activities of men and society".[15] Thus the city and its architecture, as the city with its territory, coexist always as a single whole, where each building form unfolds its potential only when it directly confronts the society for which it has been conceived "and this society is not only the people who live in the building but also the people living in the city, the region, everywhere in the surrounding environment who mediately experience it".[16] In this sense, any search for an alleged archetypical form of university was inconsistent: knowledge for De Carlo could have occurred everywhere and, precisely because of its ubiquitous character, through time it had been imprisoned, protected and codified into different architectures, ordered in pavilions or specialized within authoritarian

14 "[W]e work on structural systems and we renounce to resolve architectural problems directly by means of pure form. In other words, we work on the relationship between the form and the factors which participate to the process of organization of space, and we look for systems generator of forms. This is because we don't still believe to the autonomy of architectural form. And we don't still believe that the task of architecture is to supply space solutions as "unique" and "immovable" definitions of space and volume. The architectural form is for form of us the result of a process. A DIALECTICAL PROCESS, between many factors: economical, social, technological, cultural, which are "specific" and "movable". The task of the architect is to give "hypothesis" which have the force to become reality in proportion to their clarity." (emphasis original) See Giancarlo De Carlo, "Notes prepared for a lecture on the tradition of the modern and the problems of contemporary architecture", *Two projects*, Berlin 12-17 October, (1964) and also the previous "Scheme for a lecture on the reform of the university institutes", Milan 21 February (1963) both in Francesco Samassa, *Giancarlo De Carlo. Percorsi. IUAV Archivio Progetti,* (Venice: Il Poligrafo, 2004).
15 "But what appears in form is already as an embryo inside the structure. So that the process of the definition of form begins already in the organization of structure. And of course it doesn't end there because the quality of form feeds back to the structure and affects its organizational pattern. (...) The city is the property of the collectivity of men (and not only residents, but all men who can come and stay in the city) potentially, each city is the property of all men of the world. So that every intervention in its form and structure takes a meaning exceeding the operation itself: it becomes an episode of its history. It is important therefore, i feel, that the architect's freedom doesn't become free will, that the right of architecture to a free expression could be balanced by an honest consciousness of its consequences. See Giancarlo De Carlo, "Notes for a lecture", Yale New Haven, 2 May, (1966), in Francesco Samassa, *Giancarlo De Carlo. Percorsi. IUAV Archivio Progetti,* (Venice: Il Poligrafo, 2004): 429-437.
16 See Giancarlo De Carlo, "Conclusion to the Harvard Lecture", Harvard December (1967), *ibidem*, 439-445.

hierarchies.[17] Every society produced its spaces and structures for knowledge. Yet, if education culminates wherever the possibilities of experience become the most intense, in deepest moments of social conflict and disorder, knowledge dismantles any institutional scaffolds exceeding its imposed scarcity to reveal the common nature of his production.[18]

On these premises, De Carlo advanced an idea of university as an archipelago of places, where streets, squares and city-buildings could have been part of an homogeneous whole, undermining both the individuality of the single architecture and the authorship of the architect. The task of designing a building for a mass participation, in fact, required to abandon any spatial preconception and to reverse the traditional design process, reducing the intervention to the minimum necessary infrastructure for enabling its users to collectively organize and construct their forms of use.[19] The university should have been thus conceived as a double network

17 "What is the meaning of the archetype? Archetype means something which is shaped according to an intellectual conception, not necessarily related to reality. (...) A long period of "archetype way of mind" in architecture has produced for many years a few uncontaminated buildings, conceived and designed as pure objects. In our present time, today, the same way of thinking is producing a few superuncontaminated and superpure objects: namely monuments." (emphasis original) Giancarlo De Carlo, *Scritti/068,* 1-2, quoted in Francesco Samassa, "Un edificio non è un edificio non è un edificio", contained in *Giancarlo De Carlo. Percorsi. IUAV Archivio Progetti,* (Venice: Il Poligrafo, 2004): 323-356, 354.

18 "During the French revolution, the true centers of public education were the clubs, the streets, the squares (and the stage of the *guillottine*); during the Russian revolution: the soviets, the factories, the ateliers and the popular assemblies; during the not-yet-terminated Chinese revolution: the liberation army, the communes, the red army assemblies (and the tatzego); during the Cuban revolution it was the guerrilla, the labor brigades, the defense committees and the armies, etc."(emphasis original) See Giancarlo De Carlo, "Order Institution Education Disorder", *Casabella,* 368-369 August - September(1972): 66.

19 To envision an educational facility, for De Carlo was not dissimilar than designing a part of the city itself, conceived not as an object but as sort of organism living upon its surrounding relations, penetrating in its context "through an homogeneous intervention, changing the city to make it homogeneous with the same project, intervening over the whole field of urban forces". Between 1958 and 1964, De Carlo was intensely working at the masterplan for the Renaissance city center of Urbino, where he was also commissioned for the renovation and the construction of new university faculties within the historical city fabric. The university architectures (Faculty of Juridical studies, Humanities, Economy), which carefully respected the pre-existing structures while reinterpreting and integrating new functions, operated not dissimilarly from Di Giorgio's devices within the Ducal Palace, as a unique mechanical structure across the whole city. Above the hills surrounding the city, instead, De Carlo planned and built a series of student housing according to the TEAM X principles of agglomeration and social interaction. See Peter Blundell Jones, "Giancarlo De Carlo: opere di "attività professionale", in Francesco Samassa (ed.) *Giancarlo De Carlo. Percorsi. IUAV Archivio Progetti,* (Venice: Il Poligrafo, 2004), 61-82; but also Giancarlo De Carlo, in Denys Lasdun (ed.) *Architecture in an Age of Scepticism: A Practitioners' Anthology* (London: Heinemann, 1984); *Benedict* Zucchi*, Giancarlo De*

of relations: one related to more stable activities and firmly embedded within the existing urban fabric, while the other one extended at a territorial scale, to provide possibilities and facilities for sharing knowledge.

De Carlo was aware of the difficulty of his proposal, which would have forced the architect to self-criticize his social role while undermining the same scientific premises of the discipline. Yet, the common experience of learning and the university as collective institution lent themselves for a revolutionary revision of the architectural discipline itself. Paradoxically, by suggesting the whole territory as the *real* scale of knowledge production, and the "general intellect" as its essential engine of development, De Carlo implicitly foresaw, if not unconsciously suggested, the neoliberal commodification of knowledge in a continuous field of education, which would be also the focus of Archizoom's critical project for the city.

2. *Gazebi*

> "The whirl of consumerism and the swallowing rapidity of the Great Number should not deceive us, since behind them there is a Marble Chicken that you can neither eat nor move."
>
> – Archizoom Associati[20]

Among the numerous university proposals elaborated in Europe in the aftermath of the students' riots of the late Sixties, Archizoom Associati's project for the expansion of the University of Florence deserves a particular attention, not only for its theoretical approach but especially of its political use of the typical plan, as a device to flaunt and increase the internal contradictions of the capitalist accumulation to a point of collapse.

Carlo (Oxford: Butterworth Architecture, 1992): 42-103. Moreover, on the University as a design theme, see Giancarlo De Carlo, "Il territorio senza università", in *Parametro,* 21-22 (October, 1973); "Università e territorio", in *Università diagnosi e terapia,* (Rome: Officina, 1973).

20 Archizoom used 'Marble Chicken' (*Pollo di Marmo*), to define their entry at the Milan Triennale in 1968. See Andrea Branzi, "L'Africa è Vicina", *Casabella,* May (1972).

Since 1962 the municipality of Florence was planning to expand the productive activities of the city along the valley running eastwards towards Prato and Pistoia, relocating all the administrative functions out from the historical city center. In 1970 an International architectural competition for the New University of Florence was launched, to which the young collective Archizoom Associati submitted a project entitled *I progetti si firmano* (literally "Projects need to be signed"). By signing the project against the alleged anonymity of the competition procedures – and thus deliberately proclaiming themselves "offside" – Archizoom firmly rejected the obtuse requirements of a competition brief that enhanced only issues of urban management, mega-structures, fancy programs and "roof-top designs", and still indulged on self-referential architectures or visionary realities rather than advancing a critical reflection on the spaces of knowledge production, especially after the international upheavals which shook the continent few years before.

In this sense, Archizoom consciously positioned their work within the long line of students' protests that began at the Politecnico in Milan and developed through the first university occupations, initiated in the same Architecture Faculty in Milan, in the February 1963.[21] Andrea Branzi, Gilberto Corretti, Massimo Morozzi, Paolo Deganello, met and began working together precisely during the first occupation of the Architecture Faculty in Florence, the same year, actively contributing to the formation of the League of Architecture Students, which was largely influenced by the magazine *Classe Operaia* led by Mario Tronti and Alberto Asor Rosa.[22] Architecture students were protesting against the obsolescence and the inadequacy of the design composition courses, claiming the absolute disconnection of the proposed themes with the current socio-economical conditions, and criticizing the isolation of the architect's role from the rest of society. The movement not only attacked the quantitative inefficiency of the university but also the quality of its internal academic hierarchies as well as the way knowledge was produced and taught through sclerotic lines of research.

21 The recent exhibition *La Rivoluzione Culturale* extensively describes the story of the Faculty of Architecture at the Politecnico in Milan between 1963-1974. See also the important pamphlet written by Giancarlo De Carlo, *La Piramide Rovesciata* (Bari: De Donato Editore, 1968)
22 Paola Navone, Bruno Orlandoni, *Architettura Radicale*, (Documenti di Casabella: Milan, 1974)

This first wave of riots obtained a feeble reorganization of the architecture faculties and, at least in Florence, it coincided with the introduction of important innovative courses, such as the composition studios of Bernardo Savioli, Leonardo Ricci or the historical course of Leonardo Benevolo, whose influence would be determinant for the first Archizoom academic exercises. The project by Chiappi, Deganello and Marliani for an "Urban structure for 70000 inhabitants at Brozzi, close to Florence", or the project for an "Urban structure Florence-Pistoia" by Branzi, Corretti, Morozzi and Toraldo di Francia, or even Claudio Greppi's graduation project for a "Territorial Factory near Prato", where all proposals with a marked political awareness of the Florentine territory and its working class composition, which at that time was characterized by a diffused horizontal network of textile factories with immigrant workers difficult to be unionized.

The university discontent in Italy exploded again in 1966 at the Superior Institute for the Social Sciences in Trento, when the students occupied the university protesting against the National Senate proposal to downgrade the instituted diploma of sociology. The struggle, which rapidly expanded across the whole city invoking the refusal of "a university ideologically subsumed to the capitalist forces", was heavily suppressed by the police, censoring its autonomy to contest and criticize society.[23] In 1967 the riots matured the important *Manifesto per l'Università Negativa* ("Manifesto for a Negative University")*,* claiming "the necessity of a theoretical, critical and dialectical thought, denouncing what mercenary barkers defined as "reason" and posing the premises for a political work, creative, antagonist and alternative. (…) To the capitalist use of the science we must oppose a socialist use of techniques and advanced methodologies."[24]

23 The I.S.S.S. (Istituto Superiore di Scienze Sociali) was the first Italian university for social sciences, strongly desired by the Christian Democrats to create a new figure of the 'social architect' who could coordinate and control the new human capital of the immaterial production. The I.S.S.S. was also the first university to accept students from technical schools, enlarging the possibilities of inscription also to the lower working-class, which provided also offered the possibility for a 'proletarian' attack to the highest bourgeois academic institution. It was not the case that from Trento came out Margherita Cagol and Renato Curcio (future founders of the subversive Red Brigades) or Marco Boato and Mauro Rostagno, two reference points of the Italian 1968. The occupation lasted 18 days with the final victory of the students.

24 See AA.VV. *Movimento per una Università Negativa*, Manifesto (Self-published, 1967) and AA.VV. *Contro l'Università. I principali documenti della critica radicale alle istituzioni accademiche del Sessantotto,*

However, the movement reached its highest theoretical organization only during the famous occupation of Palazzo della Sapienza in Pisa, not so far from Florence, between the 7th and 11th of February 1968, when a constituent assembly of students formulated a list of *theses* to attack the State University Reform currently debated in Parliament within the wider Piano Pieraccini Plan, a five-years economical proposal that was at the point to entirely subjugate the university research within the general industrial productive reassessment of the Nation.[25]

For the students, to reject the subsumption of the university within the directions of an economic plan, meant also to refuse the traditional university ranks and all its organs of representation, which were controlled by the academic hierarchies and the State authorities. During the occupation, the general assembly became the main and unique strategic body of legislation and decision: considering themselves as "labor-force in formation" and reclaiming political representatives analogous to the workers unions, the independence of knowledge from its technical capitalist integration, a free accessibility to a superior education and the dismantling of the obsolete academic class-structures, the students for the first time attempted to open the university riots to the whole working-class struggle, in order to establish an organic connection with the factory workers and with the wider opposition versus the capitalist imperialism.[26]

At that time, the recently formed group of Archizoom Associati was seeking to converge the the students' antagonism in their earlier working experiences, in

(Milan: Mimesis Edizioni, 2008).

25 In 1962, during the Fanfani Government, the Budget Minister Ugo La Malfa in his famous "Nota Aggiuntiva", proposed to find a correct equilibrium between the State economical dispositions and their territorial application adopting the practice of 'programming' as a mandatory policy to readdress the directions of national developments and instituting the CNPE (National Committee for Economic Planning). At the center of the future reforms there were the problematic conditions of the poorest southern regions of Italy, the plan of industrialization and large infrastructures, the reforms for public health and education: all issues inherited in the following 1964 plan proposed by Giovanni Pieraccini, Minister of Public Works and successively Budget Minister between 1964 and 1968. For the university it was necessary to design new buildings, ameliorate their spatial and internal organization, to adequate the field of education to the demands of the market: often, the provided qualifications did not correspond to the real progressive exigencies.

26 The occupation of the Sapienza was also a fruit of the Potere Operaio Pisano, led by Adriano Sofri and Gian Mario Cazzaniga, who constituted itself during the student struggle and which will develop, in 1969, in the extra-parliamentary group of Lotta Continua.

guise of "cultural terrorism": namely as a series of "acid-kitsch installations, poisoned objects, dream beds, exotic gazebos, surreal and secret theaters". Widely influenced by the violent political debate, the personal contacts with the exponents of the Operaismo, the reading of Manfredo Tafuri's *Critique of Architectural Ideology*, the interests for Marshall McLuhan and Reyner Banham technological infatuations but also the common admiration for Constructivism, Archizoom rapidly created a vocabulary of forms and ingenious war-strategies to attack the falsity of the bourgeois consumerism and the mass spectacle of culture industry. In order to make people conscious of what they ironically defined "the marble chicken of capitalist imperialism" concealed beneath the affable clichés of consumption, it was first necessary to unveil explicitly the ideological impositions in which they were compelled to live in. Their first projects, in this sense, were an attempt to translate in spatial forms what Mario Tronti had been exhorting from the pages of *Workers and Capital*: "to make things visible (....) to say them clearly in order to be understood, at the risk of not interpreting very well things intrinsically obscure". Besides the university, such a process of self-cognition should have initiated precisely where strongest was the coercion of consumerism, highest the level of alienation and heaviest the "marble chicken": the middle-class household, or the domestic realm that fed and endorsed the petty-bourgeois consciousness.

Thus, while universities were on fire, Archizoom used the culture of kitsch and cheap luxury as weapons to subvert traditional values and the consuetudinary traits of the bourgeois domestic serenity as "Trojan Horses that, once at home, would destroy everything they find", flaunting the farce of consumerism and making tangible the falsity of the everyday furniture.[27] They designed objects either too big or too intrusive, which in the end worked as terroristic attacks against the bourgeois *interièur*: "an imperial piece / within the misery of yours / domestic walls. /A piece more beautiful than yourselves. / A piece so beautiful / that you wouldn't deserve. / Empty your living room! / Empty your lives too!"[28]

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27 The use of kitsch as a cultural frame, at that time of consumerist expansion, was largely discussed. See Umberto Eco, "La struttura del cattivo gusto", in *Apocalittici e Integrati,* (1964).
28 Tommaso Trini *Ettore Sottsass Jr: catalogo mobile 1966,* Domus Apr 499 1967; but also *Senza Titolo* Domus 455, October (1967): 37-41.

In 1967, returning from a collective trip to Istanbul, the Athos Mountain and the Bursa Baths, Archizoom elaborated their most perverse domestic war-machine: the *Gazebo*. By conceptually détourning the function of the gazebo – a simple temporary structure usually employed in gardens to get shadow – they transformed it into a generic frame to juxtapose various daily objects in clashing and contradictory assemblages.[29] The structure was a tubular brass frame, 4 cm of diameter, arranged in a banal rectangular shape: a typical plan mocking the "typical" domestic interior through the abstraction of its form. Archizoom defined the gazebo architecture a "primary structure",[30] with the purpose of simply presenting objects in their concrete materiality as in a sort of anatomical "theater", implicitly alluding to hidden meanings and secret relations thorough their simple semantic combinations.

The first series was designed for the magazine *Pianeta Fresco,* published by the designer Ettore Sottsass jr. and the journalist Fernanda Pivano: the catalogue was similar to a selling brochure for commercial correspondence and the gazebos were illustrated by means of isometric drawings and accurate descriptions of the contained objects.[31] Beside destroying the harmony of the domestic interior, the gazebos were abstract devices designed to awake the consciousness of the inhabitants to stimulate a critical response within and against the banality of a commodified existence. As the

29 "We have built the *Gazebi*, sort of oriental-sacred-theatres filled with condensed oriental kitsch: from embroidered slippers to Aladdin lamps with batteries, from the damasque pouf to the velvet tapestry". See Franco Raggi, "Radical Story. Storia del pensiero negative nella pratica del Radical Design dal '68 ad oggi – Il ruolo delle avanguardie tra evasion e impegno disciplinare", *Casabellla,* no. 382, Oct. (1973): 37-45.

30 "In architecture this (the connection between culture and society) means to establish "elementary compositional operations" at all scales, in which all connections becomes readable and unveiled. In this sense we could compare these operations to "primary structures" as acts tending to reveal an elementary meaning in itself, the same architectural making. Empty rooms and gazeboes are cruel operations of reason. They are not "invented" but simply derived from the codification and from the daily praxis. This is the reason for a "figurative architecture", which is not generated from the solution of single problems through language, but through the individuation of a limited compositional field, already with its own morphology and characteristics. It is then possible to create a poetry (in which the Gazebi are like sonnets) (...) therefore we are not interested in a new theory of space." See "Le Stanze vuote e i Gazebi", *Domus* 462, May,(1968): 51-53; and also "Architettonicamente", in *Casabella*, no. 334, March, (1969).

31 It is extremely interesting to notice the renewed interest of Archizoom for Islamism, especially in its opposition against the Western and American capitalism: the name of the company *Gazebo's Inc,* as Roberto Gargiani pointed out, was not so much dissimilar from the *Muslim Mosque Inc.* founded by Malcom X in 1964. See Roberto Gargiani, *Dall'onda pop alla superficie neutral. Archizoom Associati, 1966-1974,* (Milan: Electa, 2007): 47-100.

Background

constructivist typical plans described in the previous chapter, the gazebos operated primarily at a conceptual level, estranging objects from their daily functions as well as the subjects from their usual habits, and thus diverting any instilled process of automation and homogenization.[32] In this sense, the domestic frames of the gazebos could have been repeated at different scales of intervention, and Archizoom would constantly use their estranging strategy in almost each of their future projects, starting from their proposal for the University of Florence and the *No-Stop City*, reformulated as a territorial generic container, a "territorial gazebo", where material and immaterial production and all sorts of activities could have been juxtaposed as in their domestic theaters.

3. *Universal Climatic System*

> "In fact, the absence of social "Contents" in a revolutionary programme endangers the capacity to master the System, which is ready to make its own any manner of component of the Social Problem, but cannot endanger the "scientific character of economie balances" on which it is based."
>
> – Archizoom Associati[33]

32   "The existenz-minimum. To transform the whole society in the model of the factory would mean to transform the whole society in organized labor-force, but also to assume the logic of production as an event not external to the nature of the individual, but rather as a direct projection of it. The "new man" of the civilisation machiniste is the man who adopts the productive laws as his own intimate proper nature. First among all the laws is the one of the assembly line, in which it acknowledges not only the scientific instrument as means of knowledge of society (design) but also, and above all, his own proper deepest formation (cubism). Only in this way the relation between factory and society becomes natural law. (...) The object is thus reduced to its most elementary geometrical essence, but its rational process of design that generated it becomes a sort of allegory that prefigures and simulates the "rational behavior" of the user. (...) The new man cannot be simply the one of the logic of production but also the dynamics of consumption. The man "all-production" sacrifices his own bourgeois ambitions within an "existenz-minimum" and surrounded by tools-objects of a Franciscan poverty. Design here, in its rational analysis of the design object, is able to totally dismantle the ideological superfetation, not only to provide a larger autonomy from myths, but rather to induce to renounce to the same objects." See Archizoom Associati "Distruzione degli Oggetti", *IN*, (1971).

