

THE MIDDLE WAY
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Contents

Preface.....	4
Introduction.....	6
Rise of Modernism.....	8
Durand's Type.....	12
Implications of Repetition.....	18
Tradition and Transition.....	23
Variation in Stativet and Tumstocken.....	26
The Tomb of Ernst Malmström.....	36
Uno Åhrén and the International Style.....	51
The Middle Way.....	57
Bibliography.....	60

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Preface

Sometimes it is hard to imagine that there was a time in which architects were unknown. Brunelleschi is often attributed as the first architect, however there were thousands of years of building before his time. Nobody knows who designed the Parthenon, Uxmal or Ziggurat, nor does it matter. In times like these, architecture and individuals alike try really hard to distinguish themselves from the common. Certain architects get star-treatment despite the fact that they have not produced anything interesting in decades (too many to mention). It is then important to accentuate that architecture is and always has been a collective project. History is and will always be a simplification of reality, leaving out important actors and collaborators. To refute this progress I want to emphasise that writing, as architecture, is always a collective process. Even a hermit writer uses language, and language is the quintessential collective invention. In contrast to the hermit, the process of writing this text has not been done in isolation. When writing, one tries to keep a steady course, only to be carried away by curiosity. In order to maintain focus, the critique and advice given by friends and colleagues has been invaluable. Therefore it would be an insolent wrongdoing to not thank the people who kindly have guided me along the way.

I would like to thank Dr. Chiara Monterumisi, for kindly giving me insight in her research on Röda Bergen, Dr. Andreas Nobel for the discussions on Linnaeus and standardisation in architecture and design. I would like to thank, Patrick Pregesbauer, Adnan Gacanin, Teo Vexina Wilkinson for their input and our shared discussions.

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I also feel a distinguished gratitude for the patience of Jules Chabbey, Joel Larsvall and Jan Anduaga have shown all the late nights and phone conversations discussing architecture.

Knowledge cannot be owned but belongs to all. This text might be a futile attempt to contribute to this shared knowledge, regardless of this I have designed the book for it to be easily reproducible. In order to make it printable and look good on any generic A4 black and white printer, the layout has been simplified and pictures have been replaced with vectorial drawings as much as possible.

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Introduction

The collective has perhaps never been called into question as much as today. In times where stories exclusively are told in first person, it is hard to imagine an architecture based on objectivity. It is not strange then that modernism has been so refuted in recent years. For critics the shortcomings of modernist architecture seem to be reason enough to discard the whole movement. Architecture as well as architects try hard to stand out from the crowd by designing extravagant facades. All these facades are only there to cover up the fact that everything is essentially the exact same, built by the same people.¹

The purpose of this text is to give insight in how architecture can be designed in mass, derived from commonly shared principles without losing connection to context. Before the Enlightenment, architecture was built either by the state or the aristocracy.² Architecture was constituted by public buildings or private palaces, made to establish the power of the ruling class. By regarding common housing as architecture it became popularised. The liberal reforms required new ways of producing and designing this architecture.

It is not by chance that Ferrari, Prada, Memphis and Caccia Dominoni all come from Italy and Volvo, H&M, IKEA and Hakon Ahlberg from Sweden. Italy may seem cool with all the fancy and eccentric luxury design. But when it comes to mass-production of quality items for the common people, Sweden is the best country in the world. To quote the Swedish writer Ellen Key: “Only when there is nothing ugly available for sale, when beautiful things are as inexpensive as ugly ones now are, can beauty for everyone be fully realised”.³ If you are studying the magnificent I would propose to go to Italy, but if you want to study the moderate and average you are better off going to the north.

Three texts, one on the project for the Salines de Chaux by Ledoux, one about the typological studies of Durand and one on models and repetition, lay the foundation for the arguments presented in this paper. These parts help explain and reframe necessary terminology, as well as explain social and architectonic advancements that would later arrive to Sweden. The architecture for the masses of the modernist’s lay focus on the reproduction

¹ The last Swedish housing exhibition Vallastaden in Linköping (2017) was an exemplary urban cacophony.

² J.Lucan, *Composition, non-composition*, Presses polytechnique et universitaires romandes, Lausanne, 2009 p.19

³ L.Creagh et al, *Modern Swedish design: three founding texts*, Museum of Modern Art, New York, 2008 p.11

of models that detached themselves from their context. In 1920's Swedish architecture an alternative way is explored. Subsequently, three Swedish cases are discussed. The first is a project for emergency housing designed by Asplund, during his neoclassical period. This case describes the question of typology, proposing a reproducible architecture that stays contextual. The second text describes the project for a mausoleum by Sigurd Lewerentz, in which his transition from classicist to modernist is made evident. The shift was primarily a consequence of abstraction through reduction, building on architecture history instead of breaking with it. The last case concerns the emergence of CIAM in Sweden and the implication of its architecture, narrated through selected projects by two architects; Sven Markelius and Uno Åhrén. The paper is then concluded with an argumentative discussion about repetition and variation, model and type, context or not.

Rise of Modernism

The question of modernity is not as straightforward as it may seem. According to Marshall Berman modernity in the westernised world develops in three different stages, early modernity (16th century), classical modernity (From the French Revolution to the end of the 19th century) and late modernity (20th century until today). During the Renaissance the concept of the individual was drafted out, a concept that would radically evolve with the French revolution.⁴ It is in the age of classical modernity, in the Enlightenment, in which Emil Kaufmann finds the emergence of architectural modernism.

In Architecture in the Age of Reason Kaufmann points out that we are accustomed to think of an architectural style as a certain number of structural and decorative features, with some variations reoccurring within a given period. Whether the idea of style is built from the features from one building or constructed from several buildings, the style will still have a peaking point. Any such historiography relies heavily on simplification in order to create discernible and clear borderlines between styles. Instead of studying the appearance and disappearance of architectural forms, Kaufmann proposes a historiography that focuses on the interrelation of forms. In other words, instead of focusing on the elements, history should focus on the systems that guide the composition of the same elements. For instance, it is not in the elements themselves that the gothic style is distinguished from the gothic revival, but in the systems that guide the two styles.⁵

Following this line of thought, the break between the Baroque and the Enlightenment is not a question of the invention of new artefacts, but a break of two systems. Kaufmann identifies the concatenation (*Verband*) of elements as the Baroque method of composition. The Enlightenment replaces this system with a tectonic system in which all the parts are autonomous, but nonetheless organised into a whole.⁶

4 Here I am adopting Jacob Burchhardt's argument from his book *Die Kultur der Renaissance in Italien* 1860, read Swedish translation

5 E. Kaufmann, *Architecture in the age of reason: Baroque and Post-Baroque in England, Italy and France*, Dover, New York, 1968[1955] p.75

6 E. Kaufmann, *Von Ledoux bis Le Corbusier: Ursprung und Entwicklung der autonomen Architektur*, Repr. 1985, Gerd Hatje, Stuttgart, 1985[1933] p.15

The Baroque architecture had to primarily be pleasing to the eye. The tendency to remove all limits, already prevalent in the Renaissance, took its pure form in the Baroque with the trompe l'œil paintings and dissolution of ceilings.⁷ The concatenation of parts was a mean to create a global unity. In the Baroque, the lines of every part had to reference the other parts of the building. The part was always referencing the whole. This thought is later shared by Deleuze in his essay on Leibniz in which he argues that the Baroque is not only a historic époque but rather an *operative function*. For Deleuze the Baroque is able to organise heterogenous parts into a whole through the fold. The Baroque, with its approach to the totality of the whole, resembles an infinite porous cave.⁸ The interrelation of parts that during the Renaissance had been clear and more primitive, became complex during the Baroque. Baroque can be considered to be the final stage or at least the most advanced stage of classicism.

The relationship between the Enlightenment and Baroque can be likened to that of a primitive and an advanced engine. As Gilbert Simondon explains, the different parts of the modern engine are concrete and closely interconnected with each-other. Each part is so precise with regards to its function that it cannot undergo any variation whatsoever. Older engines had autonomous components that worked in specific states of the cycle and these parts were not supposed to have any further impact on other parts of the engine.⁹

Modern engines are concrete whereas earlier ones were abstract. In its search for purity and origin the architecture of the Enlightenment returns to a primitive stage, similar to that of the old engine, in which concreteness of the Baroque is replaced by the autonomous and abstract.

To replace the antiquated Baroque system Claude Nicolas Ledoux creates what Kaufmann calls the *Pavilion system*. The first built project following this logic is Ledoux's project for the Royal Saltworks in Arc-et-Senans, in eastern France (1775). The project consists of a set of individual pavilions organised following a semicircular superstructure. The part is now autonomous, no longer submissive in respect to the whole. Even if the complex has clear traits of classicist ornamentation, for instance the columns and pediments of the buildings, the character is merely a trait of the 18th century.¹⁰

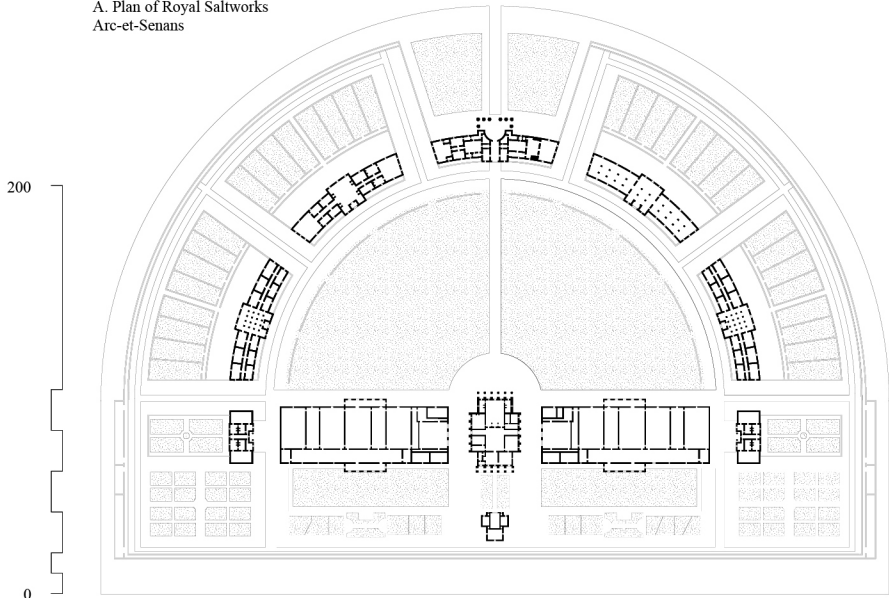
⁷ idem. p. 35

⁸ G. Deleuze, 'Le Pli', Yale French Studies, no.80, 1991, pp. 227-229.

⁹ G. Simondon *Du mode d'existence des objets techniques*. Aubier-Montaigne, Paris 1958 pp. 25-26

¹⁰ E. Kaufmann, 1931 p. 39

A. Plan of Royal Saltworks
Arc-et-Senans



The break with concatenation becomes even clearer in Ledoux's vision of the ideal city of the Royal Saltworks. During the Middle Ages the buildings adapted themselves to the topography and the built context in an irregular fashion. The irregularity was picturesque but neither efficient nor clear. In the Royal Saltworks autonomous buildings are organised in clear axes. To detach the parts from the whole in the Baroque is to destroy the entire composition of the building.¹¹ The landscape around the Ideal City is thoroughly depicted as flat. The city extends itself along the principal axes, and nowhere does it interact with its surrounding. The placement of the city is utterly a strategic consequence. If the forest was not needed for the salt production, the city could have been placed in virtually any other site. Through detaching itself from the context, the design imposes itself on nature, emphasising the power of the modern man over nature.

The pavilion system follows the new liberal philosophy of the Revolution. The autonomous elements of architecture are analogous to the liberation of man, now freed from the oppression of the monarchy. Ledoux is contemporary not only with the philosophers of the revolution but also with Kant and his ideas of *sapere aude*, which indirectly can be

¹¹ idem, p 38

seen reflected onto his pavilion system.¹² But Ledoux's revolution was more an architectural than a political one. The freedom that was given was also conditioned. As Jean-Jacques Rousseau himself puts it in the opening line of Du contrat social ou principes du droit politique:

*"L'homme est né libre, & part-tout il est dans les fers."*¹³

The house of the director, in the very center of the complex of the Royal Saltworks, allows the director to monitor the workers from the oculus in the tympanon. Anthony Vidler argues that Ledoux was the first to invent the panopticon and thus forgo Jeremy Bentham and his panopticon, that has been popularised through Michel Foucault's book Surveiller et punir. The social implications of the design of the Royal Saltworks, differ little from Foucault's description of Bentham's panopticon. In this case architecture becomes a stronger and more organised biopolitical apparatus.¹⁴ According to Foucault architecture from the late 18th century created new conceptions of public facilities, hygiene and public order that in order to impose themselves on society needed to question the dogma of classicist architecture. By dislodging architecture from its traditional values of society and aesthetics architecture also started to lose its authority as symbol.¹⁵

Architecture is, whether consciously or not, a political project. Ledoux was by no means a devoted promoter of social equality. During the Revolution he was incarcerated because of his alleged royal ties. Ledoux might have broken the chains of the Baroque liberating architecture, but as his panoptical design shows he did little effort to liberate man. The break of the architectural chains promoted an architecture of a composition of autonomous parts, and by doing so laying the foundation for what was to come. It is precisely this autonomy of parts, in relation to the whole, that enables their mass-production, for in a Baroque system, or in advanced motor, all the parts are custom-made to fit to each-other. We might have figured out how to industrially produce a V8 engine, but we are yet to mass-produce Baroque cathedrals.

