Sheltered Society
Civilian Air raid shelters in Sweden – from idea to materiality, 1918–1940 and beyond
Sheltered Society
Civilian Air raid shelters in Sweden – from idea to materiality, 1918–1940 and beyond

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Table of Contents

Abstract
Acronyms and names
Foreword
1. Sheltered Society
   1.1. A simple basement air raid shelter
   1.2. Becoming a “Sheltered Society”
   1.3. Earlier research and civil defence history
       1.3.1. Civil defence historiography and the Cold War bias
       1.3.2. International research
       1.3.3. Civilian and military history
       1.3.4. A new chronology for civil defence?
   1.4. An interwar history
   1.5. Outline of dissertation
2. Analytical framework
   2.1. The air raid shelter as a technology
   2.2. History of Science and Technology and the theory of Large Technical Systems
   2.3. The Multi-Level Perspective and LTS
   2.4. Materials and dissertation design
       2.4.1. Commissions of inquiry and networks
       2.4.2. Press material databases and media materials
3. From concrete bunker to basement shelter
   3.1. From bunker to shelter
       3.1.1. Artillery and bunkers up to the dawn of aerial warfare
       3.1.2. From front line to urban underground
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2. Doctrines</td>
<td></td>
</tr>
<tr>
<td>3.2.1. Total War</td>
<td></td>
</tr>
<tr>
<td>3.2.2. Aerial warfare and Douhetism</td>
<td></td>
</tr>
<tr>
<td>3.3. The Association for Stockholm’s permanent defences</td>
<td></td>
</tr>
<tr>
<td>3.3.1. Hugo Jungstedt and the introduction of civilian protection</td>
<td></td>
</tr>
<tr>
<td>3.3.2. Emil Fievrell and state-organized aerial protection</td>
<td></td>
</tr>
<tr>
<td>3.3.3. Kjell Magnell and the change in the mid-1930s</td>
<td></td>
</tr>
<tr>
<td>3.3.4. Introducing Construction-Technical Aerial Protection</td>
<td></td>
</tr>
<tr>
<td>3.4. Summary</td>
<td></td>
</tr>
<tr>
<td>4. From sub-politics to parliamentary politics – 1927–1936</td>
<td></td>
</tr>
<tr>
<td>4.1. Military politics during the interwar era</td>
<td></td>
</tr>
<tr>
<td>4.1.1. A shift from conservative to liberal-left</td>
<td></td>
</tr>
<tr>
<td>4.1.2 The effects on aerial protection policies and Christenson’s commission</td>
<td></td>
</tr>
<tr>
<td>4.2. Aerial protection in the sub-politics field</td>
<td></td>
</tr>
<tr>
<td>4.2.1. The FFSFF, Föreningen för Stockholms fasta förvar.</td>
<td></td>
</tr>
<tr>
<td>4.2.2. The Swedish Red Cross</td>
<td></td>
</tr>
<tr>
<td>4.2.3. The Jung-Clique and the New Military Journal</td>
<td></td>
</tr>
<tr>
<td>4.2.4. Foundational structures</td>
<td></td>
</tr>
<tr>
<td>4.3. Social democratic policies and civilian aerial protection</td>
<td></td>
</tr>
<tr>
<td>4.3.1. Avoiding para-military organizations</td>
<td></td>
</tr>
<tr>
<td>4.3.2. Social-democratic housing policies and air raid shelters</td>
<td></td>
</tr>
<tr>
<td>4.4. Summary</td>
<td></td>
</tr>
<tr>
<td>5. The Beskow commission and its aftermath 1936–1940</td>
<td></td>
</tr>
<tr>
<td>5.1. Forming the Beskow commission</td>
<td></td>
</tr>
<tr>
<td>5.1.1. A new setting for aerial protection politics</td>
<td></td>
</tr>
<tr>
<td>5.1.2. The composition of the commission</td>
<td></td>
</tr>
<tr>
<td>5.1.3. The commission at work – a European outlook</td>
<td></td>
</tr>
<tr>
<td>5.2. The contents of the Beskow commission’s report</td>
<td></td>
</tr>
<tr>
<td>5.2.1. Civil aerial protection vs. military aerial defence</td>
<td></td>
</tr>
<tr>
<td>5.2.2. Aerial protection and modern housing policies</td>
<td></td>
</tr>
<tr>
<td>5.2.3. Legislation and organizational formatting</td>
<td></td>
</tr>
<tr>
<td>5.3. The aftermath of the Beskow commission – 1937–1940</td>
<td></td>
</tr>
<tr>
<td>5.3.1. From idea development to material investments</td>
<td></td>
</tr>
<tr>
<td>5.3.2. From sub-politics to state endorsed popular movements</td>
<td></td>
</tr>
<tr>
<td>5.3.3. The Peterson commission and the statute of 1940</td>
<td></td>
</tr>
<tr>
<td>5.3.4. Momentum is gained: the air raid statute of 1940</td>
<td></td>
</tr>
<tr>
<td>5.4. Summary</td>
<td></td>
</tr>
</tbody>
</table>
6. A new lodestar: Engineers and architects 1934–1945

6.1. Aerial protection – a technical matter
   6.1.1. Engineers between war and civil society
   6.1.2. The Swedish Technologist’s Association

6.2. “Appealing targets”: Industrial aerial protection
   6.2.1. Industrial aerial protection in practice
   6.2.2. Ivar Lundbäck and scientific management

6.3. The Shelter Controversy of 1940
   6.3.1. The controversy

6.4. Architecture, urban planning and air raid shelters
   6.4.1. A transnational conversation
   6.4.2. A new lodestar in urban planning

6.5. Summary

7. The Air raid shelter in public 1930–1940
   7.2. The Spanish Civil War and Swedish journalism
      7.2.1. Barbro Alving and “Refugios”
      7.2.2. Gerd Ribbing reflects on life with air raid shelters
   7.3. Aerial protection, air raid shelters and the Stockholm press 1937–1940

7.4. Summary

8. Discussion and concluding remarks
   8.1. From idea to materiality after 1936
   8.2. Sheltered Society and the Cold War
   8.3. Concluding remarks

Sammanfattning på svenska

Sources and Literature
Abstract

In 2002, Sweden finally stopped producing air raid shelters for its population after over sixty years of continuous production since 1938. Judging from the Swedish Civil Contingencies Agency, MSB, the Swedish Air raid shelter registry contain about 65,000 air raid shelters registered as being in use. This figure reflect a huge security infrastructure which, today, is said to provide shelter for around 70% of the Swedish population. By studying the interwar period and the origins of civil defence in Swedish history, this dissertation sets out to explain the origins of the Swedish air raid shelter and provide an explanation of how Sweden eventually became a “Sheltered Society”.

In order to achieve this, this dissertation will study the interwar period up until the first year of the Second World War, 1918 to 1940, which can be said to be the formative years for aerial protection politics and air raid shelters. As a theoretical inspiration, the dissertation uses LTS theory, intertwined with a Multi-Level Perspective on technological transitions. Through the close reading of reports and articles, newspapers and archival materials, written by fortification officers, engineers, architects, politicians and journalists during these years, the study shows how the originally military bunkers and air raid shelters were conceptually transferred to civilian use during the interwar years by authors concerned about the technological and strategic developments in aerial warfare.

This process was enabled by a careful navigation between militaristic notions of aerial protection and the politically neutral civilian use of air raid shelters. Key factors for the successful implementation was framing the shelters as a simple technical matter through the concept of “Construction-Technical Aerial Protection”, as well as removing all military involvement in building and organizing them, making them seem “civilian” rather than military. This eventually led to the ratification of the Air raid shelter statute of 1940, which could be said to be the origin of the Swedish air raid shelter system. While politicians, engineers and fortification officers launched this image of the air raid shelter, the contemporary press discourse also provided a means of interpreting the
newly introduced shelters as being culturally compatible with Swedish urban modernity, thus making the radical urban change appear less frightening and a natural part of the development of the burgeoning Swedish welfare state.
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK</td>
<td>Andra kammaren</td>
<td>Second chamber of the parliament.</td>
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<tr>
<td>Bondeförbundet</td>
<td>Farmer’s League. Political party focused on agrarian politics. Cooperated with the SAP during the mid-1930s.</td>
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<tr>
<td>CFS</td>
<td>Civilförsvarsstyrelsen</td>
<td>Civil Defence Administration. Primary government body for civil defence between 1944 and 1986.</td>
</tr>
<tr>
<td>CFF</td>
<td>Civilförsvarsförbundet</td>
<td>The Civil Defence League. Volunteer organization. In 1951, the RLSF changed its name to CFF. The organization still exists today.</td>
</tr>
<tr>
<td>FFSFF</td>
<td>Föreningen för Stockholms fasta försvar</td>
<td>Association for Stockholm’s Permanent Defenses. Lobbying organization formed in 1902 to promote strengthened fortification defences in Stockholm. Existed until 1955, after which it changed into a foundation.</td>
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<tr>
<td>FK</td>
<td>Första kammaren</td>
<td>First chamber of the Swedish parliament.</td>
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<tr>
<td>FKA</td>
<td>Försvarsväsendets kemiska anstalt</td>
<td>The Swedish Armed Forces Chemical Institute. Forerunner to the FOA and existed between 1937 and 1945 after merging with the MFI. The FKA conducted research on chemical warfare and civilian gas masks under the leadership of Gustaf Ljunggren.</td>
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<tr>
<td>FOA</td>
<td>Försvarets forskningsanstalt</td>
<td>The Swedish National Defence Research Institute. Formed in 1945 and existed until 2000 before it was renamed FOI. The FOA was an important research facility for civil defence-related research during the Cold War era.</td>
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<td>FOI</td>
<td><em>Försvarets forskningsinstitut</em>. The Swedish Defence Research Agency. 2000 to the present day.</td>
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</tr>
<tr>
<td>IVA</td>
<td><em>Kungl. Ingenjörsvetenskapsakademien</em> – Royal Swedish Academy of Engineering Sciences. 1919 to the present day.</td>
<td></td>
</tr>
<tr>
<td>Jung-Juntan</td>
<td><em>The Jung Clique</em>. A group of officers led by the high-ranking officer, Helge Jung. Jung-Juntan played a major role in the forming of FK1930 and their work.</td>
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<tr>
<td>KBS</td>
<td><em>Kungliga Byggnadstyrelen</em> – The Swedish National Board of Public Building. Existed from 1918 to 1993. Responsible for designing and maintaining the Swedish state's own real estate, including designing and constructing air raid shelters.</td>
<td></td>
</tr>
<tr>
<td>KKrVA</td>
<td><em>Kungl. Krigsvetenskapsakademien</em> – The Royal Swedish Academy of War Sciences. 1739 to the present day.</td>
<td></td>
</tr>
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<td>LI</td>
<td><em>Luftskyddsinspektionen</em> – Air Protection Inspectorate. Sweden's first government body handling aerial protection. Formed in accordance with proposition 1937:212. Existed from 1937 to 1944. Merged with the SUK in 1944, forming the Kungl. Civilförsvarsstyrelsen, CFS.</td>
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</tr>
<tr>
<td>LSF</td>
<td><em>Luftskyddsförbundet</em> – National Aerial Protection Association. Formed in 1937 by Torsten Nothin and Kjell Magnell. Changed its name in 1938 to the RLSF and later in 1951 to the CFF.</td>
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<tr>
<td>Motion</td>
<td>Parliamentary bill. Bill presented by any member of parliament.</td>
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<td>NMT</td>
<td><em>Ny militär tidskrift</em> – New Military Journal. Influential military journal established in 1927 by Helge Jung and a group of officers around him called Jung-Juntan. The journal was discontinued in 1961.</td>
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<tr>
<td>Proposition</td>
<td>Government bill. A proposition is assigned an identification number according to the year of presentation and succession. For example, Gustav Möller’s proposition on aerial protection law in 1937 was called <em>Proposition 1937:211</em>.</td>
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<td>RLSF</td>
<td><em>Riksluftskyddsförbundet</em> – same as LSF. The LSF added “Riks” to its name in 1938.</td>
<td></td>
</tr>
</tbody>
</table>
SFS  *Svensk författningssamling* – Swedish Code of Statutes. After a law proposition has been ratified by parliament it is assigned a date and number relating to the time of ratification, e.g. the Luftskyddslagen of 1937 was given the name SFS 1937:504.

SUK  *Statens Utrymningskommission* – The National Evacuation Commission. Formed in 1940 to plan evacuation procedures for Sweden’s urban population. Merged with the LI in 1944 to become Kungl. Civilförvarsstyrelsen, CFS.

SOU  Statens offentliga utredningar – The State’s public reports. Series of published reports produced by commissions of inquiry instigated by the government. Each report is assigned a specific number which relates to the year of publication and succession, e.g. the Beskow commission’s report was the 57th report produced in 1936 and was thus named SOU 1936:57.

STF  *Svenska Teknologföreningen* – The Swedish Association of Engineers. Interest organization for the engineering and architectural community. Publisher of the journals *Teknisk Tidskrift* and *Byggmästaren*.

TT  *Teknisk Tidskrift – Journal of Technology*. The primary organ for news and research in the engineering community. 1871–1967. The journal developed into a series of sub-journals focused on specific disciplines.

Meddelanden  *Meddelanden från Föreningen för Stockholms fasta försvar* – Messages from the Society for the Permanent Defence of Stockholm. The journal was published by the FFSFF.

SAP  *Socialdemokratiska arbetarepartiet* – The Swedish Social Democratic Worker’s Party. Social Reform Party. Held government office between 1932 and 1939 in coalition with the Farmers’ Union.
Foreword

In April 2020 it was almost exactly 80 years since Hitler brought the war to Northern Europe. Sweden survived unscathed; its closest neighbours did not. Fear was omnipresent. Fear of what might happen tomorrow, next year, or in the coming decades; fear of death from above, from enemy rifles, from starvation, or disease. Europe was well aware of what could happen. Air raid shelters and gasmask, drills and local aerial protection clubs tempered the fear. As I write this, in 2020, we tremble in fear of a virus, although the reactions and the political reflexes appear to be the same. Holding on to concrete base-ments doesn’t help much when we are threatened by a virus, although masks, ventilators and mass-testing procedures have a similar function. As I finish this dissertation in Corona lockdown, I have come to realize that rushed jurisdiction and the rapid mass implementation of technologies can pass easily, effortless even, if society as a whole is suffering from extreme fear. And, quite frankly, it makes my head spin to think that at some point during this strange spring of 2020 some idea or law has been passed that 80 years from now will be argued as having been decisive for our future. Perhaps some historian in the next century will consider the spring of 2020 as a watershed that triggered a new era of unheard-of contingency planning, just like this dissertation discusses about 1936 or 1940. Perhaps, in retrospect, Sweden will once again stand out as being uniquely successful, or ridiculously naïve. Or maybe this pandemic will be quickly forgotten as new problems of war or climate catastrophes emerge on the horizon. Who knows?

Things change quickly and it seems impossible to foresee what the next risk-management era will comprise. When I applied for this project PhD in spring 2014 I chose the topic of civil defence, not out of its contemporary actuality or because of some intense and deep psychological attraction (Freud would likely argue that this was the case), but rather because of its practical potential. I knew that civil defence was an under-researched phenomenon in Swedish historiography and that there was an archive in Stockholm that seemed to promise some sort of dissertation. It is possible that films and video
games played their part. Little did I know that the events in Crimea would awaken ideas of a new Cold War and the rise of asymmetric warfare. Just one year after Crimea, the Swedish government decided to restart the Swedish civil defence organization; cyber soldiers were introduced and psychological defence awoke from a two-decade long sleep. Rearmament – and a trembling NATO. Then came terrorism, and various climate crises and talk of climate bunkers, and now, in 2020, a global pandemic. Over the six years that I have worked on this topic, Military and Civil defence – in Sweden often gathered under the common banner of Total Defence – has slowly developed into one of the most urgent political topics. Within historical research it is also steadily on the rise, with new books and articles being published every year. I had no idea this would happen. I even remember feeling guilty about making a historical case out of something which, at face value, appeared to be incredibly uninteresting to both me and the public.

This also raises questions. Experiencing the corona pandemic in real life, I have come to realize certain things about the research for this book that was difficult to foresee. The way people on all levels of society appear to align themselves with a common goal have made me understand the lack of criticism of laws, propaganda and regulations in Sweden from 1939 to 1940. Such sociocultural alignment has been difficult to probe in this dissertation but appears to be important for how large-scale preparedness planning and increased budgets are effortlessly approved. It also explains the difficulties of understanding the propaganda from this age. In retrospect, the headlines and imagery of Second World War propaganda seem ridiculous and inflated. However, seeing how people today adhere to social distancing and hygienic procedures with no complaint makes me think that we have perhaps underestimated the social impact of propaganda and the role it played in keeping civil defence planning afloat during the twentieth century. Whole societies seem eager to comply even though risk assessments and protective measures seldom function as perfectly as the models and theories suggest.

As per tradition, a foreword should also contain some words dedicated to those people I have worked with along the way. My supervisors Finn Arne Jörgensen and Christer Nordlund have supported me over the years with suggestions and directions. Finn Arne convinced me early on that applying for a PhD was a good idea and I am grateful that he introduced me to the department and the Society for History of Technology. Through SHOT, there would have been no Network for Civil Defence History. Around mid-term, Finn Arne moved
to Stavanger in Norway for a professorship. Since this time, Christer has kept his door open for casual talks, advice and critical readings of my texts, for which I am very grateful. Mats Fridlund has also contributed through a midterm-reading of my manuscript, as well as inspiration for new project plans. Similarly, Gustav Holmberg took it upon himself to read the huge dissertation draft in 2019. Other colleagues have also read my drafts and therefore helped me along the way. At various stages, Jonatan Samuelsson, Erik Edoff, Cecilia Hortlund, Daniel Nyström, Anders Haglund and Hanna Vikström have read and commented on my texts during our seminars. Thank you all for this. It really helped.

Special thanks to Martin Hårdstedt, who read and commented more than he had to. If I ever doubted the relevance and importance of this project, Martin managed to convince me otherwise every time, and his unwavering and inspiring conviction that history and historians matter greatly is something I will take with me into the future.

I would also like to thank Kerstin Thörn, Pär Eliasson, Björn Olsson, Jonas Liliequist, Jonny Hjelm and Jacob Stridsman for introducing me to the History of Science and Ideas and Historical studies in Umeå through their excellent teaching. As a first-time student, Kerstin Thörn’s dramatic lectures were most stimulating and thought provoking, and I will do my best to convey the same inspiration towards future generations of students.

Then there are my colleagues in the Network for Civil Defence History. When forming the network together, I have come to know Sarah Robey and Silvia Berger Ziauddin. In many ways, this has made the distance between Umeå and the rest of the world seem much shorter. More recently I have also come to know Casper Sylvest and Rosanna Farböl at SDU through the network. Thanks to all your efforts, my horizons have widened significantly.

Thank you also to Marie Cronqvist who has been eager to invite me to the media history section at KOM at Lund University, as well as future project plans. My visits to Lund have been truly inspiring and I hope there will be many more in the future.

The HUMlab crew should also be mentioned for their excellent support with the GIS-work done for this thesis during an early stage of my doctoral period. Especially Fredrik Palm has provided inspiration and support.

I have also had the benefit of sharing my doctoral student experience with others. Some of you have finished and moved on to other positions; others I see less frequently. Regardless, you know who you are, and you are all part of my doctoral student experience. Some of you (who have not already been
I meet more frequently: Emil, Fredrik (“DH-Fred”), Janina, Julia, Bram and David. It has also been really enjoyable getting to know the doctoral students at KTH, especially Johan Gärdebo and Hanna Vikström.

I would also like to thank my closest colleagues and office neighbours on the F1 corridor, Jenny Eklöf, Erland Mårald, Catharina Andersson, Anna Sténs and Kicki Adolfsson-Jacobsson for always making me feel welcome. Everyone knows it: Kicki runs this place.

Finally,Ellen. The energy you instil in me.
1. Sheltered Society

1.1. A simple basement air raid shelter

On 4 July, 1936, fortifications officer and captain Kjell Magnell returned to Sweden from a study trip to Germany. On the orders of the government’s recently appointed commission of inquiry on civilian aerial protection, Magnell and his entourage had spent two weeks in Berlin studying the organisation of Nazi-German aerial protection, with a particular focus on the problem of air raid shelters. The background to this was the political demands in the face of the threat of aerial warfare in Europe. The report that Magnell produced based on this trip would prove to be a watershed in the history of Swedish civil defence. For Magnell, however, what the group had learned was neither new, nor particularly ground-breaking. Magnell and his colleagues in the Royal Fortifications corps had spent the last decade studying and debating the problem of civilian protection and their perceived sensitivity in the age of aerial warfare. What was new in 1936, was the political setting of the trip. The entourage in which Magnell was included emanated from the incumbent social-democratic government’s late awakening in matters of aerial protection for civilians.

In this setting, Kjell Magnell’s ideas were no longer confined to a small circle of military intellectuals. He was now shaping parliamentary politics with effects that would echo for decades. Six months after the study trip reached its end, the commission of inquiry delivered its report, *Civila luftskyddsutredningen (SOU 1936:57)* [“the Civilian aerial protection inquiry report”]. A few months later, the report was re-shaped into a government bill that was ratified by parliament. Kjell Magnell’s input, focusing on the use and construction principles of air raid shelters, was incorporated into the final product and still dominates our current understanding of shelters.

What Magnell and his colleagues argued was that what Sweden needed was not just air raid shelters for the urban population, but a whole new way of thinking about architecture, urban planning, construction methods, and
what was by then known as *aerial protection*, today referred to as *civil defence*. Instead of building individual air raid shelters strewn *ad hoc* over urban centres in parks and within public buildings, Magnell argued that Sweden needed an aerial protection- minded design philosophy that could guide urban renewal and eventually produce an air-resilient cityscape. At its core, this was a new way of reading and evaluating the Swedish urban landscape. Magnell argued that every time a new building was to be erected in Swedish urban environments, its supporting structure and foundation should be cast in reinforced concrete, always with a basement added, and moreover, equipped with a steel door, additional emergency exits, as well as air-filtering devices and complementary supplies.

Inspired by German engineers and architects, Magnell presented this mode of thinking as “Byggnadstekniskt luftskydd” [“Construction-technical aerial protection”]. Over time, adopting this principle would result in basement rooms all over Swedish cities that could be quickly assembled into small air raid shelters. A policy in this direction would include apartment buildings, public buildings, railway stations and industries alike. Individual air raid shelters for personnel and pedestrians would only play a complementary role. In peacetime, these basement rooms could be used for any number of purposes.

![Figure 1: This bare and uninviting room is the kind of air raid shelter that Kjell Magnell and his contemporaries recommended. With first-aid equipment, water containers, air ventilators, as well as a number of benches, these basement rooms would be the backbone of Swedish civil defence for decades. Photo by Carl Larsson. ID: XLM.CLO12977-4. CC BY-NC. https://digitaltmuseum.se.](image-url)
Figure 2: Inspiration was gleaned from the German engineering sphere. Here is an air raid shelter and its proposed location at the bottom of a modern multi-storey building, envisioned by the German construction engineer, Hans Schoszberger, and presented in a Swedish architecture journal in 1936. Magnell’s ideas were more or less copied from Schoszberger’s work. Illustrations found in Hans Schoszberger, “Luftskyddets byggnadsteknik” Byggmästaren, (1936), 366–372.
The possibility of implementing a system such as Magnell’s increased during the interwar years. The price tag would be modest, it was argued, maybe even as little as a 1% addition to the overall cost. Moreover, the building methods and materials were already available thanks to recent developments. Rational construction methods and functionalist architecture had already begun to make inroads in Sweden and could be used to the air raid shelter’s favour. Recent political trends also spoke in its favour. The Social Democratic Worker’s Party, SAP, had recently launched the idea of subsidizing construction in order to solve the acute housing crisis, providing an opportunity for a grand restructuring of Swedish cities. Aerial protection considerations needed only to embrace these trends. Furthermore, the political problems would be minimal. Compared to anti-aircraft artillery, searchlights and machine guns, the construction-technical approach to aerial protection could be interpreted as neutral, technical and passive, and could therefore please both liberal and left-wing pacifists who shunned all forms of militarization of civilian life. The only problem with the system he proposed, as Magnell saw it, was time. In 1936, an armed conflict in Europe seemed to draw closer every day and transforming the urban environment into a modern and aerial warfare-resilient cityscape would take decades.
1.2. Becoming a “Sheltered Society”

In March 1940, three years after *Civila luftskyddsutredningen* was finished, the production of air raid shelters began in accordance with a set of new laws which, in essence, were based on Magnell’s ideas and the concept of “Byggnandstekniskt luftskydd”. In the long term, and with an inertia that defies all the classic historical markers of the twentieth century, Magnell’s ideas managed to transform Sweden into something that I would like to call a “Sheltered Society”. When the Swedish government finally cut funding for air raid shelters in 2002, subsidized production had been continuous since 1940 and had resulted in the accumulation of 70,000+ individual air raid shelters spread across the whole country. Of these, some 65,000 still exist and are considered as being approved for use (see figure 4). Appraised in terms of seating capacity, the air raid shelters are supposed to provide space for 70% of the population, which means around 6.3 million seats. According to the Swedish Contingencies Services, MSB, the total cost is estimated to be around SEK 80 billion (around EUR 8 billion) divided over 60 years of production. However, the numbers vary and when around 200 civil defence headquarters buried deep in the Swedish landscape are included, estimates rise to a total of around SEK 200 billion (EUR 20 billion).

As seen in figure 1, distributed over a map of Sweden, the air raid shelters form a vast technical system that can be seen to cover every major urban environment, from its most southern tip in Ystad, up to Kiruna in the far north. Needless to say, the ideas that Magnell raised materialized to their fullest. This was exactly what he, and many others during the interwar era, had argued and hoped for in 1936. From his ideas emerged not only a city

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1. The extent of the Swedish air raid shelter system has been explored in a geospatial digital humanities project, which forms the basis of the cartographical images used in this dissertation. See images 4–6 and 77–82.


Figure 4: Air raid shelters are well integrated into the Swedish urban environment. Here, 65,000 air raid shelters are shown on a map of Sweden. The yellow dots indicate shelters. The deeper red colours indicate higher density (can be seen in Sweden’s three largest cities: Malmö, Gothenburg and Stockholm). From the southern tip to the most northern parts, shelters can be found everywhere. Seen as a whole, they form something that can be described as a huge security infrastructure. The visualization is based on the national air raid shelter registry. Courtesy of Swedish Contingencies Services, MSB and Lantmäteriet.

adapted to the demands posed by aerial warfare, but a whole society. Today, these shelters are so well integrated into society that people do not even think about them, much less ponder over their origin.

How did Sweden reach this point? Most countries that were involved in the drama of the Second World War and the Cold War in one way or another

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4 The term “Sheltered Society” can be seen as an elaboration of Koos Bosma’s concept of “Shelter City”, defined as: “In every city of any size, there emerged the social and physical contours of an alternative city, dedicated to protecting the civilian population against assault from the air.” Koos Bosma, Shelter City: Protecting Citizens against Air Raids (Amsterdam: Amsterdam University Press, 2012), 10–11. While Bosma uses this as way to describe a mode of thinking within the architectural community, I would extend this concept to the whole nation and also include other professional communities, such as the military, politicians and engineers. Hence, the word “society”.

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Figure 7: For most air raid shelters in Sweden, this is their usual everyday function. Apartment storage for consumer goods from the twentieth century. Photo by Myndigheten för Samhällskydd och Beredskap, MSB.

Figure 8: Another common function is to use them for bicycle, pushchair, scooter and ski storage. Here, a steel door from the 1940s can be seen to the right. Photo by Myndigheten för Samhällskydd och Beredskap, MSB.
perceived the aerial dimension and bombs as a potential threat to their civilians just like Sweden. Yet, few of them decided to spend time, effort and tax money on building air raid shelters in the same way. Seen in a global perspective, a state’s engagement in contingency measures and civil defence varies greatly, ranging from practically nothing to the extreme. This has also been the case historically. The kind of civil defence and preparedness measures that states promote also varies, with shelters being only one of many solutions alongside evacuation procedures and military countermeasures.

Air raid shelter design also varies between countries. The Swedish build-up of air raid shelters shares common traits with that of Nazi Germany, Switzerland, and Finland, for example, but differs greatly from the civil defence history of West Germany, the USA and the UK. Similarities and dissimilarities also vary depending on the period being studied. There are also significant differences in the roles that states allocate to their air raid shelter programmes. During the Second World War, stoically remaining in an air raid shelter was regarded as being part of maintaining the Nazi German Volksgemeinschaft. In the US Cold War setting, the individually constructed fallout shelter was the means for the household father to display “Americanness” and liberal values; in the Chinese example, as evidence of loyalty to the communist cause. In welfare states, civil defence programmes were proof of the state’s ability to care for its citizens, providing collective security.

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6 See, for example, Julia S. Torrie, “For Their Own Good”: Civilian Evacuations in Germany and France, 1939-1945 (Berghahn Books, 2010); Peter Fritzche, Nation of Fliers: German Aviation and the Popular Imagination (Cambridge, Mass.: Harvard U.P., 1992).

Thus, for a state, building air raid shelters is not just about applying a technical solution to a problem; there is another dimension at work associated with external factors and socio-cultural differences. In other words, Kjell Magnell’s version of how air raid shelters had to be built, and the ultimate success of his ideas are not self-explanatory but depend on the context. Civil defense measures are far more than technical solutions applied to a perceived problem. States perceive threats and come up with solutions differently, depending on other factors. Thus, what historians of technology have argued since the 1980s about the social and cultural dimension of the evolution of technologies and their systems is equally true for civil defense measures. Factors such as politics, geography, social structure, culture, economy and time determine and alter the evolutionary course of a country’s risk management and civil defense schemes, making some solutions seem viable and popular, while others not.

What kind of circumstances, then, led Sweden onto the path towards “Sheltered Society” and what were the consequences? This is the overarching question around which this dissertation revolves and tries to solve. In this dissertation, I will attempt to uncover the origins of the Swedish air raid shelter phenomenon by studying ideas and debates in specialist literature, the daily press and policy documents, as well as the networks and key figures involved in the interwar era, in an effort to understand how contemporary commentators argued for the implementation of aerial protection politics in general, and air raid shelters in particular.

To provide a theoretical foundation, I will operationalize theoretical constructs gathered from the STS field: Large Technological Systems theory, LTS, and Multi-Level Perspective, MLP. I will argue that the explanation for why Sweden became a “Sheltered Society” lies in understanding the political contexts, the evolution of military doctrines and other lines of socio-cultural development that surrounded ideas of air raid shelters and civil defence at an early stage in their history. As the preamble above has suggested, I will particularly focus on the interwar era and the context within which figures like Kjell Magnell moved, for it was in this era and within these circles that ideas about the basic concepts of civil defence were formed and given substance at a decisive moment in time. During this era, socio-culturally determined factors such as politics, civilian-military relations, volunteer organizations, military doctrines and visions of future wars intermingled with Sweden’s geopolitical situation and eventually made the air raid shelter – and notably, a particular
kind of air raid shelter – appear to be the most viable and effective solution for the safety of Swedish citizens for years to come.

1.3. Earlier research and civil defence history

Although Sweden is one of the most prolific countries in the world regarding air raid shelters and civil defence and, moreover, probably one of the oldest, this has gained very little interest in Swedish historiography. As I will argue in this section, the historiographical situation concerning civil defence in Sweden has created a gap in historical research that has made it difficult to form a coherent narrative about civil defence-related aspects such as air raid shelters during the twentieth century. On the one hand, since the connection between aerial protection and civil defence has not been clarified, historical works related to civil defence before 1945 have become treated as a history of something other than civil defence. On the other hand, what little has been written has primarily focused on the Cold War era, making civil defence and air raid shelters appear to be a Cold War phenomenon. This situation has also been underscored, depending on how the international research field has developed over the years, as well as on contemporary political changes and popular trends. Even if this dissertation is unable to bridge the gap between the interwar years and the Cold War era completely, it should, however, be regarded as an attempt.

1.3.1. Civil defence historiography and the Cold War bias

Swedish civil defence and preparedness have a peculiar position in the historical sciences. While being a well-known public history that frequents popular book topics, museum exhibitions and television shows, its “official” history has mainly been written from an internalist perspective, trying to depict the organization’s inner workings and progress, either by researchers enrolled by the FOA and FOI defence research institutes, by the different civil defence administrations themselves, or by former civil defence employees. For the most part, the historical sciences have left the topic unscathed by historical scrutiny. In some cases, this has been due to the contemporary context, and the questions asked when launching research programmes aimed at depicting

the dramatic milestones in Swedish history. On other occasions, it has been by chance. This has created a situation in which, on the one hand, it has not been possible to incorporate civil defence into the general military and political history of twentieth-century Sweden; and on the other hand, because of this outsider status, what has been written has not become incorporated into a larger historical context, but has rather been treated as isolated accounts or part of some other historical topic, such as women’s cultural history or media history and the Cold War culture.

This situation goes back as far as the mid-1960s. When the first attempts were being made to depict Sweden’s Second World War history in the SUAV project, *Sverige under andra världskriget* [“Sweden during the Second World War”] the focus was on military operations and foreign policy, to a certain extent happenstance, but also because of the military rooting and the chronological timeframe of the project, limited by the six years of the Second World War. SUAV was initiated by the (then) military commander, Torsten Rapp, in 1964 and placed at the Swedish Military University and the Delegation for Military Research, but was quickly extended into a collaborative project together with the University of Stockholm. The historian Folke Lindberg was asked to initiate the project, and from 1968 and on the historian Stig Ekman took over. Under Ekman’s leadership about 30 students took on Second World War-topics. Due to its military origins, however, the SUAV project was inclined towards the higher echelons of military planning, state politics and foreign policy. Close-by topics such as industrial preparedness and the consolidation of the air force were studied, but aerial protection and civil defence were not included.\(^9\) Attempts were made, but in the end, and for reasons unknown, this resulted in an unfinished manuscript only, discussing the birth of the volunteer movement.\(^10\)


\(^10\) See Hans Engström’s manuscript in Kjell Magnell’s archives, Royal War Archives, Stockholm. Apparently, Hans Engström began working on the civil defence volunteer movement during the 1960s but never finished. A copy of the manuscript was sent to Kjell Magnell for comments, which eventually remained with Kjell Magnell and was transferred to his archives after Magnell’s death. It is possible that the original plan of the SUAV project was not to publish the dissertations since they would be partially based on classified material. Moreover, from the beginning, the whole project was only meant to serve the military and not be publicized. Börje Furtenbach, “Historik över
This omittance of the civilian’s role in war was subsequently solidified as other larger research projects probed the 1930s and 1940s. Consider, for instance, the Swedish military historian Bo Hugemark’s edited book series published in the 1980s commemorating the anniversary of the end of the Second World War. Similar to the SUAV project, this series was biased towards political leadership, military preparedness and foreign policy and did not consider civil defence at all. Similarly, the SUKK project, *Sverige under Kalla Kriget* (“Sweden during the Cold War”) and FOKK, *Försvar under Kalla Kriget* (“Defence during the Cold War”), initiated in the 1990s, also omitted the evolution of civil defence. During this time, the dominating paradigm in the historical sciences was the concept of “small-state realism”. Uncontroversial phenomenon such as aerial protection and civil defence was pushed into the background as the Swedish state’s neutrality and dubious acts during the Second World War and early Cold War period were to be analysed.

The only successful attempt by the historical sciences to confront the age of aerial protection and civil defence up until the 1990s was by the Uppsala historian, Alvar Schilén. As a part of the officer and military historian Carl-Axel Wangel’s book project about the military history of the Second World War, Schilén wrote a chapter on civil defence in 1982, presenting some of the

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12 The SUKK project was aimed at foreign policy, social and economic development, and politics in general, whilst the FOKK project was solely aimed at military activities and planning. See, for example, Ulf Bjereld, Alf W. Johansson and Karl Molin, *Sveriges säkerhet och världens fred: svensk utrikespolitik under kalla kriget* (Stockholm: Santérus, 2008); Kent Zetterberg, *Konsten att överleva: studier i Sveriges försvar, strategi och säkerhetspolitik under 200 år* (Stockholm: Försvarshögskolan, 2007). Few works combine both civil and military activities from this era. For some notable examples, see Sten Munck af Rosenschöld, *Totalförsvarets ledning under kalla kriget* (Stockholm: Stockholms universitet, 2014); Magnus Hjort, *Nationens livsfråga*: propaganda och upplysning i försvarets tjänst 1944-1963 (Stockholm: Santérus, 2004); Birgit Karlsson, *Svensk försvarsindustri 1945-1992* (Falkenberg: Forskningsprojektet Försvar och det kalla kriget (FoKK), 2013).

basics about the early aerial protection organizations, as well as some reflections on their origins. Schilén’s chapter, I would argue, is still the only viable historical account of the early years of Swedish civil defence.\textsuperscript{14}

However, the lack of research on civil defence should not be interpreted as conscious negligence or disinterest. The questions that guided the major research programmes such as SUAV, FOKK and SUKK were heavily influenced by the questions asked by contemporary politics and cultural debates. Such problems included the need to defend the government’s concessions to the Nazi state, although subsequently also the question of guilt in the face of the tragedy of the Holocaust, and, whether Swedish “neutrality” and its “alliance-free” stance in global Cold War politics had any bearing. Understandably, when the public demand for revisions of both the Second World War and the Cold War emerged in the late 1990s, and neo-Nazism created unease amongst politicians, the re-assessment of Sweden in the first half of the twentieth century were more about Sweden’s relation to Nazism and Nazi Germany instead.\textsuperscript{15}

Symbolically, the foremost synthesising tome on the history of Sweden in the 1930s and 1940s to date is called \textit{Att bo granne med ondskan}, [“To neighbour the devil (or an evil)”].\textsuperscript{16} Moreover, with its little brother status towards military and political histories, civil defence had not managed to raise sufficient interest to break through in this context, probably because it contained little that was of interest to those who wanted to unearth the Swedish state’s moral standards during the Second World War and the Cold War. Furthermore, as the British historian, Matthew Grant, has argued, civil defence was openly ridiculed during the 1980s,\textsuperscript{17} which might have contributed to its fairly low status in relation to other military-orientated topics. Grant’s article concerns British history. However, as the number of volunteers in the civil defence organization hit rock bottom in the 1980s in Sweden, one might wonder if not public interest in civil defence was dwindling even here as these research programmes were implemented.\textsuperscript{18} particularly considering the relief of Cold


\textsuperscript{15} For more on the Swedish research programmes, consult the introductory chapter in Åmark, \textit{Att bo granne med ondskan}, 17–20.; See also Östling in Gilmour and Stephenson, Hitler’s Scandinavian Legacy.

\textsuperscript{16} Åmark, \textit{Att bo granne med ondskan}.


\textsuperscript{18} In a forthcoming anthology on European civil defence, Marie Cronqvist and Matthew Grant are comparing the different attitudes towards civil defence in both Sweden and Britain. Although
War tensions and subsequent disarmament that accompanied the collapse of the Soviet Union in 1991.\textsuperscript{19}

It could also be noted that these major historical projects largely focused on eras which, at the point of departure, were understood as eras or periods that had ended and needed to be historically assessed after a period of time had elapsed. Swedish civil defence, however, differs significantly in this respect. While the Second World War and the Cold War somehow “ended”, even for a country that had not really participated, the civil defence operation in Sweden remained continuously in the background from the end of the 1930s throughout, and even beyond, the Cold War era. This might have made it difficult for contemporary historians to discern a chronological limit, a historical perspective, of which the civil defence phenomenon might be assessed from some critical distance. Generally, countries such as Great Britain and the USA, who pioneered the field of civil defence history, have also had an easier time assessing their “failed” and dismantled civil defence programmes from the Cold War era. Moreover, as the Swedish historian, Johan Östling, has argued, Cold War politics were, to a large extent, built on the idea of small-state realism.\textsuperscript{20}

The new-found interest in civil defence today can also be understood as a contemporary re-evaluation of civil defence in general. After 2014 and Russia’s annexation of Crimea, the question of military and civilian preparedness has re-emerged in parliamentary politics and cultural debates after twenty years of neglect. As Silvia Berger Ziauddin, Sarah Robey and I have noted elsewhere, we are living again in an age of nuclear fear\textsuperscript{21}, some say even a new Cold War. Since 2015, Sweden has also restarted its civil defence programme, as have many other countries. This has led to the re-emergence of civil defence topics in many different spheres of society. Before the Corona crisis swept the world, the Swedish military planned the first “total defence” exercise in 33 years for

\footnotesize{the civil defence cultures are very different, there are reason to believe that the reputation of civil defence, as well as the interest of the general public was not very high in either countries. Marie Cronqvist, Rosanna Farbøl, and Casper Sylvest (eds.) Cold War Civil Defence in Western Europe (Prel. title) (Palgrave Macmillan, fc2021).