33   Archizoom Associates, "Città Catena di Montaggio del Sociale. Ideologia e Teoria della Metropoli", *Casabella*, July-August (1970) which would provide the basis both of the proposal for the Florence University and the famous *No-Stop City*. Now reprinted in Andrea Branzi, *No-Stop City*, (HYX: Orleans, 2006):162.

5.1 *Gazebi* Archizoom Associati (1965) "Profumi d'Oriente" (left) "Rosa dell'Islam" (right)
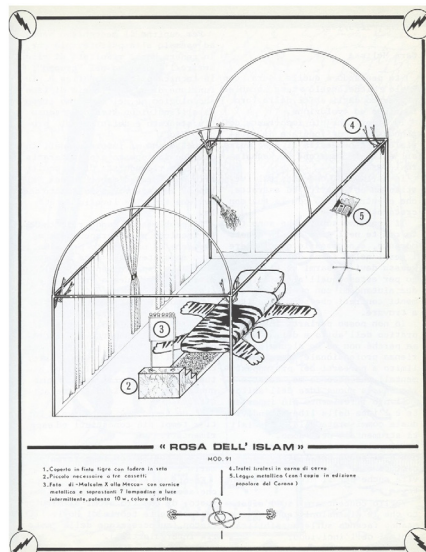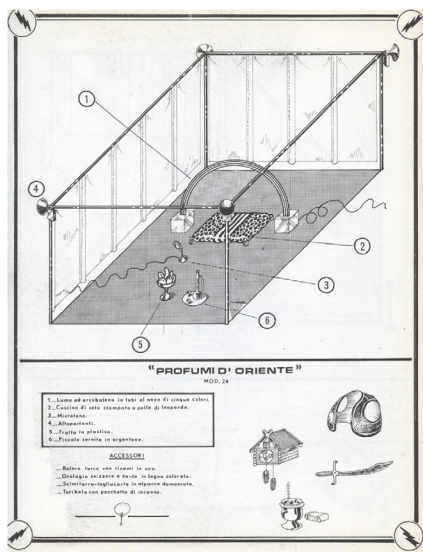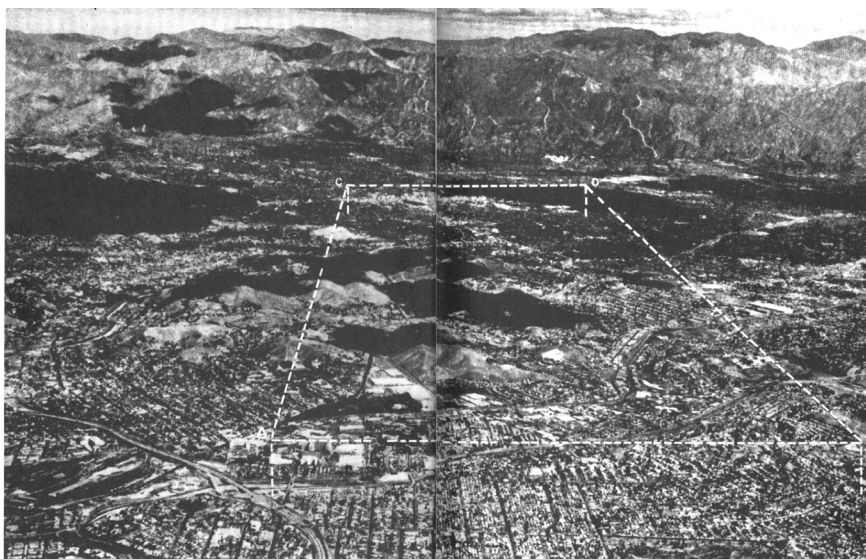
5.2 "Territorial" *Gazebo*, Archizoom Associati (1968)

Just before the University competition, Archizoom formulated their manifesto titled *City, Assembly Line of Social Issues. Ideology and theory of the Metropolis*, in which the rise of the 18th-19th century industrial settlements and working-class struggle were considered the origin of the modern metropolis and therefore the main categories at stake for any project for the city. The rapid development of the Fordist factory, in fact, ignited a drastic economical and urban growth that overcame any previous distinction between city-form and countryside, postulating "territory" in general as a limitless homogeneous exploitable surface.[34]

It was not a coincidence that in Italy, precisely in those same years, the idea of territory as a measurable social productive field constituted one of the most crucial points of the Christian Democratic reformist agenda.[35] After the post-war reconstruction in fact, the rapid uncontrolled urban growth occurred between the 1950s and the 1960s suddenly created the necessity to control the increasing regimes of mass-production and to balance the distribution of commodities, forcing the Christian Democratic government to a conciliatory shift towards the more moderate and left wing coalitions, in order to widen the consensus among the lowest strata of the working-classes and the emerging middle-classes of salaried workers.[36] Favored by the contemporary presence of Amintore Fanfani as premier, Aldo Moro as secretary of the DC and Antonio Segni as president of the Republic, the collaboration with the Italian Socialist Party (PSI) was officially approved by the government elected in 1962, which inaugurated important structural reforms

34 Carlo Aymonino, *Origini e Sviluppo della Città Moderna,* (Venice: Marsilio, 1965).
35 Although extremely advanced, the current urban law no. 1150, in force since 1942, did not forecast the incredible economical development, the massive migratory flux from the Southern to the richer Northern regions, the exodus from the agricultural to the industrial production, the high concentration of great cities and the rampant speculation. After the post-war intense reconstructions and the first large public interventions, the uncontrolled urban growth between the 50s and the 60s raised the urgent necessity to control the flowering national economical of mass-production and to readdress the distribution and consumption of commodities at large scale, forcing the Christian Democratic party towards a 'left-wing' conciliatory shift. Favored by the contemporary presence of Amintore Fanfani as premier, Aldo Moro as secretary of DC and Antonio Segni president of the Republic, the collaboration of the government with the Italian Socialist Party (PSI) was officially approved in 1962, which ignited several reforms in relation to the Italian economical boom between 1958-1963.
36 The reforms did not really change the logic of profit hidden beneath the large-scale urbanization due to the incredible housing demand which justified the violations of rules, illegal increases of built volumes, the rises of prices and the explosion of land values.

Background

concerning the Italian consumerist boom and the future economical strategies.

This attempt to reconcile workers and capital by neutralizing class struggle through large-scale economical programs, found its architectural translation in a renewed interest for the "great dimension", a theme derived from the CIAM hypotheses for complex integrated urban interventions that in Italy had been endorsed by Giuseppe Samonà in his important text *L'urbanistica e l'avvenire delle città europee*,[37] further elaborated at the 9th INU Congress in Milan, through the interventions of Ludovico Quaroni, Giancarlo De Carlo, and Giovanni Astengo,[38] and eventually ratified by Manfredo Tafuri and the AUA architects in their renowned article *La Città Territorio.*[39] The theme fostered a large debate concerning the development of the Italian city, still paralyzed between an alleged safeguard of the historical city centers and the indiscriminate speculation of urban expansion. The directions of the national economical plan, in fact, suggested different forms of territorial organization, undermining the traditional distinctions between centers and peripheries or banishing the rhetoric of isolated objects and compartmentalized areas of functions: categories which did no longer work within the new extended cycles of production, distribution and consumption.[40]

On the other hand, the city should not have been simply reduced to an undifferentiated magma, but rather architecturally framed at different levels. As Tafuri remarked, the capitalist abstraction of territory should not have been conceived "as a surface on which every point would be perfectly equivalent to the other and ready to get functions or destinations" but, on the contrary, as a complex whole of natural and human resources that, in certain specific points could be converged, administered, and polarized by means of an archipelago of points, sort of middle-scale architectures between the dimension of the city and the extension

37 Giuseppe Samonà, *L'Urbanistica e l'avvenire della città negli stati europei,* (Bari: Laterza, 1959).
38 "Il IX Congresso INU a Milano. Programmi di sviluppo economico e pianificazione urbanistica", *Casabella-Continuità,* 270 (1962): 9-15.
39 Giorgio Piccinato, Vieri Quilici and Manfredo Tafuri, "La città-territorio. Verso una nuova dimensione", *Casabella-Continuità*, 270 (1962): 16-25.
40 *Ibidem*: "The city has moved from a compact configuration – which gathered the whole multiplicity of functions within a unique system characterized by strict relations between classes and an immediate contact between productive and consumerist areas – towards a more open configuration, in which the productive zones 'blend' within the territory, creating cracks and great voids within its own structure."

Città, catena di montaggio del sociale

### ideologia e teoria della metropoli • Archizoom associati

As a physical and social phenomenon the metropolis derives from the Capital and develops in line with its logic. The capital imposes its own general ideology on the metropolis, and this ideology conditions it. This general ideology consists of the Policy of Equilibrium among Opposites: it is also the Policy of Equilibrium among the Internal Contradictions of the Capital itself: indeed, as a natural extension of the Factory Model within Society, the Metropolis of the Capital insists on its autonomous right to assume the shape of a brutal functional system, and at the same time, the Metropolis is called on necessarily to represent Nature and Technology as operating on the same plane of experiences, achieving a spontaneous anthropological balance of Opposites and becoming a kind of "Great Village". However, it is indispensable to make one point clear: that there is no such thing as a Workers' Metropolis. In fact, just as there is no Class Political Economy, there is no Urbanistic Theory of Class, but only a Class Critique of Urbanistic Theory. The Utopia that we utilize, then, is only a more General Critical Language, which makes more immediate and direct Communication possible: such a Utopia, in fact, is not posed on the plane of a Qualitative clash of Values but on that of a Quantitative challenge. For all its high degree of technological development, the Modern Metropolis is compelled to accept a number of Natural Equilibria such as the depth of buildings in relation to ventilation and natural light. Despite this, we see that at the points where the system directly realizes its functional rationality on the urban plane, it actually goes beyond the "spontaneous" limit of light and air, realizing unified artificial systems which rise to the level of true General Urban Models. Samples of this may be seen in the Factory and the Supermarket. The first as a Productive Structure which is still partial with respect to the whole of society, foreshadows the whole urban organization as a homogeneous system of services and of space, superseding the 19th century clustering of the various urban functions still extant in the Metropolis. The second, as the Structure of Consumption, foreshadows the complete circulation of goods in the urban area, as the direct realization of a rational system of organizing consumption.

In both cases we see an identical ideology with respect to ground and space: the Metropolis, which is the meeting point of Production and Consumption, is thus subject to this law and not to others, and as a social phenomenon it is from this point of view that it must be studied.

Consequently, within the framework of a single objective law of ground and space, as necessarily homogeneous and not discontinuous realities in the logic of Production and Consumption, the Model of the City will be realized which is harmonious and not discontinuous within the homogeneity and discontinuity of the Country, and this to the extent that the two realities run along two different planes. On the one hand Architecture ceases to be Natural, on the other Nature ceases to be Culture. Such an Urban Model, however, does not represent the alternative to present reality, but present reality at a new level of Critical Awareness.
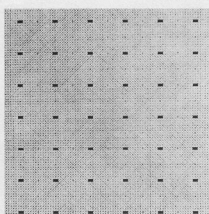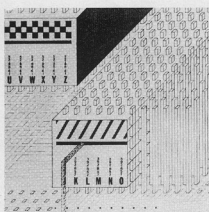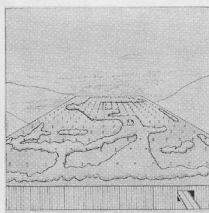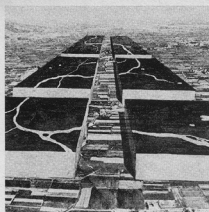
Quale dovrebbe essere il rapporto fra la linea ideologica di chi ha la responsabilità culturale di una rivista e quella degli autori che essa pubblica?

Difficile stabilirlo rigidamente, se non si vuole essere una mafia e nemmeno una delle tante parrocchie chiuse della cultura italiana. Se «Casabella» pubblica un articolo, quindi, ciò non significa necessariamente che tutta la redazione lo debba condividere. Personalmente, dissento in gran parte dal saggio così apodittico che segue, anche perché il mio modo di pensare alla comunicazione mediante la carta stampata è totalmente diverso da quello dei suoi autori. E' difficile per me persino esprimere delle critiche, perché questo modo di scrivere mi fa girare la testa, soprattutto per l'uso smisurato e un po' snobistico delle maiuscole: non trattandosi né di Hegel, né tampoco di Arbasino, mi si inceppa continuamente la lettura, come se camminassi sopra un mucchio di sassi. Debbo però informare i lettori che la mia opinione è strettamente personale, e che il Modo Di Condurre Il Discorso Ideologico degli «Archizoom» ha se non altro il pregio della novità, ed 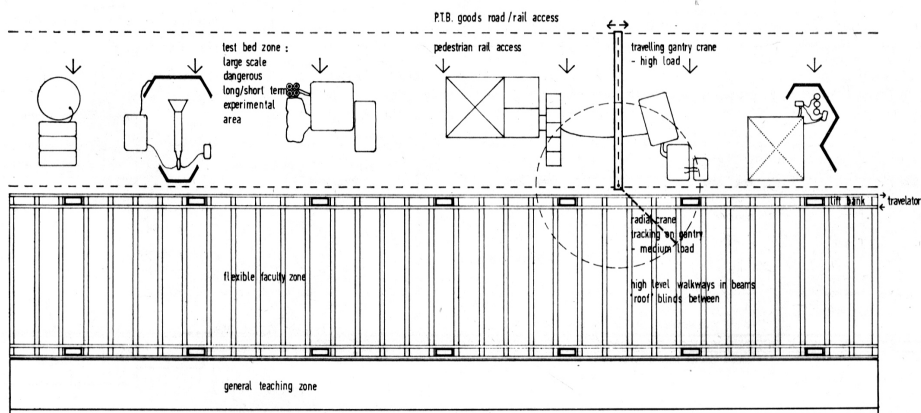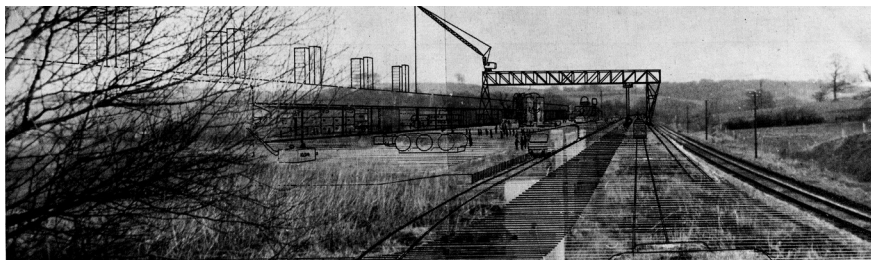è un indubbio seguito fra i giovani. «Casabella» ospita questo scritto, a cui una maggiore concisione avrebbe certo giovato, pensando alla giovane generazione di architetti, più preparata dalla mia alle riflessioni sulle teorizzazioni ideologiche, nella speranza di suscitare una utile discussione.

G. K. K.

5.3 *City Assembly Line of Social Issues,* Archizoom Associati. (Casabella, 1968)
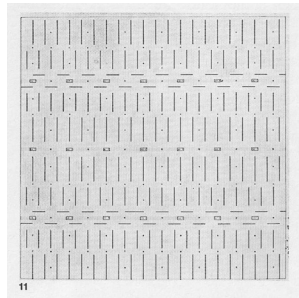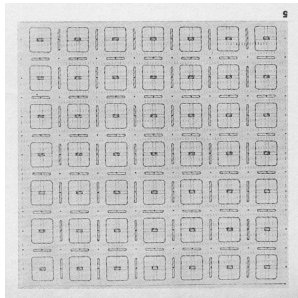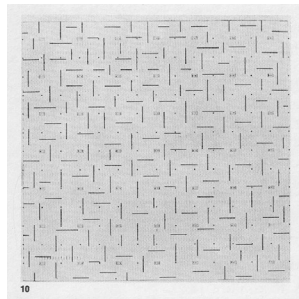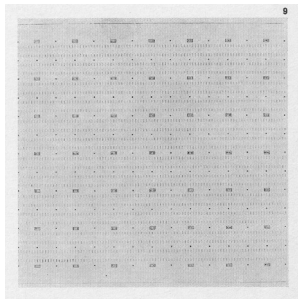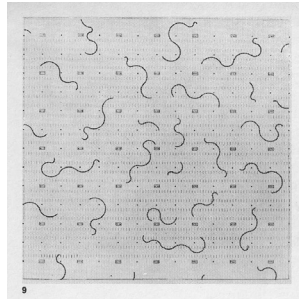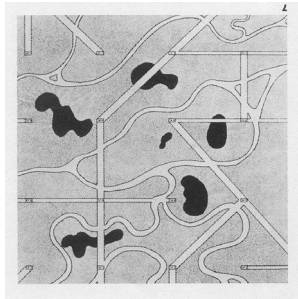
5.4 *City Assembly Line of Social Issues,* Archizoom Associati. (Casabella, 1968)
Homogenous inhabitable diagrams

The following labels appear within the diagram:

P.T.B. goods road/rail access

test bed zone :
large scale
dangerous
long/short term
experimental
area

pedestrian rail access

travelling gantry crane
- high load

flexible faculty zone

radial crane
racking on gantry
- medium load

lift bank

travelator

high level walkways in beams
roof blinds between

general teaching zone

5.5 *Thinkbelt Potteries,* Cedric Price. (1965) Madeley Transfer Area. General view of the complex, typical plan of the assemblable "flexible faculty zone", teaching and exchange areas. "A motorway-PTb rail-road link providing facilities for handling, assembly and construction of large-scale goods and equipment. Two workshop zones with adjustable high-level servicing and access are adjacent to conventional work areas capable of cellular variation which in turn adjoins reception, public and amenities areas." (AD, Oct. 1966)
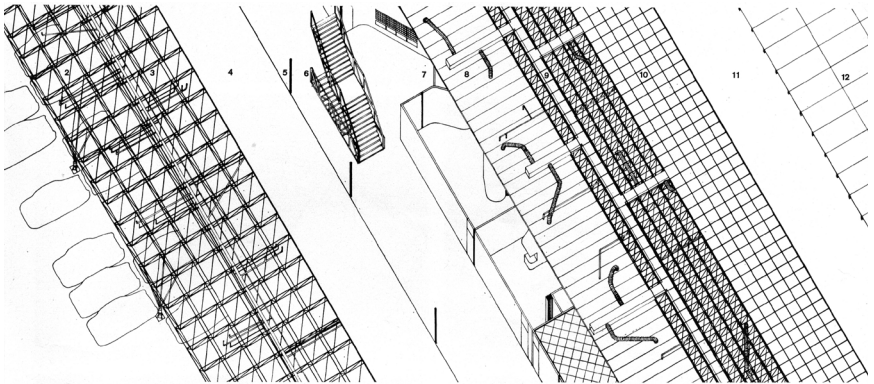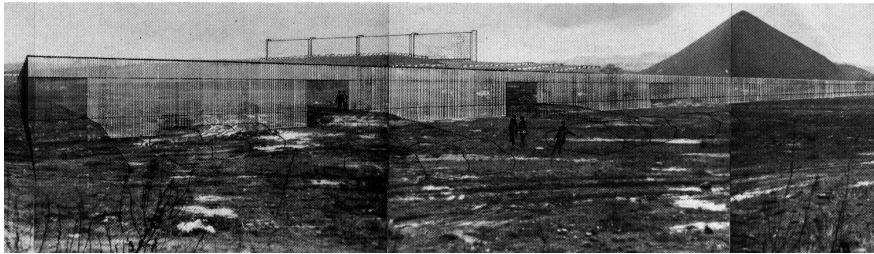
5.6 *Thinkbelt Potteries,* Cedric Price. (1965) Battery Housing. General view of the housing complex and axonometric scheme of the unit assemblage. The program reduced life and learning to pure logistical operations. (1) Parking (2) Fixed services within space grid (3) Sound insulation (4) Floor decking (5) Structural supports to roof (6) Stairs to roof and parking (7) Living units: non-loadbearing wet construction (8) Sound insulation (9) Flexible services within space grid (10) Thermal insulation (11) Weather seal

Typical plan as battlefield for living knowledge 323

of the region: directional centers, industrial nodes, housing developments, cultural facilities, infrastructural hubs.[41] In this way, the same capitalist concept of "homogeneity", used to translate urban and geographical relations into a unique field of exchange, could have been reverted into a working-class instrument to reveal differences and potentials across the territory.[42] Contrary to the capitalist homogenization of production, based on strict zonings, programs, fields and environments, the city-territory would have worked at regional scale, closer to the inhabitants and to the single municipalities yet directly related to the major national directions, through which constructing a much more efficient idea of planning, made of directions, gradients and fields of development.[43]

Hence, within those years of students' protests and intense Parliamentary debates, the architecture of the university emerged as a suitable model of territorial organization to test the themes of the great dimension. Its typical plan in fact, because of its intermediate scale, its typological uncertainty and programmatic flexibility, offered the possibility to achieve a global urban design concept operating at all levels, making "an effective intervention in the growing debate on the new dimensions and utopianism of architecture; exalt the fantastic element in design-praxis; transcend mere functionalism; and all in a linguistic structure that can take account of all kinds of architectural languages, whether illuminist or technological".[44]

Contesting the hypocrite "Policy of Balance between Opposite" promoted by

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41 Fundamental, in this sense, is the researches led by Alberto Magnaghi and his *Quaderni del Territorio*, such as *La città-fabbrica, contributi per una analisi di classe del territorio*, (Milan: Clup, 1970).