In the next part we will discuss the composition, method of putting to assembling the architectural elements into a whole.

¹² For more on the relationship between Kant and Ledoux read the preface by Damisch Hubert to French edition of Von Ledoux bis Le Corbusier (*De Ledoux à Le Corbusier*) p. 15

¹³ J.J. Rousseau, *Du contrat social ou Principes du droit politique*, M.-M. Rey Amsterdam 1763 p. 3

¹⁴ Here I combine two readings, one of Wallenstein and his reading of Biopower, combined with the argument of Vidler, that the Royal Saltworks preceded that of Bentham. For more about Architecture and Biopolitics read Sven-Olov Wallenstein, *Biopolitics and the emergence of man*.

¹⁵ S.O. Wallenstein, *Biopolitics and the emergence of modern architecture*, 1. ed., Princeton Architectural Press, New York, 2009 p.14

Durand's Type

During the Enlightenment a new method of analysis became popular within different scientific fields. The method consisted in collecting and juxtaposing a set of specific plants, organs or buildings. Johann Bernhard Fischer Von Erlach is often attributed as the first to employ this method in his book from 1721 Entwurff einer historischen Architectur. In this book Fischer Von Erlach presents both existing and mythical projects, seeking to demonstrate the existence of universal rules of symmetry and regularity that transcend the notion of style and culture. However, the book is more a collection of buildings, rather than a useful method of analysis. It focuses more on the individual features of each buildings, instead of trying to find commonalities shared amongst the selected examples.¹⁶

The comparative method evolved along the 18th century. In Sweden for instance, Carl Linnaeus created a system of classification based on the comparison of different plants based on their form and number of reproductive organs, but the method used by Linnaeus was still based a quantitative and formal properties.¹⁷ Back in France, the method may have been introduced with Julien-David Le Roy's work Les Ruines des plus beaux Monuments de la Grèce (1758). In this book he juxtapose a set of buildings, not only Greek ones, by placing them on a single plate. Even if there had been many examples of this before in history, what is new with that of Le Roy is the purpose. Le Roy wanted to reveal the relationship between the temples rather than present their singular character. By doing so Le Roy proposed a method in which shared qualities evolved from a canon.¹⁸ This method was adopted and reached a level of maturity in the work of Jean-Nicolas-Louis Durand. Durand had been a student of Le Roy and in his book Recueil et parallèles des édifices de tout genre anciens et modernes, remarquables par leur beauté, par leur grandeur ou par leur singularité et dessinés sur une même échelle from 1799 (henceforth called *Recueil*), he employs a similar method as that of his teacher. The collection of buildings in the *Recueil* were no longer only ideal ones as was the case for both Le Roy and Fischer von Erlach. Durand's selection was based on more complex criteria.

¹⁶ M. Hvattum, *Gottfried Semper and the problem of historicism*, Cambridge University Press, Cambridge, 2003 p.116

¹⁷ More specifically in the *In Species Plantarum* from 1753

¹⁸ M.Hvattum, 2003 p.117

As the original title of the work indicate, it was a combination of beauty, grandeur or singularity. For Durand beauty was functionality, efficiency and economy.¹⁹ Thus the categorisation of the buildings rather reflected their “performance” than strictly their function or form.²⁰

By juxtaposing and comparing buildings independently from their culture or the style in which they are conceived, the differences become secondary to the commonalities. The comparative method of Durand makes it possible to derive general conclusions entirely out of specific cases. The *Recueil* is considered one of the fundamental books about type, even though Durand himself never used this word. Instead the term type was defined years later by Durand’s contemporary Quatremère de Quincy. In the third volume of the *Encyclopédie méthodique*, Quatremère de Quincy defines type as classification which accepts variations and many nuances of the same idea. The word type presents less the image of something that is to be copied or imitated completely, rather it represents an idea and performance, that in itself can serve as a rule for the model.²¹ For example, the idea of the chair is that you can sit on it elevated from the ground and recline yourself against the backrest. There are many different examples of chairs, variations of the same idea. It is the shared idea that define them in the same type. Type is not style, form nor function. Type transcends and comprise the three.

In the same article Quatremère de Quincy also explains the concept of the model. In the model everything is clearly defined, and has to be repeated as is. To reproduce a model means to imitate the object itself.²² Returning to the example, chairs with the same model, have the same legs, seats and backrests composed in the same way.

Putting the idea in focus, instead of the model, leads to a process of interpretation instead of copying. The reproduction of type is thus not a question of mimesis, instead for Quatremère de Quincy the idea is the irreducible part which binds together different formal variations²³. If working with models establishes a hierarchy between model and copy, this hierarchy is flattened out within the type. In the model a relationship between parent and child is created, whereas within the type all buildings are brothers, sons of the same idea.

Following this logic it may seem peculiar that Durand modifies the examples in the *Receuil*. He removes deformations and rationalise the plans in order to make each plate coherent. For instance the *Basilica Palladiana*

19 C.M Lee, *Deep Structure of Type, The city as a project*, Aureli, Pier Vittorio (ed.), Ruby Press, Berlin, 2013 p.184

20 idem. p.186

21 A. Quatremère de Quincy, *Encyclopédie méthodique vol 3*, Panckoucke, Paris 1825 pp.543-545

22 ibidem

23 C.M. Lee 2013 p.171

is drawn as if it was regularly built. Durand justifies the modifications claiming that Palladio had done the same.²⁴ By doing so Durand takes an ambivalent position in regards to variation. On one hand variation is the basis of type on the other hand it should be rationalised away.

B The answer to the contradiction may be found in his next book Précis des leçons d'architecture données à l'École Polytechnique from 1802-1805 (henceforth Précis). If the purpose of the Recueil was to deduce universal principles in architecture, the aim of Durand's later publication was to produce architecture following these principles. The Recueil consists entirely out of plates almost without text, while in the Précis he formulates his ideas both in text and in drawings.

Like the revolutionary architects of the Enlightenment, Durand breaks with the Vitruvian tradition. He disproved the Vitruvian ratio of six between the width of a column and its height, that supposedly was the relationship between a man's feet and his height. By breaking with the Vitruvian he also rejected the anthropomorphic models of explanation of the origin of architecture proposed by Blondel.²⁵

Durand also refuses the Architecture Parlant of Boullée, his master. In its place Durand postulates an architecture that is a result of the new idea of the program and project, what Durand calls *Disposition*. Disposition, a word that ironically can be traced all the way back to Vitruvius' *dispositio*, defines the required specifications for future use of a building.²⁶ According to Durand disposition should be the architect's only concern. Character, effect and variety all naturally emerge from a disposition that embraces fitness and economy.²⁷

In the Précis Durand distinguishes two different categories of buildings: public and private. Public buildings are subdivided according to purpose, for instance in categories as temples, palaces or government buildings. For Durand the architecture of these programs should be a result of the composition of elements, discussed in the first chapter of the Précis. The different elements are then composed following what he calls *mécanisme de composition*. The basis for this mechanism of composition is an orthogonal grid.²⁸ In this regard Durand, shows clear linguistic parallels. Durand himself engaged linguistic specialists in his work with the Précis.²⁹

24 idem p. 186

25 A. Picon, *Précis of the lectures on architecture: with, Graphic portions of the lectures on architecture*, Getty Research Institute for the History of Art & the Humanities, Los Angeles, Calif., 2000, p. 31

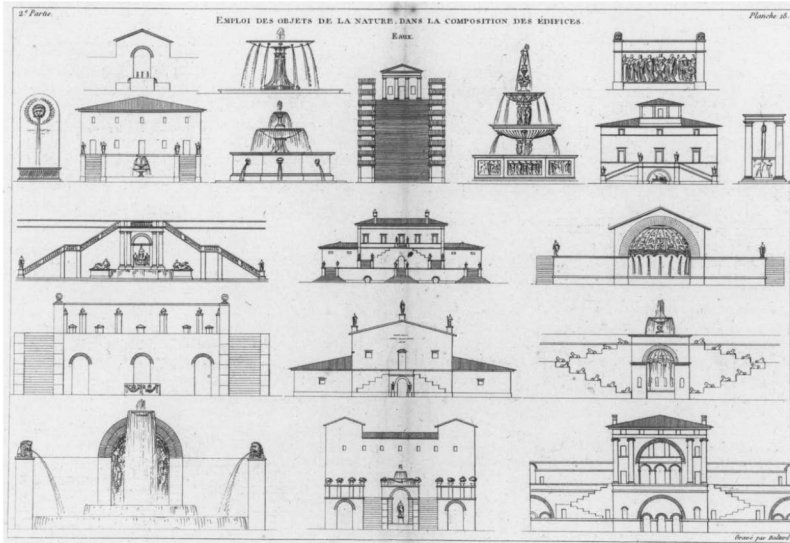
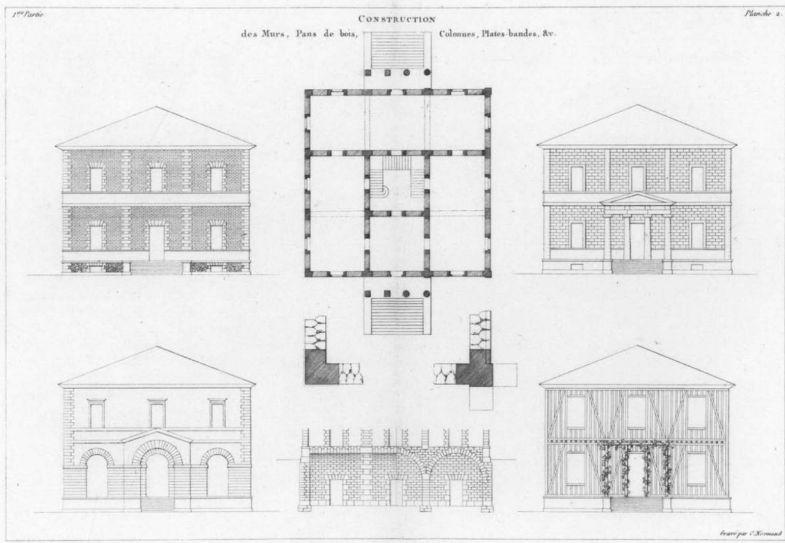
26 J. Lucan 2013 p. 20

27 J.N.L. Durand, *Précis es leçons d'architecture données à l'École Polytechnique*, Authour at the École Polytechnique 1802 vol 1. p. 24

28 J.N.L. Durand 1802 p.20

29 A. Picon 2000 p.36

B. Plates from the Précis



Durand's elements are not only columns, capitals as in the antique nor doors and windows as in modernism. His elements belong to different scales, the column, the house, the block etc. By transcending the scale Durand relates to elements as if they were tagmemes in language.³⁰ However, even if his architecture relates to language, more specifically *langage*, because of its lack of meaning it would be erroneous to categorise it as such. Rather Durand's approach should be read as a tectonic process, a culturally entrenched system of putting together elements into a whole.

The compositions of architectural elements proposed by Durand usually follow an axial logic. The engineers at the time organised harbours and shipyards axially for purposes of circulation. Through the axial distribution, the elements in Durand's method reflect an autonomy between the architectural elements, similar to that found in the work of Ledoux, as described by Kaufmann.³¹ The buildings all have a central point, an origo from which the primary and secondary axes emerge. A radial organisation of a plan favours in Durand's examples buildings with four sides, or more. This means that the buildings are primarily imagined as autonomous and free standing, reflecting also the position of the individual and society during modernity. Of all the presented examples only two are buildings that can be attached to other buildings, naturally the programs of these buildings are rental apartments.

During Durand's time the line drawing was the preferred tool of representation. The dramatic sfumato found in the drawings of his predecessors is removed. The sfumato has according to Durand the sole purpose of pleasing the eye. By removing it, Durand weakens the subjective experience of the reading of forms. Not only was the built architecture aestheticised but now also the architectural drawing. The importance of the architectural drawing also affects the process of conceiving architecture. When the drawing itself has to be beautiful any exception or deviation of the system has to be erased.³² Despite the fact that Durand did not build many buildings in his life, his influence as a teacher at the École Polytechnique was significant.³³ Instead of rationalising the actual building process he rationalised the design method. His approach has been refuted by several architecture critics. Probably the strongest opponent in recent years being Alberto Perez Gomez, that tendentially reads Durand's work as a formal game of combinations. For Perez Gomez Durand is to blame

30 For more on Tagmemes see Kenneth L. Pike's 'On tagmemes, née gramemes', *International Journal of American Linguistics* 24 (4) :273 1958

31 A. Picon 2000 p.42

32 S.O Wallenstein, *Den moderna arkitekturens filosofier*, Alfabet/Anamma, Stockholm, 2004, p.52

33 A. Picon 2000 p.7

for the loss of meaning in architecture, that can be found in the work of modernist architects.³⁴ Other critics accuse Durand for breaking with history, as if Durand's architecture is derived ex nihilo. What they seem to forget is that the *Recueil* consists of almost exclusively of historical buildings, and the observations from this analysis were used as a basis for the generative method used in the *Précis*.

Through this process Durand uses the past to project the future. This historical connection works not only through a reappearance of architectural elements of history but also through their composition. And following Kaufmann's thesis, it is rather in the composition than in the elements, that architecture becomes specific to a certain time or space.

34 A. Pérez-Gómez, *Architecture and the crisis of modern science*, MIT, Cambridge, Mass., 1983 p.4

Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit first published in 1935, the increasing quality of the replicas changed the relationship between original and copy. When mechanical reproduction becomes so good that the two no longer are distinguishable, the authority of the original is weakened with regards to the copy.³⁷

But regardless if an object is perfectly reproduced mechanically or though mimesis, it will lack the presence in space and time of the original.³⁸ A copy will always be detached from the context of the original. These two implications presented by Benjamin can be observed in the story of Pierre Menard, autor del Quijote, written by Jorge Luis Borges.