\textsuperscript{19} See the national civil defence league’s website on the organization’s history: https://www.civil.se/om-oss/historia/ accessed 2019-12-18.

\textsuperscript{20} See Östling in Gilmour and Stephenson, Hitler’s Scandinavian Legacy.


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seen from the late 2010s, then, civil defence has not only been raised in the public mindset because of the current foreign political trends, the Swedish state’s civil defence operation of the twentieth century has now also acquired a sufficiently long chronological distance to make it available to historical scrutiny.

However, this does not mean that historians have not discussed topics relating to aerial protection or civil defence at all. The problem is rather that the inability to incorporate the history of civil defence into the political and military histories of Sweden means there is no coherent historical narrative to guide the few works that have been written. Consequently, historical scholarship that refers to civil defence by other Swedish historians, both before and after the 1945 watershed – such as works by Irene Andersson and Sverker Oredsson – have become understood as being histories of something else. These authors’ works have been treated as women’s cultural history or a history of political fear and anxiety and have therefore not found their way into the “Big” histories of the Second World War era and beyond.22 Oredsson’s book Svensk Rädsla, [“Swedish Fear”], for example, showed that the problems faced by early aerial protection politics were one of many examples of how the political parties tried to navigate a hostile political environment with paramilitary associations on both the left and the right. The perspectives described in this book, however, have not guided or been reflected in more recent attempts to discuss civil defence history. A similar case can be seen in Andersson’s dissertation Kvinnor mot krig, [“Women against War”]. This book depicts the women’s peace movement during the 1920s and 1930s, with a special focus on some of the key left wing figures, such as the journalist, author and pacifist-activist, Elin Wägner.

The dissertation has become known for making an important contribution to women’s history and cultural history. However, an underappreciated fact is that what Andersson works show is that the main antagonists against which the Swedish Women’s Peace Movement fought during the 1930s was the mil-

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22 Interwar aerial protection (civil defence’s conceptual predecessor) has been discussed in three notable works from the early 2000s, but, in all cases, other topics were the overarching issue for these authors, meaning that aerial protection was only marginally touched upon. See Irene Andersson, Kvinnor mot krig: aktioner och nätverk för fred 1914-1940 (Lund, 2001); Johanna Overud, I beredskap med Fru Lojal: behovet av kvinnlig arbetskraft i Sverige under andra världskriget (Stockholm: Almqvist & Wiksell International, 2005); Sverker Oredsson, Svensk rädsla: offentlig fruktan i Sverige under 1900-talets första hälft (Lund: Nordic Academic Press, 2001).
itary men and politicians advocating state-organized aerial protection. Elin Wägner’s texts were sometimes specifically directed towards certain advocates of an aerial protection organization, which she accused of being proponents of the militarization of civilians. The protest movement also attempted to sabotage aerial defence exercises by walking openly in the streets and refusing to wear gas masks.

The combination of these two trends, then: on the one hand, the lack of engagement with civil defence in the major research programmes and, on the other hand, the exclusive nature of the field of women’s and cultural history has therefore caused a conceptual break in historiography. For instance, the early criticism of aerial protection was intentionally suppressed in the aerial protection discourse in the press and parliament during the 1920s and 1930s. Authors like Schilén were unable to incorporate this particular dimension of aerial protection history when he wrote his chapter in Wangel’s book project in 1988 from the military-history perspective. Andersson did not make a point out of this either, given that the purpose of her dissertation was to form a historical narrative of the women’s peace movement of the interwar era, not the history of aerial protection. As a result, this dimension of civil defence history has been neglected, although the problem that Andersson raised with her dissertation is key to understanding the political environment out of which aerial protection was born.

Making the historiography of Swedish civil defence more complicated, Marie Cronqvist, who is the first historian in Sweden to seriously address civil defence as a phenomenon on its own, entered the scene from a media history and Cold War culture perspective, which has further induced a conceptual break between pre- and post-1945. Whilst working on her dissertation, Cronqvist

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24 Andersson, 404–405.; Andersson, Kvinnor mot krig, 267–274.
became familiar with civil defence propaganda from the 1950s and 1960s, and also read civil defence-related literature from the well-established field of the nuclear and Cold War culture in the USA. As a result, in the project called *The people’s home in the atomic age. Civil defence and the Swedish narrative of community*, she explored the connections between ideas of the Social-Democratic Welfare state, civil defence propaganda and information, and activities such as evacuation drills or housekeeping recommendations during the Cold War in a handful of articles and book chapters. However, since the foundation stone of her research was the Cold War and its peculiar cultural traits, inspired by authors from American scholarship, presented in books such as Elaine Tyler May’s *Homeward Bound*, Paul Boyer’s *By the Bomb’s Early Light*, Margot Henriksen’s *Dr. Strangelove’s America*, she did not address civil defence before 1945 without using the Cold War and Cold War culture as a vantage point. A consequence, however, is that the connection between Cold War culture and civil defence has been somewhat reinforced in historiography.

But can the development of Swedish civil defence during the 1950s and 1960, or, for that matter, the entire twentieth century, be correctly understood without studying the formative era of the 1920s and 1930s? Maybe we need a new chronology that transcends the 1945 divide? The results of Cronqvist’s later work also suggested this. In Cronqvist’s book chapter in *Nordic Cold War Cultures*, she herself argued that, ultimately, the public press narrative about a potential future Third World War in 1960 related very little to a “Cold War Culture”, and was instead inherently shaped by the Swedish mobilization and preparedness apparatus from 1939 to 1945, of which many still had fresh memories. In another book chapter she also concluded that the idea of a “People’s Defence” organization that dominated during the Cold War era was a direct continuation of how pre-war aerial protection had approached its subjects. Similarly, when studying the civil defence propaganda from 1937 to 1960, media scholar Fredrik Norén and I connected civil defence propaganda from the earliest period to the most known and visually prolific age, just before

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26 Consider Cronqvist’s conclusion: “Recollections and impressions of life in the shadow of a world war were still strong in the Sweden of the early 1960s, recollections in which the safe, neutral idyll and the dark menace of war on the continent coexisted. Alongside the narrative of modern Sweden, World War II becomes a suitable background to the realities of the Cold War, an interpretive context that helped frame civil defence concerns in advance of World War III.” Cronqvist, “Evacuation as Welfare Ritual,” 92.

the Cuban crisis. Here we found a media system originating in the 1930s that the Swedish Cold War civil defence constantly built on and promulgated.28

The Swedish military historian, Wilhelm Agrell, also claimed that a lag was present in civil defence planning since its birth in the interwar era, and that this deficit in keeping pace with global weapons development was particularly prominent in the first decades after the Second World War.29 If we are to follow Agrell’s argument, the era of nuclear civil defence, developed in the mid-1950s, but fully implemented in 1960, had ended already in the late 1960s when the military establishment re-structured its defences on Swedish soil towards conventional warfare scenarios. For the civil defence organization, this meant that its strategies had to make a U-turn towards the kind of civil defence operation that had been present during the early part of the Second World War. Agrell argued that this meant that the civil defence organization “lost” its most prominent threat scenario and therefore also lost its reputation and eventually also public confidence.30 A way to mend it was a return to pre-war thinking. Also, here then, it is possible to see that a study of Swedish civil defence can only remain solely in the Cold War era with difficulty.

In other words, although much of what has been done in the field has emerged from studies of the Cold War, building on the idea that civil defence was an aspect of the Cold War, the results have instead shown that civil defence and civil defence propaganda are much more grounded in the pre-war experience than has been appreciated. When looking at the work of Cronqvist, Agrell, Norén and Bennesved from this perspective, it shows that not only is there a deficit in research on the era that preceded the Cold War civil defence organizations, it also appears that the interwar era and the Second World War mattered much more to how Cold War civil defence developed than we tend to acknowledge. From the perspective of aerial protection, and subsequently civil defence as an institutionalized practice, there is no apparent break in 1945 that marks a major change of tactics and mentality. The government bodies survived the Second World War and eventually prospered. Thus, the

30 Agrell, 17–19.
nuclear-induced Cold War era is not everything, and to be able to proficiently describe a history that manages to bypass this bias, we need a new chronology for Swedish civil defence.

1.3.2. International research

The link between air raid shelters, civil defence and the Cold War era has also been further reinforced by the fact that most international scholarship relating to civil defence phenomena is considerably biased towards the Cold War. Some of the most ground-breaking books on civil defence, such as Guy Oakes’s, *The Imaginary War*, Tracy Davis’s *Stages of Emergency*, Laura McEnaney’s *Civil Defense begins at home* and Kenneth Rose’s *One Nation Underground* have all built on the Cold War nuclear logic as the basis of their research. However, even more recent work tends to primarily focus on the Cold War.\(^{31}\)

This is an ongoing trend that I would argue has become something of a possibly unintentional cliché. It has become a self-explanatory notion in international research to treat civil defence as a Cold War phenomenon intensely interwoven with that of the nuclear age or nuclear culture. The concrete materiality of twentieth century civil defence particularly suffers from this. As the historian of literature, David L. Pike, put it, the “bunkerization of Europe” has become a “Cold War story that has continued to resonate into the 21st century.”\(^{32}\) Pike refers here to popular fiction and how it has managed to linger into the new millennium, although I would argue that historical scholarship follows the same line. Much of the work on air raid shelters has been grounded in the Cold War era as part of a general fascination with the apocalyptic scenarios of the so-called imaginary war.

However, as in the Swedish case, the perceived barrier between other works

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\(^{32}\) Pike, “Cold War Reduction,” 95.
in the vicinity of civil defence topics, and openly civil defence-focused works, is fragile. The many connections between the interwar era and Cold War civil defence can be seen in the reading of, for example, Brett Holman’s *The Next War in the Air*, Koos Bosma’s *Shelter City* and Jean-Louis Cohen’s *Architecture in Uniform: Designing and building for the Second World War*. Design philosophies, architecture and remnants of the interwar era and Second World War continued to affect the post-war period, making it difficult to draw the line between the hot and cold war of the era. Perhaps this is best shown by the Dutch architectural historian Koos Bosma, presenting the contours of a conceptual “Shelter City” in architecture emerging during the early 1930s. British historian, Melissa Smith, has also shown the conceptual similarities between the “refuge rooms” of the Second World War and the Cold War “fallout shelter”. Sven Lindkvist’s book *A History of Bombs* also shows that topics discussed in fiction during the 1920s and 1930s are not that different from dystopian Cold War fiction. Just as there is a connection between how civil defence authorities handled the gas scare of the 1920s and the radioactivity scare of the 1950s, fiction that deals with these topics shares a common intellectual heritage.

The underground culture of civil defence that has recently become a popular topic also suggests that the fascination with the underground preceded the nuclear age. The fact that Europe’s most infamous dictator, Adolf Hitler, was fascinated with air raid shelters and bunkers of all kinds, drew designs himself and frequently discussed them with his chief architect, Albert Speer, is equally a testament that a fascination with, and the culture around, the underground present in human culture since time immemorial began to habituate the newly introduced bunkers and air raid shelters already in the 1920s and 1930s. Drawing on the works of the previously mentioned Pike, as


well as American historian of technology, Rosalind Williams, it can easily be argued that the cultural katabasis that is so often connected with the hydra called the Cold War period, pre-dated the very thing – the atomic bomb – that is said to have caused it.  

The same problem emerges here within research on the transnational stage, as seen in Swedish historiography. While a critical assessment of the available literature would suggest otherwise, the focus on the Cold War has created an imbalance in research making post-war civil defence appear to be something that is separate from its pre-war antecedent. Histories of related topics that have managed to transcend the usual chronological divides between the hot war and cold war have been discussed as an example of something else, and not as civil defence histories. Scholars such as Silvia Berger Ziauddin, Joe Deville et al, Joseph Masco and John Beck have interpreted the twentieth-century air raid shelter as a Cold War story, building on the works of the preceding generation. Authors such as Cohen and Bosma, discussing the pre-war aerial protection phenomenon and its related air raid shelters, have instead discussed their topics in terms of the history of architecture or a history of the fascination with the aerial dimension.

Perhaps the most vivid example of this disconnection in civil defence historiography can be seen when juxtaposing the works of Laura McEnaney and Susan R. Grayzel. In Civil defense begins at home (2005), McEnaney uses a distinct US civil defence perspective focusing on the militarization of housewives of the 1950s and the domestication of the nuclear threat. In At home and under fire (2012), Grayzel pursues, in essence, the same historical problem but written from the perspective of interwar Britain and the burgeoning fear of the air. These two books form a strong case for the domestication of warfare and the militarization of women during the twentieth century, in which the civil defence organization and its propaganda in both countries are key.


38 Koos Bosma considers the air raid shelters an “architectural history”, which requires a “full-body scan of the urban tissue”: Bosma, Shelter City, 11. Cohen, however, discusses air raid shelters and civil defence architecture as being part of a militarizing trend in architecture in general, comparing civilian air raid shelters with underground military industries and camouflage techniques. Cohen, Architecture in Uniform. Another example is Torrie, For Their Own Good. Although the book concerns the origins of civil defence during the interwar era, the book is framed in a very different historiographical context and does not refer to histories of civil defence from the American field.
Moreover, juxtaposed with the Swedish author Irene Andersson’s dissertation on the Swedish Women’s Peace movement and Cronquist’s articles on Swedish Cold War civil defence, their arguments can also be attributed a transnational component, extending beyond the UK and the USA. The possibility of making a historical synthesis by using the culture of civil defence as a common ground has been underappreciated in historical works, largely because the 1945 divide functions as an arbitrary chronological barrier, making the phenomenon they set out to study seem different.

However, the Cold War bias in international works can also be derived from some structural causes in, for example, the USA, out of which the historical field of the Cold War culture was born. The USA cared very little about civilian protection until the Soviet Union successfully tested its first fission bomb in 1949 and rendered the USA’s nuclear advantage obsolete. This means that the country from which the contemporary new-born interest and inspiration for civil defence history mainly stems, did not have a structured civil defence apparatus before the Cold War. Thus, for understandable reasons, these scholars did not show any interest in the history of civil defence preceding the atomic bomb. Instead, their works have been mainly framed by the nuclear context since their civil defence organizations knew nothing else. An example is David Monteyne’s *Fallout Shelter: Designing for Civil Defence in the Cold War* (2011). Monteyne’s book discusses the architectural and construction-engineering approach to the nuclear age of civil defence and how it affected architectural norms and styles throughout the 1960s and 1970s. For Monteyne, the nuclear age could be kept at the centre of this story, for this is the age in which civil defence in the USA and Canada became relevant since both aircraft, submarines and ICBMs could traverse the geographical barriers that had previously protected the North-American mainland.

However, in European countries such as Germany, France, the UK and The Netherlands, the luxury of geographical distance was quickly obliterated during the interwar period. Consequently, an air and gas-minded architectural

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style, exploring both the underground dimension as well as above ground, had established itself earlier in Europe, already by the late 1920s, through the work of Vaulthier, Le Corbusier and Hans Schoszberger, and continued to affect urban renewal in Europe for three decades before “nuclear” designs and city plans were introduced in the USA. Essentially, it is the same process at work, but for structural reasons and, again, the 1945 divide, these stories have not been put side by side.

The importance of this structural perspective on historiography can also be seen when comparing the British and German case. The British civil defence project, the Air Raid Precautions, ARP, reached its height in popularity during the Second World War and became an important part of the history and legacy of the British resistance to Hitler’s Germany and the Blitz. When facing the reality of the hydrogen bomb, however, the British civil defence’s reputation plummeted, and in 1968 the British state eventually decided to completely dismantle its civil defence infrastructure. As a reflection of this situation, the British historiography of civil defence and aerial protection services has primarily focused on the Second World War and less on the era that followed it. Today, there are several academic works that consider the interwar era and the Blitz, but until just recently there were few works on British “Nuclear” civil defence.

41 Bosma, Shelter City, 38–44.; Cohen, Architecture in Uniform.
42 Consult the following works for a discussion on the UK’s Cold War civil defence grant, After the Bomb; Matthew Grant, “The Imaginative Landscape of Nuclear War in Britain, 1945–65,” in Understanding the Imaginary War – Culture, Thought, and Nuclear Conflict, 1945–90 (Manchester University Press, 2016).
44 Recently historical works on British Cold War civil defence are on the rise. See, for example, Matthew Grant, After the Bomb; See also Grant’s contributions in Matthew Grant and Benjamin (Professor Of Modern German History) Ziemann, eds., Understanding the Imaginary War – Culture, Thought and Nuclear Conflict, 1945–90 (Manchester University Press, 2016); See also Melissa Smith, “‘What to Do If It Happens’: Planners, Pamphlets and Propaganda in the Age of the H-Bomb,” Endeavour 33, no. 2 (June 2009): 60–64, doi:10.116/j.endeavour.2009.04.007; Smith, “Architects of Armageddon.”; Deville, J. and Guggenheim, M., From preparedness to risk: from the singular
Germany also suffered a similar fate. Although Germany spearheaded civil defence during the First World War, particularly after the bombing of Karlsruhe in 1915, its aerial protection services were dismantled after the war on the orders of the Allies.\textsuperscript{45} Only in late 1957 did West Germany once more probe the idea of a nationwide civil defence organization. This “gap” between early aerial protection and Cold War civil defence has only recently been addressed in historical research.\textsuperscript{46}

### 1.3.3. Civilian and military history

Lastly, reference could also be made to the civil-military divide, which is prominent in both Swedish and international historiography and which has shaped much of the research on civil defence. While the number of books written on the military history of twentieth-century borders is prolific, civil defence has rarely been considered at all. Many of the books are popular and have few other functions than to sell stories.

However, professional scholars often refrain from commenting on the perils of civilians as well. Military history has not managed to address the multitude of societal processes that made survival during aerial warfare somehow bearable for civilians. Authors such as Jeremy Black, for example, have discussed aerial warfare and total war and its many aspects at length, but have scarcely considered the receiving end.\textsuperscript{47} Even his \textit{Fortifications and Siegecraft: Defence and Attack Through the Ages}, published as late as 2018, manages to avoid the fact that during the twentieth century the civil population was also drawn into the millennium-long tradition of fortifications that Black otherwise discusses well.\textsuperscript{48}

However, this is not solely a problem in historical scholarship related to the history of civil defence, but rather a general trend in military history that has become increasingly difficult to defend. As historian, John C. Gillis, already

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\textsuperscript{45} Steneck, Everybody Has a Chance, 112–113.
\textsuperscript{46} See more in Steneck, Everybody Has a Chance.
}
argued in the 1980s, military historians have not managed to resolve age-old distinctions between concepts such as “civil/military, war/peace, militaristic/pacifist”. 49 In their book War & Society (2016), authors Miguel A. Centeno and Elaine Enriquez also argue that the demarcation line between civilian and military is false in the longue durée of human history, and that the 500 years from the “military revolution” until the Second World War is an historical anomaly in that it at least theoretically attempted to make a distinction between the two. Before this time, no distinction between civilian and military targets had ever been made.50

When examining historical works that are close to the topic of this dissertation, such as Susan Grayzell and Laura McEnaney’s books, it is also difficult to draw the line between what was considered civilian and military in an age when bombs struck everyone, and the war effort necessitated the involvement of the entire population. A study of Stig Förster’s and Roger Chickering’s book series on the era of total warfare also suggests (even if civil defence or aerial protection is more or less non-existent in this series) that any such demarcation is set to fail as we approach the twentieth century.51 And if we are to consider the Swedish historian, Maria Sjöberg, and her work on pre-modern and modern warfare, the dichotomy between civilian and military is all together historically false in Western warfare.52

However, there are good examples of books that connect military history with “civil” history and which closely relate to the topic of this dissertation. Apart from works focusing on the gendered aspects of war that have already been mentioned, i.e. Grayzel and McEnaney, there are also books such as the British historian Richard Overy’s The bombers and the bombed: Allied war over Europe

49 Consider the historian John C. Gillis’s words: “But in the twentieth century the rules of the game began to change and political-military historians have not always responded accordingly. They have been slow to come to grips with the “politics” of the civilian and military bureaucracies […] Apparently self-evident distinctions like military/civilian, war/peace, militaristic/pacifist no longer have the same meaning they once did”. John R Gillis, ed., The Militarization of the Western World (New Brunswick: Rutgers University Press, 1989), 4.
50 See, for example, chapter 4, “War of societies”, in Miguel Angel Centeno and Elaine Enriquez, War & Society (Cambridge, UK; Polity, 2016), 90.
52 See Sjöberg’s chapter in Maria Sjöberg, Sammanflätat: civilt och militärt i det tidigmoderna Sverige (Uppsala: Historiska institutionen, Uppsala universitet; 2009).
Here, Overy devotes a large segment to explaining how the German people managed to survive the allied bombing raids, a history which is rarely told. Similarly, from the field of cultural and literary history, Ian Patterson has written an engaging historical exposé about the bombing of Guernica and its many cultural effects. His exposé manages to bring together the history of aerial warfare doctrines and its many implications for the receiving end of the population, as well as the international political community. Consider also Sven Lindkvist’s *A history of bombs* in this context, which, although written by an historian of literature, contains a balanced account of the evolution of aerial warfare during the first half of the twentieth century and also managed to capture the fears of everyday citizens.

This is the kind of direction that military history needs to take, and to which this dissertation will contribute. As Patterson Lindkvist, Grayzel and McEnaney show, a fruitful way of bridging the civil-military divide is to broaden the scope of what military history should contain. Twentieth-century military history needs to be re-evaluated and civil defence integrated into it; cultural and media history are a means to this end. In the Swedish case, works such as Irene Andersson’s dissertation on pacifists and Marie Cronqvist’s work on civil defence culture and media should be treated as part of Sweden’s military history, rather than as historical side-tracks.

### 1.3.4. A new chronology for civil defence?

In summary, it could firstly be said that the history of Swedish civil defence has come to be treated as a separate sphere from that of Sweden’s military and political history for both historiographical and structural reasons, partially underpinned by popular cultural trends. As a consequence, although Sweden became globally renowned in the twentieth century for its civil defence apparatus, there are few works that explain its long-term history, and even fewer on air raid shelters in Sweden from a wider societal perspective. Secondly, the few works written that do touch upon civil defence and air raid shelters have either been flavoured by media history perspectives and cultural histories such as the Cold War culture, or they have been understood as being part of some

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54 Patterson, Guernica and Total War.
55 Lindqvist, A History of Bombing.
other tradition, such as women’s political and cultural history or a history of political fear and anxiety, often using the 1945 divide as a chronological barrier. This has also been underpinned by the fact that the international research field has developed along similar lines. In the military-history field, the unwillingness to incorporate civilian aspects of military history has also had the effect of leaving civil defence to its own devices. A consequence of the separation of concepts, on the one hand, and a Cold War focus on the other, is that the pre-1944 concept of aerial protection has been disconnected from what we currently understand as civil defence. The history of both concepts has been broken up and categorized according to established political-historical chronological markers such as 1939–1945 and 1989, making it difficult to form a coherent historical narrative on the evolution of civil defence during the twentieth century. However, to fully appreciate the complexity of a nation’s endeavours to manage the risk of war, the chronological limit of civil defence history needs to be drawn backwards into the 1920s and 1930s, in ways that must ultimately must dissolve the Cold War-chronology as the lodestar of historical research. Doing this will form a new chronology that transcends both the Second World War and the Cold War.

However, writing the history of Swedish civil defence is a grand task and is outside of the scope of this dissertation. But consider this dissertation as making partial contribution through a deep study of a critical component of civil defence, the air raid shelter, and Sweden’s subsequent path to becoming a “Sheltered Society”. The air raid shelter is, however, an important part of civil defence, which has followed every strategic turn since the birth of the idea and which has developed in parallel as well as in constant confluence with other civil defence measures. It is arguably one of the best entry points into a study of civil defence because when immaterial things such as organizational models, politics and strategies die out, the air raid shelter remains in the urban technological landscape and forces itself onto the next bureaucracy to emerge. The concrete archipelago of air raid shelters stands as artifacts echoing the ideas that guided their becoming, providing a constant “shock of the old”, as David Edgerton would have it, in the contemporary setting.57 By looking at how the military, engineers, civil defence officials, politicians and journalists treated the air raid shelters, I argue that we can see the ideas and strategies that guided the overall civil defence project and eventually how they managed to shape twentieth-century Sweden. In this sense, studying the air raid

shelter represents an opportunity to level out the imbalance in historiography, dissolve the old conception of historical chronology, as well as unite military and civil history.

1.4. An interwar history

Although often discussed in terms of a Cold War phenomenon, this dissertation sets out to study the origins of aerial protection and air raid shelters during the interwar era. The complexity of Sweden’s interwar era has not surfaced in the existing historical accounts of how Swedish aerial protection came about. Some variation should be admitted, but generally, Swedish authors have considered the SOU, *Civila Luftskyddsutredningens betänkande SOU 1936:57*, published in December 1936, to be the genesis of Swedish aerial protection, and have not gone beyond the idea that aerial protection was a simple technical response to the emergence of aerial warfare.\(^{58}\)

In a sense it is true that the report preceded legislation, the birth of nationwide legislation and the first Swedish government body on aerial protection, *Luftskyddsinspektionen*, LI, [“Aerial Protection Inspection”]. However, considering the era’s many political twists and turns, and knowing that every report fashioned in this way would have to build on both problems and solutions that already existed in some form, it is difficult to maintain the idea that the first civil defence legislature can be ascribed to the SOU 1936:57, out of Adam’s rib, so to speak. In practice, the SOU of 1936 was preceded by two other commissions of inquiry, the first already initiated in 1928, as well as a series of local regulations and private initiatives. The SOU of 1936 is a document that marks the end of the line of a debate that had lasted for more than a decade, following the many contemporary political trends. Moreover, since it took a decade to reach a compromise there are also reasons to believe that the process of developing and implementing an aerial protection organization was not

\(^{58}\) Consider, for example, Rosander’s idea that aerial protection began in 1937 and that the “first” civil defence law was instigated in 1944. Lennart Rosander et al., *Om kriget kommer* (Malmö: Roos & Tegnér i samarbete med Länsstyrelsen i Stockholms län..., 2014), 23–25.; Also Sjölin begins in 1936. Sjölin, *I skuggan av kriget*, 9–10.; Also, Cronqvist begins in 1936. Cronqvist, “Evacuation as Welfare Ritual,” 80–81.; Schilén mentions the previous investigative commission that preceded the air raid statute of 1937 but does not discuss why it was scrapped. See the chapter “Civilförsvaret” in Wangel, *Sveriges militära beredskap 1939-1945*, 402 onwards. Similar to Schilén, Sverker Oredsson mentions that the first aerial protection statute was shaped by a compromise, but does not discuss it further. Oredsson, *Svensk räddsla*, 190–191; Kaiser also mentioned something about the political problems faced by aerial protection politics during the 1930s. See Kaiser, *Civil ledning ur ett historiskt perspektiv*, 36.
Thus, the report provides an opening for historical inquiry, not forward towards the Second World War, but backwards, into the 1920s and 1930s.

However, considering an age and the role it might play in the development of a phenomenon is a formidable task. As is shown by the heavyweight works, for example, Eric Hobsbawn’s *The Age of Extremes: The Short Twentieth Century 1914-1991* (1995), or more recent cultural histories such as Phillip Blom’s *Fracture: Life & Culture in the West 1918-1938* (2015) and Richard Overy’s *The Inter-War Crisis 1919-1939*, the interwar era, just like other eras, resists any clear-cut characterization. Its historiography is rich and each author tends to use different variables and chronological timelines to describe it. There are, however, a few topics that could be described as defining or being important for the subject of this dissertation. These topics circulate around the economy, Sweden’s place in European politics, technological changes in warfare and the radicalization of left and right-wing ideologies.

On the transnational level, the period from 1918 to 1939 was economically unstable, causing widespread social unrest fanned by the radical ideologies.

Some authors have also noted the political debates that surrounded aerial protection but have not discussed them in depth. See Alvar Schilén’s book chapter in Wangel, Sveriges militära beredskap 1939-1945; Also, Magnus Kaiser noted the political problems faced by the Social-democratic party. Kaiser, Civil ledning ur ett historiskt perspektiv.


This segment is mainly based on the works of the following authors: For English readers, see the first chapter in John Gilmour, *Sweden, the Swastika and Stalin: The Swedish Experience in the Second World War* (Edinburgh: Edinburgh University Press, 2011); For an outline of Swedish politics during the interwar era, see chapter 4 in Stig Hadenius, *Svensk politik under 1900-talet: konflikt och samförstånd* (Stockholm: Hjalmarson & Högberg, 2000); and chapter 4 in Öredsson, *Svensk rädsla*; In terms of the military establishment, the general trends during the interwar era can be read about in Bo Hugemark and Ann-Marie Jonsson, eds., *Neutralitet och försvar: perspektiv på svensk säkerhetspolitik 1809-1985* (Stockholm: Militärhistoriska förl., 1986); Hugemark, *Stormvarning*; See also Alf W. Johansson, *Den nazistiska utmaningen: aspekter på andra världskriget* (Lund: Studentlitteratur, 2014); For more on Social-Democratic policy-making, see Bergström’s and Molin’s contributions in Klaus Misgeld et al., *Socialdemokratins samhälle: SAP och Sverige under 100 år* (Stockholm: Tiden, 1989); For more on the Women’s movement for peace, see Andersson, *Kvinnor mot krig*; Irene Andersson, “Luftskyddsarbete, stickning och en modern tvättambulans: socialdemokratiska kvinnor och civilförsvar under 1930-talet,” in Sociala konflikter och kulturella processer: historia med människor i centrum (Malmö: Malmö högskola, 2004), 190–205; for English readers, see Andersson, “Women’s Unarmed Uprising against War.”
of the time. The war ended with the spread of Spanish flu, killing off a high proportion of the fertile and productive demographic strata. This had a great effect on the state’s concerns about the birth rate and social reforms. The Great Depression of 1929, which affected employment rates and productivity globally, was only finally resolved with the outbreak of war in 1939, fuelling an immense increase in global productivity. Concerning the global political situation and the threat of war, Europe oscillated between hope and despair throughout the period. The Russian Revolution caused both socialist movements and reactionary conservatives to rally and unleashed local conflicts all over Europe. Simultaneously, the League of Nations and a series of peace and disarmament conferences promised a potentially peaceful way of dealing with the conflicts. And, although it was widely recognized that the Versailles Treaty was a failure and that Europe was approaching yet another conflict with the rise of Hitler, right up until the final moments in 1939 before the invasion of Poland, there was still hope in the diplomatic ranks that a peaceful solution to the European conflict was possible. 

Women also began to play a major role in politics thanks to the global suffragette movement. The election of 1921 represented the first time that women were allowed to vote in Sweden, making the 1920s and 1930s important decades for women’s political emancipation. Simultaneously, women saw their first major obstacle in stopping a new kind of war that suddenly made them targets. In terms of technology and warfare, the era was shaped by First World War reasoning, the idea of total war, combined with radical technical developments such as motorized vehicles, radio communication and aerial technology, which expanded the range of action, accuracy and effect. These changes in strategy and technology emphasized mobility and the mechanization of infantry, less focus on naval surface forces in favour of coastal artillery, the rise of aerial warfare, nationwide peacetime preparations,

62 Overy makes the case in this book that Hitler was reluctant to start a war if Great Britain entered on the Polish side. See Richard Overy, 1939: Countdown to War (Camberwell, Vic.; Penguin, 2010); The argument can be problematized, however, See, for example, Alexander B. Rossino, Hitler Strikes Poland: Blitzkrieg, Ideology, and Atrocity, Modern War Studies (Lawrence, Kan.: University Press of Kansas, 2003), 2–4, 5.; and also Viktor Suvorov, The Chief Culprit: Stalin’s Grand Design to Start World War II (Annapolis, Md.: Naval Institute Press, 2008) Suvorov makes the case that Stalin deliberately provoked Hitler to move against Poland.

63 Andersson, Kvinnor mot krig; See also Kjell Östberg, Efter rösträtten: kvinnors utrymme efter det demokratiska genombrottet, Kulturhistoriskt bibliotek, 99-792866-8 (Eslöv: B. Östlings bokförl. Symposion, 1997).
industrial streamlining and general anticipation of unprecedented levels of civilian death and agony in the next war.\textsuperscript{64}

For Sweden, these lines of development in Europe caused widespread anxiety and an enduring political turmoil at home. The political situation in parliament was complex, with nine different governments being formed in the thirteen years between 1919 and 1932.\textsuperscript{65} With universal suffrage just recently imposed, the parliamentary democratic governance system was fragile, and met with criticism from the radical left and right, who argued that

\textsuperscript{64} For a thorough dissemination of the transformation of the military during the interwar era, see Chickering and Förster, The Shadows of Total War; Chickering, Förster and Greiner, A World at Total War; see also Patterson, Guernica and Total War.

\textsuperscript{65} For more on the political developments of this era, see Oredsson, Svensk rädsla; Hadenius, Svensk politik under 1900-talet; Klaus Misgeld et al., Creating Social Democracy: A Century of the Social Democratic Labor Party in Sweden (University Park: Pennsylvania State Univ. Press, 1992).
the system was too conservative or too ineffective. The problems faced by the political parties in forming stable majorities and lasting governments caused the situation to deteriorate, since it made the democratic governance system ineffective and slow at a time when there were huge demands for reforms. If it was to survive, the parliamentary democratic system needed to prove itself, which spurred ideas of welfare politics. Declining birth rates also further spurred this notion, claiming that women’s unwillingness to become pregnant was directly linked to social inequality and militarization.

The period immediately after the First World War was also characterised by economic depression in Sweden, causing high unemployment and social unrest, sometimes ending in bloodshed, such as the Ådalen shootings in 1931. Such events put focus on civilian and military relations, resulting in demands for a reformed police force and a ban on civilians wearing uniforms. After 1932, the political situation was briefly resolved. A coalition led by the Social-Democratic Worker’s Party, SAP, finally succeeded in forming a majority government in parliament together with the Farmer’s League, but still had to spend the rest of the 1930s fending off socialist revolutionaries from their own ranks, as well as fascists from the right. It is during these initial years of the 1930s that the Social-Democratic Worker’s Party, with Prime Minister Per-Albin Hansson (1885–1946) launched Sweden’s first reformist welfare programme, called “Folkhemmet”, [“The People’s Home”].

The People’s Home programme included Keynesian economic politics, social reforms, market regulation and housing subsidies. The programme echoed the obsessive-compulsive preoccupation with the idea of the “folk” during this age, and should be interpreted as an attempt to solve the economic crisis on the one hand, and proving the effectiveness of reformist governance system on the other, in the face of the challenge posed by Fascism and Communism in Europe.

A major conflict, perhaps the biggest political conflict of the 1920s and 1930s, concerned the shape of the military organization. The difficulties in agreeing on a chosen path for the military organization can be seen as a local response to the international conflicts at the League of Nations and the rise of the Soviet Union and the German Nazi state, combined with the rapid development of aerial technology. Together, these trends forced Swedish military strategists to re-draw their mobilization plans as the times changed, which put pressure on politicians to follow suit. It is no coincidence that a whole

66 Johansson, Den nazistiska utmaningen; See also Misgeld et al., Creating Social Democracy.
67 See especially Johansson, Den nazistiska utmaningen.
68 See Arvid Cronenberg’s chapter in Hugemark, Stormvarning, 91–97, 99–109.; Also, in Hugemark
new military branch, the Swedish Air Force, was born in the very middle of the interwar era, in 1925, causing a long-lasting conflict between traditionalist and progressive officers within the military establishment.69

What made things more complicated was that the burgeoning SAP had entered the political arena of the 1920s as pacifists, and its leader during the post-war years, Hjalmar Branting, played a major role in the international disarmament discussions in the League of Nations. Thus, Sweden invested

69 Hugemark, Stormvarning, 96–97.

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Figure 10: Leader of the Social-Democratic Worker’s Party and Prime Minister from 1932 to 1945, Per-Albin Hansson, standing below the Swedish coat of arms in 1940. Per-Albin Hansson started his political career as a pacifist and hated all things military. He is generally regarded as being the father of the Swedish welfare state, and the man who managed to keep Sweden unscathed by the Second World War for better or worse. However, the idea of the “People’s Home” would not be realized until after his death in 1946. Photo by K.W. Gullers, ID: NMA.0034468. CC BY-NC-ND https://digitaltmuseum.se.
much energy in these attempts at peace and disarmament. In 1925, the Social Democrats managed to ratify an isolated disarmament resolution in the Swedish parliament, with support from the Liberals. For this massive quantitative loss, the military was given an independent air force instead. The result of this watershed reform, however, left no one satisfied. The right-wing opposition hated it for its naivety, and the slimmed-down budget proved to be impossible to maintain in the years to come; particularly problematic was the budget for the new military branch.

As a consequence of these political conflicts, the years between 1925 and 1935 were characterized by political turmoil and continuous commissions of inquiry and their reports, scrutinizing the development of warfare technologies and Sweden’s role in the European political environment. These inquiries developed alongside debates, public outrage and hopes of international arbitration at the League of Nations, until the question of the military organization was finally resolved in 1936. At this point, however, the disarmament conferences had collapsed and the League of Nation had begun its descent from international politics. Hitler had become the Reichsführer, Mussolini had invaded Abyssinia and Japan had attacked Manchuria. The pacifist vein that had been one of the hallmarks of the Swedish reformist socialist movement was now dwindling under the pressure of European belligerence. Attempts by the Swedish Minister of Foreign Policy, Richard Sandler, to abolish aerial warfare altogether through the League of Nations, had failed. Consequently, after ten years of disarmament attempts, the Swedish military re-armed itself rapidly from 1936 onwards.

These are some of the debates and political problems out of which aerial protection and ideas about air raid shelters emerged and were shaped. The period from 1918 to 1939 was highly complex and confused, with each year resulting in a new situation, demanding new ways of thinking and acting, in terms of both politics and military strategy. Politically, the idea of aerial protection challenged an established idea of separating the military from civilians. It therefore un-earthed a political conflict between right and left in how the civilians’ role in a potential war could be managed. Liberal and left-wing radical pacifism

also grew increasingly louder, challenging the raison d’être of the whole project. Simultaneously, the state needed to prove its ability to provide protection and livelihood opportunities for its citizens. Indeed, this is the age in which the welfare state was born. For its part, the military establishment had difficulties agreeing on what sort of war it should plan for, from which direction, and moreover, had to re-configure its whole organization in accordance with the new technologies that had emerged during the First World War.

This made it difficult for the military establishment to decide on what sort of philosophy could guide aerial protection measures. Depending on the political decisions taken regarding military expenditure, the prerequisites for aerial protection changed significantly. Thus, politics clashed with military doctrines and the burgeoning welfare state now had to be interwoven with the speed and industrial manslaughter of modern war. In terms of the economy, the idea of a new state-organized defensive branch also caused problems in the political setting, in which the military establishment’s budgetary framework was the
subject of constant debate and industrial crises caused financial deficits. At the same time, a new European conflict appeared to be drawing closer. This is the kind of political environment within which the idea of aerial protection was born. In essence, it was a child of the interwar era.

1.5. Outline of dissertation

To answer the overarching question as to why Sweden was transformed into a Sheltered Society, this dissertation will primarily investigate the interwar history of aerial protection and air raid shelters. The method needed to explain this phenomenon lies in studying it through a combination of Large Technological Systems theory, LTS, and Multi-Level Perspective, MLP. LTS, on the one hand, offers an externalist approach to technological development, suggesting that the key to understanding the ultimate success of a technological invention lies in looking at the contexts found in the vicinity of the technology being studied. MLP, on the other hand, offers a way of structuring these contexts and discourses according to three different societal levels, enabling a discussion of the role of air raid shelters in the interplay between global events such as war, national government responses and local developments such as individual initiatives, innovations and network relations. Included in this discussion are some reflections on the problem of network relations, commissions of inquiry as policy-making, and agency versus structure concerning the extent to which actors such as Kjell Magnell can be viewed as playing a pivotal or minor role in the overarching system. This will be discussed in depth in Chapter two.

Building on the analytical framework provided by LTS and MLP, the dissertation investigates five different spheres of contemporary discussions associated with a set of individuals and their professional roles during the interwar era. It could be argued that, in their different ways, representatives of each sphere may have made a significant impact on the political proposals that finally led to the implementation of an organized air raid shelter system. All of them shaped early aerial protection and air raid shelter jurisdiction. These spheres have formed the empirical backbone of this dissertation and have also structured the chapters chronologically, depending on when a specific group of people enter the discussion. Specific research questions connected to the empirical material have also guided each chapter.

The first empirical chapter discusses military intellectuals, usually fortification officers, but sometimes from other branches of the military apparatus, and their writings in military journals. The guiding question here is how was the idea of civilian air raid shelters developed in military circles at an early stage, and
up until 1937, when air raid shelters were institutionalized? Early discussions on bunkers and air raid shelters from the journal *Tidskrift i fortifikation* are discussed, as well as three prominent officers, Hugo Jungstedt, Emil Fevrell and Kjell Magnell, all of whom wrote in the journal *Meddelanden*.