42 *Ibidem,* 18: "It is necessary to define the concept of territorial homogeneity, which for us should not mean an undifferentiated form. If there will be no qualitative differences (since the intense development of the communication networks, the programmatic complementarity at different points in the territory - and of its general activities - will make each of its parts at the same potential level) that would not entail that differences do not exist and that each would be a particular 'situation'." (translation mine, emphasis original).

43 Tafuri uses the term configuration to indicate the new dynamic asset of the settlements; it is a method of development. Within this game of 'weights and quantities', the directional center as a quantitative condensation point of a structure qualitatively homogeneous assumed a fundamental role to orient and configure the productive infrastructure. As clearly demonstrated by the CIAM urban interventions or, in a closer detail, by the AUA project for directional and productive structure for the southern territories around Rome. The AUA, Associazione Urbanisti ed Architetti, was founded in 1962 by Manfredo Tafuri, Giorgio Piccinato and Vieri Quilici. See their "Ipotesi per la città: Territorio di Roma. Strutture produttive e direzionali nel comprensorio pontino", *Casabella Continuità*, no. 274, (1963).

44 Paola Navone, Bruno Orlandoni, *Architettura Radicale*, (Milan: Documenti di Casabella, 1974).

the Christian Democratic political compromise and economical planning reforms, in their proposal for the University of Florence Archizoom attempted to destroy the neutrality of the State-capitalism by proposing a university paradoxically coinciding with its own site: a territorial campus covering the whole plain between Florence and Pistoia: a *Universal Climatic System*. The simple structural scheme, derived from an obsessive application of the modern technologies of the "well-tempered environment" at a territorial scale – elevators, air-conditioning, electric lighting, flexible space and flexible ceiling –, made the space of the university equal to any other architecture of production, being its typical plan not different from the one of factories, supermarkets, housing units: a bi-dimensional grid where all the components mutually balance themselves with equal levels of freedom and facilities".[45]

In this sense, by submitting only a series of endless plans and a single continuous cross-section devoid of any perimetrical definition, Archizoom intended to overcome the problem of architectural form in general, conceiving territory as a neutral surface and banishing the existence of any *outside* beyond the ubiquitous relations of production: "The only architectural form we would have wanted to propose was thus a fog bank roaming between Firenze and Pistoia. This not just as inspiration or poetic invention, in the sense that we refuse to design an object, preferring instead to design its use".[46]

The project was an obsessive repetition of Ludwig Hilberseimer's *Hochausstadt* productive plinth at a geographical level, which resulted in a massive platform ordered by a discreet number of supporting elements, toilets, shafts and elevators. In short, a three-dimensional industrial frame, made of superimposed plateaux for recreational facilities, information distribution, scientific research, residential

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45 "Si cerca di individuare una maglia bidimensionale in cui tutte le component si equilibrano con eguali gradi di libertà e servizi, che il Collettivo sembra chiamato ad organizzare e distribuire omogeneamente." Archizoom Associati, "Città Catena di Montaggio del Sociale", *Casabella*, Jul-Aug (1970). But also: "The factory and the supermarket become the specimen models for the future city: optimal urban structures, potentially limitless, where human functions are arranged spontaneously in a free field, made uniform by a system of micro-acclimatisation and optimal circulation of information". Archizoom Associati "No-Stop City. Residential Car Park. Universal Climatic System", *Domus,* 496, March (1971).
46 Archizoom Associati, "Archizoom: Progetto di Concorso per l'Università di Firenze", *Domus*, April (1972).

parking in which the greatest possible freedom could have been achieved through the maximum alienation of its inhabitants. The Territorial Planimetry of the project was nothing but the "homogeneous living diagram" they described in their manifesto for a City-assembly-line: *homogeneous*, because reality was one and the same, the one of production; *living,* because life in its genericness was the highest source of profit; *diagram* because such a plan immediately displayed both the immanent forces and their power relations.

Already Cedric Price, with his *Thinkbelt Potteries* in 1964, attempted to attack the concept of a secluded upper-class university and to undermine the self-referential logic of the campus by envisioning a linear system for higher education facilities on the ruins of an abandoned pottery industrial infrastructure in the English Midlands. Price conceived knowledge as a collective service, which had to be efficiently distributed "with the same lack of peculiarity as the supply of drinking water or free teeth."[47] Beside the direct criticism against the Red-Brick British universities, too small and too exclusive for a project of national mass-education, Price essentially imagined a diffused educational institution organized as a territorial *logistic* system: if in the past, military defense, energy and trades generated cities, "this project assumes that education and the need to exchange information may have a similar generative force: cities can be made by learning".

At the end of the 60s in fact, logistic was becoming one of the founding

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47 "There would be no uneasy demarcation between manufacture and learning. They would be integrated. To ensure this, teaching would take place wherever the particular research and manufacture related to it is sited. Students would be constantly on the move from laboratory to factory, from information centre to home, and from one home to another. They would be taught in rail-buses, on the move or in sidings, utilizing to the fullest extent the existing rail network which has become unsuitable for high speed traffic. (...) Living units, like teaching units, would be moved wherever necessary; they would be expandable and, of course, expendable. No one would be straight-jacked into a fixed community." (...) "The housing of a major activity such as education should be viewed in architectural terms as a demand to increase the availability of such a service on a national scale, through its dispensation may through necessity require a limited locale. This would appear to be in opposition to current higher educational practice where the containers are dressed up to look like a medieval college with power points and are located in gentlemanly seclusion". Cedric Price, "Life Conditioning", *Architectural Design*, (October, 1966); Stanley Mathews, *Cedric Price and the architecture of 'calculated uncertainty': The Fun Palace and Potteries Thinkbelt,* doctoral dissertation, (New York: Columbia University, 2001) and *From Agit-Prop to Free Space: The Architecture of Cedric Price* (London: Black Dog, 2007) ; Pier Vittorio Aureli, "Labor and Architecture Revisiting Cedric Price's Pottery Thinkbelt", *Log,* 23, (Fall, 2011).

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principles of the regime of flexible accumulation. The more production of material and immaterial goods extended its network of exchange across the globe, the more supply chain management – or SCM – became the necessary condition for an efficient circulation of commodities and information across the globe. Whereas Fordism operated through linear assembly-lines and hierarchies of subcontractors, by imposing unique mass-standardized commodities upon a massive demand of consumption, the rising post-Fordist *lean-production* worked on a reversed perspective, calculating the manufacturing process upon the consumers' demands and retroactively processing materials in different places and at different times through an extended network of autonomous service suppliers and assembling units: the faster the data and information were processed, the more materials and goods could have been distributed along the network of circulation increasing profits.[48] In those years of tertiary development and international circulation, logistics had a relevant impact on architecture especially after the revolutionary introduction of the container in 1956, which determined the standardization of harbors, stations, boats, trucks, trains, warehouses according to a unique volumetric unit (or TEU, Twenty Foot Equivalent), transforming architecture in a simple application of protocolar procedures and conventional norms.

Logistics had a military origin. It dealt with the correct organization of the army provisions in a hostile territory, determining the movements of the troops on the battlefield and thus the transportation, storage and delivery of artillery, food, medicines, fuel, mail: to ensure the maximum fluidity of circulation, logistics had to rationalize, minimize and standardize items, operations, times and spaces. On these same principles, Price elaborated a network of mobile classroom, laboratories and residential modules which could have been clustered, linked and assembled along the rail lines and served by standardized housing units and administrative centers: as containers, classrooms and dwellings could have been moved and rearranged via trains or trucks thanks to three "transfer points" with loading-unloading

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48 Among the wide literature on logistics and architecture, here had a particular relevance Alberto Toscano: "Logistics and Opposition", *Mute Magazine*, (August 9, 2011); Sergio Bologna, *Banche e Crisi,* (Rome: Derive & Approdi, 2013) and "Sui nuovi modi di muovere le merci", *Politica ed Economia,* (September, 1992); Franco Bortolini, "Storia del container", *Primo Maggio,* (Inverno, 1978-79).

decks. Actually, Price devised three housing modules – cradle, sprawl and capsule – which could have been literally "stored" as containers, by means of harboring concrete structures not dissimilarly to what Archizoom would hypothesize for their *Residential Parking Lots* few years later.[49]

Another influential reference for the Archizoom's university project was the scheme proposed by Giancarlo De Carlo for the University of Dublin, elaborated between 1963 and 1964 on the brief of a competition. The project was based on a large central spine containing all the main circulation, common and administration facilities, from which departed a series of perpendicular secondary routes organizing the different faculties with their specialized programs and laboratories as independent limbs.[50] The University expansion was located in a southern countryside area of Dublin, not so differently from the Florence competition, counterbalancing the northern expansions of the city with a large educational infrastructure. Combining a permanent with a more open network of programs, De Carlo attempted to provide the campus different levels of flexibility, which allowed the university to growth in successive phases and to internally modify its configuration according to the amount of students, the tendencies of research and the level of demand for shared facilities.

Also the University of Dublin was conceived as a logistic deck, whose lines of supply, services, technical ducts and emergency simply replicated the distribution of corridors and lecture rooms. The whole campus was in fact ruled by what De Carlo named an "organizational systematization", a grid of 25,5 x 25,5 feet alternated to 15,85 x 15, 85 feet which embedded, in its twofold pace, the distinction

<div style="text-align:right">5.7</div>

<div style="text-align:right">5.8</div>

49 "Traffic can be taken as the most general link of communication between the two, as it becomes the objective and figurative schema of the functioning of urban life. In fact roads do not merely serve the compact fabric of what is private, but they also dissect it and make it communicating, making place for the emergence of architectonic language". Archizoom Associati "No-Stop City. Residential Car Park. Universal Climatic System", *Domus,* 496, March (1971).

50 "In order to stimulate social contact in the new University a common basis of disposition of elements had to be found so as to create one organism with a clear structure, rather than many separate and varied entities. Each faculty and communal building, is broken down and classified by individual rooms according to their need for privacy in four degrees: namely communal, general, particular and specialized use. Thus lecture theatres which serve the whole community and also outside visitors are "very general" while small research rooms, for instance, are "very private". The disposition of rooms throughout the University is governed by this system of hierarchy of space-use." See Giancarlo De Carlo, *Proposal for a University Structure*, (Venice: Editrice Cluva, 1985), 4-5.

between served and services spaces and the infrastructural lines for mechanized transportation.[51] The faculties of Medicine and Dentistry, Arts and Architecture, Engineering and Humanist Studies, the student housing and sport facilities, were all based on the same typical plan, which permitted their total independent expansion while keeping common compositional principles, even under the supervision of different architects. The omnipresent modularity of the grid in fact, which characterized also the Archizoom's proposal, regularized the territorial extension of the campus, integrating not only the singularities of the existing buildings but also the topographic features, the vegetation patterns and the water streams within a continuous network:[52] for De Carlo in fact "the task of the architect has to arrest at the simple definition of structural frames – not neutral but charged of tensions – on which the most disparate ways of organization might develop and the richest and most disordered stimulating formal configurations might take place".

However, Archizoom took Price and De Carlo's proposals to their extreme development, considering the isotropic extension of the capitalist market as representable only by itself. Within such a pervasive condition, the construction of single environments was no longer possible since the real abstraction of capitalism turned the whole society into an artificial nature of homogeneous exchanges, eliminating the problem of the city and its architecture once and for all.[53]

5.9

51 "A system was necessary because it is organic, relevant and continuous in time, and gives clarity to an architectural principle. In addition a system is a tool that can be used by other architects ensuring the continuity of the main idea, while dictating neither style nor educational conditions nor technical restrictions, and at the same time preventing discord of form. Because of the long term nature of the development, the inevitable advances of technology and the possibility of several architects working on the University, we feel a system is essential to the satisfactory solution of this project", *ibidem,* 5.

52 Of course this was one of the first university proposal by Giancarlo De Carlo, who was part of the Team X group and who had been extremely influenced by their theories of circulation and flexibility. Nevertheless, this idea of an open-ended campus was simply suggested by the relative freedom of the context. Just few years later, for example, De Carlo who adopt a totally opposite strategy for the construction of the several faculties in the Renaissance city of Urbino, carefully intervening upon the historical urban fabric through surgical addictions and restorations, not dissimilarly from Francesco Di Giorgio's machines within Palazzo Ducale described in chapter 1. See Francesco Samassa (ed.) *Giancarlo De Carlo. Percorsi. IUAV Archivio Progetti,* (Venice: Il Poligrafo, 2004); Lamberto Rossi, *Giancarlo De Carlo. Architetture,* (Milan: Arnoldo Mondadori Editore, 1988).

53 Not by chance, in those same years, was published the *Progetto 80,* an in-depth study concerning the industrial and economical development of the nation for the decade 1971-1980, the first to have considered and mapped the whole Italian territory as a unique extension of resources, potentials, infrastructures.The
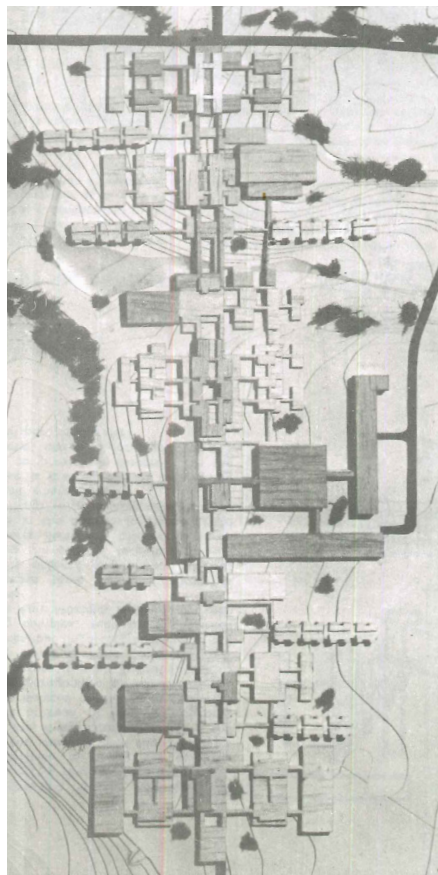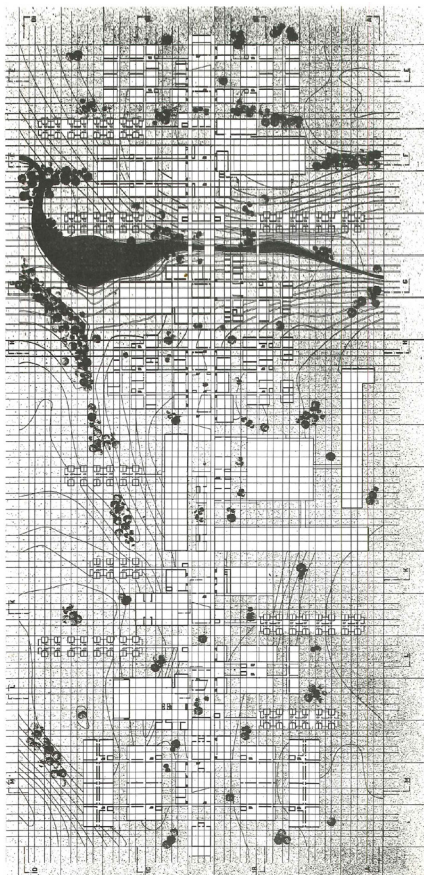
5.7 *Dublin University,* Giancarlo De Carlo. (1963) General plan on the left. Flexible layout scheme on the right. The double central axis allows an efficient logistic distribution and rapid vertical connections to faculties and departments, all based upon the same module.
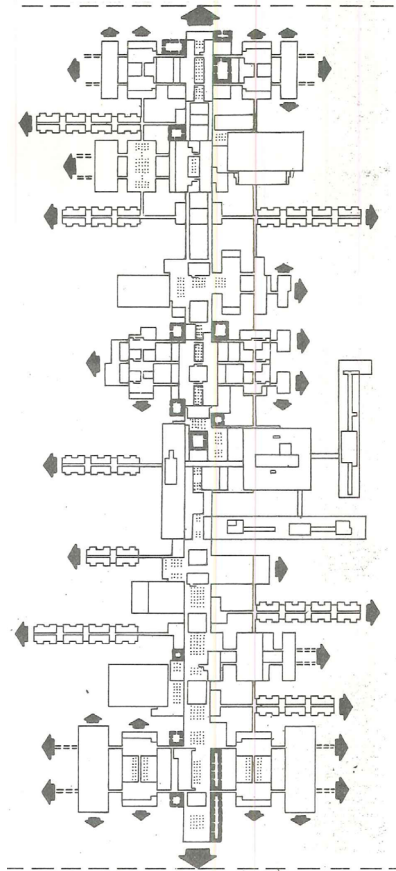
5.8 *Dublin University,* Giancarlo De Carlo. (1963) The double network of interactions – between the permanent central spine of facilities, administration, core buildings and the peripheral extendible surface of faculties and departments, validates a diagram appliable to cities and the whole territory. By reconfiguring the "structure" of the university, forms and lives could be simply organized among students and inhabitants.

This was explicit in their first two panels submitted for the competition, in which the Maginot-like typical cross section and the continuous typical plan of the Universal Climatic System were ironically juxtaposed to iconic examples of the 20th century architecture, dismantling any traditional figure-ground relations. Varying from Groupius' Siedlung Dammerstock to Le Corbusier's Unité d'Habitation, from Archigram's Plug-in City to the Metamorphic Pattern of the Italian group Metamorph, but also to samples of generic urban fabrics from Paris, Buenos Aires and New York, the modern architectures appeared as modest and isolated objects when compared to the homogeneous structural pattern of the university, replicating in drawings what Tafuri critically wrote on paper concerning the alleged anti-urban and self-referential nature of those interventions, which did not comply with the overall reorganization of the territory and rejected the real cycle of production.[54]

Both for Tafuri and Archizoom, the issue at stake was not to imagine a different, a better or fairer city, but rather to challenge the system in its entirety, unveiling its intrinsic quantitative logic of accumulation and exploitation through a definitive solution.[55] In this respect, even more than De Carlo, Archizoom's idea of university definitely contested the notion of "architectural project", conceived as limited technical method constrained to the partiality of a problem or a plot, and thus indifferent to the larger economical and social conditions which actually determined its real possibilities. The age of shocking alternatives was over: reality

Progetto 80 (Project 80) or *Rapporto preliminare al secondo programma economico nazionale 1971-75,* was presented at the Ministry of the Economical Planning in 1969 by a research team led by Giorgio Ruffolo, and composed by experts, university professors, economists. See MBPE, *Progetto 80. Rapporto preliminare al programma economico nazionale 1971/75,* (Milan: Feltrinelli, 1969) and also the comprehensive study on the project by Cristina Renzoni, *Il Progetto 80. Un'idea di Paese nell'Italia degli anni Settanta,* (Rome: Alinea Editrice, 2012).

54 Manfredo Tafuri, *Progetto e Utopia* (Bari: Laterza, 1973): 49–72; *Architecture and Utopia: Avant-garde and Capitalist Developmen*t, trans. Barbara Luigia La Penta (Cambridge: MIT Press, 1976).

55 Andrea Branzi reminds how Friedrich Engels' *The Question of Dwellings*, which was widely diffused at that time at the Architecture Faculty in Florence, was read against the social-democrat political and urban reformism. He claims: In that famous book, Karl Marx's colleague explained that there was not such thing as a 'working-class metropolis', but only a 'working-class critique' of the existing metropolis. This meant that the problem did not involve conceiving a better city but rather taking possession of the present day city. The role of the project did not reside in innovation, but in the ability to demystify the systems of logic on which the bourgeois city was based. The real political problem was not to guarantee that the city would function, but to prevent the present-day city from functioning (with barricades). See Andrea Branzi, "Postface", *No-Stop City,* (Orléans: Editions HYX, 2006): 139-155.