Pierre Menard is a French intellectual that intends to rewrite Cervantes' magnum opus word by word. He does not want to write a new Quixote —which would be easy— but write *the* Quixote. According to Menard, since he lives in the 20th and not the 17th century, this task will be much harder for him than it was for Cervantes to write the original. After closely studying 17th century Spanish and scrutinising the literary masterpiece, Menard accomplishes the laborious challenge. The result can for example be observed by juxtaposing a passage from the first part of the ninth chapter of the Quixote, where Cervantes writes:

...la verdad, cuya madre es la historia, émula del tiempo, depósito de las acciones, testigo de lo pasado, ejemplo y aviso de lo presente, advertencia de lo por venir.

And the “infinitely more rich” interpreted version of Menard:

*...la verdad, cuya madre es la historia, émula del tiempo, depósito de las acciones, testigo de lo pasado, ejemplo y aviso de lo presente, advertencia de lo por venir.*³⁹

The story of Pierre Menard illustrate the problems of trying to reproduce an already perfected artwork. In an imitating process of a perfect art piece, the replica will either be the exact same or an less rich version. Menard opted for the exact replication. Nicholas Hawksmoor, on the other hand, chose to make

37 W. Benjamin, *Work of Art in the Mechanical Era* Part I and II <https://www.marxists.org/reference/subject/philosophy/works/ge/benjamin.htm>

'Work of Art in the Mechanical Era' chocken/Random House, ed. by Hannah Arendt 1935, <https://www.marxists.org/reference/subject/philosophy/works/ge/benjamin.htm> (accessed 12 December 2017).

38 *ibidem*

39 J.L. Borges, *Pierre Menard Autor del Quijote, Ficciones*, Emecé, Buenos Aires 1956 pp.35-47

an obviously inferior version of the Tempietto del Bramante, when designing the mausoleum at Castle Howard in 1729. Let us conclude then that as long as we are not Michelangelo working on the Palazzo Farnese it is best to not try to mess with the perfect.

The story of Pierre Menard also discusses the second logical implication of reproduction discussed by Benjamin - What happens with a reproduction of a model when confronted to a new space and time? According to Bernardo Secchi any attempt to reproduce architecture of the past will always mean to have to embrace anachronism and work against the course of time. Even if the building itself could be reproduced, old ideals, lost traditions and ways of construction cannot.⁴⁰ What retrograde conservatives, longing for ornamentation, fail to recognise is the inevitable change of time. That is why a nostalgic approach to history will result in a less rich reproduction of it. Conservative architects would, as pointed out by Abbé Laugier, copy the beauty of the ancient buildings with the same precision as they would copy its mistakes.⁴¹ These architects, friends of Pierre Menard, are no more than servile imitators, that if only there is a historic reference at hand considered everything legitimate.

This consequence of reproduction, the detachment of context, is the very premise of many modernist urban projects, most prominently those proposed by Le Corbusier. For him the historical, cultural and local context are obstacles for the new architecture. It is important to remember that the reproduction discussed by Benjamin concerned works of art, that could be reproduced in entirety, architecture presents a similar but not the same problem. Until present day industrially produced architecture consists of parts. One may even argue that it is logically, or logistically impossible to industrially produce an entire building at once.⁴² Instead mass-produced parts are first manufactured, then transported and assembled into works of architecture. This was equally valid for ancient brick-buildings and 19th century with cast-iron buildings, as it is with in our age of rudimentary 3D-printing.

It is peculiar in the architecture of Le Corbusier, more specifically the Charte d'Athènes, that what is repeated is not primarily parts, but entire buildings. In this case there is no physical model (*modèle*). Instead the ideal model is the well defined representation of the building. By its replication the project declares the end of reproduction as well as the end of competition.⁴³

40 B. Secchi, Prima lezione di urbanistica. Gius laterza &figli Roma 2000 p.108

41 M.A-Laugier Essai sur l'architecture. Chez Duchesne, 1753 pp.v-vi

42 With the exception of machines that construct in situ. Research on the topic is currently made by architects such as Gramazio & Kohler at the ETH-Z. But until today this type of machines are in a prototype stage.

43 Here a parallel is made between the Plan Voisin and the argument made by Jean Baudrillard in regards to the WTC of Yamasaki, as well as the screen-prints of Warhol. See F. Proto ed. Jean Baudrillard, *Mass, identity, architecture architecture writings of Jean Baudrillard* Wiley 2006 Chichester p.86

The justification for these urban schemes was their claimed universality and a universal architecture needs no variation. The objective architecture was intended to suit everyone. Everything was to happen within the perimeters of the building. A universal architecture does not have to adapt to context and in Le Corbusier it does not even need the city as we know it. But regardless of how many buildings one demolishes, and all the claimed universality, context will still exist. Even a perfect model building has to confront the banal question of topography.

As Rowe and Koetter state in Collage City :

*Functionalism have very little to say with reference to deformation of the ideal models...How can this building be compromised to less perfect site?*⁴⁴

Le Corbusier is well aware of the confrontation between topography and his ideal models. The true purpose of the Pilotis that he proposes in his Cinq points de l'architecture moderne, is not primarily to free the building from the dampness of the ground as he claims, but to make an architectural model which can be applied in any terrain, any context. The pilotis become the hinge between an abstract ideal and actual constraints. It allows the model to adapt to a site without deforming any of the important constituting elements. The pilotis are secondary elements, in regards to the living spaces, where compromise and deformation can occur. By this "invention" Le Corbusier can continue with his reproduction of models whilst neglecting topography and having to answer to any question of deformation. But Le Corbusier is far from being the first one to ignore the problem of topography in favour of ideals. The evident gap between the depiction of the works of Andrea Palladio in I quattro libri dell'architettura and their actual form, shows how he idealises his own architecture. As Durand did after him, Palladio ignores any deformation of his building due to contextual conditions. Every site is depicted as completely flat, as if his buildings were placed on a silver platter. Also the Basilica Palladiana is represented as a perfectly symmetrical building. In this abstraction the remarkable deformation he makes, in order to make the building appear symmetrical, is lost.

Palladio's four books are clearly pragmatic. He writes extensively about the different ways of constructing appropriate foundations in different soils, and about the proper proportions between the elements of the columns, but not even once does he mention what happens to those same proportions

44 F.Koetter & C.Rowe, *Collage city*, MIT Press., Cambridge, Mass., 1983 p.72

when confronted with terrain. The same is true for Vitruvius.⁴⁵ The fact that they, despite their pragmatic theatres, never address such a question indicates that for them it clearly was not an architectural one. Instead architecture following the Vitruvian tradition is evidently more concerned by the question of finding beauty, economy and efficiency through the right proportions and compositions of elements. In essence classicism, counting from Roman architecture onwards, was about creating systems, existing in between the abstract and the concrete. This ambivalent positioning made classicism at once an ideal and a practice. The return of classicism in the 19th and 20th century builds upon this logic, the tectonic character of the classic suited well a mechanical reproduction of parts in architecture.

45 A. Palladio, *The architecture of A. Palladio, in four books*. Printed by John Watts for the author, London., 1715, p.1 First book It is particularly first book in which foundations are discussed. Palladio essentially says the same thing as Vitruvius said before him. Vitruvius & Perrault, *Claude Les dix livres d'architecture Vitruve corrigés et traduits en 1684* Pierre Mardaga editeur Bruxelles 1979 p. 90

Tradition and Transition

In Sweden, as in the rest of Europe, the 19th century had been a century of confusion. Architects argued to assert the right style. The confusion and plurality can be seen as a consequence of a not yet regulated capitalism.⁴⁶ The dominant architectural styles changed quickly during this period.

The starting-point of the Swedish Modernism was around the 1890s, when architecture was confronted to the substantial changes of industrialised building. As we know, the introduction of iron in construction changed the relationship between wall and openings, as seen in the office buildings of Chicago at that time. However initially the American influence in Sweden did not come from Louis Sullivan but from Henry Hobson Richardson, which particularly influenced the architect Ferdinand Boberg, that came in touch with his ideas in England in 1888.⁴⁷ Contrary to classicist architecture, his architecture is not composed of different distinguishable parts. Nor is it a matter of disintegrating clearly defined spaces. Instead these buildings share a formal expression of a carved rock, in other words a stereotomic approach, in which each added or subtracted part underlines the appearance of an organically unified whole. These ideas are clearly materialised in Boberg's fire-station in Gävle, built in 1890.⁴⁸ Its massive character and reluctance of a global symmetry portray his premodern architecture. Rather than changing the fundamental organisation of his buildings, the technical advancements only affected their ornamentation. There is often a clear distinction in his later works between inside and outside, and his influence as an architect became rather non-existent in the beginning of the 20th century, since his work showed an indifference in regards to materiality and technical solutions.⁴⁹ Boberg's architecture is both constructively and theoretically stuck in the 19th century, having much in common with the neobaroque style of the time. Although it cannot be considered entirely neobaroque, it still shares the logic of organising parts into a fluid unified whole. In his later years Ferdinand Boberg was so criticised for being out dated that he eventually gave up the profession entirely.⁵⁰

46 S.O. Wallenstein 2004 p.205

47 J.Nihlén, John & R.Josephson(ed.), *Bobergiana: anteckningar av och om Anna och Ferdinand Boberg*, Nord. rotogravyr, Stockholm, 1958 p.45

48 B. Linn, *Osvald Almqvist, en arkitekt och hans arbete*, Byggmästaren, Stockholm, 1967 pp. 10-14

49 ibidem

50 One of them being Ragnar Östberg

In his place new architects began to gain prominence. They adopted both the ethical and formal agenda of John Ruskin, William Morris and the Arts and Crafts movement. Here it is important to remember that the ideas of manufacture and materiality had already been present in Swedish architectural discourse for more than 50 years. It was primarily through Svenska Slöjdföreningen, a non-governmental organisation that worked aimingly to spread traditional arts and crafts throughout the country. These questions became central in architectural debate and emanated into a style commonly known as national-romanticism but more accurately defined as national-realism (Henceforth we will use the latter term since it more precisely describes the movement).⁵¹ The Swedish national-realists preferred brick as a construction material. However, the brick is an atypical material in traditional Swedish building culture. The use of brick was a consequence of Danish and English influence, countries where its use has a clear history. In Sweden the architecture of Charles Voysey and Macay Hugh Baillie Scott had a great influence, and were frequently used references for national-realists .

The national-realism saw the building as a sculptural body. The building was to be put in direct relation to its surrounding and to be adapted to the specific character of the site. Camillo Sitte's ideas on urban planning played a central role and his impact is maybe most clearly seen in the urban plans of Per Olof Hallman, as Röda Bergen or even more in Lärkstaden, both in Stockholm. In Lärkstaden the urban picturesque is created through *broken* streets and closed housing blocks consisting of one family townhouses almost all in brick.

The theoretical aspect of the national-realism was mostly drafted out by Ragnar Östberg, that in his search of a new style followed a consistently nationalistic path. The nationalist part was largely based on a mythologisation of Swedish construction history. In his project of the City Hall of Stockholm this mythologisation as well as the interest for materiality become evident. Östberg had carefully chosen the bricks and wanted initially all bricks to be hand moulded. As a consequence of the scarcity of bricks, due to the first World War, the handmade bricks had to be mixed with industrially produced ones. The machine made bricks made up the solidity, whereas the hand made ones were placed on all the visible parts. Östberg explicitly cites historical architecture, for instance the old medieval castle Tre Kronor and certain Swedish Romanesque architecture. But even in an effort to create an

⁵¹ Johnny Roosval is the one to coin the term national-romanticism and Bengt Romare national-realism. The terminology here seems rather contradictory especially since in literature Romanticism and Realism are often presented as opposites. The former confuses since the word romanticism has strong connotations.

archetypal Swedish architecture, a foreign and classical influence is still felt, more specifically Venice and the Palazzo Ducale.⁵² The return of the Italian can be seen as an anticipation of what was to come, namely neoclassicism.