In chapter four the sub-politics of air raid shelters are in focus, as well as the general military and political debate during the 1920s and 1930s. The guiding question is how did the debate on Sweden’s military doctrine, and other political developments and controversies during the interwar period, contribute and shape ideas about aerial protection and air raid shelters? Why did the early political attempts fail, and what were the consequences? Organizations such as the FFSFF, the Red Cross, the Jung-clique, and their respective journals, are also scrutinized in order to gain an overview of the volunteer movements’ progression at a time when military politics shifted quickly.

In chapter five, the Beskow commission and its report are discussed in depth, as well as their aftermath in the shape of jurisdiction, the instigation of state institutions and their role, and the forming of the volunteer movement, LSF, up to 1940. The research question that guides this chapter is about how air raid shelters and aerial protection were framed to gain political traction at a later stage. More specifically, the chapter examines what it was that made the fortifications officer Kjell Magnell’s model of aerial protection successful, compared to other proposals from the same period. The turn towards the civilian prefix to aerial defences is particularly in focus, as well as the aftermath of the Beskow commission’s report.

In chapter six, the dissertation turns towards the writings of the engineering and architect community in their respective journals through the Svenska Teknologföreningen, STF. Of special interest is the creation of industrial aerial protection, public controversies about the science behind air raid shelters, as well as urban planning. The guiding question here concerns the extent to which the engineering community responded to the political and military demands for technical expertise: How did representatives of the engineering and architecture professions react and approach air raid shelters as aerial protection politics started emerging?

Finally, in chapter seven, the public side of air raid shelters is studied. Some key figures within the press, writing about both air raid shelters abroad and aerial protection politics at home in the daily newspapers are discussed. Criticism of air raid shelters from the women’s rights movement, headed by the journalist and author, Elin Wägner, is in focus, as well as the writings of two other journalists, Barbro Alving and Gerd Ribbing, and how their wri-
tings heralded a change in how air raid shelters were presented in the public domain. The chapter asks the following question: when air raid shelters and aerial protection measures were being introduced into urban environments and because of wars in Europe, how did Swedish journalists write about, frame and debate the emergence of air raid shelters to their reading audience?

In summary, these investigations will provide an exhaustive and horizontal overview of the key aspects of aerial protection and air raid shelters discussed during the 1920s and 1930s, and will show how civil, military, technical and socio-cultural factors managed to align during the late 1930s to enable the thorough implementation of an air raid shelter system. To show how this interwar heritage mattered to Sweden’s post-war years, chapter eight will also venture beyond the early 1940s and into the Cold War era. Three phenomena in particular will be in focus in this last chapter: the consequences of the turn from idea development to materialization from 1936 to 1937, the subsequent interwar heritage of Cold War civil defence, and the difficulties in changing the direction of established systems. Together, these three analytical points of entry will explain how the interwar air raid shelter managed to survive into the Cold War era, eventually producing the Sheltered Society within which we now live.
2. Analytical framework

A way of connecting the interwar history of aerial protection and air raid shelters with the Cold War history of civil defence is to consider the air raid shelter from the perspective of STS studies and theoretical constructs emanating from the field of the history of technology. Simply put, technologies do not necessarily develop in accordance with political historical markers. Thus, using this perspective can provide some novel chronological connections. For example, the development of civil defence and air raid shelters can be described as the result of a historical lock-in or path dependency. These terms are used in the STS field to explain how previous investments in infrastructure or technology determine future decision-making.\(^{71}\) Or, with the Swedish historian of technology Svante Lindqvist’s ideas in mind, they can be understood as an older remnant and a slowly decaying system that co-exist with newer technologies and shape their development path.\(^{72}\) Here I propose that the answer to this problem of lock-ins is found in the how the technological system of air raid shelters developed, and particularly in the legislation on air raid shelters, during the period in which the idea of an air-resilient urban environment was formed.

The following segment will elaborate on these ideas and explain the theoretical foundation upon which this dissertation rests, focusing firstly on how to conceptually understand the air raid shelter as a technology, secondly, on how theoretical constructs such as the theory of Large Technical System can make a system out of this single technology, and thirdly, how Multi-Level Perspective, MLP, can help contextualize this system in a wider societal framework.

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\(^{72}\) See chapter 1, in Svante Lindqvist, Changes in the Technological Landscape: Essays in the History of Science and Technology (Sagamore Beach, Mass.: Science History, 2011), 13–18.
2.1. The air raid shelter as a technology

The bunker or shelter (for the sake of brevity, I will henceforth use the term *bunker/shelter* in this section), is a technical countermeasure introduced to both the military and the civilian sphere during the late nineteenth and early twentieth century, with the purpose of totally combating the deadly effects of artillery guns, gas warfare and eventually also aerial warfare. As the French artist and philosopher Paul Virilio has argued, they can be described as a form of survival machine.\(^{73}\) Also, as Swedish historian of technology, Mats Fridlund, has argued, they are an example of a *technical mentalité* that often forms part of disaster management.\(^{74}\) Technological threats are met with more technology in order to bring the situation and the urban environment under control.

However, it could be argued that the idea of being protected in a cavity or underneath something foregoes the nineteenth and twentieth century, and such an argument is partially correct. Hiding is a timeless human response to threat and needs little theorization to be understood. The difference, however, is that bunkers, gas shelters and air raids shelters become technical objects in that they demand both technical expertise and other technical tools and techniques in order to be built. Thus, the air raid shelter is historically bound and ultimately cannot exist without the twentieth century context. To realize the idea of the bunker or shelter, a considerable organization of labour and logistics, drilling methods and tools, and a well-developed steel and concrete industry must be available, as well as some basic mechanics and techniques for air ventilation. Without these prerequisites there would be only a half-open cave and, moreover, the technological means to produce the threat that the bunker or shelter is supposed to counter would not exist.

In other words, the bunker/shelter is a technology or, in the words of Paul Virilio, a “survival machine”, developed during the late nineteenth and early twentieth century for the purpose of countering the use of other technologies. It cannot be separated from the context within which it was developed. In this sense, it is something that is different from any naturally formed safe underground space in that it finds its use in an era-specific context. The usefulness and production context of air raid shelters presupposes many things: nation states, highly technical warfare and mechanical flight, legislation, industry,

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and societal organization. The air raid shelter cannot exist materially without these co-existing phenomena and therefore cannot be described as a technology laden with an intrinsic value, for example, a technology *a priori*. Context is everything.  

It should, however, be noted that interpreting the air raid shelter first hand as a technology depends on the scope of this dissertation: to explain Sweden's process of *becoming* a “Sheltered Society”. The history of the field of technology, LTS theory and MLP provide tools and help explain that process and only that process. It does not mean that interpreting bunker or shelters as a technology is always the right choice when attempting to understand the complexity of the phenomenon. Much of the scholarship in recent years that has focused on the role of air raid shelters has been less interested in their material emergence and more in their cultural and political function post-construction and post-war, and have therefore had little use for the perspectives stemming from the field of the history of technology. They have considered the shelter a fact and then started from there.

For the urban explorer, the tourist, the archaeologist, the artist, or whoever enters to study the shelter after its construction does not have to consider it a

75 Within the field of the history of technology, this question is still unresolved after 50 years of studies. Discussions about what the word technology contains have their origins in Jacque Ellul’s The Technological Society (1964), in which he introduced an extremely inclusive definition of “technique”: “the totality of methods rationally arrived at and having absolute efficiency (for a given stage of development) in every field of human activity”. Whether this is a proper definition remains unresolved. Within the Swedish field of the History of Technology, Professor Emeritus Svante Lindkvist offered a set of definitions in his “Vad är teknik?” in Teknikens backspegel (1987) that were partially inspired by Ellul’s work, but made no claims about which definition to use. More recently, the American historian, Leo Marx (2010), offered a post-structuralist reading of the word “technology” and instead considered how it has been used since its introduction, rather than exactly what it means, which must be considered to be the most pragmatic approach to it. Personally, I argue that a definition of such a complex concept as technology is not helpful and technology must be defined empirically, and contextually, which Leo Marx’s article also shows. In this respect, also consider Thomas P. Hughes’ wording in American Genesis (1989, p. 5–6): “Technology in the age of technological enthusiasm meant then, as now, different things to different people. The efforts of textbook writers notwithstanding, technology can be defined no more easily than politics. Rarely do we ask for a definition of politics. To ask for the definition of technology [Hughes' emphasis] is to be equally innocent of complex reality.” Thomas Parke Hughes, American Genesis: A Century of Invention and Technological Enthusiasm, 1870–1970 (Chicago, Ill.: University of Chicago Press ;, 2004), 5–6; See also Leo Marx, “Technology: The Emergence of a Hazardous Concept,” Technology and Culture 51, no. 3 (2010): 561–577, doi:10.1353/tech.2010.0009; Jacques Ellul, The Technological Society (New York, 1964); Bosse Sundin and Boel Berner, eds., I teknikens backspegel: antologi i teknikhistoria (Stockholm: Carlsson, 1987).
technology firsthand, either. Common interpretations include considering the bunker/shelter from the perspective of architecture and design, materialism, moral implications, gender problems or the different forms of governmentality it can be said to project – and only occasionally the technopolitical processes that brought it to being. Perhaps the foremost leading figure for this perspective is the French philosopher, Paul Virilio.

2.2. History of Science and Technology and the theory of Large Technical Systems

The things needed to build a shelter also suggest that the construct has systematic properties, as well as being shaped socially and culturally in its making. This not only relates to the material facts surrounding the construction of the shelter, as suggested above, but also how it is used and managed from a social and cultural perspective. To remain functional after it has been built, the bunker/shelter requires a certain level of maintenance, it demands discipline and organization from those who are supposed to use it, and it requires a number of surrounding technologies to remain useful. As Bosma stated: “They were a material component in a sophisticated social and spatial framework that included many other ingredients, including sandbags, air raid sirens, blackout curtains, communication systems and food depots.” One important surrounding technological factor also concerns the weapons that the bunker or shelter


78 Bosma, Shelter City, 13; Consider also Thomas P. Hughes’ definition of technical systems: “An artifact – either physical or nonphysical – functioning as a component in a system interacts with other artifacts, all of which contribute directly or through other components to the common system goal. If a component is removed from a system or its characteristics change, the other artifacts in the system will alter characteristics accordingly.” Thomas P. Hughes in Wiebe E. Bijker, Thomas Parke. Hughes and T. J. Pinch, eds., The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology (Cambridge, Mass.: MIT Press, 2012), 43.
is supposed to counter. When the technologies of aerial attack change, these
constructs also change, sometimes in minor details only, on other occasions
the changes are immense, and sometimes these old and new ways of coping
with aerial war exist concurrently.

Another example of its systematic traits is ventilation technologies, as well
as different forms of communication in and out of the shelter. A shelter is use-
less without alarm and communication technologies that can be used to warn
soldiers and citizens that there is an impending air strike or artillery volley and
evacuation into shelters is necessary. This is highly relevant to understanding
how the shelter structure has managed to survive the development of increa-
singly stronger and faster forms of aerial bombardment.79 I would assert that
a state’s technical ability to inform and warn its population in sufficient time
is directly proportional to the usefulness of the shelter. No air raid shelter is
better than the signpost outside of it. Thus, bunker and shelter construction is
often followed by the development of different forms of technical surveillance
systems, such as audio surveillance (the big “ears” of the Second World War),
observations towers, radar and radio surveillance, as well as interrelated infor-
mation and management systems that can funnel and make use of the data
provided by the surveillance apparatus. The concept of aerial protection is, in
itself, such a management system, and if the Swedish state had not invested
considerable funds in buying and developing a highly intricate surveillance
system over the Baltic Sea during the Cold War, it would have been difficult
to make arguments for continuing to build civilian shelters.80 Actually, the
relationship between the shelters and different surveillance systems outside of
them during the twentieth century is so profound that historians like Paul N.
Edwards argued in his book Closed World argued that it was one of the most
important features of the Cold War deterrence doctrine.81

Moreover, the topic and the problems it involves, the disconnections between
the world above and below, have been explored at length, and continue to be
explored, through science-fiction literature, PC games and Hollywood films
and series.

79 See, for example, Jeremy Black’s discussion on air defences during the Second World War, in Black,
Fortifications and Siegecraft, 234.
80 The connection between the Swedish civil defence apparatus and the military’s surveillance systems
is yet to be explored. Swedish efforts to construct an advanced air-surveillance system are discussed
in Johan Gribbe, Stril 60: teknik, vetenskap och svensk säkerhetspolitik under det kalla kriget
(Stockholm: Gidlund, 2011).
81 Paul N. Edwards, The Closed World: Computers and the Politics of Discourse in Cold War Amer-
Underground,” 18.
Figure 12: A signpost on the door of the Royal Opera, used as a public air raid shelter in Stockholm in 1940. The sign reads “Public shelter”. Finding your way in due time is just as important as making air raid shelters available. Consequently, evacuation and aerial surveillance are intrinsically connected to aerial protection and civil defence. Photo by K.W. Gullers. ID: NMA.0029348. CC BY-NC-ND. https://digitaltmuseum.se.

Figure 13: A military aerial surveillance system from 1932, including acoustic locator, searchlight and motorized transport. The sound locators were intended to pick up noise from incoming aircraft engines and were often used in pairs to be able to identify the right direction. Variations were used until the introduction of radar during the early 1940s. Searchlights functioned as an aiming device for anti-aircraft artillery. Photography by the Coast Artillery Corps. ID: 98175. Public Domain. Wikimedia commons. https://commons.wikimedia.org.
Figure 14: The telephone was a central component of the aerial protection system, often depicted with young boys giving reports from the streets, either to air raid shelters or to central headquarters. Here a boy is on watch during a drill in 1944, surrounded by sandbags and with a telephone placed inside a protective box. Young boys were expected to function as ordonnances in these settings. Photo by Carl Larsson’s Fotografiska Ateljé. ID: XLM.CL004486-3. CC-BY-NC. https://digitaltmuseum.se.

Figure 15: Auxiliary firefighting was also a pivotal part of the aerial protection system. If the rescue services could not arrive in time, air raid shelter inhabitants could die of suffocation. Here, a motor pump is turned after arriving on site. The photo was taken during a drill in Uppsala in 1941. Photo by Paul Sandberg. ID: PS12415. CC-BY-NC-ND. https://digitaltmuseum.se.
A common way of analysing the systemic nature of technology is through the Social Construction of Technology, SCOT (or sometimes Social Shaping of Technology, SST), a theoretical construct that has dominated the history of the field of technology since the 1980s. An important subfield is the theory of Large Technical Systems, LTS, which is usually associated with the American historian of technology, Thomas Parke Hughes, and his book *Networks of Power*, from 1983, and subsequently, in a more concentrated form in the book chapter “The Evolution of Large Technological Systems”. This subfield, following Hug-


83 Thomas Parke Hughes, *Networks of Power: Electrification in Western Society, 1880–1930* (Baltimore:
hes’ footsteps, has been focused on communication and networking systems such as electrical and communications technologies from a variety of angles.84 The credo of these theoretical constructs, including LTS, was to challenge an invention bias in the history of science and technology. By opening the black boxes of technological invention and development, these authors wanted to show how technology evolved and was negotiated through a complex process involving all parts of society, rather than just explaining technological change as a result of the inventor’s genius, in combination with market forces.

The emerging interest in technical systems can also be related to the growth and consolidation of such large systems in the wake of the late Cold War. Technical systems became increasingly more complex and these authors wanted to understand how they had come about. This new way of studying technology was made possible by the inflow of ideas from sociology, but also a more inclusive perspective on what technology was and what could be studied in order to explain technological change. However, since the fall of the Soviet Union, studies focusing on LTS theory have evolved significantly and Hughes’ model has been criticized.

A critique against LTS studies has been that the LTS perspective has failed to explain how systems change or transform after they have gained momentum, how the end user of technological systems has been affected by the system’s rigidity and also how users have shaped the transformations of technological systems.85 Moreover, some have argued that LTS theory, contrary to what it was supposed to convey from the start, has given birth to heroic storylines

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84 See, for example, Olivier Coutard, The Governance of Large Technical Systems (Routledge, 2002); Todd R. La Porte, Social Responses to Large Technical Systems: Control or Anticipation (Springer Science & Business Media, 2012); Jane Summerton, Changing Large Technical Systems (Boulder, Colo.: Westview Press, 1994); Thomas Parke Hughes, Rescuing Prometheus (New York: Pantheon Books, 1998); In Sweden, LTS theory has become quite influential, with some of the most prolific historians using Hughes mainly in their theoretical approach. See, for example, Arne Kaijser, Stadens ljus: etableringen av de första svenska gasverken, Linköping studies in arts and science, 0282-9800; 4 (Malmö: LiberFörlag, 1986); Staffan Hansson, Porjus: en vision för industriell utveckling i övre Norrland = [Porjus]: [a vision for industrial development in northern Norrland] (Luleå, 1994); Roine Viklund, “Riksgränsbanans elektrifiering” (Luleå tekniska universitet, 2012); See also Pär Blomkvist and Arne Kaijser, eds., Den konstruerade världen: tekniska system i historiskt perspektiv (Eslöv: B. Östlings bokförl. Symposion, 1998).

and harmony models of technological change that have neglected the constant negotiation between technical innovations and society at large, as well as a lack of explanations as to why some technologies have failed and others have not. Today, the field of the history of technology, including LTS, is more inclusive in scope and contains studies of gender, environment, modernity studies, transnational perspectives, and recently also the history of maintenance as a new “turn” in the field.

The criticism of LTS notwithstanding, this dissertation can be said to be heavily inspired by the LTS perspective, but more because of its externalist perspective and straightforward methodological set up than its theoretical completeness. Analysing the systemic nature of the bunker/shelter by using some of the concepts that Hughes introduced helps to explain the process of...
introduction and eventual consolidation, which is one of the strengths of LTS theory. In Hughes’ text, “The Evolution of Large Technological Systems”, he introduced a number of concepts that are useful in analysing the development of a technology with systematic traits on its way to consolidation in society. Such concepts include Technology Transfer, Technological Style, System Builders and Momentum. The basic idea is that when a technology is imported from one context to another – this is called technological transfer – it is often moulded or re-shaped to fit the perceived cultural traits of the importing country or context, thus acquiring a certain technological style that is in accord with the character of the nation to which it has been introduced, as well as acquiring socially constructed elements. Hughes used these concepts to explain how large-scale energy systems developed differently in some countries and found that much of the explanation could be found in external factors. For instance, centralized or decentralized governing systems, political expediency, historical experiences, or culture in the broadest sense.

A key role in this has been the system builders, a heterogenous group of figures who manage to navigate the shallow waters of politics, culture, finance and the market. They import ideas, develop them and shape them according to contemporary social and cultural norms, in an effort to consolidate both their own position as experts and the technology that they are promoting. Their success factor primarily lies in their ability for compromise, synergy and collaboration, not in radical innovation itself. Hughes’ primary example of a system builder was the American inventor, Thomas Edison, who not only invented the lightbulb, but also managed to sell complete electrical systems to his customers.

A fourth and final concept of relevance to this dissertation that Hughes introduced is that of technological Momentum. When a system has gained momentum, it has acquired a certain direction and moves towards a goal that was staked-out as the system was being built. This is not to say that a technological system is autonomous and acts independently; rather, it means

88 See quote by Richard Hirsch in Sovacool and Hess, “Ordering Theories,” 716. Hirsh argues that Hughes’ LTS model can be treated as a general methodology “for explaining the interaction between many actors involved in the creation and management of large technical enterprises”.
90 In Swedish historiography, a common way of studying these figures in a techno-political context is through the concept of reform technocrats, introduced by the historians of technology, Per Lundin, Johan Gribbe and Niklas Stenlås. See the introductory chapter in Per Lundin, Niklas Stenlås and Johan Gribbe, eds., Science for Welfare and Warfare: Technology and State Initiative in Cold War Sweden (Sagamore Beach, MA: Science History Publications/USA, 2010).
that the inertia of the motion – similar to that of Newton’s Laws of Motion\textsuperscript{91} – requires a counterforce to stop it or change its direction. In other words, after the ball – or system – is pushed in a certain direction, it will continue to roll until someone, or some other force of nature, stops it or changes its path. According to Hughes, the large mass of a technological system, or the “ball”, in my example, contains such things as:

- Organizations and people committed by various interests to the system.
- Manufacturing corporations, public and private utilities, industrial and government research laboratories, investment and banking houses, sections of technical and scientific societies, departments in educational institutions, and regulatory bodies add greatly to the momentum of modern electric light and power systems. Inventors, engineers, scientists, managers, owners, investors, financiers, civil servants and politicians often have vested interest in the growth and durability of a system.\textsuperscript{92}

Thus, the most influential system builders down to the individual industry worker can be said to have vested interests in keeping a system going, and will likely continue to until some other external force requires a radical change. Hughes began to conceptualize this phenomenon during his studies of the German chemical company, I.G. Farben, in which he showed how investments and research in the chemical industry during the First World War enabled the production of synthetic petrol during the Second World War.\textsuperscript{93}

In my case, the concept of technological momentum is relevant in studying and understanding the introduction, development and consolidation of an air raid shelter system in Sweden. The concept of momentum can help explain how Sweden found itself in this historical lock-in and thus continued to build air raid shelters on such a huge scale, even though the nation was untouched by two world wars and remained alliance-free during the Cold War era. A major part of the work conducted has focused on establishing when and why technological momentum was achieved.

\textsuperscript{91} “Everybody persists in its state of being at rest or of moving uniformly straight forward, except insofar as it is compelled to change its state by forces impressed” – Newton’s first law of motion.

\textsuperscript{92} Bijker, Hughes and Pinch, The Social Construction of Technological Systems, 70; See also Thomas Parke Hughes, Networks of Power: Electrification in Western Society, 1880-1930 (Baltimore: Johns Hopkins Univ.Press, 1983).

2.3. The Multi-Level Perspective and LTS

However, if Hughes’ LTS theory has informed this dissertation in terms of where to look for answers and how to delimit the scope by considering a system’s momentum, the question still remains as to how to explain how all these links connect, and also address the inertia of what the STS field calls *Technological Transitions*, or TT. There are also events and circumstances, such as political turns, revolutions and outbreaks of war, which are well beyond the system builders’ circles, but are difficult to ignore when studying the growth and consolidation of a technological system such as aerial protection and air raid shelters. For example, when discussing the origins of Swedish aerial protection, the historian Alvar Schilén argued that civil defence was accelerated due to developments in China, Abyssinia and Spain. Similarly, Lennart Rosander, as well as Vilhelm Sjölin, argued that the bombing in Guernica and the Spanish Civil War were defining turning points. The impulses that induce technological change happen on all levels of society, not just among those who have immediate vested interest. There is an interplay between global political events, societies and innovation, as well as small-scale technological changes which is difficult to capture.

At its core, this question concerns what the main agent of change exactly is; is it agency or structure? Considering the effects of changes on the global level raises new questions: Why, for example, did it take so long for air raid shelters to be implemented; why was not air raid shelters immediately successful? What was different in 1918 or 1928 from 1938? Was it events in Guernica in April 1937 that changed everything, or was it the system builder, Kjell Magnell, who stirred Swedish air raid shelter politics into motion?

Answering these questions is also a means of addressing some of the problems for which LTS theory has been criticized, for example, producing yet another version of heroic stories and harmony models that does not show contradictory and failed historical developing lines. I argue that the narrative of the innovator or hero, which the concept of system builders is often approaching, is a pitfall because of the difficulties of seeing everything that lies in between major global change in the overarching socio-technical landscape,

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94 See the chapter “Civilförsvaret” in Wangel, Sveriges militära beredskap 1939-1945, 403; Rosander puts emphasis on the bombing of Guernica. Rosander et al., Om kriget kommer, 22–23.; Sjölin also puts a lot of emphasis on the bombing raids in Spain. Sjölin, I skuggan av kriget, 17.

95 A similar problem has been discussed in the book Motorspriten kommer!: en historia om etanol och andra alternative drivmedel (Gidlund, Möklinta, 2014). Here the authors asked why the use of wood gas never lasted.
and the individual representatives of a certain idea. LTS theory points to external factors and regards them as being important, contemporaneous and connected, but does not necessarily explain how to weigh them individually and how they unite in the bigger picture and results of systematic changes, and subsequently, major technological transitions. As the American philosopher of technology, Langdon Winner, has argued, LTS theory tends to focus on the system builder’s immediate context.\footnote{Sovacool and Hess, “Ordering Theories,” 717.; See also Langdon Winner, “Upon Opening the Black Box and Finding It Empty: Social Constructivism and the Philosophy of Technology,” Science, Technology, & Human Values 18, no. 3 (1993): 362–378.}

This results in a focus on the individuals involved – the system builder – rather than external factors. But what can be said about processes outside of the control or interest of system builders that might explain part of their success? What happens, for example, with Hughes’ LTS model if we remove the system builder, or argue that they are exchangeable? Perhaps the external context will play a more prominent role if the individual is reduced to a component of the system.

A way to approach this mode of thinking is through Multi-Level Perspective, MLP on technological transitions, as presented by the STS scholar, Frank W. Geels.\footnote{See Frank W. Geels, “Technological Transitions as Evolutionary Reconfiguration Processes: A Multi-Level Perspective and a Case-Study,” Research Policy 31, no. 8 (December 2002): 1257–1274, doi:10.1016/S0048-7333(02)00062-8; also Geels, “Transformations of Large Technical Systems.”} Geels is only one of many to use MLP in the field of STS, but he has been particularly interested in the historical dimensions of \emph{Technological Transitions}, which makes his theoretical construct suitable for comparisons.\footnote{A notable example of how the multi-level perspective might be used has been written by Paul N. Edwards, concerning infrastructure, in Misa, Brey and Feenberg, Modernity and Technology.}

The main task for Geels and other scholars within his field is to explain how radical innovations produce change from one socio-technical configuration to another, a process that can be difficult and that often faces resistance. If sailing were a socio-technical configuration that “worked” and steam engines were crude and ineffective when they were introduced, how is it that the global transportation system still changed? Geels writes:

> Radically new technologies have a hard time to break through, because regulations, infrastructure, user practices, maintenance networks are aligned to the existing technology. New technologies often face a mis-match with the established socio-institutional framework.\footnote{Geels, “Technological Transitions as Evolutionary Reconfiguration Processes,” 1258.}
Figure 17: The small arrows at the bottom indicate several niches supporting a technology in transition. The image is not as clear as could be hoped but contains some important aspects to consider. At the bottom level, each arrow represents a niche that can be either “picked up” by the socio-technical regime, or lend support to another niche being picked up. Niches can also work against each other, thereby producing failed innovations. Another important aspect is that when a niche transitions through the chart (the long arrow in the middle), it can eventually become part of the socio-technical landscape itself. Both shelters and, for example, atomic bombs, started as niches and radical innovations that subsequently became something to be considered on the global level. Image borrowed from Geels (2002) p. 1263.

The logic is simple. It is difficult to repair a broken steam engine if no port has workshops that can handle it, and it is difficult to re-fuel a steam engine if there is no coal. The same logic applies to air raid shelters. It would be very difficult to launch the idea of air raid shelters if there was no concrete or steel industry to support its implementation, or if every other part of the state’s risk management scheme didn’t buttress the use of it through training, alarm equipment and signposts. So how do radical new innovations overcome such mis-matches? The solution that Geels offers here is to analyse technological
transitions on three levels and see how changes on all levels “line up”, so to speak, to produce a major change in the socio-technical configuration (see figure 17). Simply put, a society can experience a technological transition if things happen all at once.

Geels’ model includes three levels in which things need to happen somewhat simultaneously. The first level, referred to as the *Socio-technical Landscape* or *macro level* contains such things as global or international politics or environmental factors that set the stage, such as climate change, trade embargos or, as in this case, *war*, and radical new technologies of war institutionalized by other actors. These are events and phenomena that are somewhat outside the Swedish government’s immediate control. The First World War, the global emergence of aerial warfare, and the international disarmament negotiations at Geneva, are all examples of global events and phenomenon that, from the perspective of Sweden, exist at the socio-technical landscape level, for it is something that Sweden simply had to deal with or could only slightly influence.

The meso level, referred to as the *socio-technical regime*, (or sometimes the *socio-technical paradigm*), contains a common set of rules and practices for which the key actors of a socio-technical regime comply in order to solve problems produced by the socio-technical landscape. Such rules can relate to political ideology, tradition or other forms of strategic agreements that guide the actors in a certain direction. For example, overarching research strategies of research and industry, taxation policies, or political ideology in general. In our case, the meso level concerns the overarching military defensive strategy of Sweden and the military branch, the government and their ideas about the latter. At the regional, nation-state level these institutions developed policies and ideas that would respond to what was happening on the macro level. Depending on the structure and tradition of each regime, they are also flexible and adaptable. If a given regime cannot respond to problems that appear on the macro level, it can reform itself or be substituted by another. In our case, for example, when Swedish naval forces could no longer provide security for the Swedish interior any more due to the introduction of aerial technology, two new socio-technical regimes were established to cover it: the Swedish air force and a civilian aerial protection organization.

Lastly, considerations at a meso level guide practices and innovations at the lowest level, the micro level, within the STS field also known as *Niches*. In order to reform itself, or to establish a new socio-technical regime, the existing

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100 See the section “The structured nature of technological change: technological regimes and paradigms”, in Remco Hoogma et al., Experimenting for Sustainable Transport: The Approach of Strategic Niche Management (London: Routledge, 2002).
organizations look downwards at the micro level for promising innovations that they can utilize. Bunkers, gas masks, anti-aircraft artillery, air raid shelters and alarm equipment all existed only at the niche level at some initial stage of their development, but were picked up by the existing Swedish military organization and eventually institutionalized to solve the problem of air war that loomed on the socio-technical landscape.

However, the micro level or the niche level can also contain immaterial things such as social innovations and ideas that place pressure on the socio-technical regime. Geels argues that niches should be understood as “incubator rooms” for innovations that help produce supply chains and markets. However, this does not necessarily imply that niches must be material things (although Geels use technologies as examples), and here I would further argue that niches can be extended to include local ideas and social developments within the realms of politics and culture that lend support to or resist the implementation of technologies. In this case, political ideas, concrete and tunnelling businesses, professional communities such as architects and civil engineers, organizations such as the Red Cross, state police, the Social-Democratic Worker’s Party, news events, or political movements such as the Women’s protest movements and the pacifists, or just certain key individuals. Each of these niches develop and support/resist a certain technology that might provide a solution or a technology that could be utilized by a socio-technical regime. In other words, niches can be technological things being picked up, but also synchronic contexts that either support or resist the use of another niche technology at certain points in history, although not being directly linked to the military socio-technical regime. Large segments of this dissertation are dedicated to such phenomena.

What Geels’ model suggests is that a radical innovation within a small niche of certain socio-technical regimes can rise up, so to speak, and produce radical changes on all the other levels, if the changes occur simultaneously. In other words, there is also a feedback process that produces technological change even if the macro, meso and micro levels seem stable. One example that Frank Geels has used is that of Newcomen’s steam engine, originally produced in a very narrow mining niche to pump water from mining shafts, but which eventually reshaped the whole socio-technical landscape and everything below it.

Geels’ explanation is that when a socio-technical landscape changes at the top, the socio-technical regime also begins to question its methods and slowly changes. Social movements outside of the regime can, for example, exert political

102 Ibid.
pressure and demand change because of socio-cultural problems. And a key aspect is that if during this process, a radical innovation is produced within a niche in a current socio-technical regime that could respond to this new change or demand, it could cause a transformation from within, or produce a whole new socio-technical regime, and through this process be adopted at large. This also means that the radical innovation, regardless of how useful it is, could also fail in transitioning if processes on other levels fail to support it.

This process also presupposes that there are several other niches that coincide, and which can be recruited for aid. Thus, all these processes “line up” and send a radical new technology upwards in the system, allowing for a thorough implementation that can eventually replace or transform the current socio-technical regime (see figure 17 above).\textsuperscript{103} The bunker, for example, rose up and became an institutionalized tactic during the late nineteenth and early twentieth century, partly because of the introduction of reinforced concrete and armoured steel. New and more effective artillery created a demand (macro level) and fortifications officers (meso level) looked for an innovation that could respond to that demand (micro level). Because of the introduction of new building materials, concrete industries and mining (supporting niches), the bunker was eventually institutionalized; it had “flowed” upwards in the chart. Since it was so successful (consider, for example, the First World War), all states used bunkers to provide cover from artillery fire along their defensive lines. During the interwar era, the bunker’s defensive traits had proven to be so effective that it had become a part of the socio-technical landscape itself. It became something everyone had to consider when making war plans. Thus, we see a variety of strategies developing during the Second World War that attempt to cope with the huge concrete fortified positions that emerged during the interwar era.

The implementation of the air raid shelter follows a similar logic – and the use of MLP covers the pitfalls of the LTS model, since it connects the large technological “system” with developments and changes on all levels of society, thereby lessening the focus on the system-builder’s role. Considering globally disrupting events of war and politics as changes in the socio-technical landscape, enables an interpretation of the political game between the social-democratic party and the military leadership as a result of the demands of transforming the socio-technical regime in the wake of changes higher up. Likewise, considering the air raid shelter and surrounding technologies and

\textsuperscript{103} This argument is built on two texts written by Frank Geels in 2002 and 2007. See Geels, and Geels, “Transformations of Large Technical Systems.”
organizations as niches, connects small, contextually-framed phenomena to something larger. In the shape of niche developments, it gives credence to innovations and individuals and the socio-cultural context within which they worked, but without ending in a hero narrative of technical innovation, for which Hughes’ LTS theory has been criticized.\textsuperscript{104}

While reading articles, reports and educational material written by Kjell Magnell, it might appear that he was the sole innovator of the Swedish air raid shelter system. However, his great innovation is not the Swedish air raid shelter itself but rather his ability to compromise and negotiate in line with the context. I would argue that he can be considered replaceable, a niche development that happened to be in the right place, at the right time.

This suggests that the MLP framework can counter the actor focus of LTS theory. Geels’ model has been criticized for its reduction of individual agency.\textsuperscript{105} However, knowing the transnational knowledge flow surrounding aerial protection during the interwar era, it cannot be argued that Magnell is an innovator in the system-builder sense. Moreover, there were few financial incentives for Magnell. His motivation was ideological. Rather, Magnell functioned as a mediator and translator between contexts and national spheres, making him an important, yet replaceable figure.

The theoretical framework within the SCOTS and SST circles has influenced both the chosen methodology and the theoretical interpretations that this dissertation builds on. In this sense, theory and method are connected in this dissertation. The segment above initially tried to explain why the bunker/shelter should be interpreted as a technology, and then gave some brief examples of the concepts of System builder, Technology transfer, Technological style and Momentum – and how it can be argued that they are applicable to the Swedish air raid shelter system. I have also introduced the multi-level perspective into this, as formulated by the STS scholar, Frank Geels, in an effort to complement and explain how many different niche developments in contemporaneous fields contribute to the whole, but also what niche developments “outside” of the system contribute. In other words, while LTS theory has shown how to approach a technology such as the air raid shelter, the MLP has shown how it fits together with the rest of society. It has been particularly fruitful to use the

\textsuperscript{104} Geels, “Multi-Level Perspective on System Innovation,” 167.; See also Hård’s criticism of LTS theory as a “harmony” model in Hård, “Beyond Harmony and Consensus”; See also Langdon Winner’s criticism of LTS theory being one-eyed towards the system-builder’s immediate context, seen in Sovacool and Hess, “Ordering Theories,” 717.

\textsuperscript{105} Sovacool and Hess, “Ordering Theories,” 711.
MLP to show how the different levels of societal change connect, and how to ask critical questions on the matter of agency versus structure.

2.4. Materials and dissertation design

This last segment will explain how these theoretical concepts have informed the dissertation in the practical sense. This section will also include a discussion about some of the material choices that have guided the design of the dissertation, as well as how to handle the mass of press material, which has proven to be quite a complicated problem.

This dissertation is a study of the emergence of a technology, analysed through the close reading of public printed material. Its primary source material can be divided into three categories: The first set of materials are based on professional journals on military matters, civilian aid, fire precautions, as well as engineering and architecture – 13 in total. Military journals: *Tidskrift i fortifikation*, *Meddelanden från Stockholms fasta försvar*, *Ny militär tidskrift*, *Kungl. Krigsvetenskapsakademiens handlingar och tidskrift*, *Vårt försvar*, Technical journals: *Teknisk Tidskrift*, *Byggmästaren*, *Betong*, *Cement och betong*, Risk and Contingencies: *Brandskydd: Svenska Brandskyddsföreningens tidskrift*, *Svenska Röda korset: tidskrift för frivillig sjukvård och socialhygienisk verksamhet*. Two politically led journals, the Social-Democratic Worker’s Party’s own journal for idea development *Tiden: månadsskrift för socialistisk kritik och politik* and the radical pacifist magazine *Tidevarvet*, to get a sense of how politically-invested authors argued. From 1937 onwards, it has also been possible to follow Riksluftskyddsförbundet, RLSF, [“National Aerial Protection Association”] and its monthly propaganda magazine *Flyglarm*.

The journals have been scanned for topics relating to aerial warfare, total war, gas warfare, bunkers, air raid shelters, aerial protection, bombs, artillery fire, concrete fortifications, urban environments, civilian involvement, industrial protection, and so on. Since they are specialized in some way, only a few of them paid particular attention to aerial protection and air raid shelters as part of a general strategy or part of the state’s military apparatus. The military journals *Meddelanden* and *Ny militär tidskrift* have been particularly helpful in this sense. Other journals have had their interest directed towards some aspect, such as fire prevention, the concrete business, management questions, urban planning or engineering sciences. The journals listed have been exhaustively studied both backwards and forwards, but not farther back than the turn of the century and seldom beyond the 1970s.

From reading these journals it has also been possible to identify a group of
figures who had a particular interest in disseminating aerial protection politics, together forming a loosely connected network. These individuals could be partially connected to professional or lobbying organizations, producing specific journals in which they wrote and debated. The military officers interested in air raid shelters and civilian protection, such as Hugo Jungstedt, Emil Fevrell and Kjell Magnell, wrote mainly in *Tidskrift i Fortifikation* and *Meddelanden*, but were also members of Föreningen för Stockholms fasta försvar. This group of authors formed a separate chapter. Engineers and physicists such as Ivar Lundbäck, Torsten Gustafsson and Hjalmar Granholm wrote in *Teknisk Tidskrift* and architects such as Uno Åhrén wrote in *Byggmästaren*. All of them were also members of Svenska Teknologföreningen. Consequently, it has also been easy to group them into a specific chapter. However, they often appeared in other settings as lecturers or guest authors. *Ny militär tidskrift*, for example, occasionally published works from engineers and Svenska Teknologföreningen, invited military officers to their evening lectures, which were often subsequently published in the journal *Teknisk Tidskrift*. A few of these figures also convened as members or were called as experts in commissions of inquiry. Depending on the perceived status or role within this network structure, these figures and their works guide the structure of some of the empirical chapters on military intellectuals and the engineering community. Nonetheless, it should be noted that these figures freely moved between contexts.

To investigate the networking aspects, as well as gain an insight into the work behind the commissions of inquiry and the work of government bodies, the dissertation has also included extensive studies of the archives of Luftskyddsinspektionen (LI), Civilförsvarstyrelsen (CFS), Luftskyddsförbundet (LSF)\(^\text{106}\), Kungl Byggnadsstyrelsen, (KBS) and Föreningen för Stockholm’s fasta försvar, (FFSFF). These have been complemented with the personal archives of Kjell Magnell, Hugo Jungstedt, Torsten Nothin, Eric Virgin and Axel Bredberg. Where available, archival materials for the commissions of inquiry have also been studied. I would argue that the overview provided by the combination of journals, political materials and archival materials has fully exhausted the topic.

### 2.4.1. Commissions of inquiry and networks

The second line of source material in this dissertation is the *Statens Offentliga Utredningar*, shortened to SOU, henceforth referred to as “commission report” or SOU (usually a commission is named after the topic whilst the report that

\(^{106}\) Later renamed Svenska Civilförsvarsförbundet.
the commission produces is called SOU, plus a reference number, for example, *Civila luftskyddsutredningen, SOU 1936:57*). Four reports have been identified as being important, ranging from 1928 to 1940. These reports discussed the possibility of introducing state-governed aerial protection, or subsequently, whether to enforce air raid shelter construction. These are *Luftförsvarsutredningen* (SOU 1932:3), *Försvarskommissionen 1930* (SOU 1935:41. D.4), *Civilia luftskyddsutredningen*, (SOU 1936:57) and 1939 års luftskyddsutredning (SOU 1939:42), as well as whatever archival materials were behind by these commissions.107

Unfortunately, regarding the most important of these reports, *Civila luftskyddsutredningen*, there is no corresponding archival material, which usually is the case. However, I have come across single documents in the *Luftskyddsinspektionen* archives in Riksarkivet Arninge originating from *Civila luftskyddsutredningen*, suggesting that the archive material from the report was carried over into the new government body as it began working in July 1937. For most of the twentieth century, the Swedish civil defence organization has been continuously scrutinized through commissions of inquiry, the latest being in 2017.108 This dissertation discusses four of the earliest commissions of inquiry – held up until 1940 – and this process has been divided into two separate empirical chapters.