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for Archizoom was one and the same, typical and repetitive, a system in which you could only *be part of*.

In the third competition panel, the Universal Climatic System was dissected into a vocabulary of simple architectural elements: supports, elevators, technical and hygienic facilities, containers, green, and furniture. Once reduced to a system made of standardized parts, the university could have been indefinitely extended across the whole plain according to a 125 x 125 meters grid, modularly combined in

departmental sectors in form of empty gazeboes.[56] Moreover, mirroring the artificial "second nature" of capitalist production, the isotropic productive campus of the Universal Climatic System could have no longer being perceived neither from an outside nor from a privileged individual perspective but only logically represented through abstract plans or axonometric diagrams, deduced from the infinite point of view of the market exchange.

Rereading Tafuri's first chapter of *Toward a Critique of Architectural Ideology,* dedicated to the capitalist use of nature as testing-ground to set up the bourgeois ethical reason and to comply with the wild "universe of Necessity", in their proposal Archizoom attempted to draw a paradoxical relation between Giovanni Battista Piranesi' *Ampio Magnifico Collegio* and Thomas Jefferson's *University of* Virginia: two radically opposite strategies to use and contest rationality and to conceptually elaborate an architectural frame.[57] The first, which aimed at revealing both the creating and destructive power of reason by flaunting either the exuberance of its linguistic innovation or the redundancy of its combinatory invention; the second instead, which deployed rationality as a purely pragmatic instrument of land

56 The idea of 'department' at that time was important constituting one of the most debated points of the university reform and conceived as a principle of academic organization supposed to overcome the muddled division in faculties and to coordinate the different diploma courses, coupling the various direction of research with concrete professional and economical conditions.

57 Gilberto Corretti, in a private interview with the author, explicitly stressed the intense reading and debates held in the group concerning Tafuri's article, appeared in 1968 on the pages of *Contropiano*. On a note dated 7th April 1969 Corretti claims: "Architecture does not exist anymore. The city as an artifact or as a finite form does no longer exist; it only remains a city as condition for efficiency, a city able to self-represent itself. The two levels of the system, the petty-bourgeois demagogy and the large structural grid. The industrial system do not produce values. Architecture disappears. Production and demagogy. Demagogy concedes spaces for spontaneity within its productive network. Los Angeles, a city of detached villas within a network of complex highways, consumption poles and management." Gilberto Corretti, *Archivio Corretti* (Florence).

measurement, conceiving urban planning as a neutral and a-ideological grid to order territories and let its elements developing in space according to their individual needs and aspirations.[58] The power of the Archizoom's relied precisely upon this ambivalence between the resoluteness of the overall spatial disposition and the entropic excess of its internal spaces, which was nothing but the same conceptual shift occurring for Tafuri between Piranesi and Jefferson:[59] the central hierarchy of the *Collegio* was reversed inside out in the open structure of lawns and pavilions of the *University of Virginia*.

The *Collegio* was basically a non-sense machine: a sort of gigantic enclosed "forest" of rooms, whose supposedly centrality and rigorous form was continuously contradicted by the internal clash and proliferation of different sequences of spaces. The core of the whole composition was in fact a vacant space, a simple flight of staircases, a thoroughfare, considerably smaller in respect to the peripheral spaces hosting a theater, stables, a canteen and an oratory, giving the impression that the composition would collapse on itself.[60] In this sense, the plan of the *Collegio*

58 As in Laugier's city as a forest or in Cozens' theory of picturesque. See Manfredo Tafuri, "Per una critica dell'ideologia architettonica", *Contropiano*, no.1 (1969): "Il faut de la régularité et de la bizarrie, des rapports et des oppositions, des accidents qui variant le tableau, un grand ordre dans les details, de la confusion, du fracas, du tumult dans l'ensemble".

59 "We are commencing here the establishment of a college, and Instead of building a magnificent house which could exhaust ail our funds, we propose to lay off a square of about 7. or 800, f. wide, the outside of which we shall arrange separate pavilions, one for each professor and his scholars. Each pavilion will have a schoolroom below, and 2 rooms for the professor above and between pavilion and pavilion a range of dormitories for the boys, one story high, giving to each room, 16 feet wide and 12 feet deep. The pavilions about 36 feet wide in front and 24 feet, in depth, this sketch will give you an idea of It. the whole of the pavilions and dormitories to b e united by a colonnade in front of the height o f t he lower story of the pavilions, under which they may go dry from school to school, the colonnade will be of square brick pilasters (at first) with a Tuscan entablature, now what we wish is that these pavilions as will show themselves above the dormitories, shall be models of taste & good architecture, & of a variety of appearance, no two alike, so as to serve as specimens of the Architectural lectures. Will you set your imagination to work & sketch some designs for us, no matter how loosely with the pen, without the trouble of referring to scale or rule; for we want nothing but the outline o f t h e architecture, as the internal must be arranged according to local convenience a few sketches such as need not take you a moment will greatly oblige us . . ." See Thomas Jefferson, letter to Dr. William Thornton with the early plan of the University of Virginia, 9 May 1817.

60 On this account see Paolo Melis, "G.B. Piranesi: un 'ampio magnifico collegio' per l'architettura. Intenzionalità iconologica di un documento storico dell'Illuminismo", in *Psicon*, 4, July-October (1975): 84-100; but also the sharp analysis of Richard Serra's work by Yve-Alain Bois and John Shepley, "A Picturesque Stroll around Clara-Clara", *October*, Vol. 29 (1984): 32-62. "The center is a thoroughfare, i.e., an indifferent place, with no other identity than the one conferred on it by the passersby, a nonplace that exists only by the

constituted a physical index of its internal disorder, generated and destroyed by the energies of its content, where, as Tafuri claimed, "the independence of the parts and their montage obey no other law than that of pure contiguity."[61] Similarly, the continuous plan of Archizoom's university stemmed out from an unlimited repetition of typical plans and from the internal proliferation of class-rooms, conference spaces, auditoria, and programs of all sort, recovering the same attack Piranesi launched against the customary 18th century competitions of the Academy of San Luca, by opposing an expanding chaotic proliferation of spaces within the measured precision of an enclosing boundary, against the grandeur of well-balanced or rhetorical compositions.

5.14   The *University of Virginia* instead, which was largely influenced by Palladio's disposition of villas across the Venetian *terraferma*, was conceived more as a centrifugal diagram than as a proper plan. The porticoed wings around the Rotunda, in fact, neither limited nor centralized the composition – as the Temple in the Piranesian *Collegio* – yet configured the whole campus around an empty U-scheme without restricting the endless expansion of its pedagogical infrastructure. Similarly, in the Archizoom Universal Climatic System, the territorial planimetry is only regulated by a punctuated network of public facilities, which does not obstruct nor encloses the rest of the activities within rigid boundaries. Once production and re-production coincided, any distinction between the labor and leisure, factory and society ceased to exists: students were citizens, but also inhabitants, producers and consumers, finally liberated from the oppressing domestic compartments and free to simply performing themselves in a generic "vuoto attrezzato"*, a furnished void.[62]

      Therefore, in order to destroy the capitalist utopia of balance and demolishing its same mathematical principle of equilibriumm for Archizoom the only possible

experience of time and motion that the stroller may make of it"

61 Manfredo Tafuri, "The Wicked Architect", *The Sphere and the Labyrinth. Avant-Gardes and Architecture from Piranesi to the 1970s* (Cambridge, Mass.: The MIT Press, 1970): 25-62.

62 Contrary to the modern ideology of the *existenzminimum*, Archizoom proposed a house as an inhabitable cupboard, "an equipped zone without order or meaning where each other occupant exercised his right to imagine the form of his own space on his own behalf." In 1972 at MOMA New York, Archizoom presented their project 'dwelling is easy', a grey and empty room, within the exhibition 'Italy: New Domestic Landscape', where a voice described a well-lit and colorful house which the visitors could imagine for themselves. See Archizoom Associati, *IN. Argomenti e immagini di design*, anno II, no. 2-3, March - June, (1971).
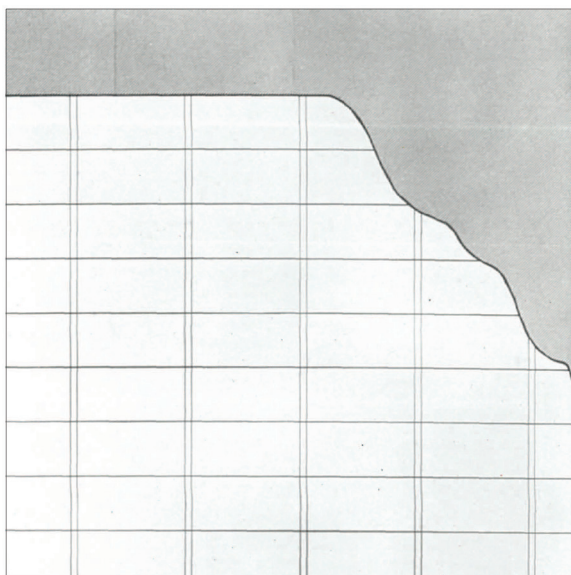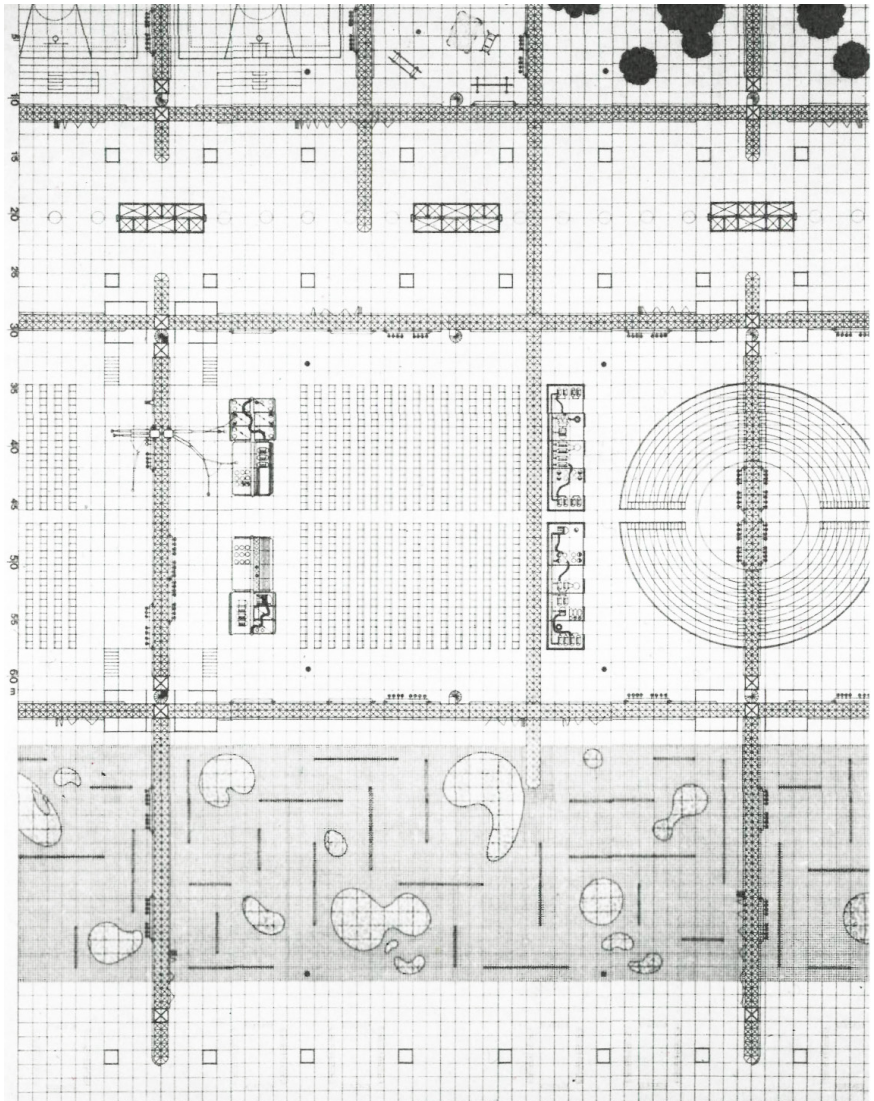
5.9 *University Climatic System,* Archizoom Associati (Florence, 1970). Typical plan of the university field.
5.10 *University Climatic System,* Archizoom Associati (Florence, 1970). Competition model and territorial plan. (Domus 509, April 1972). The homgeneous grid covers the whole plain towards Pistoia leaving only topography as "exception", to emphasize even more the plateau of the "Universal Climatic System" of the University.

Typical plan as battlefield for living knowledge   337
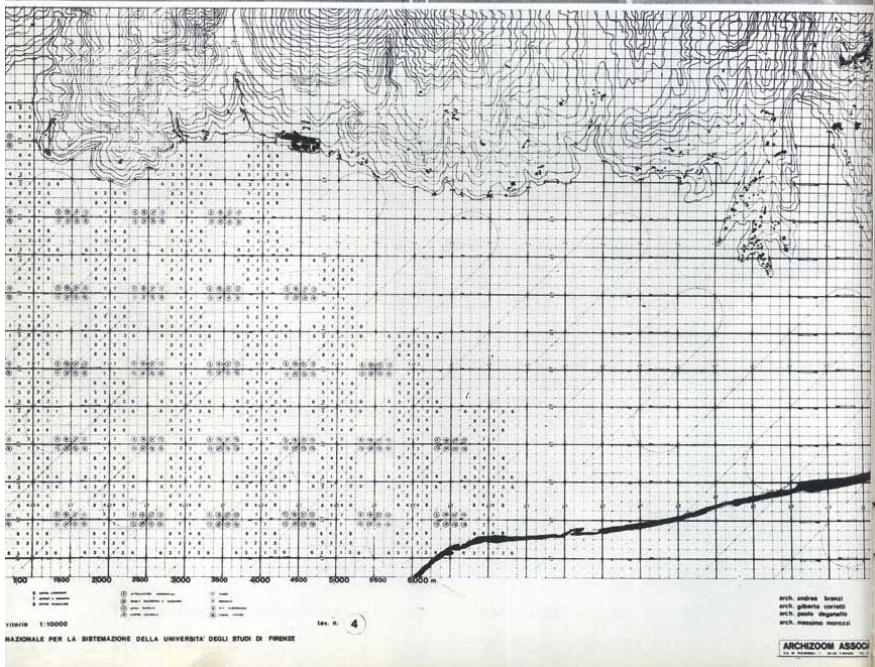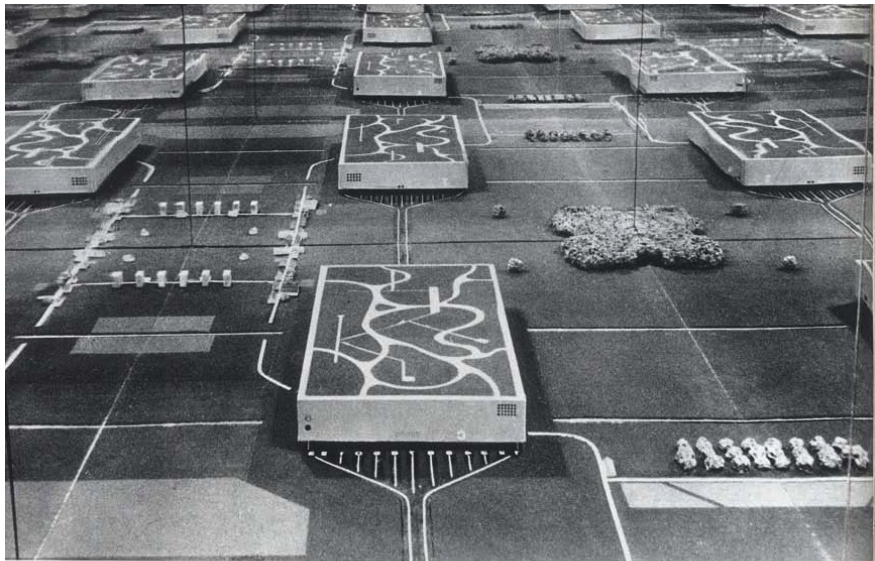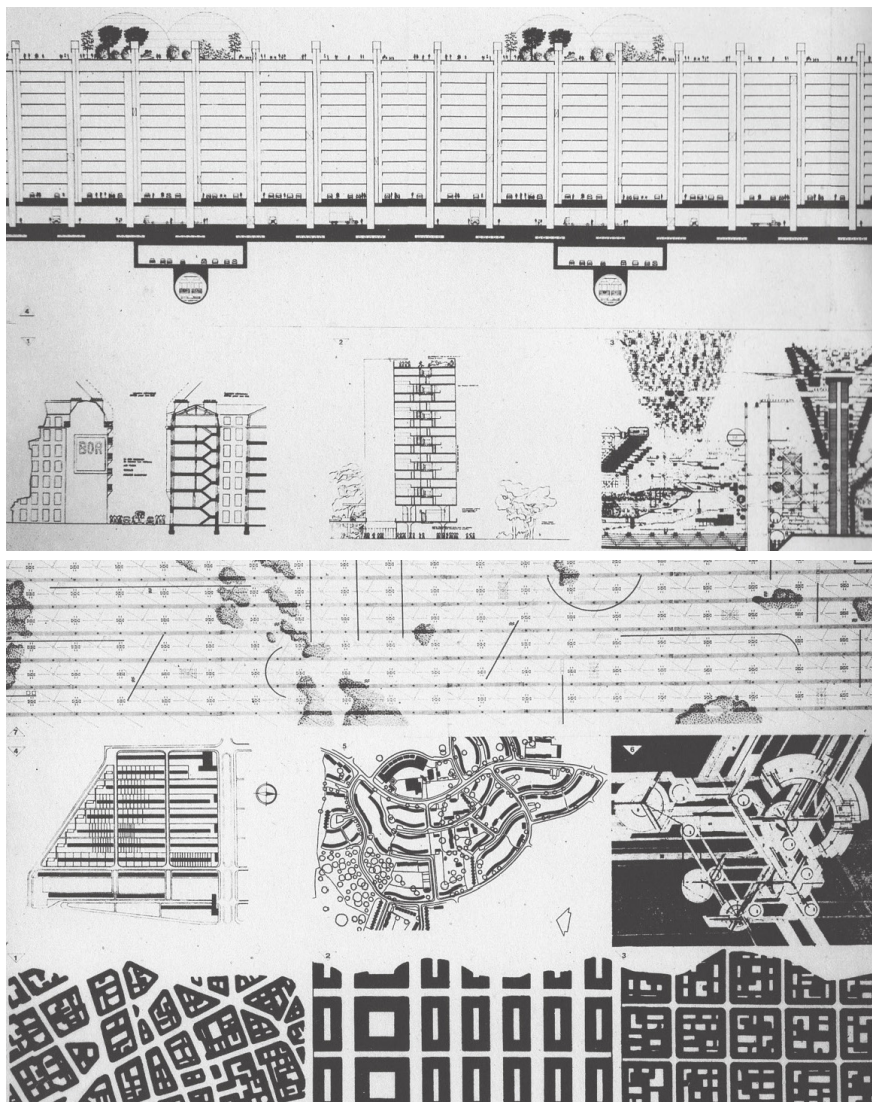
5.11 *University Climatic System,* Archizoom Associati (Florence, 1970). Continuous section and continuous plan of the university plateau, in comparison with the reasonable scale of architectural milestons and urban fabric.

5.12 *University Climatic System,* Archizoom Associati (Florence, 1970). Continuous plan of recreative activities.

5.13 *Pianta di ampio magnifico Collegio formata sopra l'idea dell'antiche Palestre de' Greci, e Terme de' Romani,* Giovanni Battista Piranesi, (Rome, 1750).

5.14 *Early drawing of the University of Virginia*, Thomas Jefferson, (Charlottesville, 1817-1820).

project for a university was purely isometric: to extend the university of Florence across the whole territory meant to literally mirror the conditions of production upon the whole society, transforming society itself into a gigantic organized workforce, blowing up all its ideological residual and revealing its embedded logic of exploitation. This was the reason why the Operaist motto – more money less work – appeared to them as "the maximum revolutionary program at the level of maximum incorporation": an unlimited university would have extended the evil of the working-class beyond any possible control, transforming the whole city into an uncontrollable condition, into a uniform battlefield. This conjectured coincidence between proletarization and the market domain, between knowledge and its apparatus of capture, entailed the premises "to make mad the Brain of the System": the more it developed, the more capital created its own gravediggers, expanding the possibility of its internal collapse.