Both national-realism and Art Nouveau had put much emphasis on material and ornamentation without stimulating any further intellectual reflection. During the 1910s classicism returned as a reaction to this. However the transition between national-realism and neoclassicism was rather smooth, as we have seen in the City Hall of Östberg. Another example of this smooth transition is Enskilda Banken (1912) by Ivar Tengbom where the two styles (classical and national-realism) mix. The Neoclassicist influence primarily came from Germany a country that had close affiliations with Sweden. Schinkel's books had been republished and the schinkelian influence is clearly tangible in the final graduation exposition of the Academy of Art of 1912. Paul Letarouilly's Edifices de Rome Moderne also became a well studied book at classes of Erik Lallerstedt at the Institute of Technology in Stockholm. The neoclassical formation brought about a new-found interest in measurements, proportions-lines and shadows, topics that are fundamental in the architecture of both Erik Gunnar Asplund and Sigurd Lewerentz. The neoclassicism also put emphasis on the abstract formal plane, which flourished and purified the classical tendencies in the beginning of the 1910s and thus breaks with the national-realism. The intellectualisation of architecture meant more clearly defined forms and a decreased interest in materiality. In many regards the neoclassicism is a precursor to the architecture of the 1920s when the classical ornamentation were discarded altogether.⁵³

⁵² L. Ortelli, *Ragnar Östberg: municipio di Stoccolma*, Electa, Milano, 1990 p.30
⁵³ B. Linn 1967 p.21

Variation in Stativet and Tumstocken

In an article in *Arkitektur* from 1916 Erik Gunnar Asplund discusses the condition of rental apartment-buildings in Stockholm. The architecture that accounts for around 90% of the city, is according to him, designed in a poor fashion. The old Stockholm was fairly homogenous and the private bourgeoisie houses had a modest character. But at the time of writing, conceited architects and developers wanted to strongly manifest their extraordinarity through conspicuous buildings. According to Asplund there was a tendency at the time to flatten out the hilly terrain of the city and to construct buildings. Despite certain buildings being beautiful they had a complete disregard for their context. These buildings were made to be presented on a silver platter rather than in dialogue with their site. For Asplund it is much more important to follow the style of the place rather than the style of the time.⁵⁴ Apartment buildings should primarily serve as a background to highlight the monumental and public buildings in the city. It is through the city planning, and not through the individual buildings, that the picturesque should arise. The apartment buildings should be subordinate to the global organisation of the city without being uniform. An apartment building should not be conspicuous.⁵⁵

The mentality concerning apartment buildings in the city is analogous to the political ideology of the emerging modern Sweden. The industrial revolution had enriched and empowered the bourgeoisie, which progressively started to manifest its power in the city through architecture. In 1917 a coalition government consisting of liberals and social-democrats took office. It was the same government that one year later was to establish equal voting rights to all men (Universal suffrage was introduced in 1921). In the article from 1916 Asplund is already discussing the appropriateness of the architecture of the masses, and by doing so already insinuating the social responsibility that architects had in the construction of an egalitarian state.

Another problematic issue for Asplund was buildings with complicated “folded” facades. In other words buildings conceived by following the intricate logic of the baroque, as buildings of Boberg or those

⁵⁴ E-G. Asplund, 'Aktuella arkitektoniska faror för Stockholm: Hyreshusen', *Byggmästaren*, no.10, 1916, p. 129.
⁵⁵ idem p.130



C. Perspective of Stativet & Tumstocken. Certain facades have more ornamentation to emphasise their monumentality

built in Art Nouveau and neobaroque style.⁵⁶ At the turn of the last century buildings that appeared to be chiseled and carved out of solids were considered outmoded.⁵⁷ In both the stereotomous architecture and the Baroque, the whole is of primary interest. By carving one removes pieces of a whole in order to transform it. In stereotomy there is a whole from the beginning to the end. Instead the neoclassical architecture, that Asplund propagated, was an architecture composed out of elements. By doing so one could argue that the rupture with the concatenation in the work of the Revolutionary architects, has a similar and belated arrival in Sweden with the emergence of neoclassicism.

The neoclassical replaced the massive and thick walls with thin ones, draping the interior. The new materiality was smooth and polished, and brick-and stonework were gradually left behind.⁵⁸ The new material abstraction in combination with the tectonic lay the foundation for modernism, in which architecture was built for the people. The architectural evolution has to be seen as consequence of both formal and social ambitions. The urban ideas postulated by Asplund in the article of 1916 are put into practice one year later when he is asked to design emergency housing in Stockholm. If Le Corbusier's proposal for housing for the masses works through repetition, that of Asplund works through variation. Le Corbusier favours the reproduction of models. Conversely Asplund proposes reproduction of a type and by doing so he is able to work with together the context. For him the context, both historical and local, is not an obstacle but a generator in the process of designing.

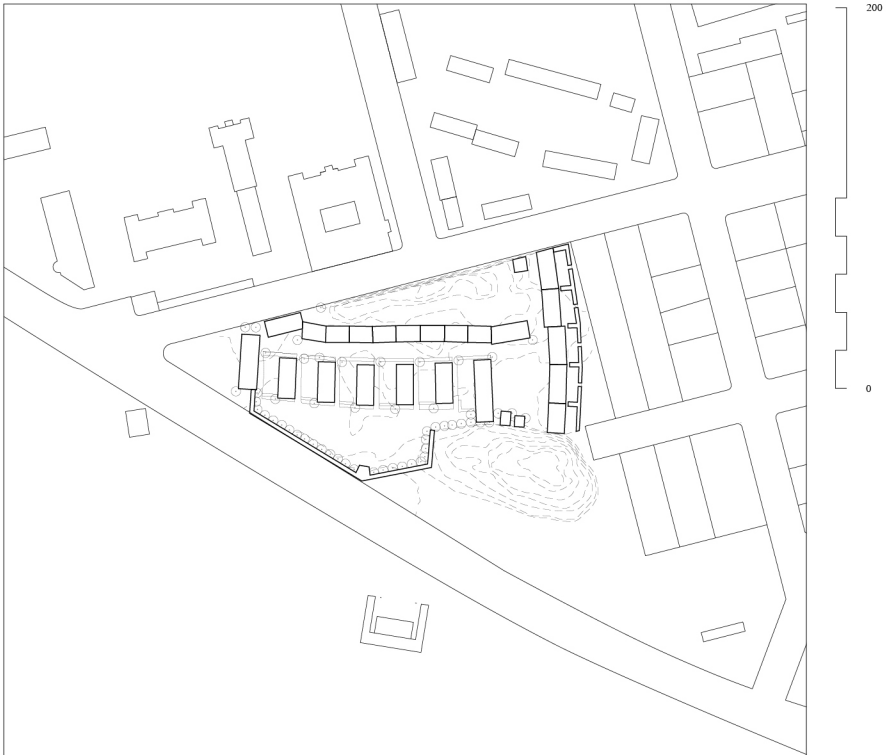
D The area of Södermalm, in which the site was located, was not fully urbanised at the time. Anticipating the future urban expansion, the city drafted out a basic grid-structure of roads. Asplund was given two plots, Stativet and Tumstocken, that were divided by the street Timmermansgatan.⁵⁹ Instead of following the urban grid, Asplund opts to merge the two parcels into one. He then distributes the two story apartment buildings following a rather suburban than urban plan. He breaks off the existing street and proposes in its place two internal streets that follow the topography, Lilla gatan and Stora gatan (The little and the big street). He then places the buildings so that two chimes, one to the north and one to the southeast, protect the buildings from the surrounding roads. Together with his buildings, the southeastern chime also helps to define the space of the proposed square. Asplund uses nature as an architectural tool. For instance he plants trees next to the outhouses, in order to decrease their

⁵⁶ idem p. 129 literal translation from *veckad*.

⁵⁷ E.Lundberg *Svensk bostad: dess utveckling och traditionsbildning*, Nordisk Rotogravyr, Stockholm, 1942. p 286

⁵⁸ ibidem

⁵⁹ Today called Tideliussgatan



D. Siteplan of Stativet & Tumstocken

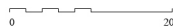
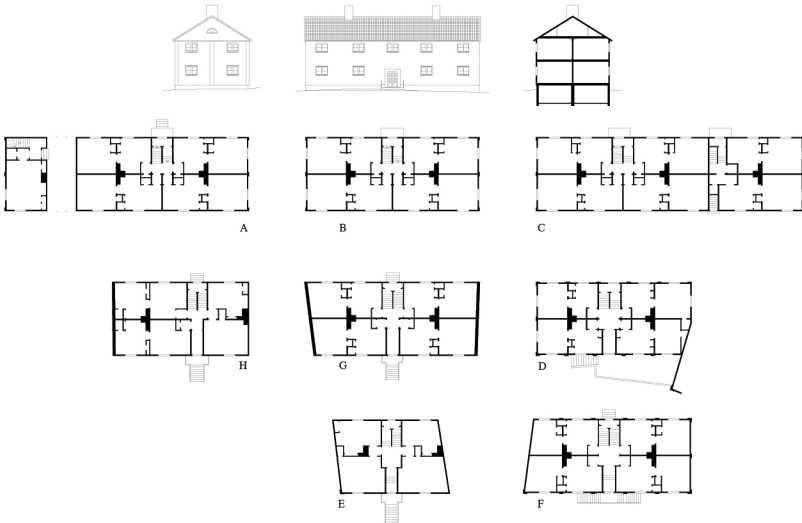
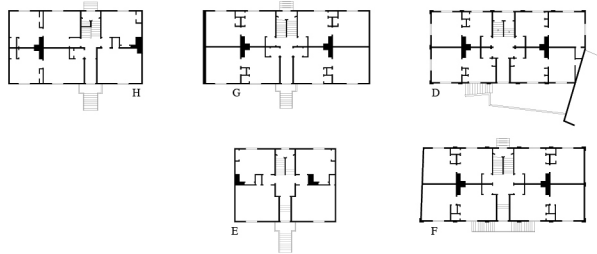
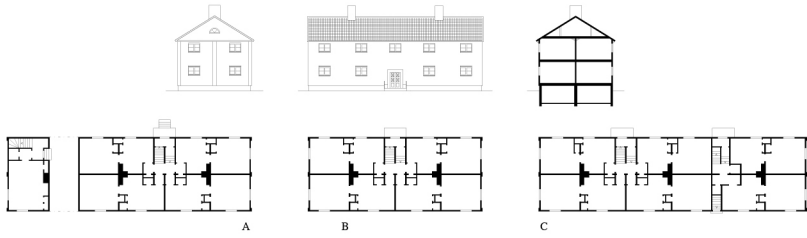
visual impact and to protect the neighbourhood from the traffic of the main road. For Asplund nature or site is not regarded as something sacred. As we know from his work in Skogskyrkogården, buildings and landscape are two equal parts of architecture, and should consequently be dealt with the same degree of application. He respects the topography of the site, partly because it is more economic and partly because it gives the project an inherited variation.

The organic character of the urban plan clearly shows influences of Camillo Sitte, whose ideas were influential in Sweden at that time. The row of houses are not placed in perfect straight lines but are always slightly rotated to one another, giving the neighbourhood rhythm and an appearance of age. On the square a painstakingly designed flagpole is placed not on the axis of the small street, but slightly off center. The exceptions help to accentuate urban situations, giving them a more articulated expression.

The project consists of eight different variations of the same type of building. They all share the same idea with more or less the same spatial disposition. The narrowly shaped plan, with two rows of rooms, was a common disposition of housing in the late 19th and early 20th century. Symmetry as an architectonic organising apparatus was a consequence of the newly found interest in classical architecture. The desire to relate to old Swedish building culture had brought about the primitive, putting less emphasis in differentiation of size of rooms. This simplification helped to create more pure, less complicated plans. In the Swedish context, the rural tradition became the symbol of the primitive. On the countryside the expensive and intricate ornamentation from abroad had been reduced since a long time. Abstraction was more a consequence of poverty than of sober taste.⁶⁰ It was thus through poverty, the economy of means, that history and future could be united into a continuous whole. Not only did the return to the primitive result in low building costs. The non-optimised configuration of the plan gave it a generosity, in which the rooms could be used for several different functions, change over time and between families. Instead of a universal specific solution Asplund presents a general and generous one. Through this generosity each room can establish an autonomy insofar as it is not dependant of other specialised rooms in order to work. For instance the generous kitchen does not need a dining-room for the household to work. Its size makes it possible to use as kitchen, dining room and living-room alike.

In order to reduce their costs, the buildings were all built in wood, which generally was a prohibited building material in Stockholm after town fires of the 16th century, and only allowed in Södermalm which at the time was a poorer working class neighbourhood. The different versions are all built up by the same elements (for instance, doors, windows, stoves). Yet they are not always exactly identical. Asplund subtly applies ornamentation to enhance and distinguish the buildings from one another even within the same version of house. Following a classical tradition the ornamentation of the windows is more reduced the further up it goes. Other ornamentation, pediments, pilasters and fan-lights are used to put emphasis on important walls and gables. For example the houses that face the square are given a more monumental character through the use of ornamentation. By the placing ornaments in strategic places, he not only gives the neighbourhood a varied appearance, he also democratises ornaments that previously had been reserved to the rich.