For the foreign reader, something should also be said about the commissions of inquiry and their role in state politics. SOUs have had a peculiar place in Swedish politics since the beginning of the twentieth century. In essence, these inquiry reports are the end product of the so-called *utredningskommittéer* [“commissions of inquiry”], which are appointed by the government to produce legislative proposals on a specific topic.109 This is a form of policy-making system that in many ways is unique to Swedish parliamentarism.


Commissions of inquiry are a very common bureaucratic phenomenon in Sweden with the purpose of promoting consensus in parliament and streamlining the parliamentary workflow. The commissions are formed by the incumbent government, often by the minister of a department, to prepare and anchor a political reform or jurisdictional change of some sort in the wider public. The commissions conduct preparatory work outside of parliament so that the propositions being presented have an easier time being accepted or can be claimed to reflect the interest of the public or national sphere, or reflect the ideas of the current experts on a given topic. However, commissions of inquiry can be instigated for a variety of reasons and they often fail to produce any political change. Sometimes, commissions are instigated for solely symbolic reasons, for instance, as a means of showing ideological fervour towards voters. At other times they function as political burials, meaning that a topic is investigated only to reach the conclusion that it is unsolvable or impossible to reform.\textsuperscript{110}

The commissions of inquiry contain a varying number of members who represent the different interest groups that are invested in a certain political subject or problem at hand. They often contain a mixture of representatives from entities such as political parties, government bodies, industry, academia and research facilities, military establishments or civil special interest organizations. The purpose of the plethora of experts is to complement the ministry’s lack of knowledge of a specific field. Experts can also be called to hearings during the committee’s work, without being part of the commission’s work. While the government often initiates the commission, the department head appoints the commission’s members. The appointed director of a commission often has no formal expertise in the topic that the commission has been tasked to investigate, but has the role of politically streamlining and keeping an overview of the subject or problem and ensuring that lobbyists and other interests groups do not dominate the commission’s work. The practical work is often directed by the designated secretary, who therefore has a significant influence on the commission’s work.\textsuperscript{111}

In historical scholarship, SOUs have only recently begun to be regarded

\textsuperscript{111} Meijer, Från uppslag till betänkande, 27.; Eklöf, Gene Technology at Stake, 18.
as source material for historical inquiries. The SOUs are interesting in that they provide a distillate of the current dominant political viewpoints of a subject or political problem. In many cases, invited members such as academics, engineers, architects and industrial representatives in the commissions can also be treated as system builders in that they exert a profound power over the political direction of a certain technical question, and are capable of introducing large-scale political reforms and new technology under the flag of rationalism and economic effectiveness.

However, in Swedish historiography, these personalities, acting in the political sub-fields just below the parliamentary level have often been described as reform technocrats, a group of experts said to have dominated Swedish policy-making for most of the Cold War era. The term reform technocrats has usually been associated with the post-war period, but as this dissertation suggests, their presence in the political landscape can also be extended back to the 1920s and 1930s. The term is very similar to Hughes’ concept of the system builder, the only difference being that it focuses less on the entrepreneurial aspects of the key actors. While Hughes stresses, for example, the ability of system builders to produce both systems and markets, Lundin and Stenlås emphasize the reform technocrats’ political-ideological motivations. The Swedish commission of inquiry system can be said to be the perfect hunting ground for the reform technocrat in this sense, since it allows experts, lobby groups and other politically-motivated personalities to shape parliamentary


113 See the introductory chapter in Lundin, Stenlås and Gribbe, Science for Welfare and Warfare, 9–11; See also chapter 8 Vandendriessche, Peeters and Wils, Scientists’ Expertise as Performance, 135 onwards. A similar argument concerning expert rule or the “expert state” in Great Britain can be found in Smith, “Architects of Armageddon.”

114 For example, Lundin and Stenlås emphasise the reform technocrat’s motivation as being grounded in a “belief in the necessity of an active state reforming society”. Vandendriessche, Peeters and Wils, Scientists’ Expertise as Performance, 145; in comparison, Thomas P. Hughes emphasises the entrepreneurial and financial sides of “system builders” in the USA: “Edison provides a prime example of an inventor-entrepreneur. Besides inventing systematically, he solved managerial and financial problems to bring his invention into use.” Bijker, Hughes and Pinch, The Social Construction of Technological Systems, 51.
politics. Since there are few economic incentives that guided the key actors in this dissertation (in this regard, I have Kjell Magnell and Torsten Nothin in mind), the reform-technocrat concept has been easier to use. It should, however, be mentioned that the difference between the two concepts is mostly semantic in this particular context, and that the system-builder perspective can sometimes be fruitful since it is a concept that agrees with another set of concepts within LTS, while the reform-technocrat concept is in theoretical solitude, so to speak.

A key aspect to understanding the reform technocrats’ roles and their connections to the SOUs is also through the network of volunteer and lobbying organizations of the era of inquiry. Historical network analyses have become increasingly common in the STS field of the historical sciences. In the Nordic STS field, a group of scholars has investigated network relations between research councils, politicians and their parties, industry and engineering sciences, universities and lobbying organizations, giving rise to new historical construction concepts such as the “network engineer”, “developing pairs” and “knowledge intermediaries”. However, while this field contains multiple theoretical strands, this dissertation uses the network concept as the object of historical inquiry solely in the historical-empirical sense.

For example, one of the foundational arguments in this dissertation will

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115 See the introductory chapter in Lundin, Stenlås and Gribbe, Science for Welfare and Warfare, 15–16.; See also Vandendriessche, Peeters and Wils, Scientists’ Expertise as Performance, 138–139.


118 Hasselberg, Petersson and Andersson, Bäste broder!, 50–51.; Hasselberg et. al, refers here to Mary Rose’s study of American entrepreneurs and network relations during the eighteenth century as an example. See Mary B. Rose, Firms, Networks and Business Values: The British and American
revolve around the networks of technical and engineering experts, military intellectuals and politicians, and how these network relations can be found in the subsequent commissions of inquiry. These networks will be treated as the arenas within which the reform technocrats moved.

Subsequently, the empirical chapters that concern the political setting have been structured around two principles: On the one hand, the SOU as a key document in forcing change in the parliamentary politics setting; on the other hand, the individuals – system builders or reform technocrats – who guided the commission’s composition and the network relations from which they stemmed.

2.4.2. Press material databases and media materials

Lastly, a large part of the source material for this dissertation comprises daily newspapers. Through database searches (www.tidningar.kb.se) for keywords such as aerial protection, air raid shelters, gas protection and gas shelters, plus different variations of such words, from the early 1920s to the late 1940s, I have obtained an overview of how these topics were generally discussed in the Swedish press landscape. By studying the press, it has been possible to further identify individuals from other fields who surfaced in the public sphere, as well as follow the kind of shelter experiences that were imported from other countries and mediated to the general public. This has been pivotal in understanding what part of aerial protection and air raid shelters the editors and journalists in contemporary Stockholm deemed interesting for the general public. Interest in these matters quickly developed from 1934 to 1935 onwards and then dwindled significantly from 1940 and 1941. The mass of material on air raid shelters and aerial protection in general indisputably peaks in 1940.

The material is vast, as could be expected, and in order to delimit the press material, the dissertation mainly discusses the newspaper Dagens Nyheter. Dagens Nyheter remained liberal during the interwar era. It was neither pacifist nor militaristic in regard to the question of national defences – two political parameters that greatly affected how contemporary politicians interpreted the use and meaning of air raid shelters. Moreover, the few editorials concerning aerial protection politics during the time frame also suggests that the political stance of the newspaper can be summarized as accepting, but still sceptical. This allows Dagens Nyheter to represent the middle ground of aerial protec-

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tion politics, meaning that it is not perhaps always perfect, but is at least an acceptable choice of source material.

Secondly, *Dagens Nyheter’s* strength is that out of all Swedish newspapers indexed in the Royal Library’s newspaper database, it is one of three that has the most references to air raid shelters and similar topics. According to the database (as of August 2018), in 1940, *Dagens Nyheter* had about 1,229 references to air raid shelters, while the second and third newspapers, *Svenska Dagbladet* and *Aftonbladet*, had 1,045 and 860, respectively. These are rough figures, and it could simply be that *Dagens Nyheter* had more apartment ads than the others. Nevertheless, it shows that *Dagens Nyheter* was one of the largest media platforms for air raid shelter news and articles.

Moreover, *Dagens Nyheter* was not only the largest national newspaper at the time, it was also a Stockholm-based newspaper. Keeping Stockholm in focus is important in regard to the topic of this dissertation. In accordance with the contemporary aerial warfare doctrine during the interwar era, the capital city of a nation was the most vulnerable target for a potential enemy and the most likely location to be bombed in an initial attack. Naturally, the first attempts to solve the problem of civilian protection began in Stockholm, which also reverberated in newspapers at the time, such as *Dagens Nyheter*. As a last note, it should also be mentioned that, in some cases, material from other newspapers has also been included, most notably from *Svenska Dagbladet*. This is to ascertain that the interpretations of *Dagens Nyheter* were not entirely removed from what the other newspapers wrote and, in some cases, to include other relevant contemporary material in parts of my analysis. However, for structural reasons, *Dagens Nyheter* still remains the primary source material for most of the chapters based on press material. Unfortunately, it has not been possible to fully study the social-democratic *Stockholms-Tidningen*, which would have been valuable. *Dagens Nyheter* and *Svenska Dagbladet* are both available online and on microfilm in Umeå. *Stockholms-Tidningen*, however, is not available in either format and has therefore not been accessible to me.
3. From concrete bunker to basement shelter

At present day, the civil population and its dwellings are drawn into the vortex of total war. This is becoming more and more obvious, and we regretfully contend that it is so but cannot deny that this has been the case since time immemorial. Cavemen chose their hideouts for protection from the elements as much as they did for protection from their enemies amongst animals and humans alike.

Gösta Smitt ”Staden som fortifikation”
Tidskrift i Fortifikation, 1944.119

Air raid shelters usually portend a civilian history, or perhaps are better described as a history of the militarization of the civilian. However, the air raid shelter seen as an entity, comprising multiple converging technologies, should, as the author quoted above suggests, be understood as a continuation of the history of fortifications. The focus of this chapter is the turn from military fortification to civil air raid shelter. Among historians, this connection has not really been discussed in depth, even if histories of renaissance and premodern fortification strategies have been eager to discuss the urban environment as a type of fortress itself. In the book Fortifikation 350år (1985), one of the authors, Leif Törnqvist, in “Befästningskonstens utveckling” [“The development of the art of fortifications”] easily accepted older forms of fortification as a type of urban planning or architecture, but did not consider civilian aerial protection to be a return of this role after a century-long interval during the nineteenth century.120 In a modernized history of fortifications and architecture from

120 Törnqvist mentions that the civil population eventually also needed protection, but failed to state
2013, this delimitation was still present when Johan Mårtelius edited the book *Att bygga och befästa*. Also, the British historian, Jeremy Black, in his *Fortifications and Siegecraft* from 2018, also refrained from discussing the air raid shelter as a type of fortification, or, for that matter, as an example of a return of the fortified city during the Second World War. Although considering the introduction of aerial warfare, he do not mention the changes for those who were on the receiving end.

For some reason, these authors have tried to make a clear distinction between the history of fortifications and the history of civil defence during the twentieth century – and I am not very comfortable with this. The difference between the words *bunker* and *air raid shelter* (or “X” shelter) is illustrative of this divide. While in terms of the technical basis of their form, the two words have much in common, we tend to talk about them as two genuinely separate things. While the bunker has a heavy military connotation, the shelter is understood more as something that is civilian.

The following chapter will try to close the gap between bunker and shelter by looking at how Swedish fortification officers handled the bunkers transition from the military sphere to the civilian sphere, thereby providing an example of the influence and importance of the connection between the military sphere of fortifications officers, their intellectual debates, and the civilian urban environment during the interwar period. It attempts to explain what the shelter borrowed from the *bunker* and all the problems that the transition involved, by showing how ideas, in terms of practical technical solutions, as well as a military mindset, were transferred from one end to the other, as well as how socio-cultural aspects shaped the outcome during this process.

More specifically, this chapter aims to study three military authors who significantly influenced the development of aerial protection and air raid shelters in Sweden, namely, the fortification officers Hugo Jungstedt (1854–1936), Emil Fëvrell (1884–1959), and Kjell Magnell (1896–1985) and the intellectual contexts within which they worked up until 1937, when the air raid shelter as a concept began to solidify. The latter, Kjell Magnell, will be particularly in focus since he produced a couple of articles during the interwar period that


121 Mårtelius och Ericsson Wolke mentioned sheltered headquarters and a few of the large-scale population shelters built during the Cold War in this book, but also omitted any discussion about their emergence or role. Johan Mårtelius and Lars Ericson Wolke, *Bygga och befästa: svensk försvarsarkitektur under fyra sekel* (Stockholm: Arkitektur ;, 2013), 198–199.

122 Black, *Fortifications and Siegecraft.*
greatly influenced what would later become Sweden’s air raid shelter system. It can be argued that Magnell’s model, “Byggnadsteknisk luftskydd” [“Construction-Technical Aerial Protection”] was a synthesis of many contemporaneous processes that were at work throughout the period, of which much can be gleaned from ideas from the military fortification branch and its advocates. This is also a process that developed on a step-by-step basis. To a certain degree, these authors can be interpreted as building on each other’s ideas, or, for that matter, while being aware of a predecessor’s mistake, the next author could try to approach the problem from a different angle.

The chapter will be structured according to the following logic: The first part of the chapter will discuss a set of contemporary niche developments that provided an important context for the development of aerial protection and air raid shelters. I will discuss some of the practical, technical and organizational developments that occurred before and during the First World War that provided the technical and conceptual basis for civilian air raid shelters, as well as the influence of two major military doctrines, total war and Douhetism, and how they influenced military thinking during the interwar period. In relation to these trends, I will also discuss the association Föreningen för Stockholms fasta försvar, FFSFF [“The association for Stockholm’s Permanent Defences”] and its journal Meddelanden as a sub-political interest group and how they relate to the previous sections. In the second part, the chapter discusses three fortifications officers who worked with and within these niche contexts, and through their writings show how the idea of aerial protection and air raid shelters developed during the period in accordance with the changing political landscape of the interwar period.

3.1. From bunker to shelter

3.1.1. Artillery and bunkers up to the dawn of aerial warfare

Before the First World War, the typical bunker was a type of fortification that was connected to permanent artillery guns in, or close to, large forts or along coastlines in strategic positions. Their emergence in the landscape was mainly the result of a change in artillery technology. During the 1880s, artillery guns became significantly more effective with breech-loaded, rifled gun barrels, recoil reduction and rapid-firing mechanisms, improving both range and accuracy.123 New ammunition designs, shells and the explosive materials in

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the shells also increased their explosive power and accuracy. This new generation of artillery guns had important effects on the fortification designs of the late nineteenth century and were something of a game changer in warfare and fortification strategy. In terms of fortification design, the significantly longer range and higher ballistic trajectory made fortifications officers more mindful of the vertical dimension of fortification. Military positions needed to be properly roofed, camouflaged, or simply moved underground to achieve full cover, since projectiles were now coming from above rather than laterally, as had been the case since the emergence of gunpowder projectiles in Europe during the sixteenth century. In other words, the artillery caused the military to mind their heads in a new way, eventually forcing fortification designs to move underground. The idea of a “skyddsrum” [“shelter room”] for soldiers and officers, which would eventually become the term used for civilian air raid shelters, was born in this context.

During the second half of the nineteenth century, this new way of designing stationary military positions was also moved to the front lines to meet similar demands from infantry soldiers. Digging trenches was a way of reducing artillery exposure, but in the long-term, soldiers and officers also needed relief. Underground concrete bunkers turned out to be one of a few useful solutions to the new long-range artillery in this respect. Trench warfare also forced officers and soldiers to remain in the same positions over extended periods, which led fortifications officers, in both Europe and in Sweden, to discuss the possibility of providing reinforced protection during periods of rest and leave, a role that the underground personnel bunker could easily fill. Commanding officers also needed protected command and control rooms from which to work. Since the long range of fire depended on on-site reconnaissance,
camouflaging these positions also became increasingly important. A spotted target could now be easily destroyed by long-range fire. Similarly, gas grenades were introduced during the First World War, causing military strategists to consider how to make airtight quarters for officers and soldiers, thereby making concrete bunkers not only a covered underground environment, but also a hermetically sealed one.\textsuperscript{132} The military elaborated with mechanical ventilation and air pressure to cope with gas leakage at an early stage. Another strategy was to position bunkers inside hills on which gas would fall away from and disperse downwards.\textsuperscript{133}

Thus, when aerial warfare was introduced during and after the First World

\textsuperscript{132} See, for example: "Till följd av den alltmera utöka användningen av gasgranater hava särskilda anordningar mäst vidtagas till skydd emot gaser". G. B-le. "Skyddsrum i ställningskriget", Tidskrift i fortifikation (1921), vol. 21, p. 88; also P. H. Enger, "Gasskyddsrum i fältbefästningar" Tidskrift i fortifikation (1929), vol 29. p. 33–39.

\textsuperscript{133} Carlsson and Runnberg, Fortifikationen 350 år, 226–227.
War, the vertical dimension had been considered for some time by the fortifications corps, and a set of technical measures and methods such as bunkers and gas-tight quarters had already been in use. Therefore, from a defence

Figure 19: Bunker design presented in the journal of fortifications, from 1921. Here, the bunker was used as a machine-gun nest with an underground tunnel. The vertical dimension was more sensitive than the front. The concrete roofing measures were one metre, whilst the front measures were 0.8 metres. Original article by G. B-Le "Skyddsrum i ställningskriget", Tidskrift i Fortifikation (1921), p.93.

Figure 20: Cut-away image depicting the Maginot Line built between 1930 and 1934. The Maginot Line is an example of how First World War warfare and the development of long-range artillery changed the fortification branch’s models and ideas. Image from Carlsson and Runnberg, Fortifikationen 350 år, 226.

War, the vertical dimension had been considered for some time by the fortifications corps, and a set of technical measures and methods such as bunkers and gas-tight quarters had already been in use. Therefore, from a defence
fortifications perspective, the introduction of aircraft and Zeppelins into First World War warfare did not cause a radical change in strategy. During the First World War, aerial warfare rather reinforced an already existing trend of considering verticality in fortification design and camouflage, in which bunkers had been the key technical measure to use.\textsuperscript{134} However, the emergence of aerial force extended the range of fire, meaning that war zones were becoming increasingly larger and structures that had previously been thought to be safe deep within the territory, now needed to be bunkered.\textsuperscript{135}

To some extent, the use of long-range artillery also spurred this development, but would eventually fall short. The massive German gun used in 1918, known as the “Paris Gun”, so large it had to be mounted on railway wagons, could fire shells at a distance of 130 kilometres, striking the city centre of Paris with ease from a safe distance.\textsuperscript{136} This gun were responsible for around one half of the approx. 1,500 civilian casualties in Paris during the German bombardment from 1914 to 1918.\textsuperscript{137} Although a powerful propaganda tool, the Paris Gun was deemed ineffective after the war and, in the long term, could not compete with the distances achieved by aerial forces. For the military this had been the main concern in regard to civilians since the bombardment of Paris during the Franco-Prussian War of 1870–1871. Some of the first civil rights treaties, such as the first Hague Convention on the Rules of War in 1899, were primarily concerned with civilian bombardment caused by land-based or naval artillery. So were the military intellectuals in Sweden discussed in this dissertation, such as Hugo Jungstedt, up until the start of the First World War.\textsuperscript{138} Thus, the

\textsuperscript{134} Black, Fortifications and Siegecraft, 214.; See also Kinard’s discussion about the development of medium and heavy artillery during the First World War. Massively fortified positions were a common feature at the turn of the century. Kinard, Artillery: An Illustrated History of Its Impact, 256.

\textsuperscript{135} See, for example, Black’s discussion on submarine pens and the underground industry in Black, Fortifications and Siegecraft, 233.

\textsuperscript{136} Kinard, Artillery: An Illustrated History of Its Impact, 257.


\textsuperscript{138} Multilateral treaties and peace conferences were something that had concerned Jungstedt for some time. So when the radical tone of the late 1920s dominated, he was well prepared to meet them. As early as 1910 he wrote about the bombing of the city of Kimberley during the Boer War and reflected on the civilian population’s perils as they were bombarded by a new English artillery gun called Long Cecil, a huge gun named after Cecil Rhodes and with a range of several kilometres. Hugo Jungstedt, “Kimberley under det stora boerkriget, såsom exempel på en improviserad fästning”, Meddelanden från Föreningen för Stockholms fasta försvar, (1910) vol. 11. p. 45; In another article from 1916, based on a lecture he gave, Jungstedt introduced the readers to civilian artillery bombing from the seventeenth century up until 1915, as well as offering his views on the current discussions of bombardment restrictions that had been signed in The Hague in the previous decade.
The introduction of aerial protection and vertical air-mindedness was not solely connected to the introduction of aerial forces, but was rather the result of a number of converging development lines, of which the evolution of artillery dominated for a very long time.

The new artillery guns also demanded new materials to be used in fortifications because of the higher explosive power of new grenades, which also caused a radical and important change. Earlier masonry techniques based on stone slabs, bricks and earth could no longer suffice, which meant that fortifications made of armour and reinforced concrete, often combined with bedrock tunnels saw increased use during the nineteenth century.

Especially revolutionary was the use of so-called ferro concrete, which was patented in 1892, currently more known as reinforced concrete, comprising a mixture of cement, sand and gravel, reinforced by steel sheets.\(^{139}\) This material

Notably, it was also the emergence of new forms of artillery that led him to this conclusion, not aerial warfare. Hugo Jungstedt, "Om bombardering af städer och orter ur folkrättslig synpunkt" (1916), Meddelanden från föreningen för Stockholms fasta försvar (1915), vol. 20. p. 27-29.

\(^{139}\) Black, Fortifications and Siegecraft, 202.; Carlsson and Runnberg, Fortifikationen 350 år, 35–41.
would eventually prove to be so effective that the concrete fortifications built during the Second World War era could barely be destroyed at point-blank range. Many of them, such as the German Atlantic Wall, built during the Second World War, and the submarine pens in France, still remain today (in some cases, the concrete roofing is seven metres thick), partly because of the immense effort required to demolish them.\footnote{Black, Fortifications and Siegecraft, 225, 233.; See also Gordon Williamson, Under sju meter betong: det tyska ubåtsvapnets bunkrar 1941-1945 (Stockholm: Svenskt militärhistoriskt bibliotek, 2014).}

In the Swedish context, concrete as a material was also discussed in detail by a series of authors in the *Tidskrift i fortifikation* from the late nineteenth century onwards, showing its impact on the military engineering environment.\footnote{The use of cement, steel and ferro concrete was discussed frequently in *Tidskrift i fortifikation*, from the late 1870s onwards, but with higher intensity after the turn of the century. See, for example, C. J. B. "Om beton och dess användning inom fästningsbyggnadskonsten", (1908); H. Enger, "Järnbetong och dess användning inom krigsbyggnadskonsten", (1914); S. Rst. "Betong och befästningar", (1916); G.R."P. M. angående betongblandningar", (1918). All articles found in Tidskrift i fortifikation.}

Along the Swedish coastlines concrete bunkers were placed beneath or close to artillery batteries for ease of access and protection from return fire.\footnote{Carlsson and Runnberg, Fortifikationen 350 år, 42–43.} Larger forts such as Boden Fortress in Northern Sweden and *Oscar II’s fort*, outside Gothenburg, on the western coast, were also constructed on the principles of the triad of ferro concrete, bedrock tunnels and armoured steel.\footnote{Black, Fortifications and Siegecraft, 222.; Carlsson and Runnberg, Fortifikationen 350 år, 41–42, 65–67.} Towards the Second World War, in a way that resembled Hitler’s Atlantic Wall, Sweden also invested heavily in a ferro-concrete bunker defensive line called the Per Albin Line along the western, southern and eastern coastlines.\footnote{Carlsson and Runnberg, Fortifikationen 350 år, 227–228.}

A few editions of the fortifications branch’s own journal, *Tidskrift i fortifikation*, illustrate the impact of these developing lines in the Swedish context. In this journal a number of authors discussed techniques of building and equipping bunkers, or “skyddsrum”, as they were known, adding supportive technologies, as well as discussing different categories depending on their use. Different methods of concrete casting were also discussed, sometimes in combination with tunnelling.\footnote{See, for example, Sven Ericsson, “Torrläggning av bergtunnlar”, Tidskrift i fortifikation, (1926), vol 26, p. 71-72, 97-105.} The quintessential problem that needed to be solved was primarily the protection against artillery for military personnel. However, there are also examples that discuss the protective measures against
aerial bombardment and, as the 1920s progressed, concerns were also voiced about bombing raids against civilians.\textsuperscript{146}

Some of these articles also showed that the difference between civilian and military forms of fortification was mostly semantic, at least when considering the interior of the bunker. For example, in the article “Skyddsrum i ställningskriget” [“Bunkers in Trench Warfare”] from 1921, the above problems of artillery and gas warfare were addressed in detail with comparisons and different design proposals, eventually leading to a design that foreshadowed the civilian types, including sealed entrances and mechanical ventilation.\textsuperscript{147}

A difference, however, was the outer layer. Echoing the contemporary fear of high accuracy long-range artillery, this author argued that bunkers would have to be capable of resisting the fire that preceded infantry attacks. Thus, a thick layer of concrete or bedrock, at least one and a half metres, should provide sufficient protection from the enemy’s artillery guns. Moreover, the bunker had to be difficult to locate, including during construction. While these considerations on the outer layer of bunkers would take another form for air raid shelters, since aerial bombardments could not be aimed in the same way, the interior was essentially the same. Most importantly, however, the author placed a lot of emphasis on the permanent characteristics of the bunker and the need for creating a liveable underground environment. Protection from bombardment was not enough, he noted. A crew that was not engaged in battle must also be able to enjoy a much needed rest. Thus, the bunker must be equipped to provide a healthy and comfortable environment to the highest degree possible for passive personnel as well. Subsequently, a whole series of technical measures were added and discussed regarding the bunker’s interior. This included ventilation, heating, lighting and furnishing.

Another author in the same journal also distinguished bunker types from their actual uses and through this process presented a classification of outer protection that resulted in a type of bunker that foreshadowed the civilian air raid shelter. The author presented three categories: “Stridsrum” [Combat bunkers], “Bostadssrum” [Living quarters], and “Förrådsrum” [Storage rooms]. A typical Stridsrum was part of the active forward front line, equipped with a machine gun and placed on a hill, with a tunnel from the other side, and with a concrete bollard at the front, since this type of bunker would be vulnerable to artillery fire. The storage rooms had to be placed further back from the

\textsuperscript{146} Justrow, “Konstruktion och verkan av flygbomber” Tidskrift i fortifikation. (1927), vol. 27, p. 266–268; also Wabnitz “Ryska åsikter beträffande byggnadstekniska åtgärder till skydd av städernas befolkning mot lufatanfall”, Tidskrift i fortifikation (1927), vol 27, p. 269-276.

\textsuperscript{147} G. B-le. “Skyddsrum i ställningskriget”, Tidskrift i fortifikation (1921), p. 77-93.
front line and could be increased in size as the distance from the front line grew. The living quarters, less likely to be hit, were placed slightly further back or close to the front line. These quarters would maintain a certain standard of living so that the crew could rest passively and “undisturbed” by the ongoing battle.

This type of bunker resembled the air raid shelter in that it did not demand full protective concrete coverage, but still had to contain a series of technical amenities to remain functional. While these types of bunkers were connected with trench and frontline warfare, they showed that underground structures aimed at providing passive protection, with intricate and technologically-augmented interiors, were established before the full introduction of the aerial dimension of warfare. These ideas were primarily developed in response to increasingly accurate and powerful artillery fire.

3.1.2. From front line to urban underground

Although effective from a protective perspective, an innovation like the bunker could not readily lend itself to urban transfer. An open field, a forest or a mountain pass provided many opportunities to build underground bunkers in a military context, but the urban environment did not necessarily offer such opportunities in the same way. A city’s shape, topography and geographical position could also cause problems. As the aerial dimension extended the range of fire, a discussion emerged about which design philosophy would provide the best defence. What urban spaces could be fortified? Where could civilian bunkers be built? Authors discussing the plight of the civilian had several proposals for these questions and, in the end, a range of solutions was also introduced throughout the interwar era, as well as during the Second World War and beyond. To a certain extent, the question of the ideal location for air raid shelters has still not been completely resolved. Bosma argued that the interwar era’s design debate adopted two positions: one which argued that the air war had to be met by reinforcing the city above ground, while others argued that utilising the city underground was the most viable solution.

Thus, proposals during the 1920s and 1930s varied greatly along the vertical axis, but also in scale, from individual personal protection to large-scale urban

planning. German gas warfare specialist Rudolf Hanslian’s book on chemical warfare, *Das Chemische Krieg*, from 1927, included proposals regarding the construction of hermetically-sealed stairwells with air vents for ventilation, thus focusing on individual buildings above ground. In other countries that were closer to the Second World War, a common way of building air raid shelters was to fortify a specific room, so called “refuge rooms”, digging a covered trench in the garden or erecting small public air raid shelters in the streets for the locals to use. The British “Anderson” and “Morrison” shelters, for instance, have become famous symbols of the British way of coping with

Hanslian’s ideas stemmed from the Russian sphere. The writer Ivan Pauli discussed Hanslian’s book in 1929, through articles and books, and also discussed the idea of stairwell shelters and underground gas shelters while referring to “the Russian Pawlow”. The identity of this Russian author remains unknown. See the chapter “Luftkrig och gasskydd” in Stig Holm, ed., Krig eller kultur (Stockholm: Tidens, 1929), 31–33. Also, Social-Demokraten, 5/2, 1929, “Gasskydd för civila”. See also Dr. Rudolf Hanslian, *Das Chemische Krieg* (1927). The Swedish fortifications officer, Emil Fevrell, also approached these ideas in 1928, arguing that the Russians were pioneering civilian aerial protection with the authors “Pawlow” and “Koshewikow”. See the article “Gasstrid och gasskydd särskilt med hänsyn till den civila befolkningen”, Meddelanden för Föreningen för Stockholms fasta försvar (1928) vol. 33 p. 31.

Figure 22: The famous Morrison shelter shown here with a couple sleeping in it. Early on, British experts understood that one of the greatest hazards were roofs collapsing onto inhabitants. Thus, this kind of shelter was designed to offer protection from a collapsing building. Similar to the Anderson shelter, these shelters were also subsidized by the state. The Morrison shelter could be converted into a dining table. Wikimedia commons, Public Domain. https://commons.wikimedia.org.
aerial warfare in these peculiar ways. The Morrison shelter was more or less a steel cage placed somewhere in the middle of a house and functioned as a small reinforced personal protective space. The Anderson shelter was a basic family-sized garden shelter, partially buried in the ground and with corrugated steel for a roof. In many ways, these shelters resemble the American-style family-sized fallout shelters that were popularized during the Cold War. Variations of small-sized personal shelters flourished during the interwar era from steel bells to concrete spheres.

Figure 23: Concrete sphere-type air raid shelter seen in Uppsala, Sweden in 1949. These spheres were displayed to the public at the LSF’s aerial protection exhibitions and are one of many designs that were in circulation during the late 1930s. This smaller air raid shelter would find new markets in the USA during its fallout shelter craze from 1960 to 1962. Photo by Gunnar Sundgren. ID: GS06298. CC-BY-NC-ND. https://digitaltmuseum.se.

See chapter 1 in Wade, Air Raid Shelters of the Second World War; Bosma, Shelter City, 64–65.; For a discussion on the American Cold War fallout shelter, see Rose, One Nation Underground.
Other attempts were on a larger scale and, in such cases, the dichotomy between above and below is more evident. Building on Douhet’s ideas, in 1927, the Italian Alessandro Romani suggested that cities needed to be cast fully in concrete, with rounded domes as roofs to deflect falling bombs, thereby suggesting a fortified city rather than venturing underground.\(^{153}\) His ideas did not gain popularity. However, Hitler would eventually adopt a similar approach with the \textit{sofortprogramm}.\(^{154}\) During the \textit{sofortprogramm}, the Nazi state produced thousands of above ground large-scale concrete fortresses to protect urban civilians. In some cases, these buildings would try to imitate the surrounding architecture and were therefore a literal fortification of the existing urban environment.\(^{155}\) Some of these massive structures were also armed.

In Berlin, Hamburg and Vienna, the Germans built so-called “flakturm”, or flak towers in English, combining active and passive aerial defence in one huge concrete tower. These towers could accommodate over 10,000 civilians, including medical staff, as well as anti-aircraft artillery on the roofs.\(^{156}\) At the same time, the British developed ideas regarding massive buried underground cylinders, such as the architect Ove Arup’s Finsbury Deep Shelter, with space for some 12,300 persons. These underground shelters were to be built as circular cylinders comprising multiple storeys and including medical services, electric generators, mechanical ventilation and staff.\(^{157}\) At an early stage, the metro systems of European metropolises were also regarded as being potential protective spaces by the French, British and Germans alike.

Also, an influential idea was that the city’s shape should be redefined in order to render air raids ineffective. The German engineer, Hans Schoszberger, and his idea of “linear” cities were highly influential at the time and were an example of this mindset in the architectural sciences.\(^{158}\) In other words, the adoption of civilian urban environments to combat aerial defence was not an easy task and spurred a variety of creative solutions, many of which failed to deliver, or never caught on for other reasons, while others became long-lasting symbols of resistance and survival.

For Swedish military authors, however, at an early stage of the interwar era, the basement emerged as the most viable urban space to be used during

\(^{153}\) Bosma, Shelter City, 39.
\(^{154}\) Bosma, 110–112.
\(^{155}\) Bosma, 116–120.
\(^{156}\) Steneck, Everybody Has a Chance, 77–78.
\(^{157}\) Bosma, Shelter City, 40.; See also chapter 9 in Haapamäki, The Coming of the Aerial War; Cohen, Architecture in Uniform, 166–169.
\(^{158}\) Bosma, Shelter City, 41.; see also Cohen, Architecture in Uniform, 147–150.
Figure 2.4: A Flakturm in Hamburg in 1945. A massive concrete structure. Judging from the surroundings, it was one of the few buildings to remain intact after the war. Each corner had anti-aircraft batteries. These modern-day castles could supposedly house up to 10,000 civilians during an air raid. Some of these buildings still remain to this day. Wikimedia commons. Public Domain. https://commons.wikimedia.org.

an air raid. The basement had the advantage of being an already available urban space; it provided some material distance between a roof and an air raid shelter, and it did not require the inhabitants to leave the building for another location during an ongoing raid. Inspiration for this was primarily gleaned from Paris and London during the First World War, but there were also early ideas from the Russian sphere, aimed at the reinforcement of already existing urban structures, instead of the addition of new structures. During the German bombing raids on Paris and London in 1915, the aerial defences were mobilized ad hoc with anti-aircraft batteries and a variety of camouflage techniques, such as blackouts and fake buildings.

However, regarding the population, minimal aid was available other than recommendation that the inhabitants should hide. Policemen were commis-

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159 See, for example, Ed. “Ryska åsikter beträffande byggnadstekniska åtgärder till skydd av städernas befolkning mot luftanfall.” Tidskrift i fortifikation (1927), vol. 27, p. 269-276.
sioned to patrol the city on motorbikes with whistles to warn of imminent raids. Londoners, in turn, were to use their basements or underground railway stations. The eventual success of aerial defences in warding off the German attacks was not attributed to such tactics, as they would subsequently be. However, with these recommendations in London, the idea that the underground space of the urban environment offered some relief in the new aerial warfare setting was established.\textsuperscript{160}

In Paris, the attempts were more elaborate, and as an early stage something that could be described as an air raid shelter system was implemented, which also inspired military authors in Sweden.\textsuperscript{161} Like London, the Parisian urban basements became central to this notion. According to an article written in 1924 by the Swedish fortifications officer, Hugo Jungstedt (who is presented in more detail below), the Parisian police had designated 15,000 shelter basements during the First World War.\textsuperscript{162} These were ordinary basements in public and private buildings that the police had inspected and consequently placed shelter signs on, outside the doors.\textsuperscript{163} Although the basement tactic was heavily criticized by the Parisians and was regarded as undermining the citizens’ morale during the war, this method was praised in the Swedish context as an exemplary method of achieving personal protection.\textsuperscript{164}

During the interwar era, ferro concrete was also increasingly used in urban construction, spurring technical refinement and industrial support for future military fortification projects, and eventually providing a link between military and civilian forms of protection and architecture. From the turn of the century onwards, reinforced concrete was used in a variety of civilian urban architecture


\textsuperscript{161} The French aerial protection system of the First World War is an under-researched phenomena, but a number of references to it can be found in Grayzel’s “‘The Souls of Soldiers,” 604–607.


\textsuperscript{163} The owners were forced to provide lighting and seating and each shelter had to have at least two entrances. This also created health issues. From both London and Paris, it was reported that the damp and hostile basement and underground environments caused respiratory diseases and eventually death, which they argued should be put up on the German air raiders account.

\textsuperscript{164} Hugo Jungstedt, “Luftförsvar och dess betydelse särskilt för större städer”, Meddelanden (1924), vol. 28. p. 35; Grayzel argues that the Parisian air raid shelters were a contested solution, see Grayzel, “‘The Souls of Soldiers,” 607.
and also became the foremost material used in modern construction globally.\textsuperscript{165} Portland cement had been used in both civilian and military infrastructure projects such as roads, bridges, airports and sewage pipes in civilian projects since the late nineteenth century, from which time there was also a growing concrete industry in Sweden. The first industry to produce Portland cement was established in the 1870s and the first modern concrete industry to produce ready-mixed cement for casting was established in 1932.\textsuperscript{166} At the turn of the century, most likely as a result of the Paris World Exhibition, Portland concrete reinforced with steel sheets was also introduced into Swedish building practices and subsequently revolutionized civilian construction, as it had on the military front. Its resistance to wear and tear was praised. Against fire in particular, concrete appeared to be fully resistant. From the 1920s onwards, Swedish architects also became interested in using concrete materials for apartment complexes.\textsuperscript{167} This new form of concrete architecture provided a link to the fortifications branch, since the new concrete buildings not only appeared to be fire resistant, but also virtually indestructible, thereby providing a viable civilian structure in which future air raid shelters could be built. The introduction of ferro concrete during the twentieth century was subsequently regarded as one of the most important contemporary niche developments that allowed the expansion of fortifications into the urban environment.

In sum, the emergence of the idea of a civilian air raid shelter during the interwar era was foreshadowed by a set of intersecting lines of development that had been in the making for several decades. Even before the onset of aerial bombardment, artillery had forced fortification work underground and the new building materials that transformed building practices after the turn of the century had made this a favourable venture. Trench warfare had provided the rationale for staying and living in these new structures, therefore requiring

\textsuperscript{165} For two important works on the introduction of concrete, see Amy E. Slaton, Reinforced Concrete and the Modernization of American Building, 1900-1930, Johns Hopkins Studies on the History of Technology (Baltimore: Johns Hopkins University Press, 2001); Adrian Forty, Concrete and Culture: A Material History (London: Reaktion Books, 2012).

\textsuperscript{166} Eva Rudberg, Folkhemmets byggande: under mellan- och efterkrigstiden (Stockholm: Svenska turistföreningen, 1992), 48–49.; Forty, Concrete and Culture.

\textsuperscript{167} For an overview of the introduction of cement and concrete in Sweden, see P. A. Lindahl, “Om betong såsom byggnadsmaterial”, (1916), p. 3-15; For the period 1912–1921, see Robert Mossberg, ”Svensk betongteknik under 10-års perioden 1912-1921” (1922); also see Harald Möller’s discussion on apartments and concrete, in ”En återblick på svensk betongteknik under åren 1922-1931, Svenska betongföreningens andra decennium” (1932), p. 164– 165. All articles found in the journal Betong Meddelanden från Svenska Betongföreningen.
the use of supportive technologies such as ventilation, heating, furnishing and lighting. Subsequently, the bunker concept had ripened significantly at the start of the 1920s and increasingly resembled the civilian air raid shelters of the Second World War.