Moreover, Archizoom showed the misery of the capitalist "Universal" categories vis-à-vis the common and trans-individual forces of the general intellect, elevating *per absurdum* the farce of a "controlled environment" as an alleged value for living knowledge: but the deliberate literalness of their project was so obsessive and meticulously detailed to reveal the inconsistency of the attempt to measure what could have not been measured: the human tacit potential. A Universal Climatic System, in fact, ultimately revealed the capitalist self-expulsion from the process of production: in order to not restrict the common flowering of living knowledge and to provide maximum freedom of expression, the extraction of value could occur only *after* production itself. At that point, an architecture of production could propose nothing else than a simple framing support for living, a porous endless enabling infrastructure, to simply let its inhabitants express what they are.

4. *Background*

"In order to become ever more identical to itself, to get as close as possible to motionless monotony, the free space of the commodity is henceforth constantly modified and reconstructed."

–Guy Debord [63]

University space recently undertook a dramatic reduction into a plethora of open plans – lounges, atria, interior landscapes, public living rooms – which transformed the buildings into containers for life: walls and obstructions had been eliminated, floors and roofs turned into "architectural promenades", outdoor and indoor conditions merged within air-controlled environments. Emptiness and flexibility became unavoidable commandments, while the rough simplicity of the "industrial box", the banality of its typical plans and the technical primitiveness of its structures suddenly resurrected within the architectural discourse in a white and clean fashion. Looking at the almost imperceptible thin-lined drawings of Junya Ishigami, or at the forest of 305 slender columns within the glass box of the Kanazawa Institute Technology Workshop, the law of the profit rate seems to have been confirmed to its ultimate consequences. The similar-but-not-identical parametric variations of the columns, the calculated degree of their distribution, the constellations of furniture and the refined choice of materials is all what remains of architecture: the rest were people, movements, potted-plants, wooden desks, machines, labor, activities, cooperation. The "relentlessly enabling, ennobling *background*" of the typical plan here explicitly proved what it had always been about: the virtuosity of actions performed before the pure "presence of others".[64]

In the premises to this work, the typical plan has been compared to the notion of frame as defined by Bernard Cache: an interval of space which lives out of an act of

63 Guy Debord, *The Society of Spectacle,* (Detroit: Black&Red, 1967): proposition no.167
64 Paolo Virno, "Virtuosismo e rivoluzione", in *Luogo comune,* 4, (1993), republished as "Virtuosity and Revolution: The Political Theory of Exodus" in *Radical Thought in Italy: A Potential Politics* (Minneapolis: University of Minnesota Press, 1996), 189-209.

separation or partitioning from the chaos, the subsequent selection of external and internal forces, the disposition of an horizontal stage of activities and culminating in a covering surface. Yet, the concept of frame is not fixed, but evolved through time and technology and, above all, according to the forms of life which took place within its interval. It progressively narrowed down to its supporting structure, widening its spans while minimizing its separations. To Cache the first radical act of innovation was in fact the equalization of the ground with the roof plane into an isometric homogeneous structure to be filled in, as in Albert Kahn's daylight factories or in Le Corbusier's *Maison Domino.*

However, within this long process of rarefaction, a further step occurred with the progressive merging of the two planes in a single surface as that "inflection of the free plane" occurring for Cache in Villa Savoye, when "the edge of the prism disappears into the box, becomes incurved as it follows the walls of variable curvature, coils up into the helicoidal line of a stairway, and sculpts a spine in the bathroom". [65] But precisely when the ground and the roof planes collapse in a slope, the typical plan is at the same time contradicted and emphasized in its proper constitutive rule, being no longer the "nth" plan a vertical or horizontal series, but the simple repetition of structural elements without distinct surfaces: at the point of its denial, the typical plan is muted into a three dimensional frame indexing the exceeding the richness of metropolitan life, as an excrescence of significance.

Koolhaas challenged the principles of the Typical Plan right before dedicating to it a whole essay on S,M,L,XL, submitting his famous project for the two Jussieu University libraries in Paris, in 1992. Joseph Albert's Jussieu campus – a raised block on piers based on a neutral grid of by 5 x 5 courtyards standing on a continuous socle, the so-called *parvis* – had been in fact aborted after the events of May 1968, demanding for its completion and a new core of facilities.[66] OMA

5.16

5.17

65 "The sloping roof then differs from the three other elements of the frame, for it is neither an interval nor a cause; it is the envelope of an effect: it is the singular becoming of a place, of the domestic as an eminent place. What then happens when modern architects reduce the roof to the status of walls? The house loses its bearings and each stone becomes a potential floor. The window stretches out lengthwise and becomes panoramic. This window no longer frames the zenith; it is now a "distributor of light." Bernard Cache, *Earth Moves: The Furnishing of Territories,* (Cambridge MA: The MIT Press, 1995): 27.
66 "Jussieu suffers from the problem of an enormous plane designed by every architectural gesture as the

proposal attempted to concentrate the disperse horizontal richness of the campus by vertically stacking the squared parvis into a single volume. Morevoer, in order to ensure the same visual continuity and circulatory complexity, floors were not just overlapped as separated platforms but joined within a single surface, imagined as "a pliable, social magic carpet", folded to generate a vertical intensified landscape of unexpected juxtapositions. The only residual elements of the typical plan – namely the squared grid structure of 64 steel columns, vertical connections, shafts and technical cores – complemented the flâneurian experience with "mechanical short circuits".[67] In the proposal, 35% of the total surface was in fact non-horizontal, declaring the primary role of circulation as the absolute principle of the composition, but also the unstable nature of the overall project. The building was no longer measured through floors, but via "intervals" of intensity, events, episodes, as witnessed by the famous unraveled cross-section, cutting through the building as unique spiraling boulevard.[68] In a way, the Downtown Athletic Club was to Fordist

public domain which remains stubbornly uninhabited. The natural assumption is that this is because there is a absence, because something that is not there and which, once identified, could be added, correcting the wrong situation. (...)At Jussieu "the people" are not there where they would animate the public realm. They are "elsewhere", in the vast three-dimensional labyrinth represented by Albert's scheme. An essential intervention could therefore be to cut a number of those connections, which will then force the "appearance" on the parvis of the inhabitants of the campus. For the gridded part, we propose a final strategy where each quadrant will have, at least one <u>interface</u> with the modified conditions" (emphasis original) See "The 2 libraries" typewritten document of the competition material (Netherlands Architecture Institute, OMA Archive): 7.

67 "Vis-à-vis the monumental scale of the architecture - the average distance between floor and ceiling is seven meters - the 2,5 crust of human occupancy is insignificant. The architecture represents a serene background against which "life" unfolds in the foreground. In this urban concept the specific constructions of the libraries will have unlimited potential for individual expression and difference. Also, the life span of the structure and that of the crust of the "settlement" are not necessarily the same; the path and the public domain are analogous to the permanence of the city, the infill of the libraries to that of individual architectures. In this structure, program can change continuously, without affecting architectural character." See "Unraveling. 2 Bibliothèques Jussieu. Paris, France. Competition, 1993." in Rem Koolhaas and Bruce Mau, *S,M,L,XL,* (New York: The Monacelli Press, 1995):1305-1329

68 "Even if its organization generates an almost infinite variety of spatial experiences, the basic concept of the building is simple: it is a mutation of a classical industrial loft building; its esthetic relies on the dialectic between the relative freedom of the concrete floor slabs and the rigor of the rows of columns that support them. This essential simplicity is a theme on all levels: in <u>structural</u> terms, the regular grid of columns and the floors form a stiff frame that needs no additional measures for stabilization. In terms of <u>services</u>, the depth of the building allows further exploitation of its inherent simplicity: a) all heating and cooling is done through floor slabs; b) the basic openness of the building allows it to be almost duct-less: air enters the perimeter zone through a "breathing" facade while the core is serviced by additional miniature plantrooms that are integrated with specific elements of the program; air is extracted through a major plant at the top". (emphasis original).
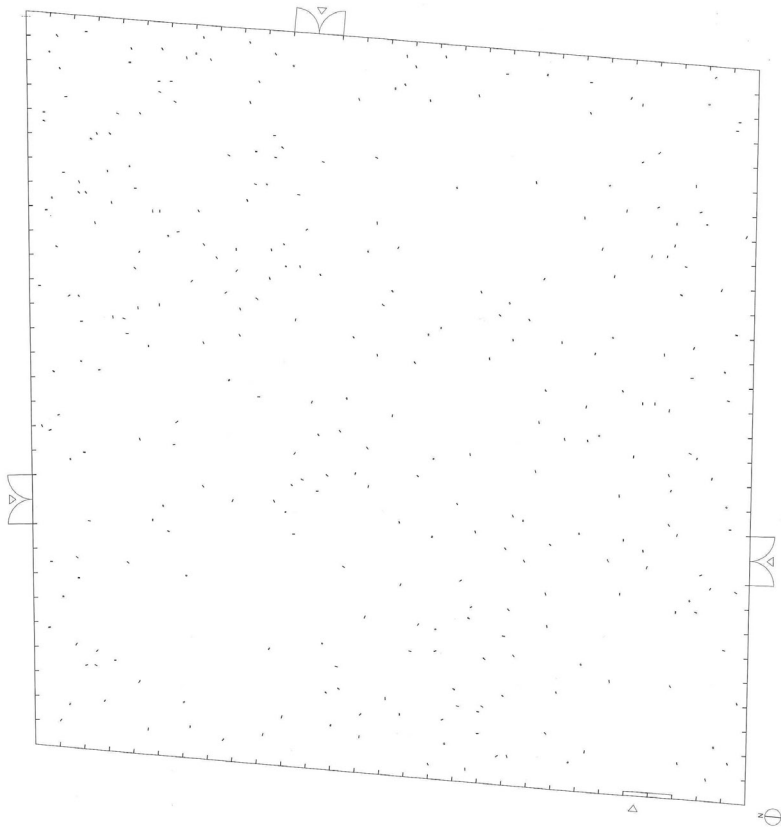
5.15 *Kanazawa Institute of Technology,* Junya Ishigami, (Kanazawa, 2010) Typical Plan.
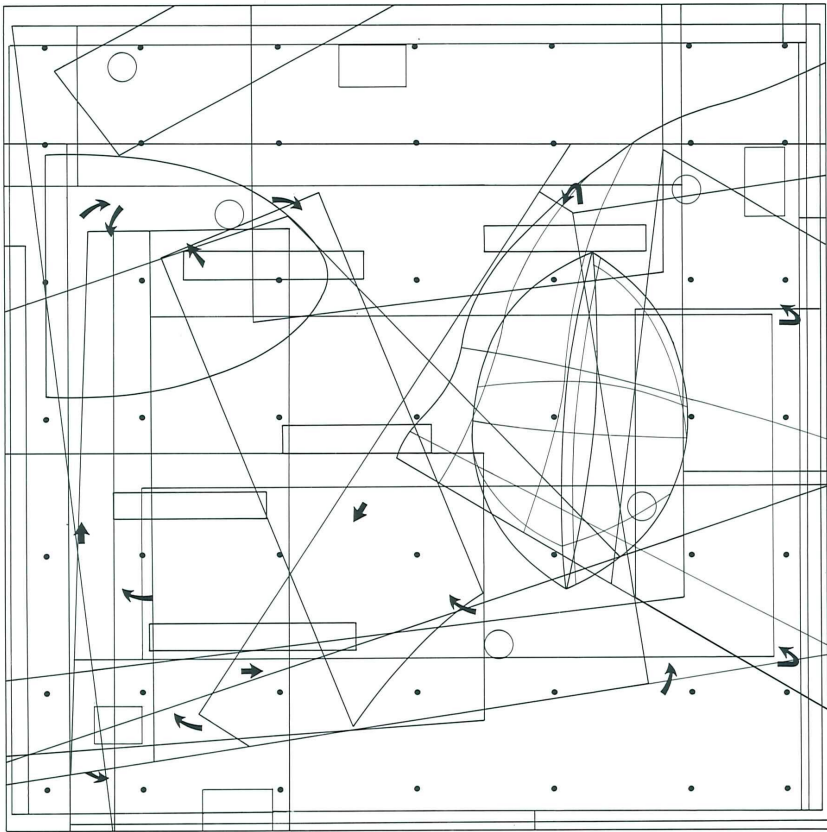
5.16 *Jussieu University libraries,* Office for Metropolitan Architecture, (Paris, 1992). Typical Plan with the superimposition of platforms: the flattened "magic carpet". [OMA Archive, Netherlands Architecture Institute]
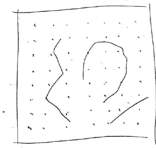
5.17 *Jussieu University libraries,* Office for Metropolitan Architecture, (Paris, 1992). Competion Panel no.1 with the positioning of the building within the squared "parvis". [OMA Archive, Netherlands Architecture Institute]
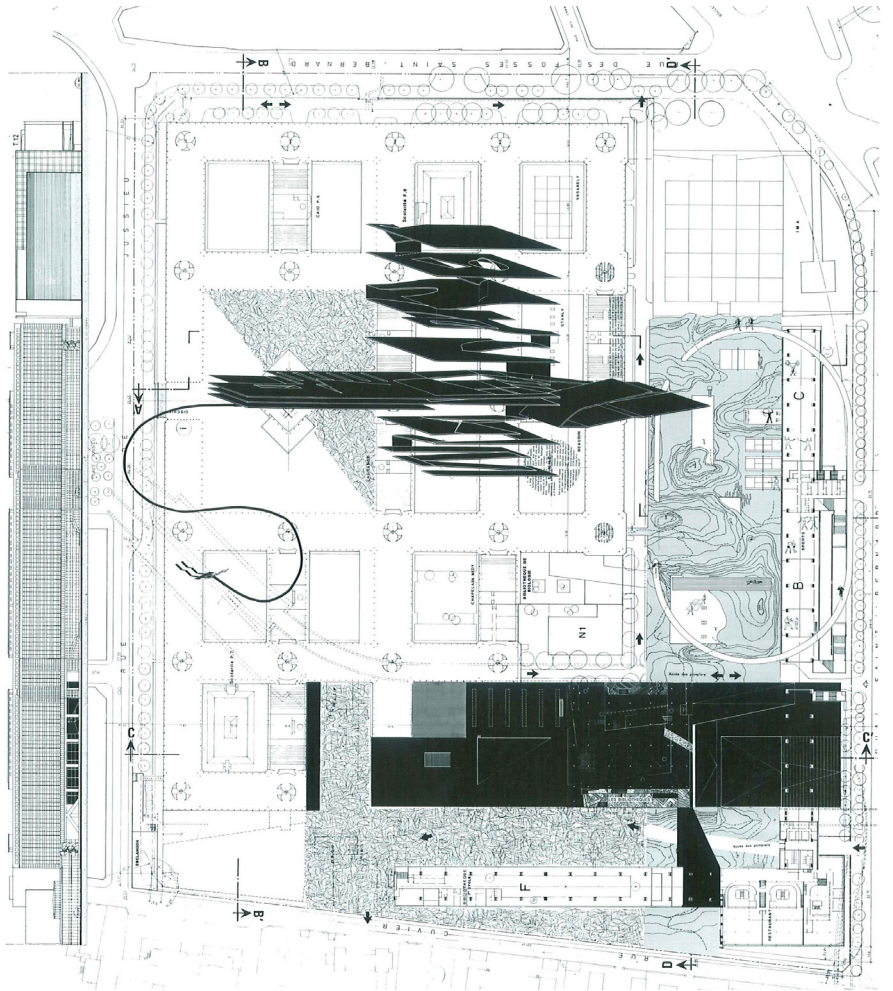
5.18 *Jussieu University libraries,* Office for Metropolitan Architecture, (Paris, 1992). Competition panel no.2. The inflectin of the parvis within the building: the library is able to cointain everything within its continuous enviroment. The only fixed elements were the 64 columns of the typical plan. [OMA Archive, Netherlands Architecture Institute]

Typical plan as battlefield for living knowledge
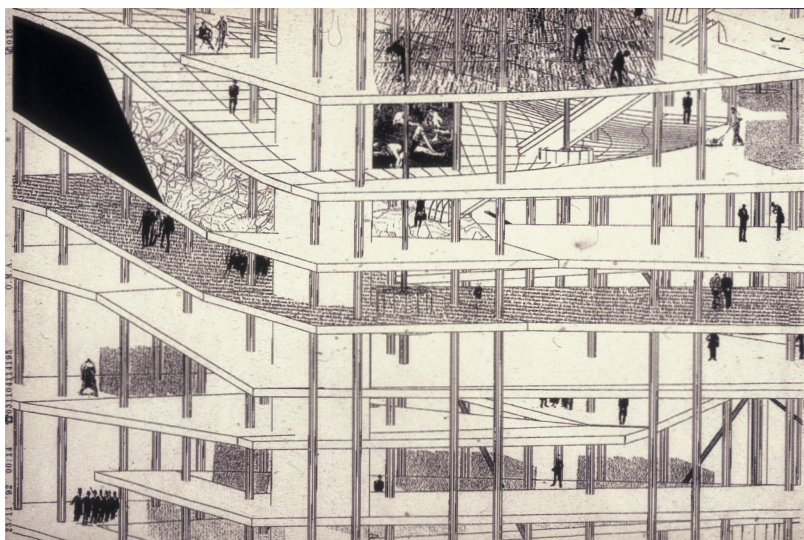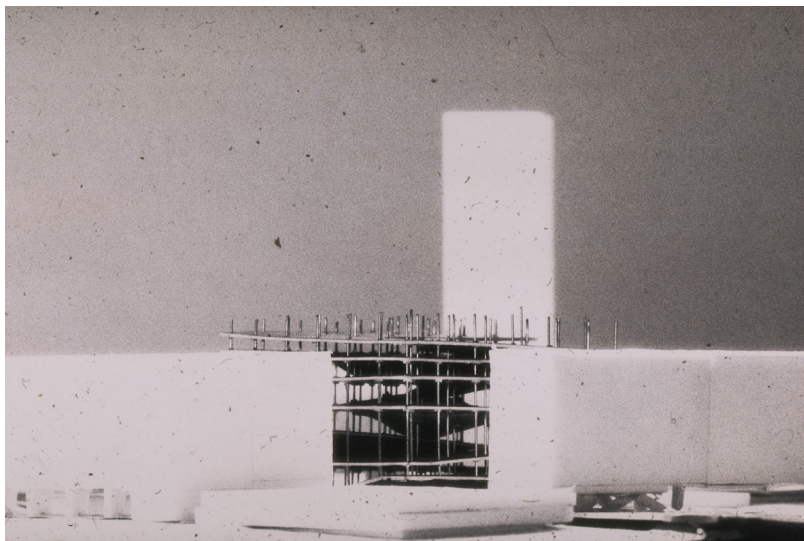
5.19 *Jussieu University libraries,* Office for Metropolitan Architecture, (Paris, 1992) Above, study model within Albert's Jussieu Campus. Below, drawing representing the inflected surfaces of the continuous inner boulevard. [OMA Archive, Netherlands Architecture Institute]
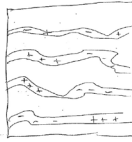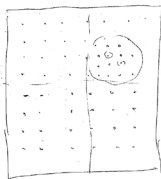
5.20 *Jussieu University libraries,* Office for Metropolitan Architecture, (Paris, 1992) Rem Koolhaas' fax explaining the main structural principles of the proposal, and the progressive merging of the different typical floor plans into a continuous surface. [OMA Archive, Netherlands Architecture Institute]
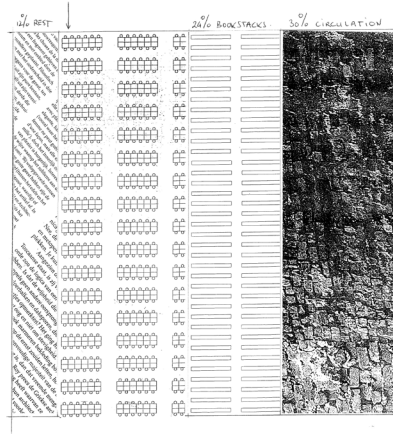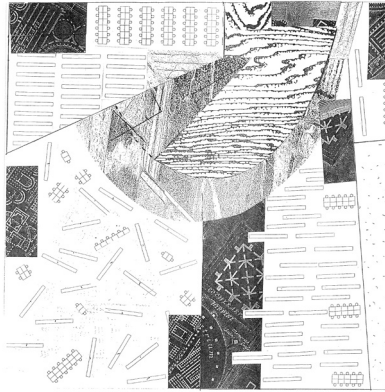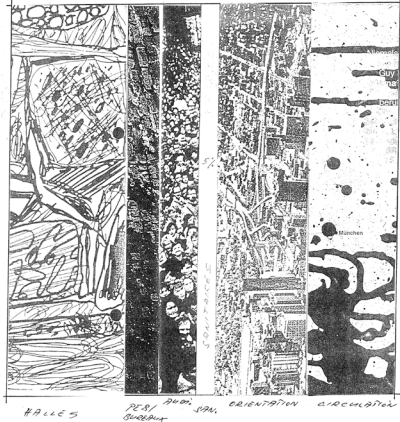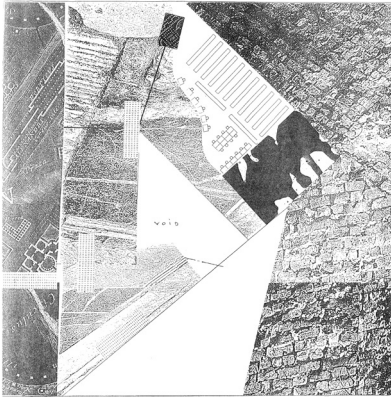
5.21 *Jussieu University libraries,* Office for Metropolitan Architecture, (Paris, 1992) Collage studies for the program and the internal organization. [OMA Archive, Netherlands Architecture Institute]