60 E. Lundberg 1942 pp. 278-279

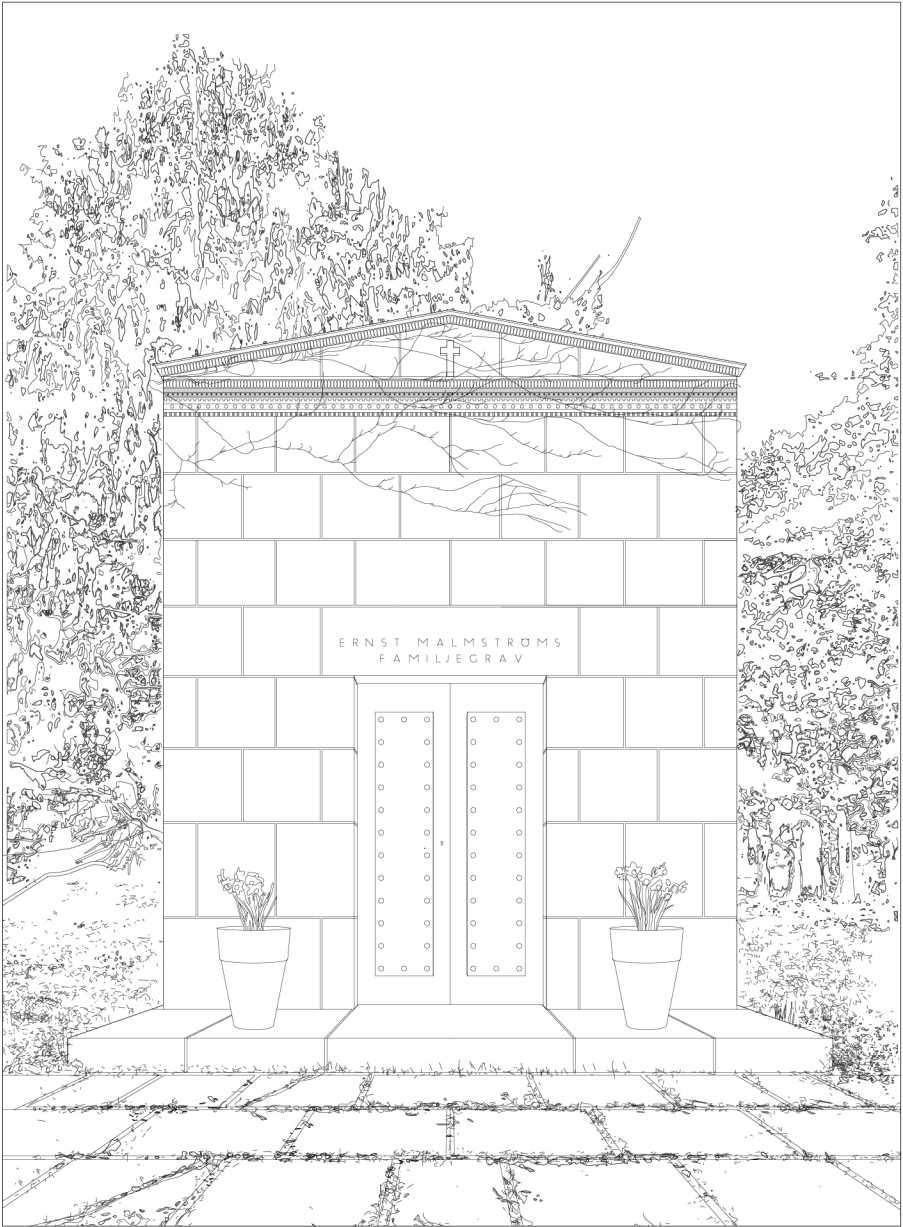


E.
 Top is the proposed deformations of Asplund in his drawings.
 Bottom are the consequential deformations of the irregular plan

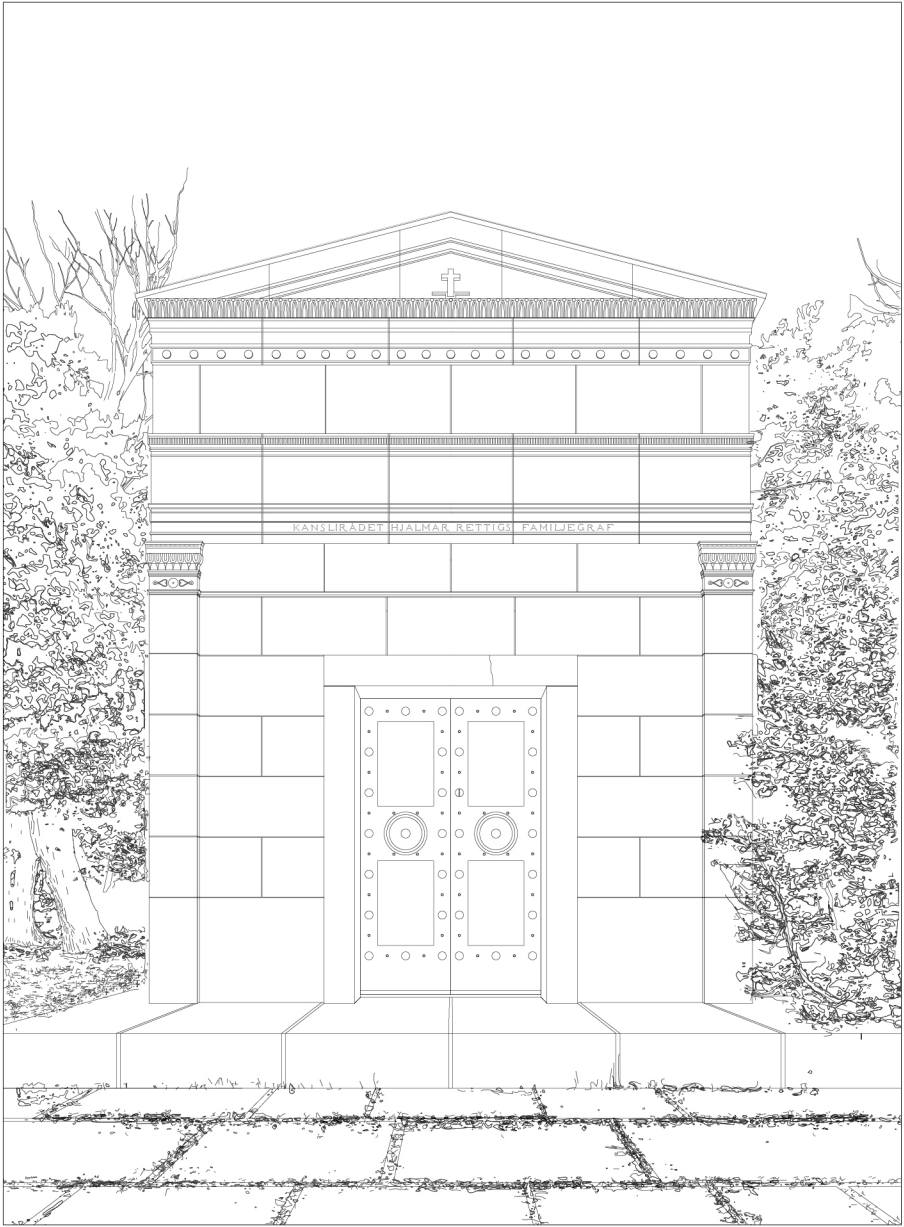
However variation is not only achieved by means of ornamentation. Asplund is eager to precisely (one may say over-enthusiastically) annotate the drawings of respective house. None-withstanding, one quickly realises that it is impossible to place each house according to the urban plan without deforming them. This is not a consequence of poor judgement, but of hierarchy. For Asplund the building, as the individual in the modern Swedish society, should adapt to the greater agenda of the community.

In order for the buildings to adapt to the irregular plan Asplund works with deformation or and hinges. Deformation occurs in the sets of houses that are placed in a row (E and G). When the houses are rotated, as a consequence of the urban plan, two or more rooms have to deform in order for the building to fit. This deformation is not addressed by Asplund, that still depicts this houses as regular and orthogonal, which leads to the conclusion that he regarded it as a problem to be solved on site. The other more refined method Asplund uses is that of the hinge. Out of the eight versions five appear only once (A, C, D, F, H). These versions are hinges, used in order to make the chain of arrayed buildings fit the topography and plan.

Through these two principles, deformation and a hinge, one mass-produced object can be contextualised. The benefit of the hinge *vis-à-vis* deformation, is that it conserves the definition and autonomy of the part whilst making it fitting to its surrounding. This is the purpose of the already mentioned *pilotees* of Le Corbusier. But in Asplunds case the hinge is not a secondary element, inferior to the repeated. Since both the repeated and the hinge, are produced following the same idea both are of equal value. Asplund's typological approach enables him to modify his buildings without losing any of consistency and force. By recomposing reproducible elements (such as windows, doors, rooms etc.) into different versions of the same type, he gives the project variation whilst remaining rational. In this sense Asplund presents a different but still efficient way of building than that proposed by the advocates of the International Style.



F. Perspective of the Family Grave of Ernst Malmström, Norra kyrkogården, Solna



G. Perspective of the Family Grave of Hjalmar Rettig, Norra kyrkogården, Solna

The Tomb of Ernst Malmström

F. G At Norra Begravningsplatsen two mausolea stand. They are product of a collective architectural knowledge. The first is Hjalmar Rettig's family grave drawn by Asplund (1926-1928) and the second is of Ernst Malmström mausoleum drawn by Sigurd Lewerentz (1921-1936). The two mausolea are built in a neoclassical style, with pediments, entablatures and ornaments. The dimensions and proportions of the two buildings are almost the same. Like in the cubist paintings of Braque and Picasso produced between 1908 and 1914 it is difficult even for a scholar to spontaneously say who designed which one.

Nevertheless the two works of architecture are far from identical. The architectural composition of the elements and the attitude towards them varies. It is not a question of original and copy but rather of kinship. As with Braque and Picasso, Lewerentz and Asplund were working closely together with the project for Skogskyrkogården. The kinship stems from a shared set of values and ideals. These were collective, but interpreted individually. Simultaneously giving the two graves their affiliation and singularity.

The eight of April 1921 Sigurd Lewerentz receives a letter from his good friend Ernst Malmström asking him to draw a family grave. Ernst Malmström, then vice-president for the Swedish bank of commerce and chief executive of Svanö AB, wanted a mausoleum with simple masonry walls and a simple roof, surrounded by trees. He wanted the grave to reflect his way of life as a humble man.⁶¹

Since Lewerentz and Asplund had won the competition of Skogskyrkogården in 1915, they had established themselves as architects. Many of the commissions were of private graves and different crematoria and graveyards around the country. The decade of the 1920s marks an important point in Swedish architecture history in which classicist architects transitioned into modernism. This progression can be observed through the interminable process of designing the mausoleum.

The first draft is dated 1921. The plan is based on a cross-like shape with a single entrance. The building sits on a base with six steps,

⁶¹ Correspondence Lewerentz archives at Arkdes Stockholm, folder 1973-05-7257.7255, Retrieved in November 2017

on which four doric columns carry an architrave and a roof that defines an antechamber, before the entrance. There are two sarcophagi, one placed on the floor and one buried underground.

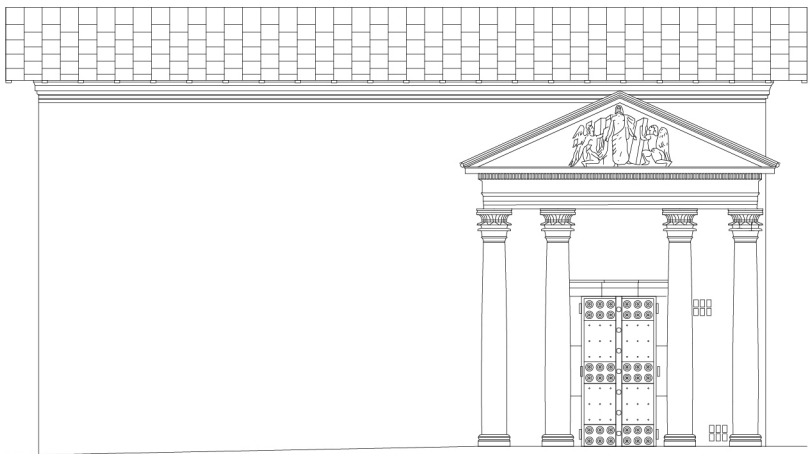
Three months after receiving Malmström's commission, Sigurd Lewerentz presented his first draft for his project of Uppståndelsekapellet (Chapel of Resurrection) as a part of the commission for the construction of the Woodland Cemetery.⁶² Here the intertwinement between projects begin, made evident through the sketches left behind. The second draft of Malmström's grave, from 1922 shows a project clearly influenced by his second version of Uppståndelsekapellet. Lewerentz proposes a mausoleum with an open roof. Only the sarcophagus is covered by a small freestanding roof structure, the rest of the space is defined by the thick surrounding walls. The elements are organised following a square plan with a pronounced entrance on the right hand side. The entrance is framed by an entablature and pediment carried by two columns of doric order. In classical architecture an entrance of this kind is a linear element which implies a sequence of spaces in enfilade. When put together with a non directional figure like a square, the entrance creates a "dynamic balance" in which the plan-figure globally becomes asymmetric and dynamic. The same gesture is used for Uppståndelsekapellet where the straight linearity of the path through the cemetery, framed by tall trees, is led through the portico only to be broken by the perpendicular placement of the chapel. As previously stated, a variation needs clearly defined rules to break. Not only does Lewerentz know the classical rules of architecture, he deliberately breaks them.

In his different versions, Lewerentz eclectically mixes Egyptian, Greek and Roman motifs. His classical use of the elements from these cultures is always contrasted with an unorthodox, one may say innovative way of composition. He devotes a great deal of attention to proportions and Euclidian geometry.⁶³ Although the elements in the neoclassical architecture of the 1920s are essentially samples of past cultures, the way of composing them and their proportions is completely new.

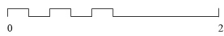
In 1926 he draws an temple-like tomb in a modified Corinthian order and masonry walls with engaged columns. The temple is placed on a base of six steps of height. He tries out numerable different variation of the same theme consisting of base, columns, entablature, pediment and opening. This becomes the foundation for his upcoming versions, in which the classical language is in every step abstracted.

62 J. Ahlin, *Sigurd Lewerentz, arkitekt*, Byggförl. with Arkitekturmusem., Stockholm, 1985 p. 113

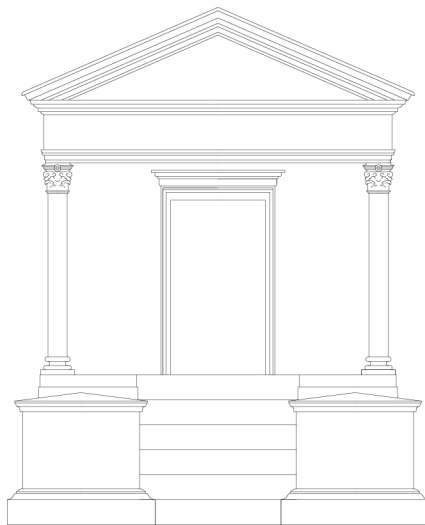
63 Later he starts to deform even the perfect Euclidian shapes, always making them a little irregular.