However, the term “skyddsrum” that today connotes a civilian air raid or fallout shelter, was not yet understood in this civilian context. Instead, the term was equal to the English and German term “bunker”, which connotes a military function.\(^{168}\) In other words, at the dawn of the 1930s, the difference between a military bunker and a civilian air raid shelter was only a matter of semantics and, to a certain extent, a spatial issue. What bunkers needed was a suitable urban space in which they could be included. In the Swedish case, the experiences from Paris and London provided inspiration in this sense, and eventually the urban basement, combined with new concrete structures, would form the preferred space for the concept of air raid shelters. In their respective roles, each of these trends can be considered to be niche developments that together supported and forced protective structures such as air raid shelters to the forefront during the interwar era, and directed the ideas of interested authors and military officers in a certain direction.

### 3.2. Doctrines

The introduction of aerial protection measures for civilians, however, not only hinged on practical circumstances during the nineteenth century and the First World War. The shock of the First World War spurred a generational shift in military thought and all the European powers developed their military strategies during these years.\(^{169}\) Two warfare doctrines in particular to be introduced during the interwar era affected how the military, politicians and the public considered the civilian role in future wars: total war and Douhetism. These concepts shaped the technologies of aerial protection. Both concepts were born out of experiences from the First World War in the same manner as the bunker. While the previous section showed some of the technical circumstances that paved the way for Swedish air raid shelters, the idea of total war and Douhetism were the two major strains of thought that provided the motivation.

\(^{168}\) See, for example, the articles G. B-le. “Skyddsrum i ställningskriget”, Tidskrift i fortifikation (1921), vol. 21, p. 77–93; ”Notis: Skyddsrum”, Tidskrift i fortifikation (1927), vol. 27. p. 186–187.

3.2.1. Total War

The common interpretation and lesson of the First World War was that the outcome depended as much on the industrial capabilities of a nation as on its military planners and strategic considerations.\(^{170}\) Although the First World War started with the hope of a quick finish, the confrontation of the imperial powers gave rise to a slow and destructive war of attrition in Europe that resulted in zones of trench warfare with stabilized positions, with only nominal shifts in direction. When the fronts stabilized, the outcome of the war depended just as much on the processes outside the battlefield as on the actual field strategies. In order to continue the constant barrages, the armies required a steady supply of guns, ammunition and fuel at a level unprecedented in human history. During the First World War, a single German artillery unit used more ammunition than the whole Prussian army did during the Franco-Prussian War from 1870 to 1871.\(^{171}\)

There was also the strain on infrastructure and food supplies for mass-conscription armies. A nation’s industrial output of clothes, shoes, helmets, food and everything else that was required was also understood as being vital. To this can be added human resources in the form of conscripts and officers, as well as a large workforce at home manning the industries.\(^{172}\) Since this time this form of warfare has usually been described as “Total War” because of the seemingly total incorporation of the state into the war effort.\(^{173}\) A consequence of this new way of thinking about warfare forced civilians

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\(^{170}\) Johansson, Europas krig, 196.

\(^{171}\) Johansson, 191.

\(^{172}\) See Martin van Creveld “The Revolution of logistics” in Förster and Chickering, Great War, Total War, 65–66.; For a more thorough discussion on First World War logistics, see chapter 4 in “The wheel that broke” in Martin van Creveld, Supplying War: Logistics from Wallenstein to Patton (Cambridge: Cambridge U.P., 1997).

\(^{173}\) The term Total War and its standing in historiography is the subject of debate. There are two dominant interpretations by its respective authors: either the term can be analysed using the rationalist approach, stating that total war was introduced at some point during the revolutionary wars of the late eighteenth century, developed during the nineteenth century, and finally reached its climax during the Second World War, after which it gave way to a nuclear doctrine that was intrinsically different. The second, nominalist interpretation, however, emphasises that the term was only used during the interwar era and was a synthesis of ideas during that era only, and which had no analytical bearing either before or after, and can therefore only be used contextually. Regardless of what position is taken in this respect, the term is also analytically problematic in that it could potentially contain everything and nothing. Johansson, Europas krig, 226; See the introductory chapter in Förster and Chickering, Great War, Total War; and Chickering, Förster and Greiner, A World at Total War; Jeremy Black is similarly critical. See the introductory chapter in Jeremy Black, The
into the military-industrial apparatus in an entirely new way, and also made them targets, since an effective way of destroying industry was by attacking the civilian workforce.\textsuperscript{174} The importance of the civilian side of total war can be exemplified by the emergence of a new conceptualization, the \textit{Home Front}, showing the full expansion of the war zone from the fringes into the interior of the nation state.\textsuperscript{175}

Apart from their practical use in industries and administration, civilians were also regarded as being morally pivotal to the war effort at the front. Apart from the industrial aspect, there was also the psychological element to consider. Military strategists described the nation’s citizens as holding a moral component that would provide a sense of purpose for the military. This moral component was called the people’s \textit{Will of Resistance}. The idea stemmed from the authorship of the philosopher of war, Carl von Clausewitz – the idea of Absolute War – and became highly influential in warfare planning in the decades after the Franco-Prussian War of 1870–1871.\textsuperscript{176} The \textit{Will of Resistance} became the most important target for any military intervention to break and was also something that needed to be protected.\textsuperscript{177} This idea continued to be important in the decades after 1945 and is still currently discussed and investigated through the concept of “motståndsvilja”.\textsuperscript{178}

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\textsuperscript{174} See the chapter “From Cabinet War to Total War”, and “Strategic Bombing of German Cities” in Förster and Chickering, Great War, Total War, 24, 223–224.
\textsuperscript{175} See Christian Geinitz’ conclusion in Förster and Chickering, 224–225.; For a discussion on the British creation of the “home front”, see Grayzel, At Home and under Fire; Johansson, Europas krig, 195.; for a contemporary example of the discussion of the home front in Sweden, see Holm, Krig eller kultur, 10–12. See also Emil Frevell’s discussion of a ”People’s War” and the home front in 1927 in Emil Frevell, ”Fast luftförsvar samt riktlinjer för detsamma fördelning på stat, kommun och frivilliga organisationer”, Meddelanden från Föreningen för Stockholms fasta försvar, (1927) vol. 32. p. 100.
\textsuperscript{176} Johansson, Europas krig, 35, 39–41,44–45.; Keegan argues that Clausewitz’ idea of absolute war was the “ideological father” of the First World War. John Keegan, Krig och kultur (Stockholm: Natur och kultur, 2003), 43.
\textsuperscript{177} Keegan, Krig eller kultur.
The first significant evidence of the existence of this Clausewitzian concept became clear in the aftermath of the First World War. By blockading trade with Germany, the allied powers attempted to starve the German people into submission. To some extent they also succeeded. 800,000 civilian Germans were said to have died of starvation or related diseases during the four years of war from 1914 to 1918. The difficulties experienced by the German people led to severe political conflicts that eventually caused them to call for negotiations. Germany’s leading military officers, including the infamous commander Erich Ludendorff, (who also popularized the term total war), blamed the weak German people for the defeat. According to Ludendorff, the German people’s will of resistance had been too weak and consequently the military apparatus had been side-lined, and eventually fell because of political decisions and not because of the failure of the military organization. This idea, at least on the surface, appeared to have some relevance at the time.

The First World War had not ended with the ultimate defeat of the German army, nor the complete occupancy of the capital, but was rather the cause of internal political turmoil following the moral collapse of the civilian population. The Russian withdrawal from the war had a similar background. With this memory fresh in mind, the military intellectuals of the interwar period foresaw a battle of civilian and political “wills” in the next war and that the outcome of such a battle would be decisive. On a practical level, this meant that the protection and control of the civilian sector of the nation became a highly prioritized military concern. The “Will of Resistance” of the civilians would be critical; it might even be the only thing that could break the nation if not properly addressed and was therefore something that the military elite had to consider in its plans.

179 For an interesting discussion on the consequences of the British blockade on the German people, see Matthias Blum, “War, Food Rationing, and Socioeconomic Inequality in Germany during the First World War,” The Economic History Review 66, no. 4 (2013): 1063–1083.

180 See chapter 8 of “Sore Loser: Ludendorff’s Total War” for an interesting discussion on the popularization of the term “Total War” during the interwar era. See also chapter 9 of the German author Ernst Jünger in Chickering and Förster, The Shadows of Total War.

181 Johansson, Europas krig, 194–195; See also chapter 3 in Chickering and Förster, The Shadows of Total War, 60.; See Jill Stephenson’s contribution in Chickering, Förster and Greiner, A World at Total War, 207–208.

182 Further information about Clausewitz’ influences on Swedish military thinking can be found in Lars Ericson Wolke, Krigets idéer: svenska tankar om krigföring 1320-1920 (Stockholm: Medström, 2007), 283–284.

Consequently, for Swedish military strategists, it became important to scrutinize and eventually translate the idea of total war into practical policies and military strategies at home. Looking at the *Kungliga krigsvetenskapsakademiens handlingar och tidskrift* ["Journal for the Royal Academy of War Sciences"] from the early 1920s onwards, members of the academy and authors discussed both practical issues such as mobilization plans and preparedness, as well as the streamlining of Sweden’s industrial sector for war production, permanent embattlements in vulnerable zones and the incorporation of new arms branches. Authors now argued that embattlements had to be built during peacetime at strategic sites to protect either the infrastructure upon which the deployment of troops hinged, resources and industry, or ports and cities that were deemed pivotal in maintaining an inflow of resources or resistance in general. In line with total war, the military authors also discussed abstract and “soft” problems such as the psychological effects on politics and soldiers, propaganda, and the structure of military leadership.

In the long term, as this discussion crystalized during the interwar era, the term *total war* eventually gave birth to the idea of total defence as a doctrinal response, including four aspects deemed to be pivotal for any modern defence strategy: military defence, civil defence, economic defence and psychological defence. As the air force officer, Björn Bjuggren, stated, “no part of any country will be safe in the era of total war, and every individual must contribute to the defence effort: total war demands total defence”.

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184 One of the main actors in this dissertation, the fortifications officer, Kjell Magnell, was influenced by this mode of thinking and was an advocate of the need for preparatory work on fortifications. In 1928 he appears for the first time as an author in *Tidskrift i fortifikation*, stating the importance of pre-war mobilization and preparation, see Kjell Magnell, "Fortifikatoriska rustningarbeten vid permanenta lantbefästningar", in *Tidskrift i fortifikation* (1928), vol. 28, p. 81.

185 See, for example, a discussion of psychological defence in 1928 in "Krigspsykologien", *Kungliga krigsvetenskapsakademiens handlingar och tidskrift*, (1928), p. 9: "Då det är psykologisk verkan, som eftersträvas, är formen för våldet i och för sig av underordnad betydelse; våldets natur eller grad kan rättas efter motpartens andliga motståndskraft". The article also discusses the risk of “inbördes split” and propaganda during civil wars.

186 In 1942, Riksluftskyddsföbrundet med överstelöjtnant B. F. Bengtsson konstaterade att "Det totala kriget kräver det totala försvaret". Ingen del av ett land kan under det totala kriget vara helt säkert för anfall. Varje individ, som har krafter och möjlighet därtill måste på något sätt deltaga i det
total war lost its relevance over the course of the twentieth century in favour of other -isms, the term total defence still remains and has been re-invented in current Swedish military planning.\textsuperscript{187}

3.2.2. Aerial warfare and Douhetism

With the influx of the idea of total war during the interwar era, military planners expected that attacking or in other ways affecting the civilian would be in common use. Thus, the logic introduced by the idea of total war comprises the fundamental raison d’être for aerial protection and civil defence measures. However, during the First World War the possibilities of directly harming civilians was limited. The blockades and propaganda used in the First World War were indirect and blunt. The introduction of the strategic bombing of civilian urban centres was still a crude, expensive and uncertain affair in terms of effective gains.\textsuperscript{188} The rapid evolution of aerial technology at the end of the First World War and throughout the interwar period was responsible for producing a major change in this respect. The shock of the “materialslachten”\textsuperscript{189} on the Western Front also demanded new ways of making war more effective, eventually producing another -ism that made use of the seemingly unlimited potential of the aerial dimension.\textsuperscript{190} Aircraft manufacturers and engineers succeeding in constantly increasing the flying range, cargo weight, altitude and manoeuvrability of bomber aircraft throughout the First World War and even more so during the interwar era.\textsuperscript{191} If total war had provided the motif, aerial technology provided the means.

Although aerial warfare was first-hand induced by technological developments, it also caused reverberations in doctrinal thinking. During the 1920s, a wide array of literature was published concerning the new air war. In this

\textsuperscript{187} See the section “Totalförsvaret idag”, in Motståndskraft: Inriktningen av totalförsvaret och utformningen av det civila försvarst 2021–2025, 29.
\textsuperscript{188} Christian Geinitz argues that “Air raids admittedly were not decisive before World War II, but the heavy bombing of military, industrial and civilian targets originated conceptually in the Great War of 1914–1918”, in Förster and Chickering, Great War, Total War, 224.; for a discussion of the French experience during the First World War, see Grayzel, “The Souls of Soldiers.”
\textsuperscript{189} Quote from Johansson, Europas krig, 227.
\textsuperscript{190} See Dennis Showalter’s contribution in Chickering and Förster, The Shadows of Total War, 58, 58–61.
\textsuperscript{191} Black, Air Power, 62–66.
literature we also see how war against civilian targets was inscribed into and formed new warfare doctrines.\textsuperscript{192} The British officer and founder of the Royal Air Force, Hugh Montague Trenchard, was an early voice who made a huge impact on aerial warfare strategies, as well as the Italian officer, Giulio Douhet, and his book \textit{Il Dominio dell’Aria} from 1921 [“The Command of The Air”].\textsuperscript{193} These ideas were often highly speculative and utopian. For example, in the next air war, Douhet argued, a nation could be brought to its knees with only 300 kilos of well-aimed bombs. Following the contemporary idea of a people’s will of resistance, Douhet argued that no civilian population was equipped with the mental stamina to endure such a horrifying scene without panicking and giving up immediately. This genre of aerial technology-induced war doctrines is often called \textit{Douhetism}, although Giulou Douhet was not the only one to voice such ideas.\textsuperscript{194}

The circumstances that guided Douhet’s ideas was the notion that the air arm had become the only offensive arm. The trench warfare of the First World War had proven to be completely ineffective in all respects. With the new artillery and machine guns, defence had become more effective than offense and war as a political instrument in a Clausewitzian sense had completely lost its meaning. However, Douhet argued that aerial weapons with their inherent mobility had managed to break the defensive barrier and reintroduce offensive strategies. The air war offered situations in which mobility, tactics and wit – and therefore a certain amount of chivalry – would once more prove to be decisive in warfare. Douhetism was also a very offensive doctrine. Douhet claimed throughout his career that the only way of gaining political control was through offensive means – taking command of the air before the enemy did.\textsuperscript{195} Thus, for the military strategist, aerial warfare became a race to the offense. The mere existence of an enemy air force was reason enough to consider a pre-emptive strike, with the purpose of either breaking down the belligerent immediately or provoking an all-out war of elimination in the air.\textsuperscript{196}

193 Ericson Wolke, Krigets idéer, 311; Driver, The Birth of Military Aviation. Apart from Giulio Douhet, the British officer, Hugh Montague Trenchard, also stands out as one of the first great air war strategists. Lars Ericson Wolke, “Bomba och bränn dom”: taktik och terror under 100 år av flygkrig (Lund: Historiska Media, 2009), 36–37.
194 For an introduction to Douhet, see chapter 1 in Meilinger, The Paths of Heaven; For historical scholarship solely on Douhet, see Hippler, Bombing the People; Johansson, Europas krig, 313; Giulio Douhet, The Command of the Air (Washington, D.C.: Office of Air Force History, 1942).
196 Johansson, Europas krig, 314.
Although Douhet’s strategies sound inhumane in terms of civilians and their vulnerability (and, in practice, this was the case), Douhet’s air-war doctrine did not necessarily promote an escalation of the atrocities of the First World War. Among military intellectuals, Douhetism actually promised the opposite since, theoretically, a well-placed bomb could break the people’s Will of Resistance immediately from a distance, without ever having to mobilize land forces. In effect, this was a way of conducting a more efficient form of warfare. Although civilians would be targeted, human casualties would be reduced to a minimum.\(^{197}\) Thus, advocates of Douhetic ideas could argue that an air war would be more humane than previous wars. As such, this was also an additional argument as to why Douhetism would mean a turn towards military strategy again, away from the defensive and industrial manslaughter that had characterized the First World War.\(^{198}\)

Although Douhet’s standpoint would prove to be highly optimistic and quickly debunked as the Second World War ran its course, his ideas, or at least similar ideas, were widely discussed by many contemporary military strategists during the late 1920s and 1930s.\(^{199}\) The intellectual content of Douhet’s book spread throughout Europe after its release and likely with greater intensity after 1930, the year of Douhet’s death. At the time, it was translated into French, German, Russian and English and, according to editor and translator Dino Ferrari, as a consequence, the book was “widely disseminated in western military establishments.”\(^{200}\)

The evidence suggests that the military-intellectual environment in Sweden was no exception to this; the question is, what influence did his ideas have?\(^{201}\)

197 Meilinger, The Paths of Heaven, 11.

198 Meilinger, 11.; Johansson, Europas krig, 315.


201 C. L. de Champs, “Herraväldet i luften: om artiklar rörande herravälde i luften av italienske generalen Giulio Douhet,” Tidskrift för sjöväsendet 92 (1929): 602–606. The Swedish historian, Lars Ericson Wolke, has claimed that the author, Carl Florman, introduced air strategy in the Swedish intellectual environment in 1923 with the publication of his book, Flygvapnet och Sveriges försvar (Stockholm: Seelig, 1923). and speaks of a parallel development of ideas in Sweden and Italy as the English translation of Il Domino dell’Aria was only published in 1942. However, as Dino Ferrari claims in the editor’s note of his translation, Douhet’s work was translated into French, German and Russian and English as early as 1930. The article in Tidskrift för Sjöväsendet, from 1929 also suggests that there were Swedish military officers who knew and read Douhet’s work around the time, even before Douhet’s death. It is also highly likely that the military officers interested in military strategy could understand at least German and French at the time. So I doubt that the translation served as a barrier. Furthermore, the editors of the major military journals in Sweden all read and commented on European journals in Germany, England and France, which makes it
The Royal Academy of War Sciences, KKrVA, closely monitored the progress of and improvements to the air forces of the European nations, including the Italian’s, which was built according to Douhet’s principles (Douhet was the commander of the Italian Air Force) and the KKRVA’s journal discussed the topic “Herraväldet i luften” [“The Command of the Air”] recurrently from 1925 onwards, with references to Douhet. Such ideas were also discussed in public. In the 1930s, Douhet’s ideas were openly discussed at parliament level through commissions of inquiry, which attempted to make sense of how aerial warfare would affect Swedish military planning. Military authors such as Björn Bjuggren, Karl-Axel Bratt and John Stenbeck also wrote of “Douhetic” scenarios throughout the interwar era. However, references to Douhet himself and “Douhetism” appear to have been scarce during the 1920s and early 1930s and, according to the Swedish historian Erik Norberg, as a coherent doctrine, it was presented for the first time in 1936.

There were, however, also Swedish authors who proposed similar ideas to Douhet in the early 1920s. Carl Florman was a publicly known Swedish aviator. In 1923 he wrote the book *Flygvapnet och Sveriges försvar* together with a colleague, Gustaf Nordenswan. In the book the two proposed a military aviation doctrine that contained strains of Douhetism, although it was more likely inspired by the British RAF commander, Hugh Montague Trenchard. According to the historian, Lars Ericson Wolke, during the early 1920s, Florman worked as an assistant to the Swedish military attaché in London, Erland Mossberg, and it is likely that it was in these environments, among

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203 Utredning rörande Sveriges försvarspolitiska läge samt behov av försvarskrafter, Statens offentliga utredningar 1930:12 (Stockholm, 1930), 274–275.
204 See, for example, Captain Brunskog: ”Vi inträda därvid i en ny epok – den i luften krigande människans tidevarv” in, Holm, Krig eller kultur, 10.; Karl Axel Bratt and Gustaf Sergel, Aerial Weapons and Future Wars. (London, 1931); John Stenbeck, Luftkrigföringens mål och medel. (Stockholm, 1933); Björn Bjugggren, Bombflyget: Upptäckande: Verkan : Möjligheter (Stockholm, 1936); Bratt and Kretz, Luftkrig över Sverige?
205 Norberg, Flyg i beredskap, 28–30.
206 Florman, Flygvapnet och Sveriges försvar.
the military intellectuals in England, that Florman developed the ideas in the book. He had also conducted study trips to Germany and had experience from his work as chief of the aerial regiment in Northern Sweden. It is therefore likely that it was Florman who introduced ideas similar to Douhetism to Swedish military establishments. Florman’s and Nordenswan’s influence on military politics was also significant. In 1924, they held a controversial lecture on the nature of aerial warfare in a parliamentary committee. At the time, the parliamentary commission to which they had been invited was working

Figure 25: The introduction of aerial forces and Douhetian ideas into warfare planning created a statistical and geographical obsession with aerial distances and population density. Here are two images from the Beskow commission’s report (1936) displaying, left, the population density in both urban and rural areas of some of Sweden’s closest neighbours, as well as the major European powers of France, Germany and Great Britain. The higher the density, the higher the risk of civilian losses during air raids. According to this graph, the low population density of Sweden and Finland was favourable from an aerial protection perspective. On the right, potential air raid risk zones in Sweden are calculated depending on where enemy airbases are located. Note also that the western flank has been omitted from the calculations, a fatal error that was only rectified after Hitler’s occupation of Norway and Denmark in April 1940. Original graphs found in SOU 1937:57, p. 46, 48.

207 Ericson Wolke, Krigets idéer, 315–316.
on the defence resolution of 1925, with the aim of presenting a proposal for an isolated Swedish disarmament.

Eventually, the commission would follow Florman and Nordenswan’s recommendations. In exchange for the quantitative dismantling of several regiments, the proposal offered the formation of an independent air force that would maintain the qualitative aspects of the Swedish military forces. The author, Anders Annerfalk, suggests that because of this, Florman and Nordenswan should be understood as being the architects of Sweden’s independent air force. 208

In sum, the practical and organizational niches that supported the emergence of air raid shelters and aerial protection measures in the 1920s and 1930s can be complemented by two intellectual and interwoven idea complexes: total war and Douhetism. These two idea complexes had an important role in providing a doctrinal motif for developing various kinds of aerial protection measures during the interwar era.

On the one hand, at the core of the total war concept was the civilian’s practical role in maintaining the war apparatus; on the other hand, there was the idea that the civilian maintained a moral component that was understood as being essential to defend. Douhetist ideas for their part, however, further encased the idea of the inherent weakness of the civilian population, while simultaneously emphasising the possibility of surprise attacks with no prior warning. Being highly transnational phenomena, total war and Douhetism can therefore be understood as a form of idea flow appearing on the landscape level, causing unrest amongst those who had been tasked with protecting the nation. Swedish military officers placed these concepts in a Swedish context from a European debate on future wars – Swedish military thinkers were not the progenitors of these ideas, but nevertheless had to consider them in their planning.

3.3. The Association for Stockholm’s permanent defences

The following section presents three military authors who discussed and developed the above trends in both bunker technology and doctrine development. All of the authors were influential officers from different generations who made their mark on Sweden’s history of military fortifications: Hugo Jungstedt, Emil

Fevrell and Kjell Magnell. Building on their experiences and the political setting in which they lived, they promoted aerial protection of civilians during the interwar period. Jungstedt began writing for the journal *Meddelanden* in 1910, Fevrell in 1927 and Kjell Magnell in 1936. Reading them in this order also offers a chronological perspective, showing how the political changes and controversies of the interwar period altered and shaped the way in which aerial protection measures and air raid shelters were discussed.

However, before examining these authors in detail, something should be said about the circumstances within which they worked. Jungstedt, Fevrell and Magnell were all fortifications officers and professional roles in common. They were also well-established authors in the military field. They were also board members of the Föreningen för Stockholms Fasta Försvar, [“Association for Stockholm’s Permanent Defences”], shortened to FFSFF, and also wrote for the association’s journal, *Meddelanden från Föreningen för Stockholms fasta försvar* shortened to *Meddelanden*. While the FFSFF provided a sub-political arena with network connections on a parliamentary level, the journal provided a platform specifically for intellectual debates on civilian protection from aerial warfare during the interwar years.

The FFSFF was formed in 1902 in response to a new military strategy that was ratified in the Swedish Parliament. The organization disagreed with parliament’s resolution and emphasized the need for defences at the nation’s borders, rather than a centrally formed defensive doctrine. The founders of the FFSFF were particularly dissatisfied with how the politicians had handled the question of the defence of the capital and argued that protection from a sudden land invasion was lacking, and could therefore result in immediate defeat. With this argument, the FFSFF connects with the doctrinal idea that had been brewing in Europe since the late nineteenth century. It is no coincidence that the FFSFF became key to the development of aerial protection in Sweden. Many of the trends in fortification and military doctrines, aerial protection, particularly the focus on the political capital, converge here during the early twentieth century. On the one hand, the Clausewitzian idea of the weakness of the civilians’ *Will of Resistance* and, on the other hand, the capital seen as the urban environment that more than any other embodied the civilians’ political weaknesses.  

In response to the political deficits, the FFSFF began a very successful fundraising campaign and used the funds to finance the procurement of land

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209 Swedish historian of fortifications, Leif Törnquist, argues that the end of the nineteenth century saw a renewed interest in fortifying the capital of Sweden, particularly in the aftermath of the Franco-Prussian War of 1870–1871. Carlsson and Runnberg, *Fortifikationen 350 år*, 37.
and the construction of embattlements both north and south of Stockholm. When the embattlements were finished (today known as the “korvlinjen” [the “Sausage Line”]), they were given to the military as a gift. As a sign of the times, these embattlements were formed as long, half-buried and concrete-reinforced trenches with oval roofing cast in reinforced concrete, resembling a mixture between a bunker and a trench. The hatches and doors were made of steel. The shape also accounts for why it was dubbed the sausage line. It looked like a long grey sausage placed in the woods. As the interwar era progressed and as experiences from the First World War and developments in aerial technology highlighted new problems, the FFSFF continued to raise funds for anti-aircraft artillery and aerial protection propaganda. It eventually became one of the first organizations to hold public courses in aerial protection, the other being the Red Cross.

The FFSFF can be interpreted as a kind of political niche development, responding to a perceived deficit in political and military planning, but also as a call for change on the socio-technical regime level. The FFSFF attempted to solve problems in a practical manner and argued that the political and military establishment were not prioritizing these problems. It was also an organization that embodied the late nineteenth-century ideal of fortifying the capital city as a means of protecting it from a sudden and unexpected defeat through its fall. The Siege of Paris from 1870 to 1871 had become a symbol of such a defeat and inspired the design of fortifications in or close to the capital.210 The Douhetism of the interwar period also made provision for the modernization of this idea.

With this context in mind, the FFSFF became increasingly interested in the aerial dimension and continued to raise funds for anti-aircraft artillery, after the Korvlinjen was finished, and subsequently also began to consider civilian aerial protection in Stockholm. These attempts were just other ways of dealing with the same problem. Nor is it surprising that the association’s journal also provided interested authors with a platform for debating these topics. There was an established network of knowing and worried authors and officers and a journal that could gather these voices under a common banner, including established practical methods of fundraising and solving urban defensive problems during an age when the political establishment was too slow.

It is from this intellectual environment that Hugo Jungstedt, Emil Fevrell and Kjell Magnell wrote. Together with the other two trends – the technological development lines and the doctrinal motivation – we can also add a third

210 Carlsson and Runnberg, 37.
significant trend during the interwar era that paved way for aerial protection technologies: an established intellectual network environment in which aerial protection could be mediated, debated and further developed by interested system builders (the FFSFF will be discussed further in section 4.2.1).

3.3.1. Hugo Jungstedt and the introduction of civilian protection

One of the first military authors to become interested in the protection of the civilian sphere during the early interwar period was the fortifications officer, Hugo Jungstedt (1854–1936). Jungstedt was deeply rooted in the fortification tradition while simultaneously growing interested in the aerial dimension during the 1910s and 1920s. Jungstedt began as a fortifications officer in 1875 and at the end of his career he had become Lieutenant General and a first-class member of Kungliga Krigsvetenskapsakademien, KKrVA, [“Royal Academy of War Sciences”]. He was a member of the Supreme Court, as well as a member of several political committees that concerned fortifications and aerial warfare in different contexts. According to an anniversary hagiography in the KKrVA's journal from 1954, he was one of the pivotal forces behind the construction of the Boden Fortress in Northern Sweden, one of the largest military forts in Europe at the time.211 Jungstedt was also a prolific author. He was a permanent co-author of Nordisk familjebok, one of the oldest and most used encyclopaedias of the twentieth century and wrote for FFSFF’s journal Meddelanden as early as 1910 and up until 1929. Jungsted also wrote a number of books throughout his career and, in the context of this dissertation, the most noteworthy is Flygvapnets uppkomst och utveckling [“The emergence and development of aerial forces”] from 1925.212 This book was a thorough technical assessment of the aerial forces of Europe during the early 1920s and was therefore well aligned with his interest in the new aerial dimension seen in his other works.

What makes Jungstedt interesting in this context, however, is his focus on the civilian’s role in future warfare planning. As a key member of the FFSF, Jungstedt functioned as one of the earliest voices to express the need for civilian protection.

211 Hugo Jungstedt was the director of an investigative commission, instigated by the military organisation in 1917, with the purpose of investigating the need and possibility of introducing aerial forces into the Swedish military organisation Annerfalk, Flygvapnet 1926-1996, 29.
In terms of civilians and their role in modern warfare, Jungstedt had been writing on the topic since the beginning of his career as an author in Meddelanden. He wrote a series of articles from around 1910 up until his final years in 1930. During this early period of idea development, the purpose of these articles was mainly associated with propaganda: to inform the public of the perils posed by aerial bombardment and to urge politicians to act. Jungstedt often ended his articles with recommendations, usually from the perspective of the Swedish capital, in line with the political purpose of the FFSFF for which he wrote.

To a large extent, these articles were theoretically based, and actuality was gained through comparisons with other countries and their conduct during the First World War. In terms of geographical similarities, Jungstedt found that the experiences of London offered an interesting case since water divided Germany from Great Britain similarly to Sweden and its neighbouring states. The solution presented was the implementation of some kind of aerial protection measures. For Jungstedt, the experiences of Paris and London were a clear testament to the necessity of planning in advance, and the Parisian...
aerial preparedness system in particular seemed exemplary. These articles also tended to be polemic and were aimed at the pacifists’ ideas of disarmament, who represented Jungstedt’s main opponents at the time.

One of the most interesting of these articles is the one written in 1924 “Luftförsvar och dess betydelse särskilt för större städer” [“Aerial defence and its importance, particularly for larger cities”]. This article is an example of the fusion of several circumstances during the mid-1920s, and how ideas emerging out of this fusion could be applied to Sweden and Stockholm. While building on total warfare, Douhetism and experiences of aerial bombing during the First World War, Jungstedt presented Stockholm’s exposed nature, and its similarities to other European cities. The article was presented as a follow up to an earlier work on civil rights treaties, but primarily found its relevance in recent technological developments that had diminished the protective barrier of the Baltic Sea. Key to this was the continuous and frightening prospects of even larger bomber aircraft and the necessity of implementing preventive measures by planning aerial and industrial protection to counter them. The primary objective of such planning was to save lives, thereby maintaining the civilian will to resist, while also preventing secondary health effects and economic and industrial stalling.

217 Sweden’s geopolitical situation had changed due to “the aerial weapon’s tremendous development [“oerhörda utveckling”] in recent years” and, as a result, Stockholm’s geographically exposed position had to be addressed immediately. Aerial technology, Jungstedt argued, had become a “maktfaktor power factor” of warfare, easily implemented and effective. The Baltic Sea no longer provided a natural barrier and offered little protection from an eventual Russian war campaign in Scandinavia. Moreover, he argued, the bombs were growing considerably in size and, as a consequence, the military authorities must also expect the use of gas bombs in the next war. A one-ton gas bomb filled with mustard gas that hit a “traffic centre the size of Gustav Adolfs Torg.” (a square and famous landmark in Stockholm), would render the square untraversable for days and thus offered a grim vision of what the civilian population would have to suffer. Hugo Jungstedt, “Luftförsvar och dess betydelse särskilt för större städer”, Meddelanden från Föreningen för Stockholms fasta försvar (1924), vol.28. p. 8, 30, 32.

218 In London, Jungstedt declared, the raids forced the population to take cover in “cold and damp basements and underground railway tunnels” which caused the spread of “respiratory diseases”. Moreover, production stalled completely during the raids since electricity and gas supplies were switched off to prevent the spread of fires. Concerning aerial protection measures to prevent this, London had no measures at all during the war. According to Jungstedt, before the war, the military planners were confident that that the distance and the water would function as natural barriers. Moreover, when the German bombings began, the production and shipment of materials that could have been used for aerial defences went to the European front, instead of for the armament of London. Hugo Jungstedt, ”Luftförsvaret och dess betydelse särskilt för större städer”, Meddelanden från Föreningen för Stockholms fasta försvar (1924), vol.28. p. 10.
According to Jungstedt, the answer to countering these emerging problems was the introduction of an extensive active aerial defence system, including aerial forces, artillery guns, barrage balloons, searchlights, sound locators, observation posts and alarm systems. Regarding leadership, Jungstedt proposed an aerial defence regiment in the capital, led by a military commander. The regiment had to include an active detail with fighter aircraft and a passive detail containing anti-aircraft artillery and guns. For the civil population, Jungstedt recommended the French model with alarm sirens and basement shelters, as well as legal provisions to enable the police authorities to enforce the active participation of the citizens.219

Although Jungstedt remained critical of Douhet’s ideas, in practice, this proposal did not mean a rejection of Douhetic scenarios. Rather, aerial protection measures were discussed as a means of negating them. Aerial protection would have a prophylactic role in that it made Douhetic scenarios improbable. This idea was debated, however. Opponents argued that neutrality and multilateral treaties that prevented war completely were the only means of maintaining peace.

Since the early 1920s, the issue of multilateral treaties had been re-activated because of the newly-formed League of Nations and its attempts to engage in disarmament conferences. This was also the decade of the fear of “Chemical Warfare”, causing much controversy internationally. In combination with aerial technology, the fear of gas sparked much political turmoil and a multitude of grim visions in popular culture, making it a very prominent cultural phenomena.220 Internationally, it became an important topic for disarmament and peace conferences during the interwar era. Like artillery bombardment, however, although some treaties were signed (the use of mustard gas, for example, was banned in 1925) their practical use in preventing wars was questionable. Furthermore, the League of Nations began working on new treaties from 1926 to 1927 that were to be signed in 1932 during a disarmament conference in Geneva. This window of opportunity caused many anti-war protesters to mobilize and oppose pro-aerial-protection authors. Consequently, anti-war protesters and pacifists argued that disarming and banning war altogether was the only way of preventing a disaster. They also argued that technical

219 According to Jungstedt, Paris was much better prepared for handling aerial bombardment than London and, as a result, suffered less from German bombs than its allies on the other side of the English Channel. Hugo Jungstedt, ”Luftförsvar och dess betydelse särskilt för större städer”, Meddelanden från Föreningen för Stockholms fasta försvar (1924), vol.28, p. 25-27, 30-38.

220 For a discussion on the gas war as a cultural phenomenon, see sections 126, 139 and 141–142 in Sven Lindqvist, Nu dog du : bombernas århundrade (Stockholm: Bonnier, 2000); See also Kim Coleman, A History of Chemical Warfare (New York: Palgrave Macmillan, 2009), p. 57.
protective measures provided a complete sense of security. Military officers such as Jungstedt, viewing these problems from their own perspectives, duly began debating these issues in public in response. Jungstedt’s articles were heavily flavoured by this international political context.

Towards the end of the 1920s, Jungstedt began commenting on the historical failures of treaties to make a point of the need to implement aerial protection. He had been following the peace and disarmament debates since before the First World War and he particularly highlighted the risks and the false sense of security of a neutral status, maintaining that planning aerial defences was the only way ahead. In the article “Föreningens uppgift” from 1927 [“The Association’s devotion”], for example, he argued that an aerial attack could be used with the purpose of forcing the government away from a neutral stance onto either side of a conflict. The existing defences were hopelessly inadequate to prevent this. Sweden would have to choose from either conceding to a diplomatic request or having its capital destroyed – a decision which, one way or another, would force Sweden into a war. This argument also shows an early example of one of the most foundational ideas in Swedish Cold War civil and military defence doctrines. By maintaining a strong and well-funded defence, the new and seemingly deadly offensive weapons would lose their perceived usefulness to a belligerent party. In other words, if Sweden were to acquire functioning aerial defences for its civilian population, this would function as a peacekeeping measure in itself. This idea, which was voiced towards the late 1920s, had profound effects on how the military establishment and the state would understand the civilian’s role in future warfare during the Cold War era.

221 Andersson, Kvinnor mot krig, 137, 139–140.
222 As an example of how this could happen, Jungstedt imagined a troop transport on the railway line between Narvik in Norway and Happaranda in Sweden in an effort to wage war in Finland. If neutral Sweden would resist such a request from the entente, he claimed, the consequences would likely be a bombing raid on the capital. An interesting passus is that a very similar scenario played out in 1940. Hugo Jungstedt, ”Föreningens uppgift belyst av senaste krigserfarenheter”, Meddelanden från Föreningen för Stockholms fasta försvar, (1927) vol. 32. p. 9-10.
223 In 1933, another military author, fortifications officer and close colleague of Jungstedt, Emil Fevrell, argued in a similar manner. The current standpoint, he argued, was that a nation that organizes itself “technologically and morally” by providing an aerial protection organization for its citizens would not only be more resilient during actual raids, it would also no longer be viewed as a worthwhile target for an opponent, at least in strategic terms, such as by creating panic and suppressing a nation’s will of resistance. A functioning civilian aerial protection organization, Fevrell argued, therefore worked in a “prophylactic and peacekeeping way.” Emil Fevrell, ”Gaskyddsrum för civilbefolkningen” Meddelanden från Föreningen för Stockholms fasta försvar (1933) vol.39. p. 27.
in relation to civilians, would follow war doctrines for the entire Cold War period and was the stepping stone to the nuclear deterrence policy, the MAD doctrine, and phenomena such as the so-called Mineshaft Gap, as well as the shelter craze in Sweden during the 1950s.  

Jungstedt was also particularly polemic and sarcastic as he directed his attention to the disarmament-friendly pacifists at home, “fredsapostlarna” [the “peace apostles”]. Jungstedt explained that through history, no nation had ever fallen due to the bombardment of its civilian centres in the way that the zealous air force advocates on the one side and the radical pacifists on the other side claimed would happen. The representatives of the air forces heavily exaggerated the importance of their own arms branch for individual and political reasons, he argued, and the women and socialists on the pacifist side understood little about how wars were waged and how nations and armies had fallen throughout history. The gas problem also caused Jungstedt to comment, but he also concluded that the only way the civilian population could be saved was through aerial defences. The recurring failures of the peace conferences pointed in only one direction. “It is likely”, Jungstedt concluded, “just as the English colonel J. F. C. Fuller noted […], that ‘no conference in the


225 The resulting treaties, Jungstedt argued, were often vague and few people had any confidence that they would actually produce any international security. In the article “Den moderna fredspropagandan och civilbefolkningens skydd” (1929) [“The modern peace propaganda and the protection of the civilians”], Jungstedt noted that there had been no lack of protests against gas bombing from workers’ unions, peace movements, social-democrats, pacifists, as well as military men, although none of them had actually led to any functioning treaties. Hugo Jungstedt, ”Den moderna fredspropagandan och civilbefolkningens skydd”, Meddelanden från Föreningen för Stockholms fasta försvar (1929), vol.34. p. 15.