/MAIN LIBRARY PROGRAM

SALLE DE TRAVAIL

3 SALLE D'ÉTUDE.

PLACES ASSISES
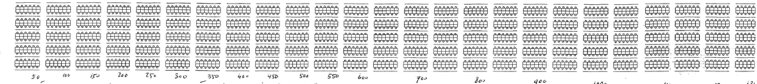
PRÉSENTATIONS PÉRIODIQUES

COMPACTUS (STOCKAGE)
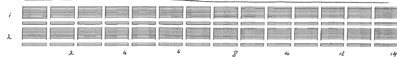
RAYONNAGES (OUVRAGES + MAGASINS)
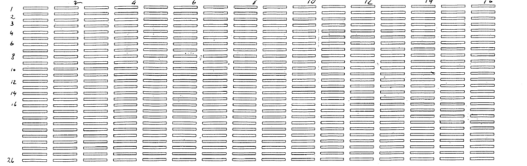
PLACE + COMPUTER

CARRELS
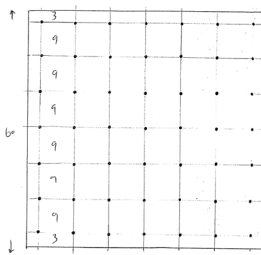
PUBLIC: 2363 M² + ACCUEIL ①
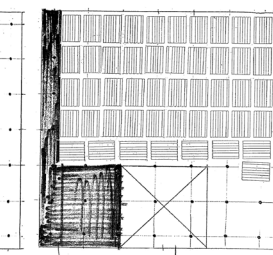
BUREAUX: 465 M² ②
SERV INTÉRIEUR 800 M²
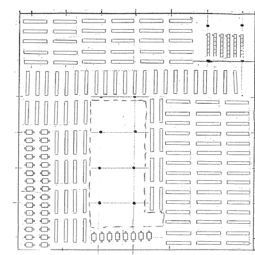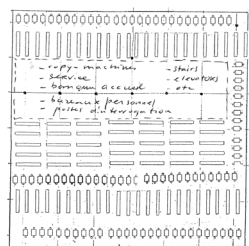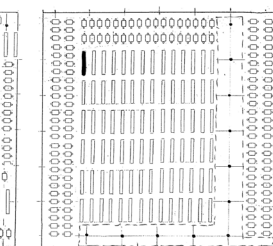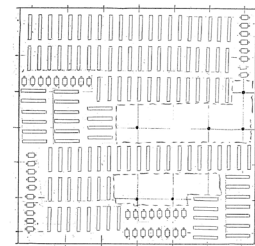
LIBRARY ②

LIBRARY ④
PROGRAM DIVIDED OVER 6 FLOORS.

LIBRARY ⑤

LIBRARY ⑥

Typical plan as battlefield for living knowledge 353
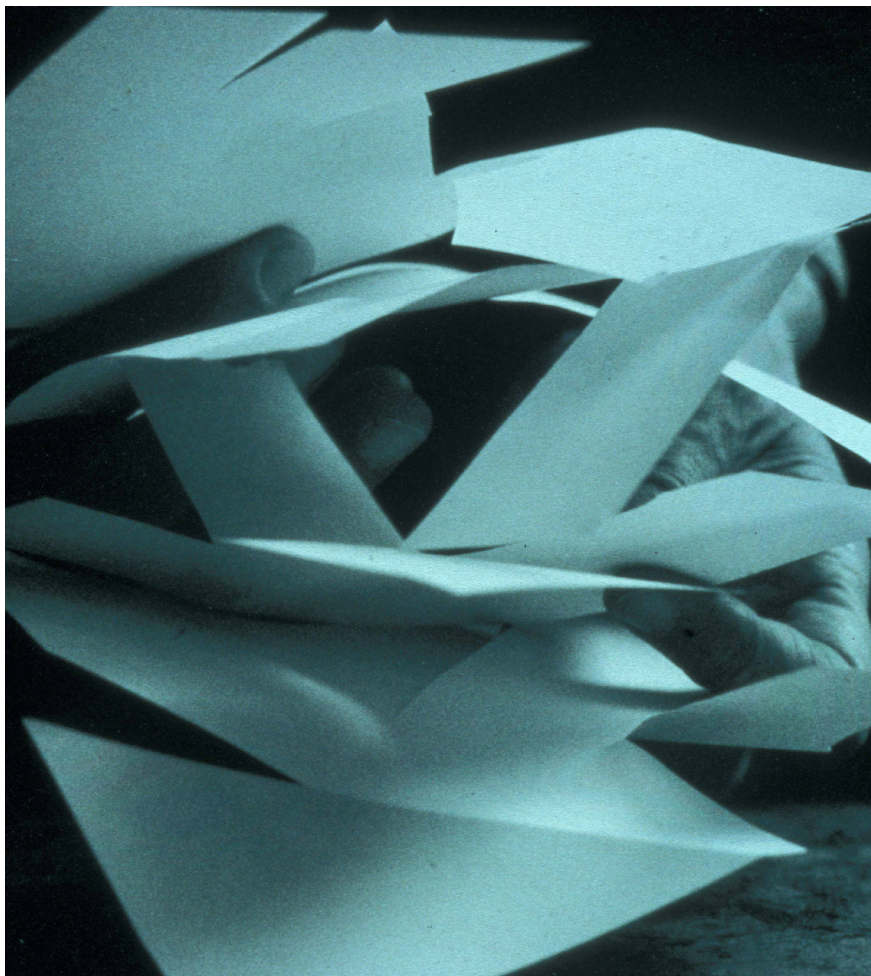
5.22 *Jussieu University libraries,* Office for Metropolitan Architecture, (Paris, 1992) Rem Koolhaas while folding and cutting the 'magic carpet' of the library, photographed by Hans Werlemann.
[OMA Archive, Netherlands Architecture Institute]

5.21   economy as Jussieu to neoliberal flexible accumulation: if the first was essentially a
platform repeated 38 times, which quantified the substance of the skyscraper in a
sequence of planes; the second one was a continuous landscape horizontally indexed

5.19   through 7 differentials gaps, intervals measuring the alterations of functions taking
place along the surface at various heights. Even when contested in its constituting
principles, the typical plan seems to find strategies to remark its adaptability to any
form and program, compensating the dissolution of its horizontal repetition with

5.20   the richness of an interiorized world, sequenced along its unwinding plane as in an
endless spectacle, where people could just look at themselves living. [69]

5. *Fall*

> "Capital, as the positing of surplus labour, is equally and
> in the same moment the positing and the not-positing
> of necessary labour; it exists only in so far as necessary
> labour both exists and does not exist."
>
> — Karl Marx[70]

In acknowledging the progressive extension of the general intellect, which
corresponded to a parallel demise of the labor-time as measure of wealth in favor of
the *life*-time of knowledge and affects, Marx unveiled the most crucial endogenous
contradiction of capitalism: the more it expanded and socialized its production the
more it constructed the limits for its development, fostering the entropy of its own
apparatus.[71]

See "The 2 libraries" typewritten document of the competition material (Netherlands Architecture Institute, OMA Archive): 5-6.
69 OMA "Two Libraries for Jussieu, Paris", *AA Files,* 26, Autumn (1993).
70 Karl Marx. *Grundrisse: Foundations of the critique of political economy*, trans. Martin Nicolaus, (New York: Vintage Books, 1973): 400-01.
71 *Ibidem,* 750: "The violent destruction of capital not by relations external to it, but rather as a condition of its self-preservation, is the most striking form in which advice is given it to be gone and to give room to a higher state of social production. It is not only the growth of scientific power, but the measure in which it is already posited as fixed capital, the scope and width in which it is realized and has conquered the totality

For Marx, this contradiction was already implicit in the way capital accumulated surplus-value, which represented the amount of labor gratuitously extorted from the average working day beyond and besides the amount paid to the workers for reproducing themselves: food, clothes, medicine, rent, everything needed to go back to work the next day. Despite the sole deployment of labor-power could create new value, the primary agenda of capitalists has always been to increase surplus-value while minimizing the expenses of production by shortening any intermediate step between accumulation and investment. Evidently, if the rate of exploitation (*s*) was given from the relation between the stolen surplus-value (PV) and the wages paid to the workers to survive (V), then the "greed for surplus-value" would have always resulted in a devaluation of the living labor-force, and therefore in a depreciation of the proper engine of development.

$$s = \frac{PV}{V}$$

According to Marx, the whole history of capitalism and working class antagonism have always been rotating around these three variables, which directly expressed the hideous "destructive creation" of death and living labor. Surplus-value, in fact, was incremented either by extending the general working-day (absolute surplus-value), or by reducing the necessary labor through an intensification of the pace of production with new machines and a more efficient architecture (relative surplus-value). On the other hand, precisely the larger investments in machinery and fixed capital – which was nonetheless indispensable to enlarge the theft of surplus-value, improve the economical competitiveness and widen the social cooperation of larger masses of workers – further deepened the contradictions of the surplus-value ratio, where the expenditure of fixed capital was not even considered albeit implicitly integrating its effects. [72] To Marx in fact, these paradoxical relations

of production" – and afterwards – "Hence the highest development of productive power together with the greatest expansion of existing wealth will coincide with depreciation of capital, degradation of the labourer, and a most straitened exhaustion of his vital powers. These contradictions lead to explosions, cataclysms, crises, in which by momentuous suspension of labour and annihilation of a great portion of capital the latter is violently reduced to the point where it can go on".

72 In fact, whereas the worker entered in relation with capital as a singular owner and seller of his labor-power, he was put at work as an "aliquot" of a collective workforce and thus producing more because of its

achieved a tangible form only when enlarged at the scale of the total average rate of profit, which epitomized all the ambivalences of accumulation within a general *tendency to fall.*

For Antonio Negri, whose insights into Marx's laws of surplus-value and rate of profit provided a fundamental contribution and a strategical toolbox for the labor movements, Marx never conceived the tendency to fall as an alleged formula for the capitalist collapse. On the opposite, if it was true that any capitalist advancement towards a better productivity inevitably resulted in social strife and crisis, it was also true that each crisis permitted capitalism to further evolve and ameliorate its technical composition vis-à-vis the stronger class-composition and political organization of the workers.[73] Marx and Negri did not imply crisis in opposition to development. Instead, from the proper "capitalistic use of crisis" they inferred the very nature of capitalism, which consisted in deliberate disproportions, unbalances and temporary collapses, being "the presence of living labor within capital, and the clashing necessity of capital to endorse and repress at the same time such a presence, tbe essential form of its development."[74]

Therefore, the law of profit-rate was rather an analytical tool to understand the logic of capitalist accumulation and to unveil its power relations, in order to construct a political counter-strategy within and against the same conditions of exploitation.[75] The acknowledgment of the tendency to fall and of the relative

unconscious cooperation with other workers. See Renato Panzieri, *Lotte operaie nello sviluppo capitalistico* (Turin: Einaudi, 1976)

73 Antonio Negri, *Marx Beyond Marx: Lessons on the Grundrisse*, ed. Jim Fleming, trans. Harry Cleaver, Michael Ryan, Maurizio Viano, (New York: Autonomedia, 1991): 85-104.

74 "La forma essenziale dello sviluppo sarà dunque quella dello scontro fra l'esistenza operaia dentro il capitale e la contraddittoria necessità capitalistica di associarsi e reprimere questa presenza." Antonio Negri, "Marx sul ciclo e la crisi: note", *Contropiano*, no. 2, May (1968): 271 (translation mine).

75 "Moreover, it has already been demonstrated — and this constitutes the real secret of the tendency of the rate of profit to fall — that the manipulations to produce relative surplus-value amount, on the whole, to transforming as much as possible of a certain quantity of labour into surplus-value, on the one hand, and employing as little labour as possible in proportion to the invested capital, on the other, so that the same reasons which permit raising the intensity of exploitation rule out exploiting the same quantity of labour as before by the same capital. These are the counteracting tendencies, which, while effecting a rise in the rate of surplus-value, also tend to decrease the mass of surplus-value, and hence the rate of profit produced by a certain capital." Karl Marx, Capital. *A Critique of Political Economy* (Hamburg: Otto Müller Verlag, 1867): Volume III, Chapter 14

strategies to avoid collapse, in fact, would have provided the working class a weapon to sharpen the attacks and increase the contradictions of capitalist accumulation.

$$p = \frac{PV}{C+V}$$

The law assumes that the rate of average profit (p) increases according to the rate of exploitation. On the contrary, when constant and variable capital grow (C+V) – that is to say wages, raw material, land, buildings, etc. – the final profit decreases.[76] In this sense, in order to increase productivity and to evade labor struggle through centuries capitalism had to proportionally extend its fixed part – lands, machines, factories, infrastructures architectures – at the expenses of variable capital, forced to constrain an ever increasing amounts of resources while, at the same time, reducing living labor – the true source of value – as its mere appendix. This also meant that the more surplus-value was exploited, the more capital was compelled to negate itself in order to not lose profit. The larger it expanded across society and social relations, the more it needed to rarefy its structural form, constraining its architecture towards the barest form of possibility: to a simple, flexible, and reproducible frame able to restrain and make productive any human activity, a *typical plan*.

From Francesco di Giorgio's axonometric devices, to Dürer geometrical projections, from Serlio's standardization of drawing to Vasari Jr. or Ammanati's technical elaborations of plans, from Albert Kahn's factories, to the concrete office buildings by Leonidov, Mies or Hilberseimer, from the Maison Domino by Le Corbusier to Archizoom University, the modern evolution of the space of production was nothing but a drastic process of simplification and concentration of

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76 "The real surplus value is determined by the relation of surplus labour to necessary labour, or by the portion of the capital, the portion of objectified labour, which exchanges for living labour, relative to the portion of objectified labour by which it is replaced. But surplus value in the form of profit is measured by the total value of the capital presupposed to the production process. Presupposing the same surplus value, the same surplus labour in proportion to necessary labour, then, the rate of profit depends on the relation between the part of capital exchanged for living labour and the part existing in the form of raw material and means of production. Hence, the smaller the portion exchanged for living labour becomes, the smaller becomes the rate of profit. Thus, in the same proportion as capital takes up a larger place as capital in the production process relative to immediate labour, i.e. the more the relative surplus value grows—the value-creating power of capital—the more does the rate of profit fall." Karl Marx, *Grundrisse: Foundations of the critique of political economy*, trans. Martin Nicolaus, (New York: Vintage Books, 1973): 747.

Background

its apparatus. Forced by centuries of labor struggle and corresponding technological advancements, the architecture of fixed capital evolved from masonry to concrete or steel structures, from natural energy sources to steam and electric engines, from manual assemblages to automatic assembly-lines, from the singularity of massive buildings to the coherent slender integrations of independent pavilions, from concentrated and formally delimited settlements to sparse logistic networks. As Le Corbusier synthesized in the diagrams of his *Architecture d'Époque Machiniste*, the typical plan of modern architecture was the rational re-proposition of its primitive sheltering function: a set of bearing supports, technical shafts and a wide empty floor to simply expose the genericness of human labor. In this sense, the emptiness and the technical rationality of the modern architecture of production were nothing but tendency of the profit rate to fall translated in spatial terms.

Epilogue

Francis Bacon, *Sand Dune* (1983)

"My rights consist of that part of my power which others have not only conceded to me, but which they wish to maintain for me."

—Friedrich Nietzsche[1]

Concluding his reflection on the notion of frame, Bernard Cache briefly mentions several Francis Bacon's paintings to explain the mutual relation between human actions and space, life and form.[2] All Bacon's paintings are in fact attempts to isolate a figure from a field of color by means of frames, contours, forms.[3] Most of the figures in Bacon are human bodies at the point of collapsing, caught either in a spasm or in a tension within ordered domestic interiors.[4] The bodies populating these paintings are in a perennial research of self-definition and in those convulsions and efforts we might trace back the essential character of human labor as a process of individuation, the act of becoming oneself. Here it could be claimed that the Marx's notion of "social individual" we mentioned along the chapters finds a pictorial expression: the convergence of the generic traits of the human nature within the singularity of a being, which is never in an accomplished individual but always an entity in constant negotiation with its social environment and other beings.[5]

1 Friedrich Nietzsche, *The Dawn of Day,* original title *Morgenröte. Gedanken über die moralischen Vorurteile,* (1881), transl. John McFarland Kennedy, Book II, 112 (New York: The MacMillan Company, 1911): 97.
2 We began this dissertation from Cache's notion of the frame, which the represents not only as a scaleless concept, ranging from the furnishing of territories to the framing of domestic interiors, but mainly as the device to let life achieve its own form. Bernard Cache, *Earth Moves. The furnishing of territories,* (Cambridge MA: The MIT Press,1995), 26; but also Giorgio Agamben, "Form-of-life" (1993), *Means Without End: Notes on Politics (Theory Out Of Bounds),* (Minneapolis, London: University of Minnesota Press, 2000): 3-13.
3 For a wider account on Francis Bacon see David Sylvester, *The Brutality of Fact: Interviews with Francis Bacon, 1962-1979* (London: Thames and Hudson, 1980), 10-29; 68-107; and Gilles Deleuze, *Francis Bacon. Logique de la sensation,* (Paris: Éditions de la Différence, 1981). Francis Bacon's cages and linear frames had been an inspiring reference for Archizoom's projects *Gazebi* and *Residential Parking Lots* described in the previous chapters. See Andrea Branzi, "Postface", *No-Stop City,* (Orléans: Editions HYX, 2006): 139-155.
4 Before painting, in the 30s Francis Bacon worked as interior designer: largely influenced by the modernist trends, he designed chairs, tables and rugs. Most of his paintings, in this sense, keep the memory of this exploration of the domestic interior.
5 Marx refers to the notion of "social individual" in the *Grundrisse. Foundations of the Critique of Political Economy* (1857-58), (New York: Vintage Books, 1973): 705. For a better understanding of the process of individuation, see Gilbert Simondon, *L'Individuation psychique et collective à la lumière des notions de Forme, Information, Potentiel et Métastabilité,* (Paris: Editions Aubier, 1989), but also Paolo Virno, who curated the

Bodies are never painted as balanced arrangements of limbs and organs, but rather as masses of row meat, as living carcasses devoid of determined configurations: bodies are without qualities, moving in an uncertain status between humanity and animality, whose formal consistency is emphasized by the presence of conventional objects such as cages, islands, carpets, floors, rooms, partitions providing a frame for the figure to be. The frame marks a contour, defines a territory for the body to exist and to express itself in space, coinciding with the strive for dwelling, the very first human action in the word.[6]

In a way, Bacon's paintings prove how labor power is inseparable from a corporeal existence, implicitly explaining why, for centuries, the human body has been exploited as measure of exchange for what could have not been evaluated: the generic potential to produce. A potential, in fact, can never be concretely exploitable, being something that is not-there-yet, the presence of an absence. It is something that might turn into actuality and assume a tangible form, but not necessarily. Potential is the faculty of negation, of *not*-being, acting or doing something, the possibility of refusal: freedom in fact arises only from what is not-necessary to be.[7] Whenever it materializes into an act, a choice is taken and the potential is reduced or, as Marx says, it becomes "death". Thus, human labor lies within the threshold between potentiality and act: the whole history of capitalism might be resumed in the attempt to gradually circumscribe degrees of human potential into measures, rights or conventions, in order to control and exchange it as a commodity. Labor power could have only been subsumed in form but not in content, renting the body of the worker and translating his movements into calculable effort-expenditures. On

Italian editions of Simondon's work, "Moltitudine e principio di individuazione", *Multitudes,* 7, (2001) and "Gli angeli e il general intellect. L'individuazione in Duns Scoto e Gilbert Simondon", *Multitudes,* 18, (2004), all available at http://multitudes.samizdat.net

6 Elizabeth Grosz further develops the relation between Cache's notion of architecture as framing device with Deleuze's account on sensations and Francis Bacon's painting in her *Chaos, Territory, Art. Deleuze and the framing of the Earth,* (New York: Columbia University Press, 2008): 1-24.