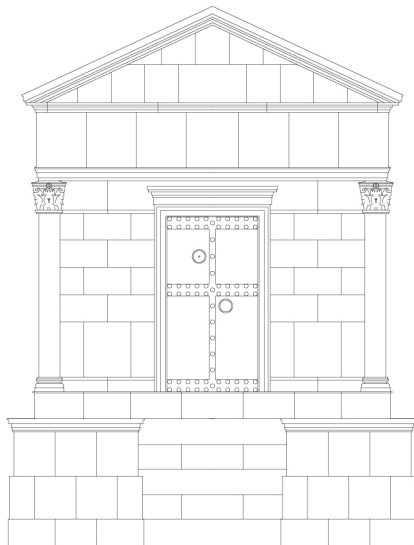
H. Uppståndelsekapellet, final result 1928



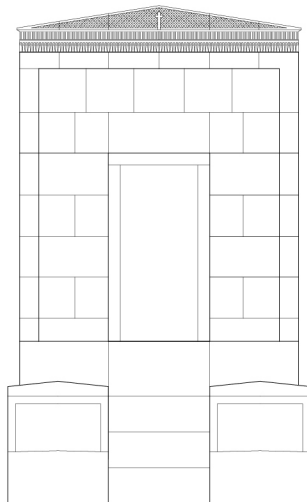
I. Ernst Malmström's grave, sketch 1922,



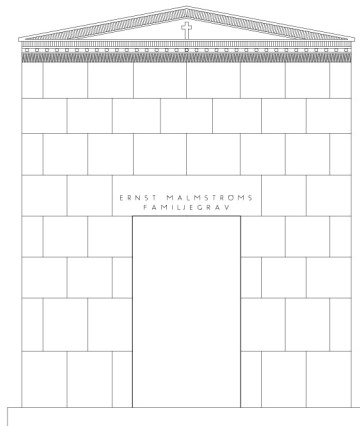
J. Ernst Malmström's grave, sketch ~1925,



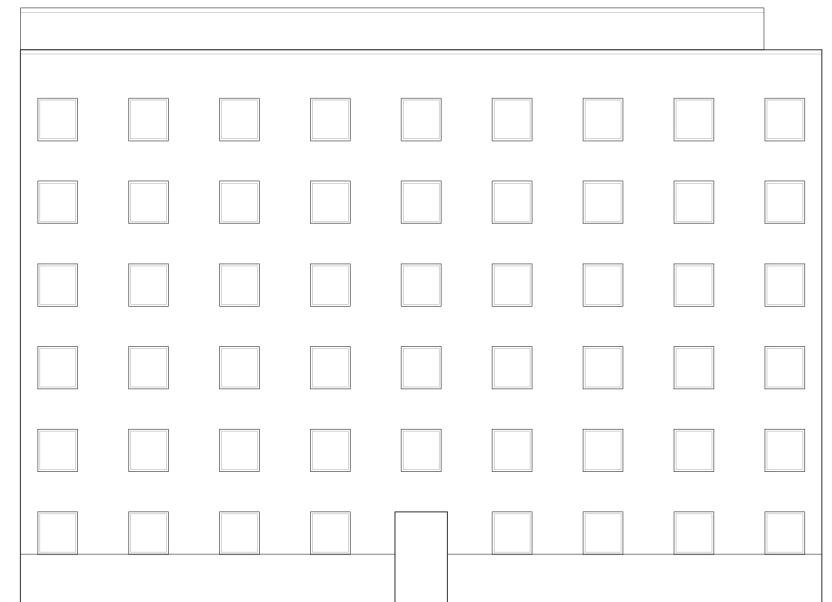
K. Ernst Malmström's grave, sketch 1926,



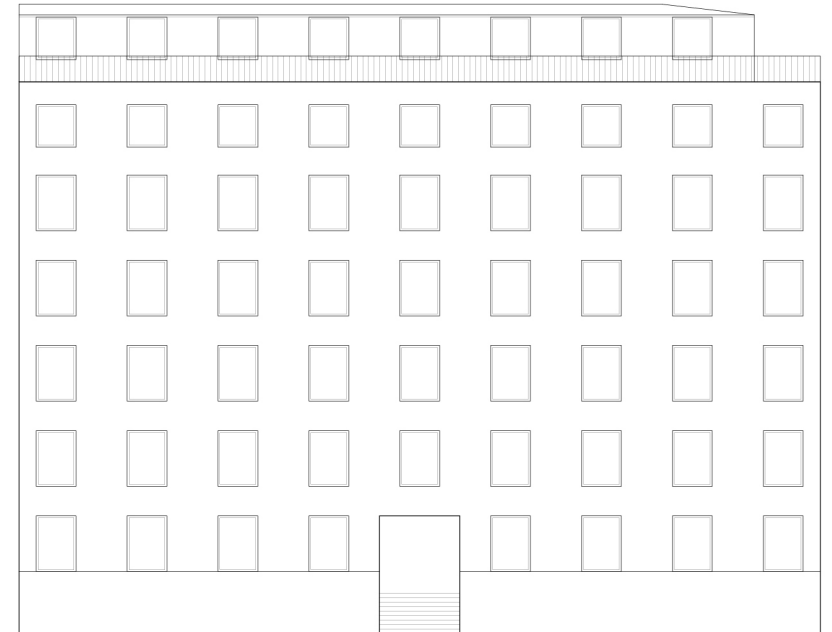
L. Ernst Malmström's grave, First built version, ~1927,



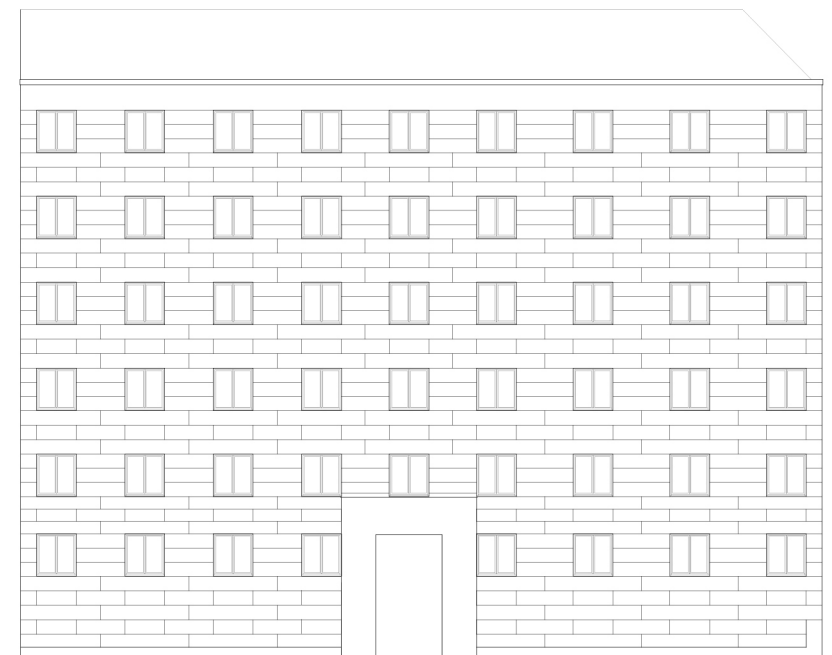
M. Ernst Malmström's grave, Second built version, ~1930,



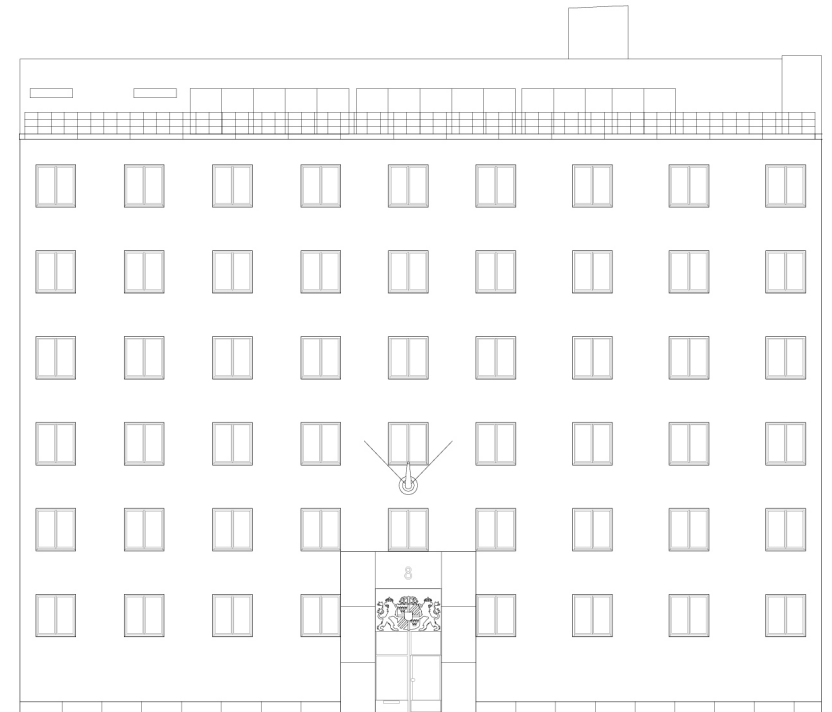
N. Riksförsäkringsanstalten, Winning proposal 1928



O. Riksförsäkringsanstalten, Sketch ~ early 1929



P. Riksförsäkringsanstalten, sketch, November August 1929



Q. Riksförsäkringsanstalten, final proposal August 1930

During the working process the architect and client had continuous correspondence. However in 1923 Ernst Malmström had become terminally ill and was treated at the Sophiahemmet hospital, time was running out.⁶⁴ Around 1927 they settle on the version that was going to be built.

L It was more slender than the version of 1926. The engaged columns with capitals and ornaments had been abstracted into pilasters with a subtle relief. The relief also indicated an architrave that lay flush with the pilasters. The plinth was conserved albeit the six steps had at this point been reduced to three. On both sides of the three steps, echoing the holy trinity, two urns were placed.⁶⁵ With its base, the mausoleum was of the same height as the neighbouring grave that Asplund had finished in 1928.⁶⁶ Through the uniform height and similar architectural language of the tombs, Ernst Malmström and Hjalmar Rettig were portrayed as two men of equal rank.

Around 1928 the construction of the mausoleum commenced.⁶⁷ The same year Lewerentz celebrated the inauguration of Uppståndelsekapellet and won an important invited competition for the office building for N Riksförsäkringsanstalten (Social Security Institute).

In the winning proposal the office building is sitting on a thick plinth in granite. Looking through the sketches from 1929 one notices how Lewerentz settles quickly for the right proportions of certain elements, e.g. o the windows (1.5 x 1.6 m). But when it comes to the plinth and the facade he seems to struggle. He goes back and forth with his changes, drawing the plinth lower and taller. It was at the same time as the mausoleum was being built, which most probably influenced the final design of the office building. p For instance in November of 1929 he introduces a rustication on the facade of the office building echoing the facade of the tomb. A rusticated facade had not been imagined in any previous sketch since he had won the competition. In this exact sketch he also changes the proportions of the main entrance, from squarish to assume its new and final proportions. These proportions are exactly the same as those he used for the entrance of the mausoleum. When it comes to the plinth Lewerentz moves away from the classicist base that previously had been so important. Instead he gives a discrete modernist plinth that was more appropriate to the time.

64 A letter that came with a check of 500 SEK from an assistant of Ernst Malmström, from 1923 indicate that the client already then was ill. Correspondence Lewerentz archives at Arkdes Stockholm, folder 1973-05-7257.7255, Retrieved in November 2017

65 The drawings are not dated however a contract from the Arkdes archives indicate that the construction of the tomb were to be finished in 1927.

66 H.Ahlberg, (ed.), *Gunnar Asplund arkitekt: 1885-1940 : ritningar, skisser och fotografier*, Tidskriften Byggmästaren, Stockholm, 1943 p. 127

67 Here there are contradictory sources regarding the exact date.

Quick to realise the approach of modern architecture, he looks back at the ongoing project of the mausoleum. Although construction was already in full swing, he returns to the drafting table in July of 1930.⁶⁸ He draws a new and improved version of what the mausoleum should have been. A subtle attempt by an architect to rewrite his own history. A couple of months later the tomb is finished. There it stands side by side the mausoleum for Hjalmar Rettig drawn by Asplund, where it is supposed to stand to the end of time. Or, as it turned out, for five years. In 1935 the client and friend Ernst Malmström passed away. In the wake of his death Malmström's family discover severe problems with humidity in the mausoleum, making it unsuitable as a tomb. They consequently contact the Property Management Department of Stockholm for them to investigate the matter closely. They conclude that the tomb is in need of reparation-work, not knowing if the leak comes from the walls, roof or from elsewhere.⁶⁹

Lewerentz proposes considerable changes of the grave, not only of technical character. He suggests to remove the subtle relief of the architrave and pilasters, change the proportions of the building slightly and to remove the plinth altogether. One of the few things that Lewerentz keeps from the old version is the proportion (1:2+1/16) of the opening (counting with the frame).⁷⁰ The same proportions he also used for the entrance of the office building.⁷¹ In other words what he proposes in 1936, is exactly what he drafted out in 1930 while finishing the work of Riksförsäkringsanstalten.