227 Chemical warfare became an increasingly urgent topic in the early 1920s due to a series of newly-released books, as well as a serious industrial accident in Hamburg involving war gases. In 1925, multilateral treaties were also signed banning the use of gas. See Leo van Bergen, “The Poison Gas Debate in the Inter-War Years,” Medicine, Conflict and Survival 24, no. 3 (July 2008): 179–180., doi:10.1080/13623690802169886; See also chapter 3 in Coleman, A History of Chemical Warfare; Andersson, Kvinnor mot krig, 137.; For some examples of the Swedish debate on gas during the 1920s and 1930s, see Rudolf Hanslian and Fredrik Bergendorff, Gaskrig och gasskydd (Stockholm: Norstedt, 1923); Franz Carl Endres, Gaskriget – den stora faran. (Stockholm: Tiden, 1928); När fienden kommer genom luften… Några synpunkter på det nutida luft- och gaskriget. (Stockholm, 1928); Ivan Pauli’s contribution in, Holm, Krig eller kultur, 29–38.; Nils Gunnar Bellander, Om gaskrig och gasskydd (Stockholm, 1935).
world will be able to stop the chemical war”.\textsuperscript{228} From a Swedish perspective, he noted, these discussions guaranteed nothing and there was little else to do than prepare for the bombardment of the capital in future wars.\textsuperscript{229}

In the 1920s and 1930s the gas threat also represented a powerful argument and sparked a series of initiatives in Sweden and elsewhere. The Red Cross was one of the first organizations to concern itself with the gas problem, discussing it during its conferences in the early 1920s and early 1930s.\textsuperscript{230} Although vice-chair of the Swedish Red Cross, Jungstedt did not participate himself in these conferences, but was involved in the production of Sweden’s first publicly distributed pamphlets on gas protection in 1929 which, in turn, was guided by the discussions during the conferences.\textsuperscript{231} These pamphlets mainly focused on the sanitation of contaminated areas, the use of gas masks for civilians and civilian Red Cross personnel, as well as first-aid treatment, although they also mentioned the need for “collective” forms of gas and air raid shelters.\textsuperscript{232}

To summarize, Hugo Jungstedt transferred and interpreted European warfare doctrines and debates in Europe into a Swedish context, during an age when the use of aerial forces was still new, poorly understood, and heavily debated. During the late 1920s, there were still hopes for multilateral treaties that would render aerial defences obsolete. Also, the effects of aerial raids were untested. Jungstedt, however, did not trust political treaties and rather used their historical failure as evidence of the need for increased budgets. To frame his

\textsuperscript{228} Hugo Jungstedt, ”Den moderna fredspropagandan och civilbefolkningens skydd”, Meddelanden från Föreningen för Stockholms fasta försvar (1929), vol. 34. p. 22–23.

\textsuperscript{229} Jungstedt argued that since the capital could never be left unprotected for a belligerent to take, it would have to be defended in some way. And since it had to be defended, the ratified laws of war of 1916 would not prevent the bombardment of civilians. Hugo Jungstedt, ’Om bombardering af städer och orter ur folkrättslig synpunkt’ Meddelanden från Föreningen för Stockholms fasta försvar (1916), vol. 20. p. 32-33.

\textsuperscript{230} Bergen, “The Poison Gas Debate in the Inter-War Years,” 179–182.

\textsuperscript{231} Röda korset, Civilbefolkningens skydd mot gasanfall från luften: Upplysningsskrift (Stockholm: Svenska Röda korset, 1929). As the Swedish representative, the Swedish Red Cross sent the military officer Eric Virgin. Sten Söderberg, Svenska röda korset 1865-1965: de första 100 åren (Stockholm: Sv. litteratur, 1965), 272–273. Eric Virgin became head of the Swedish Air Force from 1931 to 1934. He was also one of the few officers to discuss the matter of civilian aerial protection at an early stage. See for example, Eric Virgin ”Civilbefolkningens skyddande mot flyganfall” Ny militär tidskrift (1929), vol 3. p. 122-125. Virgin also joined the Swedish Red Cross’s gas protection committee in 1934. See ”Från överstyrelsens horisont” Svenska röda korset. Tidskrift för frivillig sjukvård och socialhygienisk verksamhet, (1937), p. 209-210; Jungstedt chaired the committee. Hugo Jungstedt’s archives, Tidningsklipp, vol. 4. See the article ”Befolkningens skydd mot gasanfall”, Royal War Archives, Sweden.

\textsuperscript{232} Röda korset, Civilbefolkningens skydd mot gasanfall från luften, 26.
argumentation for the reinforcement of Stockholm’s aerial defences, Jungstedt transformed the doctrines and experiences into war scenarios situated in the capital of Sweden. More importantly, he also associated them with large-scale technical defence systems for the civil population, including both military and civilian components such as basement air raid shelters and anti-aircraft artillery, eventually presenting a vision of a fortified city. Thus, during his active years in the FFSFF, the Swedish Red Cross, and as a publicly and politically conscious figure, Jungstedt provided a link between the military doctrines of the interwar era, experiences from the First World War and the international political field. Through this linkage he presented a mental vision that helped to push and encourage state-organized civilian aerial protection in Sweden. In this, Jungstedt is an example of how an historical actor functions as a mediator between events on the socio-technical landscape level, regime level and local niche level. On the one hand, Jungstedt embraced the doctrines, discussed the future of multilateral treaties and considered the pacifists and Douhetic zealots in Europe, emphasising the meso-level regime by demanding change. On the other hand, Jungstedt noted the existence of technical solutions that could be “picked up” and form the basis of a political proposal.

3.3.2 Emil Fevrell and state-organized aerial protection

The major breakthrough for the idea of civilian aerial protection came during the late 1920s and, as a result, from around 1927 to 1928 and up to 1937, there was a growing interest in civilian-related aerial protection measures in military journals and books. The above-mentioned fear of “Chemical War”, and the peace and disarmament conferences, in many ways functioned as the catalyst for this new trend. However, an important change in this later period is that the military intellectuals not only suggested technical solutions to address the growing threat of aerial warfare, they also began discussing aerial protection in terms of how to practically organize it, from the higher echelons of state governance to a municipal and local street level.

Thus, the question for the two military fortification officers, Emil Fevrell and Kjell Magnell – who we meet in this section – was not if, but rather how, and by what means? If Hugo Jungstedt had suggested a return of the urban fortress as a means of countering the problems of air and gas warfare, including total war and Douhetism, the next set of authors debated in more practical terms about how aerial protection would be able to operate together with other existing arms branches, what role the police and fire-fighting services would take, and what responsibilities the state would assume. A consequence was also
that it forced the military intellectuals to deal with the problem of military influence and control of civilian life. Towards the second half of the 1920s, air raid shelters, alarm technology, urban blackouts and gas masks could no longer be understood as basic theoretical and non-political technologies. The array of technical solutions proposed by Jungstedt now had to be practically assessed in terms of the citizens’ responsibilities, production, state control and leadership during war, if they were to have any meaningful use in an actual war situation, which brought moral issues to the fore.

The contemporary political situation was also complicated by loud and radical movements on the political fringes, which meant that these issues had to be aligned in a way that would provide functionality but that would still make aerial protection measures seem acceptable to the public. What could be demanded of civilians, what measures would have to be imposed and what could be done voluntarily? As Jungstedt had shown, the successfullness of the Parisian model during the First World War included authoritarian measures by the local police, as well as an ominous fortification of the city itself. Thus, the turn towards the organizational discussion highlighted the problem of the growing militarization of civil life, something that made aerial protection seem politically controversial, thereby causing critique from outside the military establishment during the late 1920s and early 1930s. Aerial protection needed to be assessed from a management perspective and the officers who were minded about such matters had to be increasingly careful in how they framed both themselves and their ideas.

Lastly, to crystalize the idea of aerial protection for civilians into organizational, practical and tangible solutions also forced Emil Fevrell and Kjell Magnell to distil and decide on which type of attack could be expected and which type of bombs would be used against civilians. Both of them were particularly interested in air raid shelters. As you get closer to actual implementation, decisive design choices need to be made. However, from 1927 to 1937, the means of destruction from the aerial dimension also evolved and experiences of real wars caused the old ideas to be challenged. Depending on when they wrote, the expected form of attack differed between the authors, which also affected and provided opportunities for them to navigate the political landscape between the emerging anti-militarist critique from both the public and politicians. This also resulted in a few impulses towards air raid shelter technology that have followed designs since this time.

The reason for the seemingly sudden upsurge in aerial protection discussions during the late 1920s can be found in a few contemporary and intertwined
polactical processes on the European and global stage. Of course, First World War experience is pivotal and, as we have seen, it functioned as the backdrop for the emergence of ideas that facilitated policy-making for aerial protection. However, in 1926, the League of Nations began to organize preparatory discussions for the next disarmament conference to be held in Geneva in 1932. This caused a surge in discussions about the nature of the new air war and how to deal with it, which also affected Sweden. Since Sweden had maintained a neutral diplomatic status since the First World War, in practice, the level of armament of its neighbouring states and their acceptance of multilateral treaties functioned as guidelines for how large the Swedish military apparatus would need to be. To be credible, a neutral state had to be able defend its neutrality and therefore had to be armed in order to match a supposedly belligerent state’s armed forces.

Thus, in the case of Sweden, the outcome of this new conference was highly relevant for the ongoing political defence debates, since it could determine whether the Swedish state could downsize its armed forces, or would have to rearm itself. Moreover, as historian Bo Huldt has claimed, during the disarmament conference in Geneva, the Swedish delegation attempted to boost discussions about protecting the civilian population from acts of war, including an attempt to sign a treaty against aerial bombing and the complete banning of chemical weapons. If these attempts had been successful, the implementation of an aerial protection organization would have served no purpose. Thus, the outcome of international conferences was directly linked to Swedish military politics at home in more than one way.

Amid the disarmament discussions, the great gas calamity of the late 1920s also arose. The heightened awareness of the idea that gas could be used against civilians in future wars sparked a wave of new socialist, liberal and feminist peace movements that also spread to Sweden. These caused widespread debate at home and forced aerial protection issues to be placed high on the agenda. Pro-defence and publicly-minded officers responded, arguing that the gas scare

233 Hugemark and Jonsson, Neutralitet och försvar, 190.
234 Hugemark and Jonsson, 186.
235 Trönnberg, Nedrustning under mellankrigstiden, 64–66.
236 Hugemark and Jonsson, Neutralitet och försvar, 192–193.; Trönnberg, Nedrustning under mellankrigstiden, 61–63,73.
237 See Stefan Trönnberg’s dissertation on the political disarmament discussions in Sweden during the interwar period. Trönnberg, Nedrustning under mellankrigstiden; Norman, Molin and Johansson, Hjalmar Branting, freden och Folkens förbund; See Huldt’s contribution in Hugemark and Jonsson, Neutralitet och försvar, 185–196.
238 Andersson, Kvinnor mot krig, 137.
was part of the “disarmament propaganda”.^{239} I have previously mentioned how Jungstedt described a group of alarmist authors as “peace apostles”, a telling example of the conflict between them and the military and how they viewed each other. The Geneva Disarmament Conference was also an important factor since it provided a window of opportunity for the peace movements and pacifist politicians to actually do something about the industrial nature of modern war, hopefully banning it all together.

Thus, these new peace movements often used the international conferences and organizations as political platforms for their cause.^{240} For example, the author and journalist, Elin Wägner (more on this movement in chapter 7), and the circle around her put much hope in multilateral treaties and the conferences, as did Swedish socialist-politician and pacifist, Elof Lindberg.^{241}

The military-friendly voices also used “Chemical War” as political leverage, but instead as a means of promoting the state to solve the issue of aerial protection.^{242} They commented on the ongoing conference debates in Geneva, but rather than seeing them as hope for disarmament they saw them as evidence of the ineffectiveness of treaties in general. In Sweden, the officer and author, Karl Axel Bratt, was a particularly articulate voice, and a tough critic who argued that the treaties were nothing more than “gyster’s images”.^{243} Bratt wrote several works on defence politics and the new air war, sometimes with an alarmist tone, but nevertheless argued for the possibility of producing defences against the horrors of the new war. An article in Svensk tidskrift in 1928 particularly reverberated and led the anti-militarist and soci- al-democratic politician, Elof Lindberg, to demand action from parliament.^{244}

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^{239} See, for example, Axel Gyllenkrok and Nils af Sillén’s commentary in Svenska Dagbladet, ”Civilbefolkningen måste vara rustad mot kemiska kriget” in SVD, 19 February 1929.

^{240} Andersson, Kvinnor mot krig, 188–190, 224–229; Andersson, “Luftskyddsarbete, stickning och en modern tvättambulans.”


^{242} Haapamäki, The Coming of the Aerial War, 52.

^{243} “de mellanfolkliga överenskommelser, genom vilka bruket av giftgaser eller undervattensbåtar skulle förbjudas eller inskränkas, äro intet annat än gyckelbilder” Karl Axel Bratt, Krig, fred och försvar : några inlägg i en diskussion (Stockholm: Tiden, 1928), 45.

^{244} Karl Axel Bratt’s article in Svensk tidskrift from 1928 is said to have initiated the aerial protection debate in Sweden. Bratt, ”Det europeiska krigets nya skepnad”, Svensk tidskrift (1928), vol 18. p. 103. See Andra kammarens protokoll, 5 juni, 1928. See Elof Lindberg’s comment on p. 15.
Bratt also published in international settings on the topic.\textsuperscript{245} Another well-known military author and critic was Captain Carl J. Brunkskog, who was an active writer and was heavily engaged in the international conferences of the late 1920s and early 1930s.\textsuperscript{246} The two officers, Bratt and Brunskog, usually began their argumentation with dystopian visions of the next war in a manner that enraged officers who were pro-aerial protection and of a more tempered kind. For example, Brunskog might argue that the kind of aerial protection measures needed to provide sufficient protection were so immense that they were economically unfeasible.\textsuperscript{247} In response, Hugo Jungstedt called them the “Bratt-Brunskog Axis” of alarmists, while others called them “hot-tempered.”\textsuperscript{248}

From 1927 to 1928, and likely because of the European debate, the aerial protection for civilians duly became a Swedish parliamentary concern. On 12 March, 1927, the then Chief of Staff, Carl Gustaf Hammarsköld, announced that Sweden lacked proper planning for handling aerial attacks on domestic urban centres, thereby placing the topic high on the political agenda.\textsuperscript{249} In the same year, the liberal and pacifist Minister of Defence, Gustav Rosén, announced the first parliamentary investigative committee to scrutinize the air war problem in relation to civilians, and hopefully solve the emerging questions of leadership, organization and funding.\textsuperscript{250} The group began its work in 1928 and presented its report to the government in December 1931 (more on this in chapters 4–5.).\textsuperscript{251} In 1928, the Swedish Red Cross, led by Prince Carl, also announced the formation of an investigative committee of its own, with the purpose of providing guidelines for civilians and civil protection in the event of chemical warfare. As mentioned above, Hugo Jungstedt, with his long

\textsuperscript{245} See also Bratt, Krig, fred och försvar; Karl Axel Bratt, Försvarsfrågan i stöpsleven: värderingar och omvärderingar angående fred och säkerhet (Stockholm: Norstedt, 1930); Bratt and Sergel, Aerial Weapons and Future Wars.; See also Bratt and Sergel’s contribution in What Would Be the Character of a New War?: Enquiry Organised by the Inter-Parliamentary Union (London, 1931), 76–95.
\textsuperscript{246} See, for example, Carl Johan Brunskog, Nedrustningsfrågan i Nationernas förbund: översikt över dess handläggning 1920-1929 (Stockholm: Bonnier, 1930); Carl J. Brunskog was the founder of an “information bureau” that produced books and pamphlets on peace negotiations and the progress of the peace and disarmament conferences in Europe. Andersson, Kvinnor mot krig, 157.; Holm, Krig eller kultur.
\textsuperscript{247} See, for example, Brunskog’s introduction in Holm, Krig eller kultur, 10. See also Brunskog’s article “Effektivt skydd mot det moderna krigets vapen finnes icke” in Social-Demokraten, 19 January, 1929.
\textsuperscript{248} Hugo Jungstedt’s archives, Tidningsklipp, vol. 4. See the article by C.W. Kleen “Major Bratts synpunkter underkänns av sakkunskapen”, Royal War Archives, Sweden.
\textsuperscript{249} Bratt, Krig, fred och försvar, 84; According to the author Ivan Pauli, parliament also included, for the first time, a sum of 20,000 for investigating aerial warfare. Holm, Krig eller kultur, 29.
\textsuperscript{250} Andra kammarens protokoll, 5 juni, 1928.
\textsuperscript{251} Luftförsvarsutredningens betänkande.
experience of air war theories and international disarmament politics, became the director of the committee, and its work resulted in the publication in 1929 of Sweden’s first mass-distributed pamphlet for civilians.\textsuperscript{252}

Thus, the problem of aerial protection for civilians which, since the end of the First World War, had only been discussed in theoretical terms, succeeded in increasing in political importance during the 1920s and subsequently resulted in some early attempts to resolve the issue, by the state, as well as by volunteer organizations, largely attributable to the more discursively animated debates concerning defence issues, disarmament conferences and gas warfare during the same period. In other words, these represent important changes in the socio-technical landscape that stirred debate and created initiatives at home. Some of them functioned as supportive niches; others worked in the opposite direction. Most notably, the political spotlight of the late 1920s highlighted the need for actually deciding what civilians should be protected from – and ultimately how to do it – and not just discuss air and gas warfare in theoretical terms.

A first example of one of the authors of this era who was concerned about aerial protection is Emil Fevrell (1884–1959) and his articles in the journal \textit{Meddelanden} from 1927 to 1935. Emil Fevrell was a fortifications officer who write about fortification principles for educational purposes.\textsuperscript{253} Early on, he was engaged in the FFSFF. Fevrell eventually became known for his Nazi sympathies, something he shared with others from the FFSFF behind the journal \textit{Meddelanden} during the late 1930s. According to sources, Fevrell appears as the secretary of \textit{Svensk-Tyska föreningen} [“Swedish-German Association”] in 1939, of which the chairman was Henri de Champs, who was also a board member of the FFSFF. In the same year, Fevrell was one of the few Swedes to attend Hitler’s fiftieth birthday party, along with the Crown Prince and the current Chief of Staff.\textsuperscript{254} After a few dubious pro-Nazi statements around 1942, he fell

\begin{itemize}
\item \textsuperscript{252} Jungstedt chaired the committee. Hugo Jungstedt’s archives, Tidningsklipp, vol. 4. See the article “Befolkningens skydd mot gasanfall”, Royal War Archives, Sweden. Röda korset, Civilbefolkningens skydd mot gasanfall från luften; See also Söderberg, Svenska röda korset 1865-1965, 272–273.
\item \textsuperscript{253} Emil F. T. Fevrell, Lärobok i krigsbyggnadskonst för Kungl. krigsskolan (Kungl. Krigsskolan, 1927).
\end{itemize}
out of favour, at least publicly. The episode became known as “Affären Fevrell” or “Fallet Fevrell” [The “Fevrell Affair” or the “Fevrell Case”].

Fevrell’s importance in this context, however, is his authorship in Meddelanden, as well as being the intellectual heir to Hugo Jungstedt. From 1927 to 1935, Fevrell wrote a series of investigative articles on aerial and gas warfare, fortifications and aerial protection. As a promotor of a militarized organizational form of aerial protection and with his focus on gas bombings, his intellectual heritage neatly fit the zeitgeist of the late 1920s. He provides an early example of how air raid shelters and aerial protection solutions began to move into the civilian context in an organized and planned manner, but also how the transfer of the air raid shelter from war zone to an urban setting caused political controversy. He also commented on contemporary political developments in Sweden concerning the aerial protection of civilians.

Fevrell’s first appearance in the journal Meddelanden in 1927 was the most ground-breaking of all his articles in this sense. Before Fevrell, similar or related ideas had been voiced, but none of them with the complete incorporation and synthesizing traits that Fevrell offered. Under the title “Fast luftförsvar samt riktligheter för detsammas fördelning på stat, kommun och frivilliga organisatörer” Fevrell provided early examples of how air raid shelters and aerial protection solutions began to move into the civilian context in an organized and planned manner, but also how the transfer of the air raid shelter from war zone to an urban setting caused political controversy. He also commented on contemporary political developments in Sweden concerning the aerial protection of civilians.

In the article, for example, “Luftförsvar eller ’Luftförsvar’” he heavily criticized the lack of response after the publication of the first government report on the aerial protection of civilians and noted that “reams of books about the lack of logic” in the nation’s current defence planning could be written. It is also likely that his focus on the gas problem in relation to air raid shelters owes much to the ongoing debate on “Chemical War” in general. Each article approached the recent events in Geneva and the issue of the usefulness of multilateral treaties in some way, portending that the military political and disarmament debates in contemporary Sweden functioned as the backdrop to many of these articles. Emil Fevrell, “Luftförsvar eller ’luftförsvar’”, Meddelanden från Föreningen för Stockholms fasta försvar, (1933) vol.35, p. 57.
sationer” [“Permanent air defence and guidelines for its allocation between state, municipality and volunteer organizations”], Fevrell laid out his – and likely Sweden’s – first organizational aerial protection plan. In this article he discussed in clearer terms the division of labour and the responsibilities that aerial protection entailed.

Fevrell’s ideas on how aerial protection would function was based on an authoritarian model of leadership and civilian responsibilities. Fevrell argued that on all levels of governmental bureaucracy – state, county and municipal – aerial protection for civilians would have to be planned and funded, down to the separate individual. In terms of the technologies involved, Fevrell aligned with Jungstedt’s proposals, suggesting an active format based on artillery guns and fighter aircraft. An important feature, however, was that aerial protection would have to be under the command of the officer corps. At this early stage, the “Landstormen” [“The Landsturm”], a local militia unit, based on volunteer participation, was an organization that would provide the link between civilian personnel and a military detail. Also, considering the geographical size of Sweden, Fevrell rejected the idea of a centralized aerial protection administration. Aerial protection, he argued, had to be organized by forming a committee in each separate region, under the command of the military detail for that region, with only support from civilian state officials and politicians from local municipalities.

However, in order to build a practical aerial protection system, Fevrell proposed an organizational model that borrowed its main components from already existing infrastructure. As executives, the committee would employ the local police force and representatives of the fire department. Personnel needed to be handpicked and enrolled in advance amongst these cadres. The material components also had to be planned. Cars, lorries and tractors were to be earmarked for contingency purposes. Alarm equipment implemented for the fire department and police force could be used to provide a warning of incoming raids. Just as Jungstedt had proposed in the mid-1920s, building on the French model, suitable basements would also have to be inspected as potential air raid shelters.

259 Ibid. p. 119.
Fevrell also suggested a close cooperation between the passive and active functions of the aerial protection of civilians, which further blurred the boundary between civil and military administration and leadership. He was an advocate of modern anti-aircraft artillery and saw it as being pivotal in defending a city, suggesting that a large number should be placed on the outskirts of major cities.263 He also regarded the smaller anti-aircraft machine guns as being an important complement and promoted the permanent emplacement of them on the roofs of critical building complexes in Stockholm. Fevrell suggested that buildings such as the parliament, national bank, private banks and other historical and culturally important buildings [“kulturhistoriska byggnader”] should have gun emplacements installed on their rooftops, making these otherwise public buildings resemble armed fortresses. In terms of manning them, he suggested that the existing personnel in these buildings should be assigned civil duties at their workplaces in order to “fully maximize on war preparedness.”264 In the event of an attack, they would simply access the roof and start spraying the sky in a minimum amount of time. These persons could also be older men, as well as young men not yet old enough to join the army. Thus, these persons would find “their use” in the war effort without placing strain on the army’s need for human resources.265

Visible here is Emil Fevrell’s rooting in the early Douhet-inspired ideas on aerial warfare, intermingled with total war doctrines. The usefulness of active anti-aircraft artillery hinged on pilots daring to fly low in order to achieve bombing accuracy and, moreover, their willingness to confront armed ground targets at all. The probability that an attacking party would conduct such a raid hinged on the Douhetic principle of maintaining dominance in the air as a strategic goal, through both air-to-air and air-to-ground combat. Only if these prerequisites were achieved, would an urban active defensive system such as the system proposed by Fevrell have any use, if aircraft intended or dared to fly within range. The idea of total participation from all social strata also provided the means for assembling an active defence system. Every man not mobilized in the army was a potential gunner and every sturdy roof was a potential gun em battlement that could be manned. There was also a heavily gendered attitude in Fevrell’s texts, hidden, literally, beneath the surface. Whereas certain civilians (men) would be expected to access roofs to actively fend off the enemy, other civilians (women) would have acted to the air raid

264 Ibid. p. 121–122.
265 Ibid. p. 122.
shelters and passively wait for an attack to end whilst being guarded by the air raid shelter personnel.

Both the general militarization aspects of urban aerial protection and the inherent gendered attitude also sparked criticism from contemporary radical leftists and women’s right activists (see chapter 7). Concerning the organizational aspects of air raid shelters, Fevrell also went further than his predecessor. To maintain order in these new underground environments, Fevrell argued that every air raid shelter needed guards imbued with “polismans makt och myndighet” [“Policemen’s power and authority”]. His authoritarian mentality is shown here, as well as when he notes that as little as the individual citizen’s participation in schools, health care and fire-fighting can be based on voluntary efforts, just as little can we plan aerial protection on such terms: “The infringement of a citizen’s obligations that could cause dire consequences should be sanctioned by legal provision”. Hence, with the kind of aerial protection Fevrell promoted, the state would provide the framework for each citizen – in terms of responsibilities, not rights – through laws and regulations, whilst the army would provide leadership.

The period from 1927 to 1937 was also when air raid shelter designs for civilians began to be taken seriously by military officers and other authors, and were not just mentioned as a potential solution among others solutions. When aerial protection planning was developed, design choices and practical solutions came to the fore. This caused the interested authors and officers to consider the air raid shelter in more detail. Questions now emerged that needed to be answered. What kind of protection would air raid shelters offer, at what level of security, who needed them the most, how should they be equipped, and who should pay for them? As we have seen, the idea of air raid shelters had been introduced in London and particularly in Paris during the First World War. But at that point, they were merely basements and other enclosed structures, resembling modern air raid shelters only in name. At the same time, the fortifications branch had both tradition and knowledge of producing these kinds of structures. Emil Fevrell was one of the first military intellectuals who

266 See Elin Wägner’s text “Vad tänker du, mänsklighet?”, also “Dimbildning över Stockholm” in Wägner, Vad tänker du, mänsklighet?, 170–171, 184–185.; A pacifist group particularly directed its protest at the idea of “bomb shelters” and refused to use them. Andersson, Kvinnor mot krig, 267–270.
268 Ibid. p. 115–116.
managed to assemble the many technological development lines seen in the previous section. He moved the trench warfare bunker from the front to the home front, so to speak, making the crude cave-like underground basement look more like a controlled technological environment.

In the article “Skyddsrum för den civila befolkningen mot angrepp från luften” [“Shelters for the civil population from aerial attack”] from 1929, he began scrutinizing the gas war in detail and provided new typologies and designs that would quell civilian unease and provide protection. Fevrell introduced Swedish readers to the current state of affairs in bombing technology and laid out the different forms of air raid shelters and how they were supposed to work. Here, for example, Fevrell presented an early categorization of air raid shelters that would follow their institutionalization for decades. Fevrell proposed a division between “provisoriska skyddsrum” [“makeshift air raid shelters”] and “permanenta skyddsrum” [“permanent air raid shelters”] using the level of protection and use as variables. This type of categorization would subsequently become part of the established jargon and is something that reflects an organizational turn, or perhaps the bureaucratization of air raid shelter ideas during Fevrell’s time, with its origins in the early front line bunkers (see section 2.1). In this case, the need to decide where and what level of protection was needed – and naming them accordingly – had much to do with the attempt to produce economically-feasible policies and establish areas of responsibility. Makeshift shelters were to protect civilian citizens, either in the basement of their own apartment buildings, or in the shape of “allmänna” [“communal or collective”] protected spaces for commuters and pedestrians in cinemas, theatres or reinforced underground garages. The level of protection also mattered. Permanent air raid shelters were to be used for military or aerial protection personnel and built to handle even the largest types of bombs. These typologies also reflected the body that Fevrell envisioned should pay for them, and that there was a difference to be made between spaces converted into air raid shelters and other spaces that were constructed for this purpose only. A permanent air raid shelter needed to be built together with the adjoining building, while other shelters could use the options available in the existing structure.

The type of bombs or combination of bombs expected to be dropped on Sweden were also something that had to be considered and which also affected

270 Ibid. p. 80.
271 Ibid. p. 80–81, 84.
the proposed designs. The types of bombs that Fevrell thought the shelters should offer protection against comprised a combination of blast-, fire- and gas bombs.

Blast bombs, he argued, were the most dangerous kind of bomb and it was such bombs that forced air raid shelters be built underground. However, because of the limited range and manoeuvrability of aircraft, Fevrell deemed it unlikely that a belligerent party would use blast bombs larger than 50–100 kilos, even if larger bombs existed.\(^{272}\) Such arbitrary and speculative limits had economic and structural advantages from a political and economic perspective. Based on the 100 kg limit, Fevrell expected that a basement in a modern house would likely provide sufficient protection, thereby making expensive reinforcements unnecessary, which eventually created the opportunity to use existing basements in urban environments.\(^{273}\) Thus, focusing on blast bombs and limiting the expected size of them made smaller types of air raid shelters feasible, including “shrapnel shelters”, which could be installed in already existing structures.

The second threat were firebombs. For firebombs he proposed more “organizational” measures such as fire hoses, fire posts and different kinds of tools such as axes and shovels. An important part of fire protection was also the expectation that the fire services would be able to attend at short notice.\(^{274}\)

The third threat, according to Fevrell, and perhaps the most technologically complex threat, was gas. Two solutions were available to combat gas, both of which were borrowed from the military fortification tradition. The first method was the hermetically-enclosed gas shelter. This type of air raid shelter had to have at least two exits with a makeshift air lock in each location. The remaining air raid shelters had to be made air tight by covering cracks in the building structure. The other strategy focused on ventilation and air-filtering technology. With this in mind, each shelter would have to include air-filtering equipment or fans to filter out any gases that may have entered them. Such equipment could be both mechanical and chemical, whereas the former would clear the air while the latter would bind the gases chemically in filters.

Both strategies were direct descendants of trench warfare bunkers and also inherited their various weaknesses. The hermetically-sealed shelter would always be sensitive to ruptures in the building in which it was situated, and

\(^{272}\) Emil Fevrell, ”Skyddsrum för den civila befolkningen mot angrepp från luften” Meddelanden från Föreningen för Stockholms fasta försvar (1929) vol.34. p. 81–82.

\(^{273}\) Ibid. p. 83.

\(^{274}\) Ibid. p. 84–85. Fevrell discussed the involvement of the fire services in other articles, see for example: Emil Fevrell, “Stockholm och dess försvar mot angrepp från luften”, (1927) vol. 31. p. 31.
the space provided for the sheltered citizens would have to be sufficiently large to provide air for them to remain in the shelter for the duration of the attack. Solutions to this, Fevrell noted, could be found in modern submarine technology in which oxygen was added through cartridges and carbon dioxide was eliminated by chemical means. The hermetically-sealed gas shelter also posed a major infrastructural challenge and Fevrell himself argued that providing the entire population with hermetically-sealed air raid shelters was beyond the capabilities of the state. The other strategy, the air filtering and ventilation strategy, was perhaps easier to implement, but instead hinged on the functionality of the technical equipment. If there was even the slightest problem with the equipment, the inhabitants could experience serious problems within the hour. However, the distribution of gas masks could provide a degree of safety.

This triad of threats converging in Fevrell’s proposal shows the importance of determining what to protect from and how such decisions reverberate in design, but also that the design choices hinged on the existence of other complementary and auxiliary structures outside of the shelter. Whatever the structural weaknesses of a design, an extended systematic perspective could help. For example, if gas had been the only problem for fortification officers to solve, the Russian Pawlow’s idea of a stairwell gas shelter, or a refuge room in the middle of a building, might have made more sense, since a basement air raid shelter would allow lingering gas to seep inside. Moreover, without the existence of sufficiently equipped fire brigades and related technologies to respond to fire bombs, the air raid shelter would become a death trap, as would be evidenced by the air raids and subsequent firestorms in Dresden and Hamburg. However, since Fevrell saw the convergence of three different types of bombs, not just one, designs had to be adapted accordingly. The basement solution solved the structural issues of blast bombs; the hermetically-sealed shelter or air ventilation equipment solved the gas problem; while supportive

277 Emil Fevrell also made this point. A shelter constructed for protection against gas only, for example, a so-called “gasskyddsrum”, was something different and therefore followed other design principles. Emil Fevrell, "Skyddsrum för den civila befolkningen mot angrepp från luften” Meddelanden från Föreningen för Stockholms fasta försvar (1929) vol.34. p. 85-86.
fire-fighting equipment and an existing fire-fighting service solved the fire problem.²⁷⁸

The combination of threats and the proposed solutions also produced an urban space that was much more than simply an open underground basement. With Fevrell’s additions, the air raid shelter became a holistically approached and controlled environment in which considerations included all elements: entrance, doors, walls, roofing and ventilation, as well as the building itself. It was at this point that the air raid shelter became a survival machine of sorts, leaving the crudeness of the cave, transforming itself into a technologically dense structure that was shaped in concert with other existing systems and organizational measures. Thus, with the addition of fire-fighting equipment, the air raid shelter environment began to extend outside the door and upwards, producing a system of protection.

Also, Fevrell’s ideas about the dichotomy between active and passive protective measures suggested a highly militarized vision of how this system was composed. In this, he did not differ from his predecessor, Jungstedt. The air raid shelter in combination with active measures and the building itself formed a kind of fortress that had many similarities with its military counterpart, the bunker, often including an active-passive dichotomy in which the bunkers were connected to artillery positions or machine gun nests. With guns on top and air raid shelters below, Fevrell’s vision of the modern urban building suggested a technologically dense and armed urban bunker, linking this civilian context with the air raid shelter’s military past.

3.3.3. Kjell Magnell and the change in the mid-1930s

The next step in shelter discussions in military circles evolved under the influence of three important impulses. The first was from the mid-1930s, up until 1939; real wars gave wings to air war doctrines which, thus far, had only been theoretical. The wars in Abyssinia, Manchuria and Spain resulted in actual experiences of the new modern warfare that could be packaged and brought home. The symbolic effect of these wars was significant in the contemporary setting. The Japanese aggression in Manchuria appeared to partially confirm the importance of gaining dominance in the air.²⁷⁹ Similarly, the Italian attack on Abyssinia was evidence of the horrors of gas war in combination with the aerial dimension, while also showing the lack of potency in the disarmament

²⁷⁸ Emil Fevrell, ”Skyddsrum för den civila befolkningen mot angrepp från luften” Meddelanden från Föreningen för Stockholms fasta försvar (1929) vol.34. p. 81.
²⁷⁹ Black, Air Power, 82–83.
The German involvement in the Spanish Civil War was subsequently been described as a dress rehearsal for the invasion of Poland and, in the contemporary setting, it caused widespread alarm throughout Europe. Great Britain, for example, renewed its aerial protection efforts in the aftermath of the bombing raids on Guernica and Barcelona in 1937 and 1938 and particularly began focusing on air raid shelters as the main technical solution.

As a consequence of these worrying events, aerial protection technologies and air raid shelters in the mid-1930s, had, to some extent, been tested in real bombing scenarios. This was a significant difference from when Fevrell and Jungstedt presented their first attempts at conceptualizing aerial protection, largely based on their experiences from the First World War, coupled with a large measure of speculation. The arms race and involvement in these wars also meant that the imperial states in Europe such as Germany, France, Italy, the Soviet Union and Great Britain, as well as the small peripheral countries such as Belgium and Holland, began training their own populations in fire-fighting, gas protection and evacuation, while also passing aerial protection legislation and distributing information material and equipment. Thus, towards the mid- and late 1930s, the theorizing of the 1920s began to materialize into policies, experiences and material artefacts. Thus, this new European – and to some extent – global surge in civilian aerial protection activities gave the military intellectuals in Sweden new information to process and translate into Swedish terms, eventually altering how the military officers viewed air raid shelters and their potential.

The second impulse that further drove Swedish aerial protection and air raid shelters forward was also related to this global situation, namely, a sense

280 Black, 80–81.
281 Chickering and Förster, The Shadows of Total War, 291–293.; See also Black, Air Power, 69–71; For a lengthy discussion on the cultural impact of the Guernica bombing, see Patterson, Guernica and Total War.
283 For a condensed discussion on the British, German and Dutch efforts, see chapter 2 in Bosma, Shelter City; The extent of aerial protection measures and legislation globally during this era has yet to be researched. However, the source material confirms that at least some form of discussion existed in most countries which, in some way, had their own aerial forces. Luftskyddsinspektörens archives have folders spanning from 1933 to 1943, including Belgium, Finland, France, Italy, Japan, Latvia, Lithuania, The Netherlands, Poland, Turkey, Switzerland and Austria, as well as Germany and the Soviet Union. See the Luftskyddsinspektörens archives F:X vols. 1–2, Swedish National Archives, Stockholm; The Swedish report Civila luftskyddsutredningen also argued that in Europe, only Sweden and Ireland had no nationwide aerial protection jurisdiction by 1936. See chapter 4 in Betänkande angående det civila luftskyddet, 22–37.
of urgency due to changes in European politics. The final disarmament conference in Geneva in 1932 had ultimately collapsed, after which the European powers began an arms race of huge proportions. Sweden’s attempt to cooperate with the group called “The Honest Eight” in Geneva had failed to get the participants to sign a treaty banning the bombing of civilians. In 1934, Germany and Japan also left the League of Nations and Hitler openly defied the Treaty of Versailles’ restrictions on German armaments. At the same time, at home, in 1935 the long-awaited government report on the future of the Swedish defence organization, Försvarsommissionen 1930, was also published, but without any clear proposal on how to organize aerial protection for civilians. With two great neighbouring hostile imperial powers with aircraft armadas – the Soviet Union and Germany – right across the Baltic Sea, and with the military organization and aerial protection problem yet to be solved, the lack of aerial protection became increasingly acute.

A third change was the critique of aerial protection drills and politics that appeared in media discourses in a new way during the mid-1930s. What had previously been an intellectual debate became increasingly activist in its approach. Protest movements in Sweden directed their criticism towards any attempt to create aerial protection measures. Although this impulse did not necessarily affect air raid shelter design in any evident way, it was certainly an important contextual influence, a coinciding niche development, which affected how aerial protection for civilians would be framed towards the public. Perhaps the most well-known protest movement was the women’s Social-Democratic organization, as well as the Fogelstad Group with the famous author, Elin Wägner in charge, although there were also connections to the Women’s International League for Peace and Freedom (WILPF). Elin Wägner, with the help of journalist Barbro Alving and several others, wrote a number of articles in the journal Tidevarvet that indirectly criticized Swedish military war planning and Stockholm’s leading advocates of aerial protection. These activists also refused to participate in aerial protection drills and called themselves källarvägrare [“basement refuseniks”], inspired by the French anti-gas mask movement that was active during the same period.

This was a protest against the idea of air raid shelters, which underscored

284 Overy, The Inter-War Crisis, 1919-1939, 87–88.; Trönnberg, Nedrustning under mellankrigstiden, 161–165.
286 Andersson, “Women’s Unarmed Uprising against War.”
the heavily gendered problem of the growing militarization of civilians that they had identified (see more on this in section 7.1). Although Elin Wägner and her cohorts represented quite a radical protest movement, their emergence during the mid-1930s should be understood as evidence that aerial protection for civilians remained a controversial issue. Advocates of aerial protection needed to confront this kind of criticism, resulting in a more cautious approach to the public during the late 1930s. However, the military intellectuals were also increasingly being supported by architects and engineers (see chapter 6).

Thus, the authors who wrote about and argued for aerial protection and air raid shelters after 1935 had an entirely different situation to handle. Discussed in Geels’ terms, several niche developments changed the direction of aerial protection thinking during these years, driving the air raid shelter forward, while at the same time a series of events on the global landscape changed the circumstances at the macro level. The next generation of authors had urban battle scenes within a reasonable travelling distance to examine; they had aerial protection legislation from throughout Europe to use as inspiration, as well as a growing library of German, French and English military literature produced over some ten years. They also experienced a growing interest, as well as heavy critique, from the public sphere, which forced politicians and military authors to act accordingly and to choose their words carefully in an effort to navigate the raw and sensitive political environment.

The one figure who, above everyone else, managed to take advantage of the surge in aerial protection discussions during the mid-1930s was the fortifications officer, Kjell Magnell (1896–1985). In the long term, Magnell would prove highly influential to the development of Sweden's fortifications. Some authors claim that he will be remembered as being the most important figure in Swedish twentieth-century fortification history. In relation to aerial protection and air raid shelters, he represents a reform technocrat or, in Hughesian terms, a system builder, minded about not only the technical object as such, but also the politics, networks and organizational support structures that were needed. As the son of a prominent physicist, Kjell Magnell showed an early interest in construction and engineering. As a young officer he was

288 For a discussion on military literature during the interwar era, see chapters 10–12 in Chickering and Förster, The Shadows of Total War. The lists of recent inbound literature in journals such as Tidskrift i fortification also reveal that Swedish military officers were confronted with a lot of European – mainly German – military literature during the interwar era.