7 Aristotle defines actuality (*energheia*) and potentiality (*dunamis*) in Book Theta (IV) of his Metaphysics. For a debate concerning the notion of potential, see Aristotle, *Metaphysics,* Book IV; Giorgio Agamben, *Potentialities: Collected Essays in Philosophy,* (Stanford, CA: Stanford University Press, 1999), 177-184; Paolo Virno, *Il ricordo del presente: Saggio sul tempo storico,* (Turin: Bollati Boringhieri: 1999): 67-75; Augusto Illuminati, *Del Comune. Cronache del General Intellect,* (Rome: Manifestolibri, 2003): 13-47.

Head I, Francis Bacon, 1948.
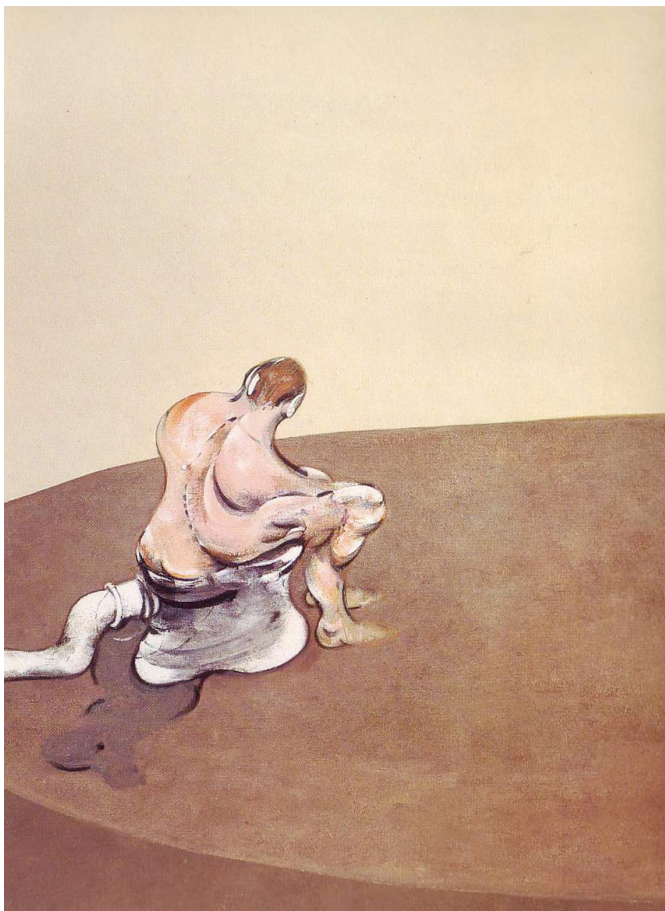
Two figures in a room (left panel). Francis Bacon, 1964.
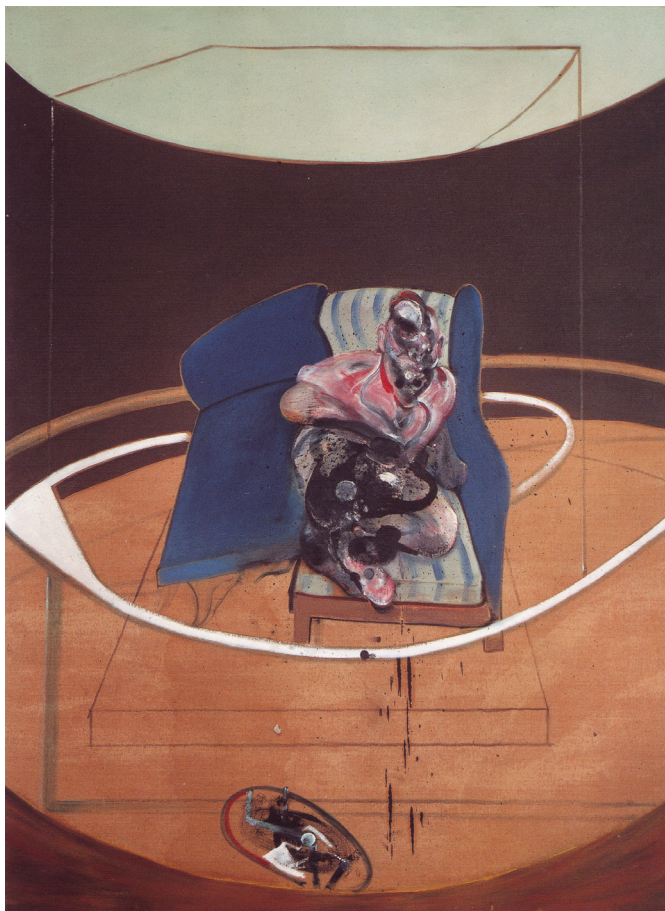
Figure on a folding bed, Francis Bacon, 1963.

Figure in movement, Francis Bacon, 1982.

a juridical level, such uneven exchange between act and potential, work and human abilities, appeared a fair deal: a normal contract stipulated among "equivalents". As owner of his labor force, the worker was not considered a slave but a free individual able to decide whether to sell it or not. Through the contractual agreement the employer did not officially purchase the life of a worker but only the necessary physical and mental activities he was able to perform within a negotiated interval of space and time. For his efforts the worker received back a salary, corresponding to the minimum necessary to survive and reconstitute his labor-power in order to repeat his work over and over.[8]

Labor in change of a wage: this pact was both the conviction and the force of the worker. The salary legitimized workers as citizens and thus as part of a wider social system: it entitled them of the possibility to negotiate the terms of employment, providing a juridical battlefield for class conflict: more money for less work. Thus, along the chapters, we attempted to demonstrate how such a class dialectics found a direct translation in the typical plans of factories, offices, dwellings and universities, whose architecture was in fact developed upon the rate of profit, or the amount of surplus-value extractable in relation to a fixed capital (C) organizing a variable capital (V).[9] In order to increase surplus value, the space of production had to be maximized in its technical efficiency, by simplifying its spatial configuration to a basic structural frame or increasing its internal flexibility. At the same time, the number and the cost of workers had to be downsized or eventually eliminated from the equation: death labor versus living labor. Nevertheless, if in the past the variable capital at the denominator of the formula was displaced by fixed capital, substituting human labor with machinery, in the present "knowledge economy" the scenario seems to have been partially reversed. While fixed capital progressively evolved into a minimized technological framework, the largest part of production has been transferred upon the competences and faculties of workers but without an adequate increase of salary: in other words, both C and V have been reduced and merged. As

8 Karl Marx, *Capital. A Critique of Political Economy,* (New York: Vintage Books, 1977)*:* Book I, Ch. 6.
9 Variable capital represents the amount of value produced every day by the worker and destined to the reproduction of his own labor force: in other words his means of subsistence, his salary, which is the measure of exploitation and the expression of power relation socially and historically determined.

Christian Marazzi explained it, the more capitalism evolved towards new sources of value – such as knowledge, language, information – the more workers began fulfilling both the functions of fixed and variable capital, "C and V" at the same time: what once were the architecture and machinery of the factory have become today the body and the mind of the single worker.[10]

Yet, if this shift totally confirmed the typical plan as the quintessential spatial paradigm for production – an empty frame to just let people *be* and *perform* themselves – on the other hand it implied a drastical overturn of any previous labor relation. Within Fordist accumulation, the development of social wealth was strictly linked to the evolution of the means of production: factories, lands, buildings, cities embodied the highest advancements of science and knowledge, while the worker was simply considered as the detached "conscious organ" scattered across numerous points of the productive apparatus. Instead, in a regime of flexible accumulation based on intellectual faculties, linguistic dexterity, creativity, and public relations, it is no longer *how long the worker works* but rather *what he knows* and *how he is able to express* his competences through his labor: suddenly, the genericness of human labor turned immediately present, visible. Exploitation moved from the physical efforts of the body, to the personal experiences, the tacit knowledge and the social interactions the worker was able to externalize *by means of* his own body.[11] At that point, the architecture of production could have been finally released from the burden of machinery and developed as logistics, as an infrastructure of connections, reducing fixed capital to a simple shelter of columns and beams, cables and servers, false-ceilings and endless moquettes. In this way, since everything became part of the same productive cycle, the typical plan definitely exceeded the walls of the factory, not only extending at a territorial scale as device of urbanization, but also permeating the most remote individuality of the worker, providing a generic frame for his actions and an empty stage to express his potential.

10 Christian Marazzi, "L'ammortamento del corpo-macchina", in *Reinventare il Lavoro*, ed. Jean-Louis Lavalle (Rome: Angelo Ruggieri, 2005), 111; but also, in more general terms, *Capital and Language. From the New Economy to the War Economy* (2002), (Los Angeles: Semiotext(e), 2008): 13-68.
11 For the notion of tacit knowledge see Michael Polanyi, *Personal Knowledge. Towards a Post-Critical Philosophy,* (London: Routledge & Kegan Paul, 1958)

1.

Differently from a slave, whose body belongs to a owner and therefore has a value per se, the free worker does not possess any value beyond his labor power, which he is forced to sell as a commodity and for which he autonomously provides nourishment and reproduction. Nevertheless, the duties of reproduction, care, household and sexual activities have been for centuries were considered as non-work, being concerned with the valueless subsistence of the body and thus simply acknowledged as an appendix of salaried work.

Since Aristotle in fact, domestic labor was a synonymous for necessity. The management of the house, namely *oikonomia,* dealt with all those activities impeding freedom: a life devoid of the burdens of material subsistence and solely devoted to a virtuous existence. The household, the space for life-reproduction, had to be separated both from the unscrupulous accumulation of richness and belongings, or *chrematistics,* but also from *politics* as such, which required the total freedom of his actors in order to govern the city and ensure the common good. Aristotle distinguished the idea of production – *poiesis* – or the creation of objects, from the idea of action – *praxis* – or an activity that found an accomplishment in itself.[12] Whereas the first aimed at the realization of a final product that could stand indifferently from a user or a public; the latter was not separable from its proper expression, entailing a relation between the acting subject and an external condition or a public. Through such a particular activity without-end-product, man was able to reveal himself his own potential, projecting and expressing his will through his own body and actions, language and thoughts. And precisely because of its intrinsic openness and independence from external goals, the Aristotelian notion of praxis was essentially political: action in fact, required the exposition and the construction of a subjectivity, the acknowledgment of the self in relation to a public sphere. Politics was nothing but the virtuous realization of the single within a community, the culminating point of the process of individuation.[13]

12 Aristotle, N*icomachean Ethics*: Book VI
13 In other words, the praxis coincided with the art of living and with the balanced negotiation of the individual with his world. What Aristotle defined as *eudaimonia*, the supreme happiness, was thus considered

Nevertheless, today it seems that the Aristotelian categories of action and production have been reversed, if not merged with each other. When neoliberal economy abolished any distinction between fixed and variable capital putting the whole life at work, then the activity-without-end-product became the prototype for labor in general. Paradoxically, the political and performative attributes of action turned to coincide with the household domain of production and reproduction of the self, whose servile activities, cares and affects, suddenly became the skills requested to any cognitive worker.[14] In this sense, it is not surprising to realize that the heaviest attacks against the exchange of labor for a wage had been launched by the feminist movements in the mid of the 20th century. Violently dismantling any stereotyped definition of labor, feminists were the first to contest any distinction between life and work, production and reproduction, as false capitalist separations, introduced to ensure the gratuitous creation and reconstitution of labor power. Domestic labor, in fact, had been always subsumed either as a biological destiny or an 'act of love' towards the family: a natural attribute of women, who were condemned to social discrimination and to an economical subordination while being enslaved for their invisible duty.[15]A very particular kind of duty, which lacked of the strict spatial and temporal subdivisions of the assembly line but which disposed an unlimited

as totally immanent, embedded in the lives of the citizens. This is actually very important, since Aristotle mostly dealt with matter and substance, contrary to Plato, for whom the world was a mere reflection of and ideal reality. In Aristotle, all the infinite possibilities of human nature were contained within the human nature, and the supreme good, the *aretè* or virtue, was something that men could only achieve by developing their inner reason to its utmost possibilities. In this sense, human life could have never conceived as 'bare life', since it was always qualified by the particular and infinite power of the intellect, moved by an unrelenting desire to know. Hannah Arendt has notoriously translated Aristotle's *poiesis* and *praxis* into the categories of *work* and *action* that, together with the idea of *labor*, construct the realm of the human condition. See Hannah Arendt, *The Human Condition,* (Chicago: University of Chicago Press, 1958).

14 The same Aristotelian distinction would be recovered by Marx in his reflections on intellectual labor, a particular activity able to produce use-values and commodities out of knowledge – such as books, paintings or records – but whose essence was "not separable form the act of producing" coinciding with its proper performance, as for artists, teachers or doctors. Karl Marx, "The Result of the Immediate Process of Production." in *Capital*, vol. I (Harmondsworth, England: Penguin, 1976): 941–1048.

15 "For capital, the whole sphere of production is a natural process, the forces acting in such a process are natural forces as the relations taking places are natural relations. The truth is that this is nothing but one character of reproduction. The other is the one of value, the one of capital. Despite concealed, it the real and dominant character". Leopoldina Fortunati, *L'arcano della riproduzione. Casalinghe, prostitute, operai e capitale,* (Venice: Marsilio, 1981), 41 (*translation mine*).

combination of physical, emotional and sexual efforts. Actions like maternity, family care or children's education exceeded the regulative categories of manual work, requiring a much more intense physical and psychological involvement of the subject.

Claiming that factories and houses had equivalent roles within capitalist valorization, feminists' struggle for a wage never aimed at entering the capitalist relations – since they have never been out of them –[16] but instead at refusing domestic work as natural expression of female gender. In this way, the "counterplanning from the kitchen" raised the protest at a juridical level, denouncing the existence of a wider and not-retributed field of the human labor power which had been silently exploited for centuries and which exceeded the traditional terms of workers class conflict.[17]

A simple State socialization of housework, without the legal acknowledgment of domestic labor, would have not redeemed the housewives' social subordination. In Italy for example, especially after the 1968 movements, the feminist opposition developed independently from the historical association of the Unione Donne in Italia (Union of Women in Italy), which already after WWII advanced a moderate request for welfare assistance, better state services and equal gender opportunities. The important contribution of the UDI, in fact, aimed at the modernization of the female societal role and at their integration within the post-war Italian welfare system, incentivizing a series of State reforms, favoring the women's access to vote,

16 "Wages for housework, then, is a revolutionary demand not because by itself it destroys capital, but because it forces capital to restructure social relations in terms more favorable to us and consequently more favorable to the unity of the class. (…) To say that we want wages for housework is to expose the fact that housework is already money for capital, that capital has made and makes money out of our cooking, smiling, fucking. At the same time, it shows that we have cooked, smiled, fucked throughout the years not because it was easier for us than for anybody else, but because we did not have any other choice." Silvia Federici, "Wages Against Housework" (1975), *Revolution at Point Zero. Housework, Reproduction and Feminist Struggle,* (New York: PM Press, Autonomedia, 2012): 15-22. See also Mariarosa Dalla Costa, "Women and the Subversion of the Community", in *The Power of Women and the Subversion of the Community,* (Dalla Costa and Selma James: 1972): 25-26.

17 "It is one thing to set up a day care center the way we want it, and then demand that the State pay for it. It is quite another thing to deliver our children to the State and then ask the State to control them not for five but for fifteen hours a day. It is one thing to organize communally the way we want to eat (by ourselves, in groups) and then ask the State to pay for it, and it is the opposite thing to ask the State to organize our meals. In one case we regain some control over our lives, in the other we extend the State's control over us." Silvia Federici, Nicole Cox, "Counterplanning from the Kitchen" (1975), *Revolution at Point Zero. Housework, Reproduction and Feminist Struggle,* (New York: PM Press, Autonomedia, 2012): 28-40.

an equal wage retribution, the housewives' rights to pension and district-based public facilities.[18]

On the contrary, the feminist movements did not ask for assistance services but strove for creating a whole new jurisprudence, opening new territories of conflict which could achieve a urban dimension far beyond the domestic walls. The problem was not to reclaim what was already there, or to fight for a better and fairer redistribution of the products of labor, but instead to take control over the whole social production, and make visible especially those forms which remained purposely excluded from the capitalist division of labor.[19] Once confronted to all the household chores and the reproductive activities taking place across the city, the labor time spent at the factory suddenly appeared as an incredible minimum fraction of the whole social time of production. Hence the feminist movements envisioned a totally different housing question, considering dwelling no longer as a simple means of subsistence but as a primary and fundamental space of production, and therefore moving struggle from simple demands of necessity to the claim for new rights and strategies of organization.[20] The alleged "right to the city", which got

18 Not by chance, precisely from their sociological studies and debates, the Italian Ministry of Public Works elaborated the first set of national urban standards in 1967, which set the minimum amount of public space per inhabitant: 18 square meters per citizen. 9 square meters of parks, 2,5 of parkings, 4,5 of education and 2 for facilities of common interest. See *Decreto interministeriale 2 aprile 1968*, n. 1444, "Limiti inderogabili di densità edilizia, di altezza, di distanza fra i fabbricati e rapporti massimi tra spazi destinati agli insediamenti residenziali e produttivi e spazi pubblici o riservati alle attività collettive, al verde pubblico o a parcheggi." On the studies of the UDI and their influence upon Italian urban legislation, see Patrizia Gabrielli, *La pace e la mimosa. L'Unione donne italiane e la costruzione politica della memoria (1944-1955)*, (Rome: Donzelli, 2005); Marisa Ombra, (eds.), *Donne manifeste. L'Udi attraverso i suoi manifesti 1944-2004,* (Milan: Il Saggiatore, 2005); Cristina Renzoni, "Una città su misura. Servizi sociali e assetto urbano nella pubblicistica e nei congressi dell'Unione donne italiane (1960-64)", *Tria*, vol. VI, n. 10, (2013), 121-134; Edoardo Salzano, "Ragioniamo sugli anni della conquista degli standard urbanistici. Dialogo con Marisa Rodano, Oscar Mancini e Vezio De Lucia", *Spazio pubblico. Declino, difesa, riconquista*, edited by Fabrizio Bottini, (Rome: Ediesse, 2010): 147-175 .

19 "Our struggle for the wage opens for the waged and the unwaged alike the question of the real length of the working day. Up to now the working class, male and female, had its working day defined by capital – from punching in to punching out. That defined the time we belonged to capital and the time we belonged to ourselves. But we have never belonged to ourselves, we have always belonged to capital every moment of our lives and it is time that we make capital pay for every moment of it. In class terms this is to demand a wage for every moment we live at the service of capital."

20 In November 1970, at the apogee of urban speculation, from the pages of the Italian leftist magazine Lotta Continua the opposition movements urged to "Take over the city" (*Riprendiamoci la città*) encouraging rent strikes, housing occupations and urban blocks.

a large revival in these last decades all over the planet, owes a lot to the European feminist movements of the late 60s and early 70s, as well as to the workers and the students riots which together opened a wider understanding of the city itself as a collective act of production, a man-made artifact fruit of the general intellect of a whole society: an *oeuvre,* to use the words of Henri Lefevbre, who wrote his *Droit à la ville* in 1967.[21]

2.

The precariousness and flexibility of labor are generally considered the anathema of post-fordist economy, a perverse system which eroded the traditional patterns of salaried employment with an endless proliferation of informal, part-time, project-based, internships and a-typical jobs.

Curiously, already in 1918, in his renown lecture *Science as a Vocation,* Max Weber defined "prekär" the particular condition of the young German scholars wishing to undertake an academic career. However, according to Weber that status of uncertainty constituted the favorable character of the German university, which on one side condemned researchers to unpaid workloads for short-term contracts while on the other it ensured an incredible dynamism of research and a continuous turnover of the educational apparatus, avoiding the canonization of knowledge into reproducible techniques.[22] Precarity was thus considered part of the

21 Recently reprised by David Harvey: "The right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city. It is, moreover, a common rather than an individual right since this transformation inevitably depends upon the exercise of a collective power to reshape the processes of urbanization. The freedom to make and remake our cities and ourselves is, I want to argue, one of the most precious yet most neglected of our human rights." See Henri Lefevbre, "The Right to the City" (1968), in *Writing on Cities,* (Oxford: Blackwell, 1996); David Harvey, *Rebel Cities: From the Right to the City to the Urban Revolution,* (London:Verso Books, 2012). For a wider account on Lefevbre and space see Lukasz J. Stanek, *Henri Lefebvre and the concrete research of space: Urban theory, empirical studies, architecture practice,* Doctoral Thesis (Delft: TU Delft Depository, 2008).
22 Max Weber used *prekär* to address the condition of the German *Privatdozenten,* loaded of unpaid heavy work and assigned to minor courses for long time before reaching a fixed waged position, on the opposite of their American colleagues, who were instead handsomely paid and immediately inserted within the University technical apparatuses. Max Weber,"Wissenschaft als Beruf" *Gesammlte Aufsaetze zur Wissenschaftslehre* (Tubingen, 1922): 524-55. Originally a speech at Munich University which had translated and edited by

normal professional academic curriculum, coinciding with the necessary period of preparation to achieve a tenure position: a sort of traineeship before the stability of employment.