In the correspondence made between Lewerentz and the legal representatives of the family, they express that it is very peculiar that Lewerentz seems so enthusiastic with regards to the reparation, and that changes of such a substantial character are needed only five years after the building had been completed. On the backside of the same letter Lewerentz sketches construction details of the roof.⁷²

In response to the accusations, Lewerentz claims that a building of this kind, masoned with polished gneiss needs considerable maintenance during the first years, and that the proposed changes were closer to what the deceased Ernst Malmström actually would have wanted. Hence they should have had been executed in the first place. The changes are later accepted and the mausoleum is rebuilt, partly using the old stones.⁷³

68 Sketch dated 1930 from Lewerentz archives at Arkdes Stockholm, folder 1973-05-7257.7255, Retrieved in November 2017

69 Correspondence *ibidem*

70 *ibidem*

71 Lewerentz archives at Arkdes Stockholm, folder 1973-05-3321, Retrieved in October 2016

72 Letter from the law-firm Lagerlöfs to Lewerentz 5 march 1936 Arkdes, retrieved November 2017

73 Letter from Lewerentz to the law-firm Lagerlöfs 5 march 1936 Arkdes, retrieved November 2017

Despite friendship and the long correspondence between the two Lewerentz explicitly wishes to change the agreed design. What seems strange is that the new version proposed in 1936 had already been drafted in 1930, when his client and friend was still alive. As can be seen through the development of the tomb, this type of modernism stems from an abstraction through reduction. The abstraction in Swedish modernism is not a consequence of an ambition for a transcendental geometric purity. Abstraction here is a way to reduce tradition to its most essential content while conserving its meaning.⁷⁴

It would seem that, for Lewerentz, the call of modernism was a stronger incentive than honouring an agreement between friends. He took the convenient position that perhaps what his client and friend wanted was not necessarily what he needed. And he who does not speak up agrees. Lewerentz decides, against the knowledge of his deceased friend, to put him in a new architecture for a new era.

⁷⁴ An analogy is made here to different forms of abstraction in modernist painting, where three attitudes of abstraction can be found both in theory and in practice. That of Kandisky, Malevich and Mondrian. Kandinsky, is founded in the expressive colour-form where the picture has a psychological relation. Malevich reduces the visible world to the most primordial contentlessness. And lastly Mondrian that aims to find the most pure relations that have been hidden by the art-history. Of these three Kandinsky is different insofar as his abstraction relates more to the question of *Einfühlung* than abstraction in cubism. The analogy made here is a juxtaposition of the attitudes of Malevich and Mondrian. Swedish architecture, more specifically Asplund and Lewerentz, relate to the model of abstraction of Malevich while the modernism of the International Style relate more to Mondrian. For more on the discussion of abstraction in Painting see S.O Wallenstein, *Den sista bilden: det moderna måleriets kriser och förvandlingar*, Eriksson & Ronnefalk, Stockholm, 2002 pp.105-151

Uno Åhrén and the International Style

In the late 1920s the International Style modernism was slowly gaining influence in Swedish Architectural debate. The advent of industrialisation was unavoidable, and unequivocally reshaped the discourse. In his article titled *Hantverk och Konst* (Craft and Art) from 1928 Östberg discusses how architecture could adapt in the age of industrialisation. When the industrial worker replaces the craftsman, variation is replaced by repetition, craft is replaced with reproduction, and a free system, in which the craftsman had to use his personal judgement, is replaced by a managerial and supervised one. Essentially the industrial is always a reproduction of copies while the “superior” craft will always create originals.⁷⁵ Despite the ruskinian argument, Östberg is not a nostalgic of the past. He presents the furniture of Carl Malmsten as a positive example where the knowledge in a craft has been adapted to industry, and thus the past united with the present.⁷⁶

Asplund and Lewerentz had both been students of Östberg in 1910. It is therefore not strange that their transition from classicists to modernists is an adaptation, rather than abolition, of traditional values. By looking at the fore-mentioned examples and other similar cases as the Bagsvärd church and the town-hall of Sänåtsalo, one may hastily conclude that this was the overarching approach in Nordic architecture as Kenneth Frampton claims in his essay about critical regionalism.⁷⁷ To complicate the matter let us then introduce Sven Markelius and Uno Åhrén to the story.

Sven Markelius’ education was not very different to that of his friend Asplund. After he finishes his studies at the Institute of Technology in Stockholm he continued his studies at the Royal Academy of Art in 1913. It was the year after the exhibition with clear references to Schinkel, and since then the programme of the school had been reformed. The old ideals were considered stale and in need of revision. Markelius however stayed classicist and in his travels to Italy he read Palladio, Serlio, Vignola and Campanello.⁷⁸ It was not until the late 1920s that he progressively started to embrace the new ideas of the international style.⁷⁹

⁷⁵ R. Östberg, *En Arkitekts anteckningar* Natur och kultur Stockholm 1928 p.25

⁷⁶ idem p.31

⁷⁷ K. Frampton, 'Towards a Critical Regionalism', *The anti-aesthetic: essays on postmodern culture*, Foster, Hal (ed.), Bay P., Port Townsend, Wash., 1983

⁷⁸ E. Rudberg, *Sven Markelius, arkitekt*, Arkitektur, Stockholm, 1989 p.16

⁷⁹ Markelius’ transition is visible in his proposal for the concert Hall of Helsingborg.

The neoclassicism was also influential during Uno Åhrén's time at the school. After his studies Åhrén worked for Ragnar Hjorth a brief period before continuing on to work for Asplund in 1921 to 1923. In 1925 he visits the Exposition internationale des arts décoratifs et industriels modernes in Paris and is struck by the novelty of the pavilion of L'Esprit Nouveau designed by Pierre Jeanneret and Le Corbusier.⁸⁰ Upon his return to Sweden the young architect writes enthusiastically about the pavilion in Swedish architectural press. The pavilion was the only "real beacon of light" in an exhibition that he otherwise found to be uninteresting.⁸¹ The subsequent year Åhrén writes a lengthy article introducing Le Corbusier's new ideas in Swedish architectural debate.⁸²

This eagerness to promote the international style modernism takes on an almost absurd dimension in 1928, when he reviews Stockholm's City Library by Asplund. Even if written in a respectful tone, Åhrén criticises the work of his master much because of the neoclassical style in which it is built.⁸³ For instance he reproves the radially placed roman numerals on the clock in the main hall, that for him is a proof of an architecture in which symbolism is more important than function. For Åhrén the library expresses a painful contradiction, a disharmony between the contemporary and the building.⁸⁴ Because of the absurdity of his remarks in his review and of his uncritical eagerness to promote the ideas of Le Corbusier, it is difficult to read his agenda as anything else, than a conviction to establish position of his own vis-à-vis his former master. In 1929 Markelius was elected into CIAM by Karl Moser and shortly thereafter Åhrén too.

In 1931 Asplund, Gahn, Markelius, Paulsson, Sundahl and Åhrén collectively composed Acceptera, the Swedish modernist manifesto. It seems strange while reading the passage *Sund och falsk byggnadskonst* (Sound and Fake Architecture (Baukunst)) that the City Library is brought up as an example of fake architecture. The library is described as an anachronistic construction, a democratic building with the look of a castle.⁸⁵ Either Asplund himself hated his own masterpiece or someone else among

80 E. Rudberg, *Uno Åhrén: en föregångsman inom 1900-talets arkitektur och samhällsplanering*, Statens råd för byggnadsforskning, Diss. Stockholm : Tekn. högsk., Stockholm, 1981 p. 42

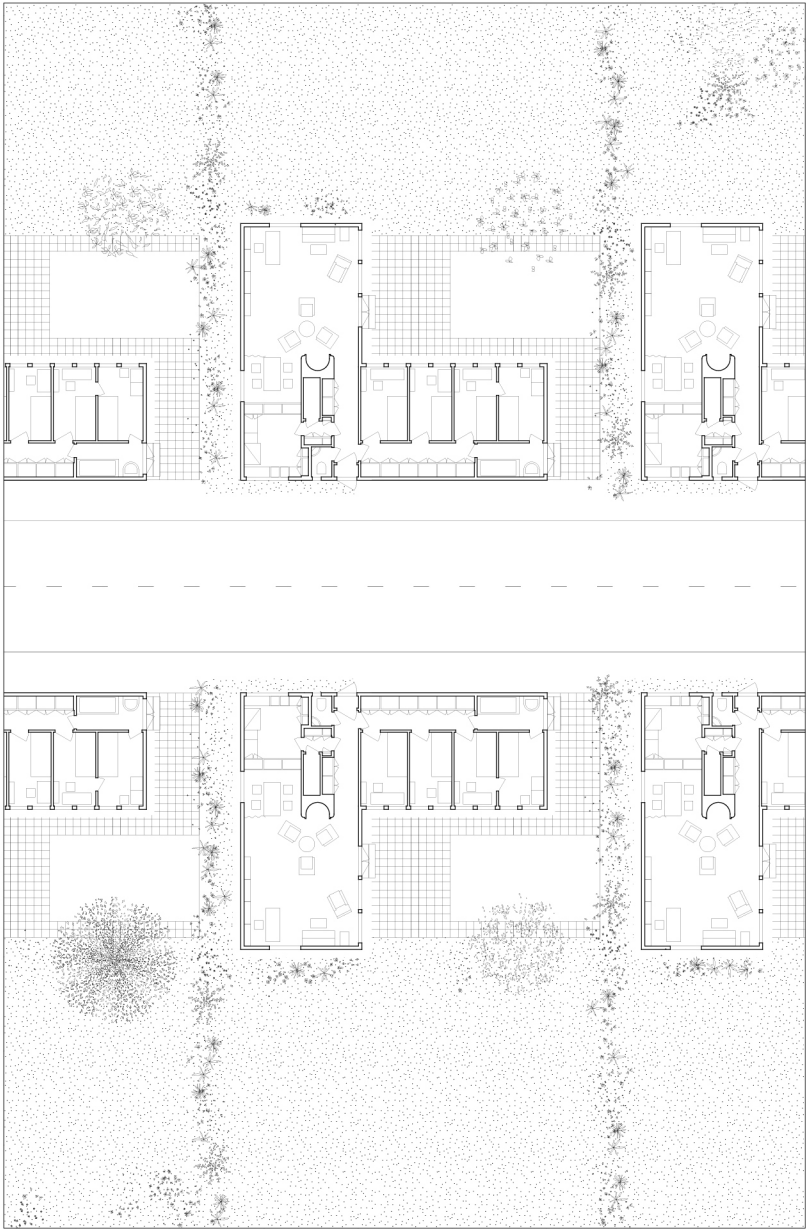
81 U. Åhrén, Svenska slöjdföreningens tidskrift: organ för konstindustri, handverk och hemslöjd, Svenska slöjdföreningen, Stockholm, 1925 p.7

82 U. Åhrén, 'På väg mot en arkitektur', *Byggmästaren: tidskrift för arkitektur och byggnadsteknik*, Bröderna Lagerströms förlag, Stockholm, 1926. no 11, pp. 133-140

83 U. Åhrén, 'Reflexioner i stadsbiblioteket', *Byggmästaren: tidskrift för arkitektur och byggnadsteknik*, Bröderna Lagerströms förlag, Stockholm, 1926. no 6, pp. 93-99

84 E. Eriksson, *Mellan tradition och modernitet: arkitektur och arkitekturdebatt 1900-1930*, Ordfront, Diss. Stockholm : Univ., Stockholm, 2000 pp. 471-473

85 E.-G. Asplund(ed.), *Acceptera*, Tiden Stockholm 1931 p. 155



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R. Demountable Row-houses exposed at the Stocholm's exhibition 1930

the authors wrote it. Since it is not well documented who wrote what, we can only take a wild guess...

Regardless of the internal conflicts, the text played an important role for modernism in Sweden. Modern architecture had to respond to new demands. The philosophical context was not very different from the French Enlightenment. Architecture was for the people and the project of constructing a society was an architectural one. The initial question, asked in the book, concerned the relationship between the collective and the individual, what it was and what it had to be.⁸⁶ As in the ideas of Rousseau mentioned earlier, the individual had to be autonomous, but always adapt to the needs of the collective. In return the individual was liberated from responsibility that could be collectivised.⁸⁷

Needless to say architecture of this time was closely intertwined with politics, more specifically the social-democratic movement, which had grown strong from the worker's movement. The leftwing reformism grew increasingly influential in the Interwar Period. Top social-democratic politicians were even involved in Functionalist interdisciplinary groups together with Åhrén and other architects. As a part of the construction of Folkhemmet (the People's home) Markelius designed the suburban row-house of Gunnar Myrdal that later became minister of commerce for the social-democratic party.⁸⁸

The architecture was cosmopolitan. The provincial and local had to be replaced with the international. The historical legacy was also regarded more as a liability than a possibility, and both Morris and Östberg represented the past. The modernist disliked architecture that did not reflect its time. New architecture had to clearly manifest its novelty and old architecture its age. The conclusion is then that context no longer really mattered. The argument that the importance of new architecture should not surpass that of the site, proposed by Asplund in 1916, was rendered obsolete.⁸⁹

Following, the mass-produced object was not to be seen as a copy, inferior to the crafted one, but superior. In *Acceptera* they paraphrase Le Corbusier, claiming that art equals order, no longer different from technology. Form had to reflect its purpose.⁹⁰ Reproduction meant favouring the model. Deformations of any kind as those we have observed in *Stativet* and *Tumstocken*, may respect the site but as soon as they are reproduced they are no longer variations, merely new models. Even if some extracts of the

⁸⁶ idem p.3

⁸⁷ idem p.40

⁸⁸ E. Rudberg 'Building the Utopia of the Everyday' *Swedish Modernism and Consumption*, Black Dog, London, 2010 . p. 155

⁸⁹ E. Eriksson 2000 p.487

⁹⁰ Asplund et al. 1931 p.140

manifesto urge for a certain regard for site and scale, the hierarchy is clear: New architecture, then context.⁹¹

The new architectural elements were no longer columns and entablatures, but walls, windows, doors, stairs and balconies. For the Stockholm's exhibition in 1930 Markelius exhibits his version of a demountable row house for the masses. In 1927 Markelius had been travelling in Germany to visit the newly built residential areas. Passing by Dessau he then contacted Walter Gropius that not only showed him the Bauhaus-school but also the row-house project in Törten, which likely inspired him to design his own row-houses. The reduced but existent urban character of Gropius' project is abstracted away completely in Markelius design. As his drawings indicate the row-houses are imagined in a contextual vacuum in which the carpets of rational (in themselves well designed) row houses could extend infinitely.