289 The author, Allan Edebäck, has suggested that Kjell Magnell might well be treated as the “Erik Dahlberg of the twentieth century”. Carlsson and Runnberg, Fortifikationen 350 år, 204.
Figure 26: Kjell Magnell. Probably one of Sweden’s most influential fortifications officers. Little has been written about him, probably for security reasons, although some suggest he will be remembered as the Erik Dahlbergh of the twentieth century (Dahlbergh was a famous architect active during the seventeenth century). Here, Magnell is portrayed in parade uniform at some point during his later years. The extent to which he was the originator of the Swedish air raid shelter is difficult to assess, since most of his ideas introduced during the 1930s were borrowed from Germany. Without doubt, he played a major role in the political setting as an actor who managed to connect many different interests. His career was crowned with the Muskö naval base project. Original found in Kjell Magnell’s archives, Royal War Archives, Stockholm, Sweden.

assigned to Bodens fästning. From 1927, he appeared as a writer and editor in Tidskrift i fortifikation, and from 1932 to 1937 as a teacher at the Artilleri- och ingenjörhögskolan, AIHS, [“Royal Artillery and Engineering College”]. During the mid-1930s, he also started appearing in public settings. Magnell’s lectures and reports began to be published in the journals Meddelanden and Teknisk Tidskrift, in daily newspapers, and as separately published works.

Magnell took advantage of his political connections. He was a close colleague of the top-level social-democratic politician and Governor of Stockholm, Torsten Nothin, as well as Captain Ejnar Nordlund, who worked at Nothin’s office as an aerial protection expert. This triumvirate sat on the board of the Föreningen för Stockholms fasta försvar, FFSFF. Together with Nothin and

290 Kjell Magnell, “Fortifikatoriska rustningsarbeten vid permanenta lantbefästningar”, Tidskrift i fortifikation, (1928), vol 28. p. 81-100; Kjell Magnell, “Fortifikationsofficerens utbildning”, Tidskrift i fortifikation (1934), vol 34. p. 147; Kjell Magnell is most likely the author behind the signature “Khgn”, author of the article “Skyddsrum i berg” Tidskrift i fortifikation, (1928), vol 28. p. 198–226; For biographical details, see Kjell Magnell’s archives, vol 1, Royal War Archives, Sweden.

291 Kjell Magnell, ”Civilbefolkningens skydd mot luftanfall” Meddelanden från Föreningen för Stockholms fasta försvar (1936), vol. 41. p. 31-43; Kjell Magnell,”Byggnadstekniskt luftskydd. Iakttagelser under en studieresa i Tyskland” Meddelanden från Föreningen för Stockholms fasta försvar (1937), vol. 42. p. 11-59; Kj. Magnell, Byggnadstekniskt luftskydd: iakttagelser under en studieresa i Tyskland (Stockholm: Fören. för Stockholms fasta försvar, 1937); See also Kjell Magnell’s lecture “Bomb- och gasskydd i byggnader” published in Teknisk Tidskrift (1934), vol. 64. p. 413–415. Kjell Magnell also appeared in the daily press on a few occasions, either connected to lectures or during the instigation of the volunteer aerial protection organization. See, for example, ”Riksorganisation bildad för det civila luftskyddet” Svenska Dagbladet, 31 January, 1937; ”Skyddsrum 57 är legationen” Dagens Nyheter, 14 May, 1937.

292 Torsten Nothin, Från Branting till Erlander. (Stockholm: Wahlström & Widstrand, 1959), 223.; See also Sjölin, I skuggan av kriget, 201–203.
Nordlund, Magnell functioned as the driving force of the volunteer organization *Rikslufiskyddsförbundet*, RLSF [“Association for National Aerial Protection”] in which he took the role of secretary, an organization that would become Sweden’s largest voluntary war-preparedness organization of the Second World War with some 667,000 members in 1945.

Moreover, Magnell was personal adjutant to the Crown Prince from 1936, suggesting personal ties with the royal family (from 1950 onwards he was “överadjutant” [“Chief Adjutant”]). He was also part of aerial protection-orientated commissions of inquiry during the 1930s, in which he acted as an expert on air raid shelters. Through these commissions he profoundly influenced and shaped policies during these years.

He eventually became head of the fortifications department as well as the Inspektör över rikets befästningar”, [“inspector of national fortifications”]. Magnell’s interest in building physics and engineering continued into the 1940s and the post-war years. During the 1940s he initiated a research bureau for fortifications, the first of its kind in Sweden. Also, in 1943, he was elected to the Royal Academy of War Sciences, KrKVA. He also personally drew air raid shelter designs for important buildings, such as the air raid shelter of the National Bank. During the 1960s, he designed and was project head of Sweden’s largest fortifications project since Bodens fästning, the Musköbasen, [“Muskö naval base”]. The Muskö base was his last project, and in the late 1960s he ended his career, honoured with the title of General Lieutenant.

The sources with which Kjell Magnell worked in his writings reflected the new situation during the 1930s, as well as his many personal ties with politicians, the royal family, and established associations. Unlike his predecessor Emil Fevrell, Magnell’s work on air raid shelters and aerial protection was solely based on study trips during the mid-1930s. The funding of these trips reflected the network of well-known figures behind Kjell Magnell. In 1935, he was funded by the FFSFF to conduct a trip together with a delegation from the Red Cross. The delegation visited Poland, Czechoslovakia, Switzerland, Italy and Belgium and the report was published in the FFSFF’s journal *Meddelanden*.297

293 Kjell Magnell’s archives, vol 1, Royal War Archives, Stockholm, Sweden.
294 Kjell Magnell was part of the commission of inquiry on civilian aerial protection, instigated in 1936, Betänkande angående det civila luftskyddet; See also Thomas Munck af Rosenschöld, Minnen från 1900-talet: minnesanteckningar (Sollentuna: J. Munck, 1995), 223.
295 Carlsson and Runnberg, Fortifikationen 350 år, 204.
296 Carlsson and Runnberg, 204.
It is also noteworthy that the previously discussed Hugo Jungstedt, editor of *Meddelanden* and also a colleague of Magnell through the fortifications branch, had close ties with the director of the Swedish Red Cross, Prince Carl. Jungstedt was vice-director of the Swedish Red Cross and moreover had been the head of its gas warfare investigative committee of 1928. Magnell’s personal relationship with Jungstedt and the royal family was probably a prerequisite for the funding acquired for this trip.

Magnell’s second study trip in 1936 to Germany was more openly politically influenced, but also reflects Magnell’s political connections through the FFSFF. This time the trip was funded directly by the state as part of the newly instigated parliamentary commission of inquiry of 1936 on civilian aerial protection (see chapter 4, section 4.1.3 for more on the Beskow commission). It is likely that it was the above-mentioned politician and Governor of Stockholm, as well as director of the FFSFF, Torsten Nothin, who managed to get Magnell on this commission. His close colleague, Einar Nordlund, was also called as an expert, further suggesting that the composition of the committee was the result of the network surrounding the FFSFF. It has also been speculated that Kjell Magnell, in relation to his predecessor and contemporary Emil Fevrell, was not burdened by accusations about having Nazi sympathies, and could easily be consulted for expert advice on matters that the Social-Democratic Party deemed politically problematic. The year after, in 1937, Magnell also gave a lecture in Stockholm based on a third trip to Spain, together with another well-known aerial protection-orientated officer and author from that era, Åke Kretz. Kretz was the second secretary of the above-mentioned commission of inquiry of 1936, and it is likely that the two met during their work there.


299 I scanned the FFSFF protocols to gain some insight as to whether Magnell’s and Einar Nordlund’s participation was discussed by the leading strata of FFSFF but have found nothing concrete. However, the FFSFF formed a committee (“arbetsutskott” AU) for aerial protection during the spring of 1936, led by Magnell and Einar Nordlund, which eventually overlapped with the instigation of the Beskow commission. Many ideas from here were brought into the Beskow commission, suggesting that Torsten Nothin used the AU as an example of what the members of the FFSFF were capable of regarding the Minister of Defence, Ivar Wennerström. See the FFSFF’s archives, “Arbetsutskottet luftförsvar”, vol F1:2. Royal War Archives, Stockholm Sweden.

300 Munck af Rosenschöld, Minnen från 1900-talet, 223.

301 Åke Kretz would eventually turn to national socialism and unsuccessfully attempted to enrol in the Waffen-SS in 1941. Up until then, however, he was a highly profiled aerial protection expert, writing a series of books on the topic, sometimes in co-operation with others. He worked specifically on Gothenburg’s aerial protection organization. His bibliography includes Bratt and Kretz, *Luftkrieg
Magnell’s gave his lecture at the FFSFF’s annual meeting, which also funded the trip, and the event caused headline news in Stockholm’s largest daily newspaper, *Dagens Nyheter*.302

As a sign of the engineering community’s new-found interest in aerial protection during the mid-1930s, Magnell was also accompanied by three engineers during his second trip to Germany in 1936: P.E. Rydbäck, Torsten Gustafsson and Hjalmar Granholm. Rydbäck was chief engineer at *Svenska kullagerfabriken*, SKF, one of Sweden’s all-time largest export industries, and also wrote for *Teknisk Tidskrift* on aerial protection topics. Torsten Gustafsson, a civil engineer, would later become chief engineer of the state’s first governmental body handling aerial protection, *Luftskyddsinspektionen*. Hjalmar Granholm was an Umeå-born Professor of Building Physics at Chalmers and, in terms of modern building methods, he was a pioneer. His construction firm was one of the first to use concrete for public buildings in Sweden. Hjalmar Granholm would eventually become involved in the physics of air raid shelters during the 1940s at the Royal Institute of Technology, KTH. He most likely also had personal contacts through Magnell’s father, who was a Professor of Building Sciences. From 1920 to 1922 Kjell Magnell had also studied physics at KTH. The report from the trip conducted by this group of four would lay the ground for the parliamentary report he was working on, but it was also published separately in the journal *Meddelanden*, as well as a separate publication, reflecting the FFSFF’s key role in disseminating these ideas.303

The networking nature of Magnell’s work would follow him throughout the 1930s and 1940s, particularly his connections with the FFSFF and the engineering community. For example, through the instigation of a research bureau on underground construction, Magnell effectively connected the fortifications branch with the concrete industry and building sciences. Moreover, they show that the networks mattered greatly for creating funding opportunities to develop the fortifications branch, and that the FFSFF formed the key arena for these discussions during the late 1930s. In this way, Magnell’s network and the many trips constitute the basis of the advantage he had over his predecessors, who either built on experiences from the First World War, or newly established and untested organizations, or sheer theoretical assumptions.

302 Dagens Nyheter, 14 May 1937, “Skyddsrum 57 är legationen: Kapten Magnell berättar om luftskyddsstudier i Spanien”.

303 Magnell, Byggnadstekniskt luftskydd.
and always with the disarmament and anti-war movements in the background. Also, the circumstances of these study trips show the increasingly European outlook that was offered during the mid-1930s to those who were interested in aerial protection. With hard facts from European organizations and examples of real air wars, Magnell’s negotiating position towards the political establishment was a lot stronger. This is what makes his contribution important in the longer perspective.

Magnell’s central position and skill in maintaining a network that connected the fortifications branch, the FFSFF, to politicians and the engineering community, makes him an early type of reform technocrat or, for that matter, a system builder, with a profound influence over the development of aerial protection and air raid shelters in Sweden.

Magnell’s ideas for a Swedish air raid shelter system and aerial protection, which were presented in the journal Meddelanden, had three important elements that needed to support each other in order to function successfully.

Firstly, Magnell argued that the state and local municipalities should each provide for public air raid shelters as well as for important social institutions, public buildings, infrastructure such as railways and ports, power stations and key industries.

Secondly, provision should always be made for air raid shelters and other aerial protection measures in all new buildings, in accordance with state-approved plans, or no building permits should be issued. In already existing buildings, Magnell argued that the state had to be able to require complementary work to make them fire safe and, in some cases, rebuild them in order to provide protection.

Thirdly, he pushed heavily for a state-controlled national volunteer organization that could provide information and educate the public on how to use air raid shelters, firefighting and gas sanitation equipment, as well as administer first-aid. For this, he particularly used the German Reichsluftschütz bund, RLB, as a model and claimed that organizing something similar in Sweden was a “necessity” in order to make aerial protection measures meaningful to the public and the state.304 Thus, information and propaganda were just as important as the technical object itself and the regulations surrounding it.

At their core, none of these suggestions differed much from what had previously been stated by Swedish authors. In 1927, Fevrell also introduced the idea that volunteer organizations would man many of the different functions that Kjell Magnell, "Civilbefolkningens skydd mot luftanfall” Meddelanden från Föreningen för Stockholms fasta försvar (1936), vol. 41. p. 37, 42.

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304 Kjell Magnell, "Civilbefolkningens skydd mot luftanfall” Meddelanden från Föreningen för Stockholms fasta försvar (1936), vol. 41. p. 37, 42.
an aerial protection organization would include and he also recommended
that air raid shelters should be considered in all new construction plans.\textsuperscript{305}
However, Magnell’s recommendations, at times even stricter than Fevrell’s,
had a particularly fruitful political vantage point, since they were based on
facts that had already been established in the rest of Europe.

Magnell demonstrated how similar legislative solutions had been passed in
a number of countries such as Poland, Italy and Belgium in 1934 and Czechoslo-
vakia and Switzerland in 1935. Also, he claimed that in these countries, the
need for aerial protection was taken seriously, regardless of political debates
about the military defence organizations.\textsuperscript{306} As mentioned above, Magnell’s
report from 1936 was also published at a time when the international political
landscape had finally given up hope of implementing multilateral disarmament
treaties or banning strategic bombing.

In other words, whilst Fevrell in many ways attempted to promote aerial
protection legislation and organizations and also progressive ideas at a time
when large activists groups still hoped for disarmament, Magnell’s report
induced the notion that Sweden needed to get ahead and prepare itself in
order to balance the gap between neutral Sweden and the warmongering states
in Europe that were clearly re-arming, irrespective of their domestic defence
politics. Some of the nations that Magnell visited during his first trip were also
nations that maintained a neutral stance, such as Belgium and Switzerland,
as well as neighbouring aggressive and imperial states. These countries would
identify with Sweden’s position. Thus, demonstrating what they had done
thus far could be seen in relation to what Sweden had not done. Once again,
it appeared that the contextual framework gave extra weight to the ideas that
were raised and not to their ultimate origin.

Magnell also added a number of items to the list of requirements that also
reflected the political environment within which he worked. Magnell was a
promotor of a de-militarized version of aerial protection, and his texts reflect
this, as well as the wording and perspectives he chose to present. Of particular
importance is that he promoted a civilian state-led central organization that
would function as an inspectorate department, handling design, management
aspects, equipment and funding issues. This was a major break from his pre-
decessors. Shelters in public and official buildings were to be built according

\textsuperscript{305} Emil Fevrell, “Fast luftförsvar samt riktlinjer för detsammas fördelning på stat, kommun och frivilliga
organisationer” Meddelanden från Föreningen för Stockholms fasta försvar (1927) vol. 32. p. 115-127.
\textsuperscript{306} Kjell Magnell, “Civilbefolkningens skydd mot luftanfall” Meddelanden från Föreningen för Stock-
holms fasta försvar (1936), vol. 41. p. 32, 35.
to models and plans approved by a “civil” government department (Magnell’s emphasis), not a military department.\textsuperscript{307} Also, Magnell argued that the concerned military department should only function in an advisory capacity in relation to the civilian department. His own department, the military fortifications department, was naturally the one suggested for this role, and not the aerial defences or the regional military chief, as Fevrell had suggested.

Judging from the overall tone of his report, this was without doubt an intentional attempt to cleanse some of the militarizing aspects that had been part of Fevrell’s and Jungstedt’s envisioned aerial protection systems, and perhaps the one thing that would ensure political success in the long term. Magnell used the “civil” prefix with emphasis, to make his position clear and also make a moral distinction from earlier suggestions. In his discussions about aerial protection in other countries, he accentuated their non-political understanding of aerial protection in relation to the politically flavoured military defence discussions at home, in order to make the question of civilian protection appear to be politically neutral and uncontroversial. According to his experiences abroad, the matter was so politically uncontroversial and so innocently defensive in nature that even “the most fanatical pacifists can, and should, take part.”\textsuperscript{308}

Simultaneously, however, he emphasized the need for the state to maintain control, suggesting that aerial protection contained something problematic that needed to be managed. In Magnell’s words, ratifying aerial protection in, for example, Czechoslovakia, was a satisfactory way for the state to gain a “firm hand over the aerial protection issue.”\textsuperscript{309} Likewise, none of Magnell’s report includes any discussions on active aerial protection measures such as anti-aircraft artillery or fighter planes, which took up a lot of space in Fevrell’s and Jungstedt’s earlier texts. Instead, Magnell spoke of providing “security”\textsuperscript{310} and reassuring technical solutions for the citizens, as if they were part of a welfare programme, rather than protecting the national organism or the kingdom of Sweden at large. This did not mean that anti-aircraft artillery did not matter; rather, this was a matter of political rhetoric and strategy. In this sense, Magnell focused more on the solutions \textit{to} than the origins \textit{of} the problem, which had shaped much of Jungstedt’s and Fevrell’s discussions.

Thus, Magnell’s civilian model meant a distinct political break from Fevrell’s ideas of aerial protection, even though they had much in common in

\begin{footnotes}
\item[307] Kjell Magnell, "Civilbefolkningens skydd mot luftanfall” Meddelanden från Föreningen för Stockholms fasta försvar (1936), vol. 41. p. 32.
\item[308] Ibid. p. 42.
\item[309] Ibid. p. 37.
\item[310] Ibid. p. 41.
\end{footnotes}
terms of their technical and organizational aspects. Fevrell proposed no civil
government department, likely because his version of how an aerial protection
arm – active defences in the form of artillery and machine guns – were just
as big a part of the overall picture as the passive defences, and were therefore
something that required military leadership. Although active and passive were
separated in form and nature, Fevrell made no organizational distinction
between them in the way

that Magnell, did, which made them politically sticky. Nor did Fevrell
speak in terms of providing reassurance and security for civilians. Rather, he
understood the civilians’ role in terms of control and responsibilities towards
the military apparatus handling the new total war. In the system envisioned
by Fevrell, civilians were a fragile resource to be used. Fevrell, and many other
authors of his age, often had a dystopian outlook in their articles, which is
another example of the differences between them. Magnell barely touched upon
the subject of total warfare, gas war or aerial warfare in his reports. Perhaps
as an attempt to cleanse the alarmist tone, these issues were treated as being
self-explanatory or irrelevant and were therefore not mentioned at any great
length. He solely concerned himself with practical solutions and scientific tech-
nicalities, letting the dystopian descriptions of civilians and their vulnerability
in aerial warfare out, which helped him disconnect aerial protection measures
from what they were meant to offer protection against. Aerial protection was a
treated as a complement to other forms military countermeasures and could not
exists without it, but nevertheless aerial protection was by Magnell shown to
be able to act independently from the military forces. In the long term, such
independency would promised to wash off the fear of militarization of civil
society that had caused much public anxiety during the mid- and late 1920s.

3.3.4. Introducing Construction-Technical Aerial Protection

Magnell’s de-militarized and politically-minded approach to aerial protection
in general shaped his view on how air raid shelters should be built and design-
ed. Looking at Kjell Magnell’s ideas on air raid shelters specifically, we see
the end of its introductory phase in the interwar era, and the start of the air
raid shelter as Sweden would come to know it. Magnell pushed for a resilient
construction philosophy, instead of just considering the air raid shelter as a
converted existing space. This he introduced as “Byggnadstekniskt luftskydd”
[“Construction-Technical Aerial Protection”]. The concept was directly borrowed

Kjell Magnell, ”Byggnadstekniskt luftskydd. Iakttagelser under en studieresa i Tyskland”, Medde-
landen från Föreningen för Stockholms fasta försvar (1937), vol. 42. p. 12.
from the German engineer Hans Schoszberger’s dissertation *Bautechnischer Luftschutz*, published in 1934. Similarly, as with Fevrell, the construction-technical approach promoted a systemic approach to adjacent buildings.

However, the civilian prefix represented a major difference. While Fevrell envisioned a militarized urban cityscape, Magnell effectively avoided all discussions on artillery and machine guns on rooftops or in the cityscape in general, and instead focused more on the structural integrity of the building, using only civilian concepts, connecting the air raid shelter to a technical engineering and architectural discourse. To maintain any protective function for its inhabitants, the ideal air raid shelter had to become part of the building itself, which emphasised the importance of considering the building’s own traits.

Subsequently, Magnell highlighted the importance of considering the structural framework the resilience of different materials, the shape of roofs, walls and arches, sizes and position in his texts. What emerged out of this was the kind of air raid shelter that we are familiar with today. A structural concrete enhanced basement room with two exits, designed to withstand the collapse of the building above in the event of a direct strike, and constructed at the same time as the building above. In combination with support equipment such as heavy steel doors, ventilation equipment, first-aid and fire-fighting equipment, gas masks and other supplies, this structurally enhanced space became a politically less problematic air raid shelter to handle.

However, it was not only a civilian outlook that forced this new perspective on construction physics. An important niche development was also the result of the diminishing role of gas in warfare planning. Towards the mid-1930s, military authors began to argue that the fear of gas had been exaggerated and that most likely, a belligerent state would not be able to muster enough war gases for them to be effective. Even Emil Fevrell, who had spent much energy on designing and debating gas-proof shelters, concluded that the effects of gas on civilian environments had been exaggerated. Considering the vast amount of gas that would be needed to cover an urban area, Fevrell admitted, there appears to have been an “inclination to exaggerate the significance of aerial gas bombings”.

The focus on structural integrity, materials and building design
when planning for aerial protection was largely the natural consequence of this conclusion, and something that Magnell’s predecessor, Fevrell, also supported towards the mid-1930s. A reduced focus on hermetic closure and the behaviour of gas narrowed the available options and made it easier to settle for a certain design, also allowing for smaller forms of air raid shelters. Magnell, taking the lead in these discussions after Fevrell, could therefore eliminate conflicting design ideas from his programme and handle the gas problem through supportive and individually used technologies instead, not as part of the air raid shelter’s foundational structure.

The effects of this change of focus from gas bombs to blast bombs was quite radical in terms of design. He also sealed the fate of other competing design proposals for air raid shelters, such as refuge rooms and sealed stairwells. The principle of utilising the underground basement prevailed. In the report from Magnell’s first study trip, he concluded that although the ideal location for a gas shelter would be higher up in a building, it is clear that positioning an air raid shelter in this way would cause severe structural weakness regarding any form of blast bomb above 100 kilos.314

Moreover, Magnell noted that almost all aerial protection organizations that were visited in Europe concluded that equipping every shelter with air-filtering gear was an economically untenable solution.315 Solutions to the gas problem had to be handled differently. Air raid shelters in basements cast in concrete, he argued, were the only realistic solution for they would not only be economically feasible, they would also meet the threat using hermetically-sealed rooms. The durability of modern concrete material would certainly withstand modern blast

against civilians were unlikely, although not impossible. See B. E. L. Brusewitz, “Det kemiska kriget – en återblick och ett perspektiv” in Ny militär tidskrift (1934), vol. 8. p. 343.; The Swedish military chemist, Erwin Engels, was also already sceptical about its effectiveness in 1929. See the article “GAS”, Ny militär tidskrift (1929), vol 3. p. 110.


315 Air-filtering devices in air raid shelters would become very common in the long term. However, in this context they worked as an economic argument since they suggested that building air raid shelters would become less costly. Kjell Magnell, “Civilbefolkningens skydd mot luftanfall” Meddelanden från Föreningen för Stockholms fasta försvar (1936), vol. 41. p. 39–40, 41. Air-filtering devices are a common sight in pictures of air raid shelters during the preparedness years from 1939 to 1945 and many still exist in modern Cold War air raid shelters built up to the 1970s. In 1939, the Luftskyddsinspektion, LI, spent SEK 3.5 million on 6,000 air-filtering devices for public shelters. The argument was that each shelter could double its capacity with these devices. Underdåniga skrivelser, No. 293, Luftskyddsinspektion’s archives, volume BI:1, National Archives, Stockholm, Sweden.
and fire bombs and would also render all air-sealing problems redundant. To further aid him in this argument, Magnell also pointed to another concurrent niche development: existing legislation regarding his preferred material, concrete. Magnell argued that if the Swedish “state-approved norms of 1934 for thick concrete” are followed, no extra work will be necessary to build sealed air raid shelters. In other words, whatever lack of gas protection that might be entailed in the design of basement air raid shelters, such issues could be resolved by utilizing materials, equipment and legislation – supportive niche developments – that already existed or were in effect.

This type of argumentation is also something that conveniently re-connects with a strain of air raid shelter design since Fevrell, namely that of the dichotomy between construction and adaptation. The kind of air raid shelter that Magnell proposed was not merely a kind of adaptation of the basement environment into an air raid shelter, but rather an air raid shelter that had been included in the design of a building and thus incorporated into the construction process.

Magnell proposed a construction-technical approach that resulted in a design philosophy in which aerial protection was accounted for in the building process. However, Magnell, just like Fevrell, also confirmed the utility value of the adaptation method but made a clearer distinction between its resilience levels and its inherent weaknesses. The permanent shelters previously used by Fevrell for military personnel and makeshift shelters for the common apartment building or house were also re-named “fullträffsäkra” shelters [“direct-hit proof”] and “splitterskydd” [“shrapnel shelters”]. The direct-hit proof shelters could either be cast in concrete or blasted bedrock tunnels. Splinter shelters were to be built in either existing basements through reinforcing work or incorporated as part of new buildings through adaptation. These shelters were not expected to withstand a direct hit. Neither, by default, were they gas proof, but would be able to resist flying shrapnels from nearby explosions as well as the weight of the collapse of the building above.

Thus, the reduced threat of gas enabled a new categorization and a construction philosophy that made both temporary and integrated air raid shelters, now called “shrapnel shelters”, if not perfect, at least viable solutions. These categorical differences would later become decisive during the Second World War, since they enabled a huge shelter programme to be implemented,

317 Ibid. p. 40.
although the types of shelters that were produced would not be capable of withstand ing direct hits.

In 1936, Kjell Magnell conducted another study trip, this time to Germany, as part of his involvement as a fortifications and shelter expert in a newly formed parliamentary commission of inquiry, the so-called *Civila luftskyddsutredningen* (often referred to in this dissertation as “The Beskow commission”). The study trip laid the ground for much of the content of the committee’s report but was also published in both *Meddelanden* and as a separate article.

In this study trip report, which was much longer and more elaborate than the previous report, Magnell took yet another step towards the technical and civil approach, but also used a series of arguments to show that implementing his model was, for the most part, easy due to the socio-cultural and geographical traits of Sweden, insofar as he enabled a political streamlining of his ideas that would eventually lead to success. The report was called “Byggnadstekniskt luftskydd: Iakttagelser under en studieresa i Tyskland” from 1937 [“Construction-technical Aerial Protection: Observations from a study trip to Germany”]. The name of the article was not coincidental. Although Magnell had discussed the idea of construction-technical aerial protection in his earlier article, he went further here in establishing it as the primary frame of reference for aerial protection, making it the main topic under which every other measure was classified. This was about showing the possibilities by connecting the concept to existing societal trends.

The political streamlining of this article can be divided into a few different traits, with Magnell’s experiences from Germany forming the point of departure for all of them. According to Magnell, although the German state had done a lot of good work in protecting its civilians, Sweden had advantages that would enable the seamless integration of this proposed construction-technical mindset in aerial protection and urban planning. For instance, the standard wooden frames in German houses were likely too weak and too combustible to withstand aerial raids. However, Magnell argued, this structural weakness was a socio-cultural matter that could be resolved without any particular changes in Sweden, since changes in building legislation had already resulted in the widespread use of concrete floors in Sweden’s largest cities.

Magnell was also particularly fond of the skeleton-type concrete building style seen in Germany, which he thought would make the building heavily resistant to collapse in the event of a direct hit. However, he also found it

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likely that the fully cast apartment buildings that were starting to be built in Sweden would be even more capable of withstanding blast and fire bombs (it is likely no coincidence that this type of building was partially introduced by Hjalmar Granholm, who also joined Magnell on this trip). Even more basic forms of dwellings in Sweden were likely to be sturdier than their German counterparts.\textsuperscript{320} At its core, this was a matter of construction tradition, while also emphasising a state’s ability to conform to scientific and technical progress.

Another important asset was Swedish bedrock, which enabled tunnelling and therefore the construction of direct hit-proof air raid shelters in many exposed urban environments.\textsuperscript{321} Thus, if specifically directed at the Swedish engineering, building sciences and construction industry, arguments as to why Sweden was well suited to the implementation of legislation could find support in pre-existing socio-cultural and geographical traits and niches.

In this later article, Magnell also further elaborated on the role of urban planning. This, too, was included in the principle of Construction-Technical Aerial Protection, and also meant a further move away from the military heritage of aerial protection to a civilian political context. Aerial protection, Magnell argued, demands “en allmän upplukring av samhället” [“the general dispersal of urban society”]. Thus, the city had to be considered in its entirety.\textsuperscript{322} His predecessors had rarely considered air raid shelters to be isolated entities without support from other systems. However, whenever Jungstedt and Fevrell considered the systematic traits of air raid shelters, this had meant the incorporation of military elements, such as the city’s relationship to air bases and artillery guns. Magnell, however, focused on other aspects that remained in the civilian context, such as street networks, the composition of districts and the location of entire cities in terms of geography. The German state was the progenitor of these ideas and, in this case, the German initiative was something quite awe-inspiring. In particular, Hans Schoszberger’s work on how to build air-resilient “linear” cityscapes gave intellectual substance and support to Magnell’s ideas.

Although urban planning can only be treated as a tool to be used over long periods of time, Magnell argued that aerial protection planners in Germany promoted the “general sanitation” of urban centres, the movement of

\textsuperscript{320} Kjell Magnell, ”Byggnadstekniskt luftskydd. Iakttagelser under en studieresa till Tyskland” Meddelanden från Föreningen för Stockholms fasta försvar, (1937) vol 42. p. 21-22.
\textsuperscript{321} Ibid. p. 26.
\textsuperscript{322} Ibid. p. 19
households and apartments into suburban “garden cities”, and industrial and business sectors separated from workers’ living quarters.\textsuperscript{323}

In essence, the turn towards urban planning meant a turn towards something that resembled an architectural ideal, a new vision and a way of reading the urban landscape. Magnell was no longer merely focusing on adapting individual houses for aerial protection, the urban environment was to be transformed into a complete air war-resilient fortifications system. This turn also had the effect of civilizing what had previously been a military concept. If Hugo Jungstedt and Fevrell had approached the problem of aerial protection with a call for a return of the urban fortress, and an armed civilian bunker, Magnell presented aerial protection with the help of the engineering and architectural sciences instead. In particular, he mentioned the transformation of the city of Hamburg as an ideal and as model for aerial protection planning in Sweden. Knowing what Hamburg would later suffer, the irony of this is evident, but is likewise a testament to the positivistic characteristics of science and engineering during the late 1930s – and that few managed to foresee the scale of the coming raids and how inadequate these attempts at aerial protection were.\textsuperscript{324}

Thus, Magnell’s work managed to cleanse some of the stigma of militarization with which aerial protection had previously been associated using the engineering and architectural sciences as a means. However, it should be noted that Fevrell’s and Jungstedt’s generation was also influenced by the ideas of modernity and architectural trends. Fevrell, for example, argued in 1935 that “modern building sciences and architecture had lent a hand to aerial protection”.\textsuperscript{325} But as they made their entry into the debate, their frame of reference was based on close support from military aerial defences first-hand and therefore had an entirely different scope, treating aerial protection mainly as a military affair that required civilian co-operation. Magnell eliminated this heritage and


\textsuperscript{324} According to the German aerial protection journal, Die Sirene, Magnell argued that the sanitation of the older parts of Hamburg had resulted in a reduction in population density from 5,640 to 3,900, which was to be considered a great success in terms of aerial protection. The building coverage of the area had also been reduced from 68% to 46% and the new buildings had been adapted to technical aerial protection principles in order to make them sturdy and fire resistant. This was a splendid result since dispersal of both citizens and houses made a city less vulnerable to bombs and fire. Kjell Magnell, ”Byggnadstekniskt luftskydd. Iakttagelser under en studieresa till Tyskland” Meddelanden från Föreningen för Stockholms fasta försvar, (1937) vol 42. p. 20-21.

\textsuperscript{325} Emil Fevrell ”Flygbomber, desammas verkan mot slutna samhällen jämte några reflexioner rörande det civila kollektiva luftskyddets inflytande på byggnadstekniken och samhällenas bebyggelse” Meddelanden från Föreningen för Stockholms fasta försvar (1935), vol. 40. p. 77.
pushed aerial protection measures into a new civilian context that breathed great expectations, modernist architecture and planning ideals. A quote from an article in the *Tidskrift i fortifikation* from 1928 shows this tidal change in mentality. In 1928, the German artillery officer, Karl Justrow, pondering over the progress of weapons technology, 326 claimed that “the frightening ghost of the continuously growing air forces will likely drive humanity itself underground.”

This was not an uncommon interpretation of the fate of human civilization in the 1920s. The most radical critics tended to offer similar interpretations on a recurrent basis. Elin Wägner, for example, claimed that the world was entering a “basement epoch” or, with the help of air raid shelters, would become a “termite society”. For both Justrow and critics like Wägner, the underground air raid shelter was a civilizational defeat of sorts. They never understood the underground shelter itself as something that could be modern in this context.

Fevrell and Jungstedt also had difficulties challenging this interpretation. However, by transferring Schoszberger’s concept of “Byggnadstekniskt luftskydd” into the Swedish military-intellectual environment, and by civilizing it instead of militarizing it, Magnell placed the air raid shelter into the general construction-engineering context of the 1930s which, at its core, was optimistic. Consequently, in the late 1930s, the air raid shelter, and to some extent the underground mode of life, was presented as something intrinsically “modern”.

It might also be worth considering why Magnell proposed this way of thinking about aerial protection. Whether this was just an expression of the zeitgeist of the mid-1930s, or whether it was a deliberate strategy on his part is hard to determine. As we have seen, a lot of other parallel developments at the political level adopted the construction-technical approach and worked in the air raid shelter’s favour. Perhaps Magnell’s civilian focus was simply the result of his own studies and trips abroad and the flourishing ideas of the mid-1930s. However, it could equally be the case that, in close co-operation with his colleagues in the FFSFF, he strategically decided to take this civilian turn in order to ultimately resolve the aerial protection issue politically, using the network behind him for political leverage. Both Magnell’s articles had clearly political undertones, perhaps most likely a combination. The FFSFF was a heavily political organization that had great confidence in its work, as well as connections in the fortifications branch and in the political field.

326 It is likely that the author was the artillery officer, Karl Justrow, author of Die Dicke Berta under de Krieg (Berlin, 1935).
Although Magnell’s ideas were not unique in Sweden or elsewhere, his operationalization of the network surrounding the FFSFF enabled his entry into parliamentary politics, which meant that his programme for aerial protection reached the higher echelons of the state of Sweden. The political context was also entirely different at this point. Compared to his predecessors, international politics had made uneasy turns when Magnell presented his articles forcing politicians into action.

3.4. Summary

So, what did the shelter get from the bunker? Or more specifically, how did the military fortification branch develop the idea of aerial protection during the interwar era? As we have seen throughout this chapter, the answer to this question can be divided into a few different levels, each of which contributed. The bunker’s apparent move to an urban setting and the renaming from bunker to shelter involved processes on many different levels of society. There were several practical and organizationally coinciding niche developments that enabled the invention of the air raid shelter, but which also created a context in which it was needed.

Firstly, it was the development of long-range artillery, and not aerial warfare, that drove the fortifications branch towards developing sheltered underground spaces. This process was aided by the increased use of concrete structures and reinforced steel during the late nineteenth century. As aerial warfare made inroads into this military context, bunker designs that resembled civilian air raid shelters had been in the making for some time and could be used. Thus, the aerial warfare that was created in this context was the bunker’s imminent move from the front to the urban environment. For Swedish military authors, it was the basement in particular that became the urban space that could best be operationalized for the protection of civilians.

Secondly, as this happened, doctrinal changes in military thought also emphasised the civilians’ role as being a key factor in the next war, both through the civilians’ practical function as workers and human resources, and as a psychological risk that could create political unrest if not handled carefully.

To solve these problems in the Swedish setting, fortifications officers engaged with the FFSFF during the mid- and late 1920s. First out was Hugo Jungstedt, who presented a civilian aerial defence system to solve the immediate practical problems that total and aerial warfare might cause. Here, air raid shelters were included, as well as a set of other technologies which, in total, presented a vision of the fortified urban environment. To handle the psychological effects, he also
presented this system as having a sort of prophylactic function regarding the political and psychological weakness of civilians. Another officer, Emil Fevrell, followed in Jungstedt’s footsteps to a large extent, but also produced a more elaborate management system and guidelines on how the administrative levels of society could handle civilian aerial defences.

In terms of air raid shelters, Fevrell also further elaborated on the air raid shelter during the late 1920s. By using ideas and technologies from military fortifications, he presented an air raid shelter model that was increasingly technologized, and part of a greater system that included a wide array of equipment, infrastructure and auxiliary services. Kjell Magnell, the third fortifications officer involved, had a very different political context within which to work during the mid-1930s. He continued to build on existing works on air raid shelters and aerial protection measures but removed the military context from the concept in an effort to present aerial protection and air raid shelters as part of modern society. Under the banner of Construction-Technical Aerial Protection, Magnell proposed an air-minded design philosophy that could be integrated into modern housing policies and construction methods. This also included large-scale urban planning.

In the Swedish context it is obvious that the development was not an evolutionary path to an increasingly effective design that was eventually adopted. Rather, the conceptualization of air raid shelters presented by Kjell Magnell during the mid-1930s, and which eventually would become the norm, was a design philosophy that was developed through a constant negotiating process in order to eventually identify a form that was socially and culturally acceptable. We might also consider Kjell Magnell’s role in this. While it is obvious that he is the link between idea and politics, the system builder, to paraphrase Thomas Hughes, or a reform technocrat, he is also a man who just happened to be in the right place at the right time. Much of what he proposed had been voiced ten years previously, and the idea of “Byggnadstekniskt luftskydd” was an imported concept. Magnell’s ideas were based on and supported by a wide array of parallel developments, technical prerequisites, global events and concurrent political processes that were, for the most part, beyond his own control. Nevertheless, in comparison to his predecessors, he managed to solidify his ideas in the political context in a way that made his persona stand out. As we will see in the next two chapters, the key to understanding this is by studying the network relations between the FFSFF, the Red Cross, the NMT group and the political parties that dominated the 1930s.
4. From sub-politics to parliamentary politics – 1927–1936

If the previous chapter explained how the idea of aerial protection and air raid shelters developed in the military context, this chapter will discuss how that idea took root politically. As is always the case, there is no singular explanation as to why this happened; rather, several circumstances convened during this period. Towards the end of 1936 and the beginning of 1937, a series of both sub-political and high-political trends and events lined up, so to speak, and made way for the kind of air raid shelter that Kjell Magnell had proposed. Thus, Magnell’s ideas should not be treated as a final air raid shelter design which, when presented, was celebrated by the concerned politicians as the pinnacle of technological progress and then fully adopted. Rather, the purpose of this chapter is to show what the political alignment looked like during this period, making the Construction-technical aerial protection-model for air raid shelters and the civilian-led organizational model appear to be the least controversial and therefore the most politically viable solution at the time. What contemporary political processes aided or encumbered aerial protection politics? In the background there is also an unanswered historical problem. Why was the political awakening so slow, when the demand for aerial protection had existed for such a long time? The first actual nationwide aerial protection legislation, Luftskyddslagen, SFS 1937:504-506, [the “Air protection statute”] was ratified as late as 1937 but, as we have seen, discussions and proposals for how to handle this issue had been around since the 1920s.

In the previous chapter, the political circumstances affecting the fortifications officer’s design choices and prerequisites have been schematically described, discussing, for example, the role of the Föreningen för Stockholms fasta försvar, FFSFF, and political controversies during the 1920s and early 1930s, such as ideas about chemical war and the collapse of the League of Nations, and how they shaped designs and the proposed organizational formats. This chapter will focus more on such circumstances, but primarily from the perspective of three
related phenomena during the interwar period that had a significant impact on aerial protection politics. By extension, this concerns the uncovering of a parallel and simultaneous political alignment on the micro and meso level on Frank Geels’ chart of technological transitions, which aided the introduction of aerial protection and air raid shelter technology.

Firstly, the chapter will discuss the defence-political situation between 1925 and 1935 and how it shaped the possibilities of handling aerial protection at a government and parliament level.

Secondly, the chapter describes how the lack of political response because of these debates also urged other important interest groups to take the initiative and produce a foundational structure for subsequent aerial protection policies.

Thirdly, this chapter will discuss some aspects of the political ideas and fears of the Social-Democratic Worker’s Party, the SAP, that relate to the topic, their subsequent rise to power, and how this helped to launch a new form of civilian aerial protection model during the latter part of the 1930s.