Almost one century after Weber's lecture, the idea of precarity is still generally considered as an exception versus the norm and therefore nostalgically opposed to a yearned permanent job and its welfare guarantees. Yet, with the collapse of the Fordist economy, the dissolution of the nation-states and the privatization of many public services which undermined the very core of the salaried system, it seems that what Weber defined as a "transitional phase" has become today the primary and ubiquitous condition of employment, diffused not only within academies but in all fields of production and at all professional levels. Precarity became the *norm* of labor market, rather than its exception:[23] and to regret older forms of employment or wishing a return to previous modes of production might cause only dangerous reactionary and populist complaints. Instead, a strategy of opposition should delve into the very conditions of precarity, trying to understand its logic and juridical principles in order to revert its negative effects, looking perhaps at those workers who made of precariousness their form of life and who consciously accepted to shape their existences through discontinuous and hybrid employments.[24]

In this sense, the emerging figure of the freelancer – the new self-employed worker – might be considered the quintessential character of the post-fordist

H.H. Gerth and C. Wright Mills in Max Weber, *Essays in Sociology*, (New York: Oxford University Press, 1946), 129-156. See also Sergio Bologna, *Vita da Freelance. I lavoratori della conoscenza e il loro futuro,* (Milan: Feltrinelli, 2011): 54-56, 137.

23   Ferruccio Gambino remarks that Fordism, as regime of open-shop, mass production and labour disorganization, ended in 1941 because of "the struggles for industrial unionism in the United States in the 1930s, which were crowned by the imposition of collective bargaining at Ford in 1941." See Ferruccio Gambino, "A critique of the Fordism of the Regulation School", in *Common Sense*, No. 19 (June 1996), recently recovered in Brett Neilson, Ned Rossiter, "Precarity as a political concept, or, Fordism as exception", *Theory, Culture & Society*, 25(7-8): 51-72.

24 Beside the traditional literature on the emerging class the "preacariat", a very interesting critical approach on the notion of precarity could be found in the material, articles and comments gathered in the *Quaderni di San Precario,* (http://quaderni.sanprecario.info/), a free online-magazine developed from the MayDay movement in 2001. Among the many contributes, Cristina Morini, "La Cognizione dell'Impermanenza. Il lavoro a tempo indeterminato paradigma della precarietà contemporanea", in *Io non ho paura del default. QSP 3,* (Spring 2012). For a larger understanding of the phenomenon see Guy Standing, *The Precariat: The New Dangerous Class* (London: Bloomsbury Academic, 2011) and Michael Hardt, Antonio Negri, *Declaration,* (Self-published, 2012).

economy, especially within the architectural discipline. A freelancer is, in fact, a one-man company. As Sergio Bologna defined it, the freelancer is that particular worker who lumped the three traditional roles of the enterprise within one single person: the capitalist, who provides the capital of investment; the manager, who administers and controls the activities of investment; and the salaried employee, who daily propells the activities of the firm.[25] His life coincides with his work, his compensations with his capital of investment, his daily rituals with his working shifts. A freelance does not live out of a periodical salary to reproduce his labor-force but he gets remunerated for the completion of single performances. Most of the times, contracts, fees and invoices do not consider personal efforts or physical inconveniences: any expense eluding the strict execution of the job or the efficacy of results is in charge of the worker. Freelancers permanently live on the edge of crisis. The solidity of experiences, competences and cumulated knowledge is all what they have. As Randian heroes they make of risk their own daily bread, constructing their own business and being entirely responsible for their possible collapse. Freelance labor does not include care assistance, dismissal periods, redundancy rights, paid holidays, maternity leaves or special compensations for ending-contract: as far as the task is executed according to the expected requirements and within the established modalities, the length and the intensity of the working day are up to the freelancer's capacity of self-organization.

Devoid of any prescribed routine or mandatory protocol, the freelance needs to constantly plan his own time and space, self-assigning tasks and deadlines while keeping a firm psychological attitude, creating his working habits while training his competences and weaving social relations, but above all, he has to construct a solid business identity and a professional network. In this sense, the freelancer is not only a living example of that post-fordist combination of fixed and variable capital mentioned above, but also the victim of a whole new "micro-physics of power", which directly integrates the worker's subjectivity and activity with the

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25 For a wider account on the freelance labor and autonomous labor see Sergio Bologna, Andrea Fumagalli, *Il lavoro autonomo di seconda generazione. Scenari del postfordismo in Italia,* (Milan: Feltrinelli, 1997); Sergio Bologna, Dario Banfi, *Vita da Freelance*, (Milan: Feltrinelli, 2011), but also *Ceti medi senza futuro? Scritti, appunti sul lavoro e altro,* (Rome: Derive & Approdi, 2007).

places where he actually performs and cooperates with other people. Paradoxically, when everybody is transformed into a singular enterprise, the "space of production" immediately achieves a collective relevance, abandoning its delimited compounds and being reconfigured in open typical plans where the single workstations have been sprawled into a network of Internet Protocol Addresses.[26]

Within an economy driven by cognitive labor, in which fixed and variable capital have merged in the mind and the body of single individuals, the specificity of the space of production dissolved into a generic frame for action. In this sense, rather than collapsing, the typical plan reached is true apogee precisely when the atypical forms of labor became standard, not just by offering the simplest spatial conditions for production, but directly conditioning those new labor subjectivities as frames for the administration of the self. While the salaried worker was assigned to a specific and circumscribable workplace, the freelancer is forced to constantly produce his place of work, being his life and daily rituals inseparable from the spaces where his actions and working performances occur. Not dissimilarly from Francis Bacon's paintings, the ways of inhabiting, furnishing and making use of a portion of space coincide with the very foundation of the single-man-enterprise, which is nothing but the expression of the self within the larger spectacle of social cooperation.

26 See Andrea Branzi, *Ten Modest Suggestions for a New Athens Charter,* entry for the Venice Biennale 2010; "For a Post-Environmentalism: Seven Suggestions for a New Athens Charter"in Mohsen Mostafavi, Gareth Doherty (eds) *Ecological Urbanism,* (Baden: Lars Muller, 2010): 110-113; but also "The Fluid Metropolis," *Andrea Branzi. The Complete Works,* (New York: Rizzoli, 1992), 50-51; and *Weak and Diffuse Modernity: The World of Projects at the beginning of the 21st Century,* (Milan:Skira, 2006).

3.

> "But where danger is, grows the saving power also"

> –Friedrich Hölderlin[27]

The more employment became precarious, the more uncertain the space of production and weaker the forms of unionization. Strikes and refusals of working have lost their efficacy when there are no longer spatial concentrations of production nor linear distributions of the manufacturing processes nor even the stability of a wage to oppose. Contemporary factories-without-walls reached indeterminate extensions, as landscapes of sparse epicenters. Whereas salaried workers could collectively bargain the terms of their contract, thanks to the factory as a space of cooperation and the union as frame of organization, freelancers and precarious workers seem condemned to their solitary exploitation and obligations, being spatially fragmented and devoid of any professional trade association. Moreover, there is no longer a strict relation between labor, territory and nationality. Labor is not simply becoming "nomadic" but rather "migratory", forcing people to abandon their homelands and to settle down elsewhere, in other juridical systems where their citizenship's rights are often contested or even negated. So, if some of the Aristotelian distinctions have been outdated, like the categories of *poiesis* and *praxis,* other ones instead seem to have been more persistent, like the division between free citizens entitled of political and civil rights, and foreigners or non-citizen workers, who are often condemned to menial laboring activities. Not by chance, recently the category of "non-citizens residents", or *denizens,* has been frequently adopted to classify the increasing amount of workers who live and work in other countries without the full benefits of civil, social, political, economic and cultural rights.[28]

27 English translation for "Wo aber Gefahr ist,/ wächstDas Rettende auch." Friedrich Hölderlin, "Patmos. For the Landgrave of Homburg", in *Hyperion and Selected Poems,* edited by Eric. L. Santer, (New York: Continuum, 1990): 244-245.
28 The term was introduced by Thomas Hammar, to categorize the particular condition of migrants who are legally considered as non-citizens in a foreign country, but who partly achieved the civil, social and political rights of a citizen.

Nevertheless, precisely when individual exploitation and collective dispersal become generalized conditions, and when the generic human faculties have been flaunted and parasited, new and stronger international strategies of opposition emerged, deepening even more those critical contradictions Marx found in the falling rate of profit. In the last decades, in fact, the rising discontent of unemployed, freelancers, precarious workers, indebted students, migrants and proletarians, redirected the object of struggle beyond the simple claim for the compensation of a specific labor, demanding instead a *guaranteed basic income of existence* or, in other words, the remuneration for *any* performed living activity, independently from other forms of income or work.

The basic income is a generalized, egalitarian and non-discriminative redistribution of wealth which precedes any labor relation. It is a minimal re-appropriation of the capitalist profits accumulated through the gratuitous rent of the common knowledge, information and creativity collectively produced at a social level.[29] When the whole life is put at work, then a basic income would guarantee the remuneration for the simple act of living. The basic income is *generic*, because granted for the life-engendering activity and its unmeasurable potential; it is *unconditional*, and attributed to the sole human existence, without demanding any

See Thomas Hammar, *Democracy and the Nation State: aliens, denizens and citizens in a world*, *of international migration,* (Aldershot: Avebury, 1994); Giorgio Agamben, "Beyond Human Rights", Means Without End: Notes on Politics (Theory Out Of Bounds), (Minneapolis, London: University of Minnesota Press, 2000), 15-26; and Guy Standing, *The Precariat: The New Dangerous Class* (London: Bloomsbury Academic, 2011): 90-114.

29 "For basic income is intended an allocation of a regular and perpetual monetary sum in order to guarantee a dignified life, independently from the effective working performance, that is to say an income independent from wage" Andrea Fumagalli, "Ten propositions on basic income" (1998), http://www.bin-italia.org. The BIEN (Basic Income European Network) in praise of a basic income had been already established in 1996, developing in 2004 in the BIEN (Basic Income Earth Network) after the Barcelona Congress in 2004. See Bin Italia (eds.), *Reddito per tutti. Un'utopia concreta nell'era globale* (Rome: Manifestolibri, 2009); Andrea Fumagalli, "Reddito di Cittadinanza e Riduzione dell'orario di Lavoro"*, in Derive & Approdi,* no. 9-10 (1996): 31-34; AA.VV. *La Democrazia del Reddito Universale,* (Rome: ManifestoLibri, 1997); Carlo Vercellone, "Il Reddito Sociale Garantito come Reddito Primario", *Quaderni di San Precario,* no.5 (October, 2013); Jean-Marie Monnier et Carlo Vercellone, "Fondements et faisabilité du revenu social garanti", *Multitudes,* 27, (2007): 73-84; D. Purdy, *Citizenship, Basic Income, and the State,* in *New Left Review,* 208 (1994), 30-48; André Gorz, *Reclaiming Work: Beyond the Wage-Based Society*, (Cambridge: Polity Press, 1999); Philippe Van Parijs and Yannick Vanderborght, *L'Allocation Universelle*, (Paris: La Découverte, 2005); D. Raventos e J. Wark " How to Implement Universal Human Rights: the Monterrey Declaration", www.grundeinkommen.de or, more in general, the BIEN website, http://www.basicincome.org/

further obligation; it is *individual*, corresponding to the life of each single person; it is *residential,* and thus guaranteed to everybody living or residing in a territory without discrimination of race, gender or nationality; it is an *income* and not a form of assistance, consisting of a minimal retribution for the proper act of living, indifferently from other salaries, incomes or welfare measures.

The establishment of a basic income at an international level would create possibilities for the recomposition, protection and organization of the fragmented working class, and in particular of those workers who have been left aside from the exclusive rules of citizenship, employment market and social welfare. Following what Friedrich Engels prophesied in his *Housing Question,* and what feminists rediscovered through their defense of domestic labor, the political demand for a basic income aims at laying down the foundations for a whole different jurisprudence,[30] and thus at reconfiguring the terms of labor conflict and formulating rights and tutelary measures within and against the generalized precarization of work, such as the "right to an income".[31]

In fact, despite every human being should deserve a portion of the social wealth he contributed to produce, within the 1948 Universal Declaration Human Rights there was no trace of a right to an income of any sort.[32] Only the articles 22 and 25 referred to "social and cultural rights indispensable for his dignity and the free development of his personality" or to "a standard of living adequate for the health

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30 If deprived of concrete point of application, rights and laws are nothing more than crystallizations of singular events into universal axioms which destitute life and its permanent processes of subjectification. Gilles Deleuze, "G" in *Gilles Deleuze, L'Abécédaire de Gilles Deleuze, avec Claire Parnet,* (Paris:DVD Editions Montparnasse, 2004). See also Gilles Deleuze, *Negotiations*, 1972-1990, (New York:Columbia University Press, 1995) and Alexandre Lefebvre, "A New Image of Law: Deleuze and Jurisprudence", *Telos,* 130 (Spring 2005).

31 Right before the approval of the 1992 Maastricht Treaty, the president of the European Commission Jacques Delors attempted to issue a decree to make the basic income mandatory for all the member states, in the attempt to couple the economical reforms with a new set of minimum social standards, the renown *flexicurity.* Although the decree did not pass, through an official Council Recommendation no. 441/92/EEC of the 24th June 1992, the European Community officially invited all the member state to formulate and issue the regulation of a basic income which at the moment only Italy and Greece did not comply with.

32 *The Universal Declaration of Human Rights* (UDHR) adopted by the United Nations General Assembly on the 10th of December 1948 at the Palais de Chaillot in Paris, available at http://www.un.org/en/documents/udhr/. See also the *Universal Declaration of Emerging Human Rights* (UDEHR) formulated within the Universal Forum of Cultures Barcelona 2004, http://www.idhc.org/.

and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control", but none of them referred to an income of existence, which at that time fell beyond any proper notion of "human right".[33] In this sense, the claim for a basic income of existence exceeds the traditional forms of labor struggle, transforming the general problem of life-exploitation into an issue of life-valorization and thus opening a perspective of opposition from the unwaged, temporary, precarious, project-oriented, freelancers or part-time workers to any living human being. Similarly, a basic-income would ensure freedom and support not only to those people who have been compelled or who have chosen a precarious working activity, but also to those who have consciously decided *to not work at all*, legitimizing their possibility of abstention from labor, the right *to not* work in place of the right of working, in order to fully legitimize the human potential, the labor power.

Moreover, each worker, as productive human being, should be no longer conceived in its isolation but rather as a "social individual" able to converge in his actions the whole character of the species, the places he is part of and the social relations he is confronted with. Hence, the basic income should extend its redistributive process also at a spatial level, guaranteeing the places where the common wealth could be effectively generated: homes, cities and territories. Within this perspective, as the salary corresponded to a space for the reproduction of the labor-power, or the *existenzminimum*, so the basic income could be translated into a generic portion of space to support human life in all its activities and besides its pure existential necessities. A bare volume of space unconditionally provided to everybody, accessible and available for any purpose: a frame for action. On this account, the idea of typical plan delineated along these chapters might be a contribution to prepare the conceptual ground for such a political project: the right to a singular space of action complementing the existing urban standards, namely

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33   Giorgio Agamben, "Beyond Human Rights", *Means Without End: Notes on Politics (Theory Out Of Bounds)*, (Minneapolis, London: University of Minnesota Press, 2000):15-26.

the assigned square meters per inhabitant for housing, parks, schools, facilities. In this sense, both the claim for a guaranteed basic income and a "guaranteed generic space" would juridically legitimize the human potential that is already at work and is constantly flaunted within the neoliberal conditions of production. Those would be the only principles upon which constructing and struggling for a generic space, for a generic architecture.

Any strategy of subversion, as for the Vitruvian *sollertia*, lies in the danger standing ahead: salvation grows in the project and the struggle that only conflict entails. When finance keeps on enriching upon the rent of common knowledge, the claim for an income of existence and a guaranteed space for action would launch an attack at the core of the profit rate, exceeding any crisis of political representation, any source of division. The recovery of the common generic traits of human labor power would suggest a political direction, within or beyond democracy, demanding for appropriate spaces of organization.

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Education
2006, Master of Science *with honors* in Architecture, Urbanism and Building Sciences, Technische Universiteit Delft, Delft
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Teaching
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2013-14, Guest Lecturer and Studio Tutor, 1st-year master program "Istanbul Studio", Technische Universiteit Delft, Delft
2012-13, Studio Tutor, 2nd-year post-graduate program "Housing Contemporary Forms of Life. A project for Tehran",
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2011-12, Researcher, commissioned study for Steelcase Inc. Grand Rapids, Berlage Institute, Rotterdam
2011, Guest Lecturer, 2nd-year master program, "Il progetto del Generico", Architecture Faculty, RomaTre University
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Publications

2014, "Architecture as such. Notes on Generic(ness) and Labor-sans-phrase", in *Architecture Against the Post-Political: Essays in Re-Claiming the Critical Project*, Nadir Lahiji (ed.). London: Routledge (forthcoming)

2014, "Architecture of Fulfilment", *Fundamentals. 14th Venice Architecture Biennale*. Venice, Marsilio (forthcoming)

2014, "Architecture *and* Revolution: Typical Plan as Index of the Generic", in *The City as a Project,* Pier Vittorio Aureli (ed.). Berlin: RubyPress

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2011, "Entropy, Poetry and Nothingness", *Border Conditions*, Marc Schoonderbeek (ed.) Amsterdam, Architectura & Natura.

2010, "Forum", *La Città Interrotta*, Rosaldo Bonicalzi, Maura Savini (eds.). Bologna: Reno Edizioni

2010, "The White", *Europan 10 Norway,* Espen Røyseland and Øystein Rø (eds.)

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2007, "Entropy, Poetry and Nothingness", in *Archiprix 2007*. Rotterdam, 010 Publishers

Public Lectures

2014, Seminar and design workshop "Domestic Landscapes", Architecture Faculty, RomaTre University, Rome

2013, Seminar "Oikonomia: bodies, machines, and souls", The Berlage Center for Advanced Studies in Architecture and Urban Design, Rome

2012, "Domestic Trojan Horses", *Theoriesalon*, Session 15, Depot, Wien

2011, Seminar, "The Generic as a Project", Architecture Faculty, RomaTre University, Rome

2011, "Notes on Generic Architecture", *4th International Symposium on Architectural Theory*, Lebanese American University, Beirut

2010, "Typical Plan as Index of Generic", *Buell Dissertation Colloquium*, The Temple Hoyne Buell Center for the Study of American Architecture, GSAPP Columbia University, New York

2010, Seminar, "The notion of Typical" *Apertis Verbis*, Technische Universiteit Delft, Delft

2010, "La Grande Città e la Produzione", Architecture Faculty, RomaTre University, Rome

2010, "The White" with TondoAtelier, *Margins in the Making*, OAF (Oslo Arkitektforing), Oslo

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Typical Plan
The Architecture of Labor and the Space of Production

In a short essay dealing with the repetitive homogeneity of the Manhattan's office layouts, Rem Koolhaas defined the term Typical Plan as one of the purest American architectural archetypes. A plan stripped of all its qualities and reduced to a calculated relation between discreet standardized elements: an empty surface able to host whatever program and on which life could be simply performed. Nevertheless, more than a technical achievement in electric lighting, air-conditioning and fire-safety protocols, the alleged "specific indeterminacy" of the typical plan was the outcome of violent political and economical passages, epitomized by that historical convergence between the modern industrial revolution, the scientific management of production and the financial imperialism which marked the first three decades of the 20th-century. Through the analysis of coeval case-studies in United States, Germany, Soviet Union and Italy, this thesis conjectures the typical plan as the creation of the working-class, whose struggle always forced capitalism to constantly extend its infrastructural apparatus and to further improve its architecture of production in order to ultimately reduce the genericness of labor-power as lymph for progress. Only by reconstructing its spatial genealogy through the instruments of political economy and the dialectic of class conflict, the typical plan could be eventually reconsidered in its twofold framing character, both as managerial dispositive – to maximize exploitation and profit – but also as a platform of organization – to articulate the workers' opposition and resistance against any form of slavery, within and beyond the factory walls.