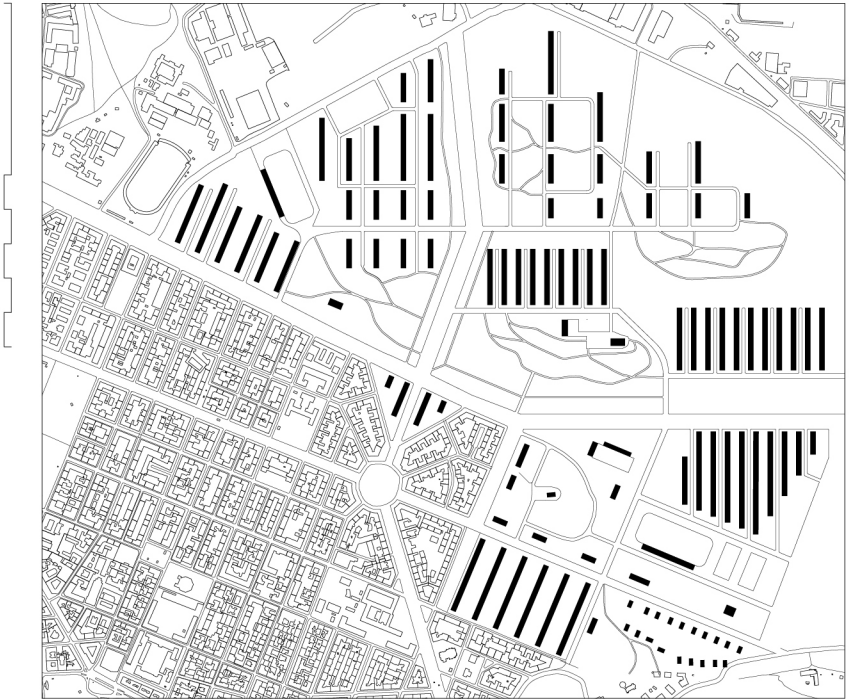
The German influence was also evident already in 1928 when Åhrén introduced the floor area ratio. By doing so Åhrén hoped that the architectural debate would contain more objective arguments rather than the subjective ones, as aesthetic discussions often are. The consequences of this mindset are clearly visible in the competition for an urban plan of Ladugårdsgården in Stockholm, that took place the same year. Here, Åhrén proposes a plan consisting of a mix of single family houses, row houses, lamellar houses between eight and 20 stories high. Despite the different sorts of buildings, all the share the same thickness of 15 meters, implying a similar arrangement of spaces in the respective apartments.⁹²

Even if footprint of the site is sparsely covered, the buildings are placed in clusters and the distance between the buildings is the exact distance needed for maximum sunlight, not one meter more nor less. With exception of the main axes, the new plan completely disregards the logic of the existent and its infrastructure. The proposed network of roads is not rationally organised but fragmentary, detaching the new plan from the city. Such a detachment can hardly be considered functional, rather the disconnection is a symbolic act, distinguishing old from new. The same mentality was maintained throughout decades. In 1933 an international competition for the rejuvenation of Nedre Norrmalm (the most central parts of Stockholm) took place. The competition sported architects as Aalto and Le Corbusier. Both Aalto and Le Corbusier choose to more or less demolish the entire center. Le Corbusier's even proposes to tear down the entire city and replace it with

91 E.Eriksson 2000 p.491

92 E.Rudberg, 1981 pp. 57-59

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S. Siteplan of Ladugårdsgårde with Ahren's proposal in black. 1928

his buildings as cities. Even if Le Corbusier's proposal for the competition in 1933 was considered unrealistic by Markelius, the end result was his own mini-version of the Plan Voisin, demolishing the most part of central Stockholm.⁹³

When Sven Markelius became the director of the department of Urban Planning of Stockholm, he directed the construction of Vällingby, a satellite suburb of Stockholm, in which all of his modernist ideals were implemented. In 1958 Le Corbusier visited Vällingby with Markelius. Rumours has it that when asked by Markelius what he thought about the project Le Corbusier replied "Nice garbage cans!"

In the emancipatory effort to belong to a new international style, Swedish modernists forgot what already existed. The utopia was set beyond the horizon, on the continent. Even if the purpose fundamentally was benevolent, the means cannot always be justified.

93E. Rudberg1989 pp. 137-138

The Middle Way

The middle way is the ultimate sign of Swedish culture. It is not a product of diplomacy nor mediocrity but of compromise. Truth is rarely found in absolute statements. Often compromise is where the solution lies. In this case the answer is not found in the polarising questions as "Repetition or variation?", "Modernism or Classicism?", but in answers like "Repetition and variation!". Repetition and variation do not relate to each other as opposite, but through their reciprocity.

In some regards architecture is almost by definition a-contextual. One of the most remarkable things with Bernard Rudofsky's book Architecture without Architects, is not the difference but the uniformity of the buildings. Despite being built in different continents and cultures the architecture seem to follow the same principles. The similarity is not a primarily a consequence of cultural exchange but of rationality. As Rudofsky points out the reason a beaver builds dams is not because it has seen humans build dams, but because it is the most efficient for a beaver to do.⁹⁴ Through rationality and efficiency architecture reaches a certain degree of universality.

But at the same time universality, or at least claims of universality, can be dangerous when used wrong, as in as was brought up discussion with a scholar anticipating the work for this text. He claimed that architecture should be universal, durable almost indestructible. As an example he took out his textile handkerchief saying that it was much better than a paper tissue, since he could use it over and over again. The point is extremely valid as long as things go as planned. But when one finds oneself in an unexpected situation, say you are on to the toilet and realising that here is no toilet-paper left, the argumentation is likely to change. So how does one plan for the unexpected? Maybe the answer can be found in a juxtaposition between an Attolini and a H&M suit. The former a perfectly fitting bespoke suit, beautiful in its details and its craft made following a minute observation of the measurements of its future owner. The latter, with too big sleeves and shoulders fitting mediocly, is designed for no one in particular. The former

⁹⁴ B. Rudofsky, *Architecture without architects: a short introduction to non-pedigreed architecture*, Doubleday, Garden City, N.Y., 1964 p.12

mentality produces architecture suitable for one specific user but never for the masses. The problem with many Modernist development is that it applies the same model for the architecture for the people. The entire discussion of the Existenzminimum is essentially a discussion of defining specific requirements needed for living. With the commodification of housing in late capitalism the discussion has once again regained momentum. However this time the purpose is not to define what is necessary and appropriate but to miniaturise living spaces in order to make housing affordable. As a point of reference it is important to point out what Ludwig Hilberseimer about writes in *Großstadtarchitektur*, namely that an appropriately sized apartment for one person should not be smaller than 30 square meters.⁹⁵

In the project for Stativet and Tumstocken Asplund proposes a different way than the well defined specialised architecture of the International Style modernism. Albeit the classicist elements, the project anticipates the social modernist project. By focusing on a reproduction of a type rather than that of the model, Asplund is able to give variation and respect both local and historical context. The shared idea of every version of a house gives the ensemble a unity, coherence and variation. Since the variation lays in the deep structure of the project and not in the architectural elements the project does not become less rational than say a copy-paste modernist one. Instead it adds architectural richness and complexity.

The possibility to balance both the singularity of the context and an universality of building-culture can be attributed to the approach to abstraction in Swedish 1910-1930s architecture. The Swedish modernism was not a rupture with old traditions, but an adaptation of traditional values to contemporary society.⁹⁶ It was achieved through an abstraction of traditional architecture into its primordial essence. This evolution is clearly visible in Sigurd Lewerentz's project for the tomb of Ernst Malmström, presented earlier. The abstraction through reduction differs from the abstraction of the International Style modernism, in which abstraction is a utopian projection.

The latter form of abstraction is a way to achieve rational purity, that can be found in the foundation of everything. These ideals favour the reproduction of models and the abstraction creates a dialectical relationship between the new architecture and context, in which buildings are isolated from their context. There is no real confrontation between the existing and the proposed, as can be seen in Uno Åhréns proposal for Ladugårdsgärde,

⁹⁵ L.Hilberseimer, *Metropolisarchitecture*, GSAPP Books, New York, 2012 p.119

⁹⁶ H.Mattson & S.O.Wallenstein, 'Introduction' *Swedish Modernism and Consumption*, Black Dog, London, 2010. p. 9

where nature is kept untouched and apart from the proposed buildings. Even though the modern project was indubitably noble and revolutionary from a sociopolitical point of view, its methods are exhausted. A continuous urban fabric has replaced the white canvas left behind by the two World Wars and the demolition of city centres. What the Krier brothers, and other advocates for the historic city fail to recognise, is that the modernism they so much hate is actually part of our history. Any architecture that advocates historical continuity must deal with the legacy of modernism in the same way as its would deal with the medieval city.

But how to contextualise architecture without being nostalgic? Once again the answer can be found in Asplund's housing project where he works with clearly defined and repeated architectural elements. He subsequently composes and recomposes these elements in order to fit the given condition. The typological approach enables Asplund to create a variation in the very structure of architecture and not only through differences of facades. Every version and declination is a product of the same idea, and recomposed following a commonly shared knowledge of neoclassicism, the approaching modernism and rationality.

With the invention of autonomous architecture and the break with the Vitruvian rules, a way of composing architecture was needed. The new architecture had to adapt to both the demands of industrialisation and those of common people. The legacy of both Ledoux and Durand was administered by Le Corbusier resulting in architecture we all know very well. The egalitarian project of modernism understood equal as same (Gleichheit als Ähnlichkeit). Equality was achieved through the elimination of difference.

However by looking at the Swedish architecture of the 1920s there seems to be a third way to answer to the rising demand for housing. It seems to be a middle way. It is a compromise and maybe even a bad one, between the type and the context, the ideal and reality. In this compromise equality

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Pictures and Drawings

A. Redrawing based on engraving by C N. Ledoux retrieved from Ledoux, Claude Nicolas, *Architecture de C.N Ledoux*. PAP Press New York 1983 PL. 117

B. Copy from Durand, Jean-Nicolas-Louis, *Précis of the lectures on architecture: with, Graphic portions of the lectures on architecture*, Getty Research Institute for the History of Art & the Humanities, Los Angeles, Calif., 2000 PL 2 & PL18

- C. Recreated perspective based on original drawings provided by prof. Luca Ortelli as well as photographs from Stadsmuseet Stockholm <http://digitalastadsmuseet.stockholm.se>
- D. Redrawing based on historical map of Stockholm from 1930 retrieved from <https://stockholmskallan.stockholm.se/sok/?q=&map=true>, and on original site-plan made by Asplund provided by prof. Luca Ortelli
- E. Redrawings section and elevation based on original drawings made by Asplund provided by prof. Luca Ortelli, plans courtesy of prof. Luca Ortelli.
- F. Perspective based on photogrammetry and measurements taken on site
- G. Perspective based on photogrammetry and measurements taken on site
- H. Modified (thympanon drawn in its built state) redrawing based on drawings retrieved from Ahlin, Janne, Sigurd Lewerentz, arkitekt, Byggförl. with Arkitekturmuseum,, Stockholm, 1985 p.113
- I.Redrawing based on original sketches made by Lewerentz, retrieved from the Lewerentz archives folder 1973-05-7257.7255 at Arkdes Stockholm.
- J.Redrawing based on original sketches made by Lewerentz, retrieved from the Lewerentz archives folder 1973-05-7257.7255 at Arkdes Stockholm.
- K.Redrawing based on original sketches made by Lewerentz, retrieved from the Lewerentz archives folder 1973-05-7257.7255 at Arkdes Stockholm.
- L. Redrawing based on original sketches made by Lewerentz, retrieved from the Lewerentz archives folder 1973-05-7257.7255 at Arkdes Stockholm.
- M. Redrawing based on original sketches made by Lewerentz, retrieved from the Lewerentz archives folder 1973-05-7257.7255 at Arkdes Stockholm.
- N. Redrawing based on original sketches made by Lewerentz, retrieved from <https://digitaltmuseum.se/011024746752/ritning>
- O. Redrawing based on original sketches made by Lewerentz, retrieved from <https://digitaltmuseum.se/011024746752/ritning>
- P. Redrawing based on original sketches made by Lewerentz, retrieved from <https://digitaltmuseum.se/011024746752/ritning>
- Q. Redrawing based on original sketches made by Lewerentz, retrieved from the Lewerentz archives folder 1973-05-3321 at Arkdes Stockholm.
- R. Interpretation of gardens and redrawing based two drawings retrieved from Rudberg, Eva, Sven Markelius, arkitekt, Arkitektur, Stockholm, 1989 p. 65
- S. Historically modified cadastral map based on 1930's map from <https://stockholmskallan.stockholm.se/sok/?q=&map=true> combined with drawing from Rudberg, Eva, Uno Åhrén: en föregångsman inom 1900-talets arkitektur och samhällsplanering, Statens råd för byggnadsforskning, Diss. Stockholm : Tekn. högsk.,Stockholm, 198 p.59