4.1. Military politics during the interwar era

From the signing of the Treaty of Versailles in 1919, until 1936, Sweden’s military might was under constant political scrutiny and every change in government meant yet another proposal or turn in military planning and budgeting. In this era of Swedish Democratic adolescence, governments were formed and fell because of these disputes about Sweden’s military planning. No less than nine different governments were formed between 1919 and 1932.\textsuperscript{329} The military-political debates had their origins long before the First World War. However, its first major crisis was in 1913 to 1914, when the Swedish king threatened to overrule the elected government’s attempt to downsize the military.\textsuperscript{330} At this early stage in the military debate, the contested topics were proposals such as the social-democratic and liberal demands for disarmament and the cessation of universal conscription, the role of the League of Nations in maintaining a stable European peace, or what kind of threat the Soviet Union might pose.

Towards the mid-1920s, however, as parliamentary debates focused less on banning war and more on what budgetary framework could be accepted, rivalry between the military branches came to the fore. An important aspect of this turn is also the fact that during this era, a whole new military branch – the air force – was introduced, causing disputes in terms of acquired roles and budgeting within the military and political system. Funding was not

\textsuperscript{329} Oredsson, Svensk rädsla, 127f.
\textsuperscript{330} Hadenius, Svensk politik under 1900-talet, 35–38.
unlimited, and to support the development and implementation of a new branch, funding also had to be sourced somewhere, causing rivalry between officers of different generations.\(^{311}\) Moreover, as aerial technology became a powerful symbol of the modern era, it caused disputes between traditionalists and progressive thinkers in the military establishment in terms of aerial warfare strategy and armament. Progressive military thinkers endorsed the new Douhetism, while conservative thinkers wanted to revive naval dominance in the Baltic sea and keep the aerial forces in their previous role as a solely supportive weapon, incorporated and led by the existing branches.\(^{312}\)

While this was happening within the military establishment, the parliamentary political scene in Sweden also changed dramatically. As a result of a slow development towards universal suffrage, the majority of parliamentary mandates turned from right-wing conservative to liberal and reform socialist. The decision to perform an isolated quantitative disarmament of the Swedish military in 1925 – while simultaneously creating an air force – was a direct consequence of that radical political change, since it was only possible when the political tide turned in favour of the liberal left. Moreover, as European belligerence reached new heights, the liberal left also moved away from its pacifist heritage and became increasingly positive about armament. However, this new rearmament would be qualitative instead of quantitative and therefore focused on mechanization and technological development. Thus, what is key to understanding the ideas and the development of aerial technology during the interwar era in Sweden is to look at the correlation between the change in the military establishment and the change in parliamentary politics.

### 4.1.1. A shift from conservative to liberal-left

The first political attempt to make sense of aerial warfare before the disarmament of 1925 was during the First World War.\(^{333}\) In 1917, with the previously mentioned officer Hugo Jungstedt as chair, the Swedish military establishment formed an investigative committee on how to incorporate aerial forces into the

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\(^{311}\) The many twist and turns in the development of the Swedish air force from 1918 to 1945 have been described in Klaus-Richard Böhme’s, Svenska vingar växer: flygvapnet och flygindustrin 1918-1945 (Stockholm: Militärhistoriska förl., 1982), 11–40.; See also, Arvid Cronenberg, Militär intressegrupp-politik: kretsen kring Ny militär tidskrift och dess väg till inflytande i 1930 års försvarskommission (Stockholm: Militärhistoriska avd., Militärhögsk., 1977), 31–32.


\(^{333}\) The military establishment had experimented with aircraft since 1911. See Ericson Wolke, Krigets idéer, 312.
military organization. However, the perspectives presented in the committee’s report were shaped by the current trends from the First World War, and did not recommend that the political establishment should form an independent air force, as would later be the case. Although the belligerents during the First World War conducted terrorizing bombing raids, the primary use of aerial forces was still understood as being reconnaissance and support for ground forces and therefore did not motivate the establishment of an independent military branch. Subsequently, the political pressure to provide security for civilians from vertical fire was not particularly strong and did not become an issue at this early stage. As discussed in the previous chapter, more frightening was the prospect of a chemical war, in which aerial forces were only a delivery system and not a decisive weapon to condemn.

However, this view of aerial warfare changed dramatically during the 1920s. For Sweden, the change in attitude was the result of – on the one hand – the radical improvement in aerial technology and – on the other hand – disarmament conferences and attempts to solve political problems through multilateral treaties at the League of Nations. Leading political figures in Sweden such as the Social-Democrat, Hjalmar Branting, worked intensely at the League of Nations to form a powerful small-state coalition that together could match the imperial states in terms of power. Another important factor was the post-World War I economic recession, causing an industrial crisis in Sweden at the beginning of the 1920s, which also pushed the economic argument to the forefront, questioning whether war, in the practical sense, could be affordable.

As a result, in 1925, the Social-Democratic Worker’s Party, with Hjalmar Branting as Prime Minister, in an alliance with the Liberals, managed to ratify a large disarmament policy in the Swedish parliament, with the aim of creating a less expensive military organization through a quantitative reduction in military capability. Although inherently bound in the national context, this disarmament resolution was also aimed at the League of Nations, as an attempt to spearhead isolated disarmament as a general principle. However, since neither the USA, the Soviet Union nor Germany were members of the League of Nations at the time, the Swedish government trod carefully and

335 Annerfalk, 29; Böhme, Svenska vingar växer, 11.
336 These ideas were seen in the Swedish delegates efforts in the League of Nations. Together with seven other countries, Sweden formed the group called the “honest eight”, which actively strove for global disarmament, amongst other things. For more on Hjalmar Branting’s engagement with the League of Nations, see Norman, Molin and Johansson, Hjalmar Branting, freden och Folkens förbund; See also Bo K. A. Huldt’s contribution in Hugemark and Jonsson, Neutralitet och försvar.
made sure that disarmament would not necessarily mean a qualitative loss of military capability. The League of Nation’s treaties also emphasized that although each member of the League should expect help in the event of unprovoked aggression, a member state had to be capable of withstanding an initial attack. The creation of an independent air force in the disarmament resolution of 1925 was one of the main efforts to achieve a compromise in this respect. An independent air force was also regarded as being less expensive since it could take over some of the responsibilities of the other military branches, particularly the old cavalry and naval forces.

The architect behind the proposal was the Social-Democrat and Minister of Defence at the time, Per Albin Hansson who, from 1932 onwards would become Sweden’s Prime Minister for the rest of the 1930s and up until 1946. The previously discussed aviator, Carl Florman, and his colleague, Gustaf Nordenswan, also played a major role here as consultants to the parliamentary committee that was preparing the defence resolution of 1925.

The defence resolution of 1925 was an important event in the history of Swedish aerial protection. Even though the promised independence of the new air force would turn out to be a failure, primarily for bureaucratic and technical reasons, it was from 1925 onwards that aerial warfare became a politically endorsed and accepted phenomenon in the Swedish military establishment, as well as in state politics. The officers and pilots who had previously been part of the army and the naval forces now formed their own military branch, with their own strategic, material and technological needs, doctrines and tactics – and an officer corps loyal to their cause. Armament and budgeting also became a concern for parliament. Consequently, in a general sense, aerial warfare took on a new political position in public that also affected how the civilian’s role in future wars was perceived. Inevitably, the acceptance of aerial warfare meant a tacit political acceptance of the fact that war had changed in nature and that the civilian was now threatened in novel ways, which the military establishment could not entirely reject. Against this background, the emergence of public debates and authors such as Karl A. Bratt and Carl

337 Trönberg, Nedrustning under mellankrigstiden, 34–35.
339 Böhme, Svenska vingar växer, 12.; Cronenberg, Militär intressegrupp-politik, 31–32.
340 Annerfalk, Flygvapnet 1926-1996, 31; for a thorough discussion on this episode in Swedish aviation history, see Böhme, Svenska vingar växer, 11–17 Klaus-Richard Böhme also claims here that the independence of this new air force is disputable and that real independence as an arms branch was not achieved until 1936.
341 Böhme, Svenska vingar växer, 13.
Brunskog and their engagement with, for example, Hugo Jungstedt and Axel Gyllenkrok, is understandable. Thus, the surge in civilian protection politics that took place just two years later (more on this below) can be read as a direct consequence of the defence resolution of 1925, in that it finally endorsed what had previously been a theoretical future so far. Moreover, this new turn in military politics also coincided with the talks on chemical warfare, which had been ongoing since the early 1920s and which further made notions of civilian vulnerability all the more appalling (see more on this in section 3.3.2).

However, even if the disarmament decision in 1925 implied a new general aerial mindedness and that the future perils of civilians were now in the open, it did not mean that the attention of parliament could be effectively directed towards such problems immediately. Rather, it sparked further military-political turmoil that would have the opposite result. In effect, the disarmament of 1925 caused an important breach between right-wing politicians on the one hand, supported by conservative officers mainly in the naval forces and, on the other hand, politicians from the liberal left, in turn, supported by a new younger generation of air-minded military officers. This breach would cause a ten-year long struggle in parliament over the state’s military expenditure, which pushed aerial protection politics into the background. Subsequently, following the disarmament decision of 1925, the conservative right, with the politician Arvid Lindman in charge, heavily criticized and challenged the Social-Democratic government and its disarmament decision. The conservative right claimed that it had resulted in a weak military organization and wanted to revive Sweden’s military strength in view of the recent developments in the Soviet Union. The threat from the East had to be re-assessed. To add further problems, the Social-Democratic and Liberal government alliance following the disarmament resolution did not manage to limit the budget to the SEK 107.5 million that the proposal had aimed for, engendering further criticism from the right. Subsequently, the Social-Democrats lost the election in 1928 in “kosackvalet”, [“Cossack Election”] (referring to the right-wing’s election campaign which stated that a vote for the Social-Democratic Worker’s Party was a vote for Moscow). Instead, Arvid Lindman managed to form a conservative government with the promise of a major change in defence politics. Lindman was also supported by the General and Chief of Staff, C. G. Hammarskjöld, himself a former leader of the Conservative Party, who claimed that the new military organization from 1925 did not support military operations in Sweden’s periphery. Thus, in practice, this meant a return to a central defensive military
doctrine (note also that C.G. Hammarskjöld was one of the first people to demand civilian protection in parliament in 1926, see section 2.3.1.).

Thus, one of the first decisions Lindman made during his tenure was to form a new commission of inquiry with the purpose of reconsidering the disarmament decision of 1925, as well particularly reconsidering the effect of the new type of aerial forces on Sweden’s military situation. The commission was called Åkermanska utredningen after the director of the commission, Joachim Åkerman (henceforth referred to as Åkerman’s commission). Most of the commission comprised military officers, with the naval officer, Thor Lübeck, as expert on aerial forces and Axel Enström as expert on gas warfare. The commission aimed to produce a new study of Sweden’s situation that could lay the ground for a new defence resolution and rearmament.

For understandable reasons, Åkerman’s committee was disliked by the leading Social-Democrats and the Liberals. The Social-Democratic Party, although wavering in its traditional pacifist stance, did not want to see new rearmament. However, criticism of Åkerman’s commission also came from the military establishment itself; and this is also where the conflicts between traditionally minded and progressively minded military officers begins to show. In this case, the traditional alliance between right-wing conservatives and the military officer’s corps began to change.

The military officers writing for the journal Ny Militär Tidskrift, (“New Military Journal”, shortened to NMT), called the NMT Group or “Jung-Jun-tan”, had a particularly significant influence on Swedish military politics at the time and they disliked the Åkerman commission’s work. The Jung “Clique” got its name from the editor of the journal, Helge Jung (1886–1978). Helge Jung began his military career in the army infantry. Over the years Jung became a well-known figure in political defence debates and in 1927 started the journal Ny militär tidskrift together with a handful of other authors from the military establishment’s division of military history. The group mainly focused on land warfare but was positive towards aerial forces. Some of the members would subsequently become well-known air force officers. The willingness of the NMT group to implement a smaller naval fleet in favour of strengthening the air force was particularly problematic for their colleagues in the navy.

In the editor’s letter of NMT in June 1930, Helge Jung completely tore
apart Åkerman’s report and claimed that the way the committee had focused on the League of Nation’s influence, its unwillingness to take Finland’s defence problems into consideration and its outlandish and improbable war scenarios rendered the analytical content useless. According to Jung, the only thing worth taking into consideration were the parts of the report that did not concern the military at all.\textsuperscript{345} Moreover, because of pressure by the NMT group on a member of the Åkerman commission, officer Mellquist, Mellquist also delivered a refutation after publication on some of the strategic arguments concerning land defences in the final report. The refutation further entrenched the already poor reputation of Åkerman’s report and, moreover, made it one-eyed towards naval defences.\textsuperscript{346} For similar reasons, when the report was finally printed in June 1930, the Social-Democrats began criticizing the committee, now supported by the NMT group.

To add further problems, the release of the report was badly timed for Åkerman’s commission. The same year, most likely intentionally, the NMT group published its counterproposal, the book \textit{Antingen-Eller},\textsuperscript{347} [“Either-Or”]. \textit{Antingen-Eller} was biased towards the liberal and social-democratic stance on military and foreign politics, and also represented a strong argument for the strengthening of aerial forces as well as the motorization of the army.\textsuperscript{348} Åkerman’s report was also published as the liberal Prime Minister C. G. Ekman had announced his party’s support for the Social-Democrats’ forthcoming proposal for a new commission of inquiry on the military issue, which would likely render Åkerman’s report obsolete.\textsuperscript{349}

The events surrounding Åkerman’s commission, the release of its report and the NMT group’s influence were symbolic in that they showed that the old alliance between conservative politicians and the military officer corps had been broken. Not only did the NMT group only establish itself as representatives of a new generation of progressive and air-minded officers, it also deliberately honed its arguments towards the liberal left, in order to gain political support. These strategic acts were also beneficial. During C. G. Ekman’s government from 1930 to 1932, when a new commission of inquiry was formed, C. G. Ekman selected military experts from the NMT group and gave them highly

\textsuperscript{345} Editor’s note, “Den Åkermanska försvarsutredningen”, Ny militär tidskrift (1930), vol. 4, p. 145-149.
\textsuperscript{346} Cronenberg, Militär intressegrupp-politik, 23.
\textsuperscript{347} Helge Jung, ed., Antingen-Eller: freds- och försvarsproblemet i saklig belysning (Stockholm: Ny militär tidskrifts bokförlag, 1930); For the history of this book, see Cronenberg, Militär intressegrupp-politik, 24–60.
\textsuperscript{348} Cronenberg, Militär intressegrupp-politik, 30.
\textsuperscript{349} Cronenberg, 23.
influential posts. He did this deliberately in order to break the traditional bond between conservatives and the military.\textsuperscript{350} Helge Jung himself and his friend and co-author of the book Antingen-Eller, Axel Gyllenkrok, were now the new commission’s secretaries.\textsuperscript{351} Moreover, the commission itself was formed according to Helge Jung’s suggestions and included more politicians than officers. The commission’s director was the leading disarmament-, and pacifist SAP-politician Per-Albin Hansson. Also, throughout the commission’s work up until 1935, Helge Jung controlled the commission’s workflow and selected all the experts. Not surprisingly, all the experts came directly from Jung’s inner circle of trustees from the NMT group.

Seeing these investigative commissions and the defence-political game that they involved from above, it is possible to draw some interesting conclusions that relate to how aerial protection politics evolved during the interwar era. In practice, the disarmament decision of 1925 and the parliamentary investigative committee of 1930, Försvarsommissionen 1930 or FK1930, meant that powerful and influential military intellectuals began to co-operate with the Liberals and Social-Democrats, instead of the right-wing party. The already present divide between the old generation of officers and the new generation began to acquire a political prefix. In both 1925 and 1930, the Social-Democratic Party together with the Liberal Party managed to garner support from a majority in the parliament, right-wing protests and nationalist rhetoric notwithstanding. Towards the 1930s, the previously pacifist vein in the Social-Democratic Party was also increasingly marginalized. The party grew in mandate and felt the need to stand its ground against the radical leftists, making them more prone to consider defence-political realities. This did not result in the Social-Democratic Worker’s Party proposing an increased budget. However, in the long term, it accepted the proposals of the Farmer’s League and the Liberals that came out of the Försvarsommissionen 1930 which, in effect, meant rearmament.

The willingness of the Social-Democratic Worker’s Party and the Liberal Party to support new and progressive aerial warfare strategies and technology should be understood as being key to how this happened. In 1925, the establishment of an independent Swedish air force was a means of producing quality, while

\textsuperscript{350} Cronenberg, 91.

\textsuperscript{351} For further information on this episode in Swedish defence politics, see the following titles: Cronenberg, 9–11; Böhme, Svenska vingar växer, 11–17; Cronenberg, Militär intressegrupp-politik; Trönnberg, Nedrustning under mellankrigstiden; Anders J. Andrae, Kretsen kring Ny militär tidskrift och 1930 års försvarsommission: en studie i civil-militära relationer (Växjö: Högsk. i Växjö, 1970); For a more popular account, see Annerfalk, Flygvapnet 1926-1996, 31–52.
reducing quantity, which was in line with attempts by the Social-Democrats and the Liberals to disarm the military apparatus, and which also paved the way for co-operation between progressive thinkers within the military, the Liberals and the Reformist Left. In 1930, the Social-Democratic and Liberal alliance with the NMT group and the “Jung Clique” also strengthened that bond. The progressive officers in the Jung Clique saw an opportunity to gain support for their ideas through the Reformist Left, the air force included, and offered a perspective on aerial defence tactics that could be accepted by parties that shunned all forms of the militarization of civilians.\footnote{Cronenberg, Militär intressegrupp-politik, 34.}

Metaphorically speaking, the defence politics of the interwar era can therefore be viewed as the military establishment’s divorce from the right and a new marriage with the liberal left. The conservative politicians who, since 1913 and 1914, had dominated military politics were now becoming increasingly marginalized. With European armament and the collapse of the League of Nations in mind, the Jung Clique’s ideas became the guiding principles in FK1930 that eventually shaped the defence plan of 1936. In 1944, Jung himself was eventually chosen by the government as the Supreme Commander of Sweden’s armed forces and effectively became one of the most influential military commanders in Sweden’s modern history.

\textbf{4.1.2. The effects on aerial protection policies and Christenson’s commission}

The turn towards a liberal and social-democratic dominance in Swedish military politics would eventually have significant effects on how aerial protection would be subsequently viewed. Just as C.G. Ekman had wanted, with FK1930, conservative ideas were marginalized by military politics.\footnote{Cronenberg, 88.} However, the postponement and the many and complex commissions of inquiry also made another impression on aerial protection policies. The new defence commission of 1930, called \textit{Försvarskommissionen 1930}, [“The Defence Commission 1930”], or FK1930 for short, took time. The postponement was also deliberate. The social-democratic leader and director of FK1930, Per-Albin Hansson, did not want the commission to conclude and cause political turmoil before the election of 1932.\footnote{Cronenberg, 109.} This caused political engagement in aerial protection issues to fall behind. FK1930 was supposed to investigate and assess the entire military
organization. The commission worked for five years— from 1930 to 1935— towards this end before its final analysis of the situation was published.

In the meantime, very little had changed in defence politics, including topics regarding aerial protection. During the early 1930s, attempts were made to maintain the budgetary framework of the disarmament decision of 1925. However, in 1933/1934, the budget was still exceeded by SEK 40 million. The newly formed air force of 1925 also suffered from the tight budget and was unable to fund its activities and aircraft properly for the entire period. In sum, the commission’s work meant that the defence question had been investigated more or less continuously from 1925 up to 1935, without any proper solution for how to handle Sweden’s defence issues.

In terms of aerial protection for civilians, this had profound consequences for how the matter was managed since aerial protection for civilians was never prioritized in relation to the much larger and overarching defence plan and budget. The status of aerial forces in relation to naval forces was one of the most debated matters and before this conflict was resolved, it was difficult to assess the size and shape of a future aerial protection organization. As long as the shape of the military apparatus remained unresolved, aerial protection would not be resolved either.

Symptomatic of this situation was the fate of the so-called Christenson commission. The first attempt to provide practical and comprehensive defence policies for civilians had already transpired in 1927 under C. G. Ekman’s first government from 1926 to 1928, preceding the Åkerman commission (after the Social-Democratic Branting/Sandler government from 1924 to 1926 and before Arvid Lindman’s right-wing government from 1928 to 1930), but failed due to political neglect in light of the events surrounding FK1930. The initiative came in March 1928 from the Umeå-born liberal and pacifist politician, Gustav Rosén, sitting as Defence Minister in a liberal and social-democratic coalition.

Rosén’s initiative was based on the premise that investigations that had already been made in 1921 had pointed towards the need to strengthen Swedish aerial defences, although the commission tasked with preparing the disarmament decision of 1925 had claimed that this would have to be investigated further. Moreover, On 12 March, 1927, the government had received an official memo from Chief of Staff, C. G. Hammarskjöld, claiming that from now on, the Swedish state had to expect that all parts of the country could be subject to independent aerial raids. Hammarskjöld had also highlighted the lack of aerial defences, especially the funding of anti-aircraft artillery, in the disarmament

355 Trönnberg, Nedrustning under mellankrigstiden, 35–36; Böhme, Svenska vingar växer, 11–17.
decision of 1925. After some consultation amongst other military establishments, including the newly established air force, Rosén concluded that a commission of inquiry was needed to bring clarity to these matters, particularly the role that local municipalities would play in relation to the military establishment, as well as the acquisition and organization of artillery.

Rosén’s initiative resulted in Luftförsvarsutredningen led by lawman J. B. Christenson (henceforth referred to as the Christenson commission’s report). The Christenson commission’s report was published in December 1931. The report was quite extensive in scope and presented a view of aerial protection that was very similar to what authors like Emil Fevrell had presented in Meddelanden in the 1920s. The organizational format was divided into regions and municipalities. The state would be responsible for reimbursing equipment and the overall aerial protection apparatus included both passive defensive technologies, for example, air raid shelters and alarm equipment, as well as well-known tactics such as evacuation procedures and camouflage.

The military officers behind these considerations were Axel Gyllenkrok and Axel Bredberg. While Axel Gyllenkrok appears to have accounted for considerations regarding aerial warfare in general, the terms used in Bredberg’s archives suggest that he was the author of the parts about the home front’s defences. There are also documents stemming from the Red Cross’ conference in Brussels in 1929, suggesting that the Red Cross influenced the work of Bredberg and the commission.

The type of aerial protection presented by Christenson’s commission was also in line with Rosén’s above mentioned initiative. The primary defensive barrier was to be achieved by actively fending off enemy aircraft as they approached and gaining dominance in the air, not through passive defensive measures such as air raid shelters. Incoming air raids would primarily be met with “stridsåtgärder” [“belligerent activity/acts”] air-to-air and ground-to-air, and only secondly by “a variety of different” passive measures. Consequently, the authors devoted a lot of pages to considerations about the positioning and use of anti-aircraft artillery and defending fighter squadrons. Douhet was not mentioned, but the idea that aerial warfare would be decisive in the next confrontation was a stepping stone in their analysis. Since defence hinged

357 Ibid. p. 13.
358 Luftförsvarsutredningens betänkande.
359 Axel Bredberg’s Archives, vol 30, Royal War Archives, Stockholm, Sweden.
360 Luftförsvarsutredningens betänkande, 42.
361 Ibid. 26–27.
on military activity, the planning and leadership structure of aerial protection measures was also presented as a military concern.\textsuperscript{362}

In combination with the active mindset regarding aerial protection, Christenson’s commission presented a militaristic version of aerial protection that offered a view of the urban environment as a kind of fortress, primarily defended by anti-aircraft artillery and nearby squadrons of fighter aircraft. In this, it echoed well with the early aerial protection discourse from the 1920s, presented by Hugo Jungstedt and Emil Fevrell in the journal \textit{Meddelanden}. The report contained nothing controversial in this respect and could be treated as an acceptable and perhaps reasonable proposal, given how aerial protection was being discussed at the time. It required an inflated military budget, of course, but was nonetheless formed with the disarmament decision of 1925 as a reference frame.

However, due to the political context, as the Christenson commission’s report was delivered in December 1931 to Prime Minister, C. G Ekman, the question of civilian aerial protection was ignored, politically. The problem was that the overarching military-political debate in parliament simultaneously transgressed, which ultimately stopped Rosén’s initiative from resulting in any practical policies. Both Åkerman’s commission and the \textit{Försvarsomissionen 1930} played their part in this.

After Åkerman’s commission was set in motion, the current Defence Minister, Harald Malmberg, decided that the Christenson commission’s report had to be narrowed down to the protection of “hemorten” [“the home front”] only, since Åkerman’s commission was supposed to examine all the other aspects of the problem.\textsuperscript{363} This now quite limited objective meant that the relevance of the Christenson commission’s report regarding the overarching problem of national defence issues was radically diminished. Another problem was the \textit{Försvarsomissionen 1930}. The Christenson commission’s report was delivered around one year after Prime Minister C. G. Ekman had initiated \textit{FK1930}, which further diminished its relevance.

The problem was that the Christenson commission’s considerations were based on the guidelines that the disarmament decision of 1925 allowed in terms of available aerial forces, artillery regiments and so on. Thus, just as the Christenson commission’s report was being finalized, yet another commission was formed by C. G. Ekman, with the purpose of accurately re-drawing the entire military configuration. Since the scope of FK1930 was all-encompass-

\textsuperscript{362} Luftförsvarsutredningens betänkande, 96–97, 98–103.
\textsuperscript{363} Ibid. 11.
ing and was not just focused on a particular branch, the 1925 framework that the Christenson commission’s report was based on would most likely change and render Christenson’s entire document obsolete. This issue was also mentioned in the final lines of the introduction to the Christenson commission’s report: due to the instigation of *Försvarsommissionen 1930*, the authors have decided to present their report “icke såsom ett förslag utan endast i form av en utredning” [“not as a proposal, only as an investigation”]. It would appear that not even the authors themselves believed that the report would result in practical policies.

In other words, although Christenson commission’s report was based on a military and political consensus in terms of what the defence of the home front demanded during the mid-1920s, both Åkerman commission and *Försvarsommissionen 1930* forced Sweden’s first real parliamentary involvement with aerial protection to be shelved. This situation was also discussed in the public press and in journals. On 14 December, the daily newspaper *Dagens Nyheter* stated that the fact that FK1930 had already started working would likely explain why politicians on the receiving end felt that there was little use in making anything of it. According to the editor, the very few complaints about the finished report did not reflect a consensus amongst politicians, but rather, disinterest. They had aimed for a “technical investigation” and consequently, the end result, according to *Dagens Nyheter*, would be that the Christenson commission’s report was submitted to FK1930 as yet another addition. *Föreningen för Stockholms fasta försvar*, FFSFF, argued in similar ways. In an editor’s letter in its journal *Meddelanden* in 1931, the author (probably Hugo Jungstedt or Erik Zeeh) claimed that in spite of the fact that Christenson’s commission was unanimous in its view of the report’s content, the report would likely “förbliva en röst i öknen” [remain or be reduced to “a lone voice in the wilderness”], thus leading to no new political attempts to address civilian aerial protection. The author also emphasised that the FFSFF was very positive about the initiative and that its own journal had presented proposals for an aerial protection organization that were in accordance with the Christenson commission’s report, explicitly mentioning a few articles written by both Hugo Jungstedt and Emil Fevrell. The devaluation of the report by both the public and the author also turned out to be correct. Christenson’s work did not stir the government to action. Consequently, no lasting policies

364 Luftförsvarsutredningens betänkande, 12.
365 Dagens Nyheter 14 December, 1931. ”Flyget ännu en gång”.

172
other than a small circulated print for aerial protection came out of Ekman’s office in 1931 as a result of the Christenson commission’s report.\footnote{According to an article in the anniversary edition of Tidskrift för Svenskt Civilförsvar 1962, Ekman had argued that the matter of civilian aerial protection was to be resolved by the new commission (FK1930). Neither I nor personnel at the National Archives have managed to find this particular memo from 1930 to 1931. The available sources do not reveal the department from which it was sent, making it difficult to find in the archives.}

Although the instigation of FK1930 should probably be understood as the main reason why aerial protection for civilians was postponed, there were also other circumstances in the early 1930s that might have affected the situation, and which should be considered. One of them concerns a change in aerial warfare doctrines. For example, the Swedish military historian, Klaus-Richard Böhme, has claimed that although the commission’s members were unanimous, there were other important figures outside of the commission who challenged the report at an important stage in the process. Some of the strategic considerations of the Christenson commission’s report were challenged by another officer close to the NMT group, Axel Ljungdahl which, in turn, might have affected Ekman’s decision to postpone political action concerning related issues. The Christenson commission’s report had a particular focus on anti-aircraft guns and artillery as well as fighter aircraft, likely a strategic consideration advocated by officer, Axel Gyllenkrok, in the commission, as he was a known advocate of a strengthened and independent air force. However, Axel Ljungdahl, serving as captain at the General Staff’s headquarters, argued differently to Christenson’s commission.

Ljungdahl was an advocate of a modernized version of aerial warfare strategy and emphasized the need for pre-emptive bombing raids on enemy airbases as the only effective countermeasure to air raids, instead of air-to-air combat. Experiences from the 1930s had shown that fighter aircraft had significant problems in intercepting enemy aircraft. Moreover, anti-aircraft artillery on the ground could not cover an entire city without transforming it into an urban fortress, pushing the economic and industrial problems associated with this form of defence to the fore. The impossibility of providing deep defence of this kind subsequently meant that bombers would “always get through” and drop their loads, as the British politician, Stanley Baldwin, famously claimed in 1932. According to Ljungdahl, acting pre-emptively and bombing enemy airbases before they could attack Swedish cities was the only reliable and effective response to this development. Although the General Staff’s consultation of the Christenson commission’s report was signed by two other officers, Boustedt
and Virgin, Böhme claims that Axel Ljungdahl wrote the concept for it. In this respect, Ljungdahl therefore challenged the Christenson commission’s report as well as his colleague Gyllenkrok’s strategy.  

What role this dispute played in the long term is difficult to assess, but it might have had the effect of further diminishing the report’s reputation. Böhme has also claimed that this event was an important watershed in the Swedish aerial warfare doctrine. Up until 1930, he claims, aerial defences had focused on ground-to-air and air-to-air as a means of fending off an enemy to which the Christenson commission’s report testified. However, with Ljungdahl’s consultation and the eventual shelving of the report, Böhme claims that pre-emptive bombing raids on enemy aerial bases, in other words, air-to-ground warfare, became the established aerial warfare doctrine for the Swedish air force in the years to come.  

To sum up then, the Christenson commission’s report, begun in 1927 and delivered in 1931, represented the first comprehensive political programme and the first real opportunity by the Swedish parliament to instigate an aerial protection organization for civilians. This can be seen as the first example of political reform pressure on the meso level, the so-called socio-technical regimes of Geels’ chart, in the face of threats from higher up, set to handle societal problems. However, this window of opportunity was lost due to political disputes about Sweden’s defence political direction, and possibly also because of changes in military strategy, in turn related to developments in technology on the transnational-landscape level. The political game that was played out in parliament between advocates of isolated disarmament, progressive Douhetists, military traditionalists and the political parties that supported these different positions had a profound impact on the postponement of aerial protection policies during the late 1920s and early 1930s. The momentum gained in the mid-1920s concerning the new-found role of the civilian in warfare, and which was politically endorsed and funnelled into the Christenson commission’s report, could not be politically aligned with other concurrent trends, and was therefore ultimately lost due to the military-political divisions in parliament.

367 Böhme, Svenska vingar växer, 27; Erik Norberg offers a similar argument in Norberg, Flyg i beredskap, see pages 24–25.  
368 Böhme, Svenska vingar växer, 27.
4.2. Aerial protection in the sub-politics field

As a consequence of the disarmament decision of 1925, the subsequent military-political commissions of inquiry, and a change of tactics in the General Staff’s office, issues concerning aerial protection for civilians was postponed until Försvarsommissionen 1930 produced a new frame of reference for military planning. In this setting, all attempts to politically address the problem of civilians from 1927 to 1936 were up to the concerned interest groups, organizations, individual politicians and military officers. Thus, for those who were concerned about aerial war, the political stalling during this period paved the way, or perhaps forced, private and volunteer engagement that had an important effect on the development of aerial protection politics in the long term. These organizations can be interpreted as local niche developments that underpinned future political changes by providing propaganda, technical know-how and ideas about voluntary management.

The period from 1927 to 1936 is therefore not a period of disinterest in these issues, even if parliament concerned itself very little with it, and the few attempts that were made, failed. Instead, within three important sub-political groups – the FFSFF, the Swedish Red Cross and the NMT group – this period was pivotal to developing a set of prerequisites that would shape future decision-making. For example, public awareness of aerial protection and propaganda, organizational practices, drills and education, technological infrastructure, and a network of individuals, all of which would make the implementation of aerial protection and air raid shelters in 1937 a less complicated enterprise.

4.2.1. The FFSFF, Föreningen för Stockholms fasta försvar.

As shown in chapter 3, the members of the Föreningen för Stockholms fasta försvar, FFSFF, had concerned themselves since 1902 with the problem of defending Stockholm. Building on the idea that a country’s capital city was the key to subduing a nation, the FFSFF campaigned and raised funds for equipment, repairs, groundwork and new embattlements directed towards possible entry points for enemy land operations around Stockholm. Up until 1921, the FFSFF raised some SEK 1.5 million for such purposes, and one of their still extant artefacts is the so-called Sausage Line.69 Reflecting the association’s conservative bourgeois and noble class profile, the money mainly came from donations by

wealthy members of the organization, such as industrial entrepreneurs, bank managers, noble families and high-ranking officers. We have previously met the authors of its journal, who continued to develop their ideas on how and why the urban setting needed protecting during the whole interwar era. Similar ideas were also reflected in Christerson’s report, delivered to the government in 1931. The FFSFF openly confessed its support of Christenson’s commission, which they claimed argued in line with discussions already raised in its journal by their own authors, Hugo Jungstedt and Emil Fevrell.370

The organization also understood early on the value of propaganda events and the dissemination of its ideas and information. The organisation annually funded the local volunteer sharpshooter movement, at other times printing booklets and propaganda and, in some cases, even funding early film projects on aerial defences.371 On the organisation’s 25th anniversary in 1927, it also organised a “Luftvärnsdag” [“Aerial Defence Day”], a concept that would subsequently become a common feature of the national volunteer Luftskyddsförbundet, LSF. The FFSFF’s popularity and network relations shone through in this. The propaganda event included films at a local cinema, as well as a demonstration of anti-aircraft guns and artillery showcased by a sister organization – Stockholms luftvärnsförening [“Stockholm’s aerial defence organization”].372 Sweden’s first aerial transportation company, Aerotransport A-B conducted an aerial rescue operation, and during the late evening the fire brigade demonstrated its role in aerial defence. The women’s volunteer movement, the Landstormslottorn, was also present.373

FFSFF’s progression during the interwar period and its willingness to actively take the lead in producing an aerial defence system when the political side could not fully manage this, places it in the foreground as an important local niche development that underpinned changes on the political level. While intellectual debates and propaganda were important, the FFSFF’s activities also led to practical and material aerial protection technologies in similar ways to its earlier campaigns. The FFSFF actively spearheaded the development of aerial protection technologies on its own, which could be given to the local military

371 As early as 1925, the FFSFF financed a film on Stockholm’s aerial defences: “Föreningens för Stockholms fasta försvar styrelseberättelse för år 1925”, Meddelanden från Föreningen för Stockholms fasta försvar (1925), vol. 31. p. 73.
373 Ibid. p. 39.
establishment. The FFSFF’s turn towards aerial protection had already started during the First World War and in the early 1920s.\textsuperscript{374} In 1922, the organization changed its objectives in view of recent developments in warfare and focused mainly on aerial defences of Stockholm. This had been in the making for some years. Using the same lobbying strategies as before, between 1916 and 1924, the FFSFF had managed to raise around SEK 900,000 during campaigns, to be used for the development of Stockholm’s aerial defences. The lion’s share of these funds were given directly to the army with the purpose of financing the acquisition of artillery, searchlights and aircraft.\textsuperscript{375} These successful campaigns were also followed by yet another campaign from 1927 to 1930, which focused more on the civilian side of the problem. Over these three years, the FFSFF managed to raise another SEK 600,000. According to one of the FFSFF’s founding members, F. W. Edelswärd, the money was used to produce Stockholm’s first aerial defence system, including the first aerial surveillance headquarters and alarm system with sirens and centrally-governed control systems. The money was also used for military counter-attack purposes. SEK 380,000 was used to purchase three 7 cm anti-aircraft batteries.\textsuperscript{376} Edelswärd claimed that the money also funded Sweden’s first modern anti-aircraft artillery system in Stockholm, including an intricate firing system and “ultra-modern” 150 cm searchlights with a range of 1,000 metres, as well as other surveillance equipment: a Goerz acoustic sound locator that could be used to locate and fend off bombers.\textsuperscript{377} In 1936, the FFSFF invested a further SEK 260,000 to purchase four anti-aircraft guns, including the newly launched Bofors 40mm gun.\textsuperscript{378} In sum, these campaigns and fundraising events highlighted the poli-

\textsuperscript{374} ”Brottstycken av föreningens fyrtioåriga historia”, Meddelanden från Föreningen för Stockholms fasta försvar (1942), vol 44. p. 19.
\textsuperscript{376} Wilmertz ”Stockholms luftvärn”, Meddelande från Föreningen för Stockholms fasta försvar (1946), vol 52. p. 27-30.
\textsuperscript{377} F.W. Edelswärd, ”En kortfattad överblick över föreningens 35 år”, Meddelanden från Föreningen för Stockholms fasta försvar (1937), vol 42. p. 5-7; Wilmertz ”Stockholms luftvärn”, Meddelande från Föreningen för Stockholms fasta försvar (1946), vol 52. p. 27-30.
\textsuperscript{378} See the protocol of 20 April, 1936, in Föreningen för Stockholm’s fasta försvar’s Archives, vol. A1:1, Royal War Archives, Stockholm, Sweden. See also Wilmertz ”Stockholms luftvärn”, Meddelande från Föreningen för Stockholms fasta försvar (1946), vol 52. p. 30; For more information on the famous Bofors gun, see Krigshistoriska avdelningen Försvarsstaben, “Boforskanonen” i andra världskriget : en militärhistorisk studie = [The Bofors gun in World War II] (Stockholm, 1961), See the English summary on pages 175–187.
ticians’ failure to act, providing pressure for change, while also educating and familiarizing the local population and the military establishment with these technologies and their purpose.

A decisive move in 1936 was also the instigation of a working group devoted entirely to aerial protection. During spring 1936, the FFSFF decided to focus the association’s efforts entirely on Stockholm’s aerial defences, and particularly the civilian parts. For this purpose, a “arbetsutskott för luftskydd” [“working group for aerial protection”] was assembled in spring 1936, comprising the association’s experts in the matter: Ejnar Nordlund, Kjell Magnell, Emil Fevrell and P. Eriksson. This working group developed an extensive propaganda programme that was ratified by the FFSFF’s board, consisting of a series of popular articles that were to be published in newspapers and magazines with

Figure 27: The FFSFF managed to fund several defensive systems and technologies for Stockholm’s permanent defences during the 1930s, including artillery guns, communication centres and searchlights. This also included a Goerz sound locator for Stockholm’s defences. The image shows a similar model being used in Finland in 1940. Photo by SA-Kuva. Public domain. https://commons.wikimedia.org/
national coverage. The working group also asked the respective Editor’s-in-Chief beforehand about the extent to which they were interested in such articles, and at least some of them appear to have been published.\(^{379}\) One of Kjell Magnell’s projects in this group was to produce a model air raid shelter at Jakobsgatan in Stockholm for the use of the FFSFF, which could also be used for educational purposes. As a consultant to this project, Kjell Magnell submitted designs and blueprints to Dr. Hans Schoszberger in Berlin, who gladly returned a full design proposal that could be used by Magnell and others in the working group.\(^{380}\)

Also, the chair of the FFSFF was traditionally the current Governor of Stockholm and, as such, not only was he responsible for the citizens of the city, he was also politically well-connected to the higher echelons of state governance. Already during the first aerial defence campaign from 1916 to 1924, the Governor of Stockholm and former Prime Minister, Johan Ramstedt (1852–1935), had been the organizer and initiator.\(^{381}\) From 1933 to 1949, the Governor of Stockholm was the high-ranking Social-Democratic politician, Torsten Nothin (1884–1972). Through his office, Nothin provided a link between aerial protection-minded officers such as Hugo Jungstedt, Emil Fevrell and Kjell Magnell in the FFSFF and top-level politicians in parliament such as Social-Democratic Party head Per Albin Hansson, and his second-in-command, Gustav Möller.

According to Torsten Nothin’s own memoirs, he was appointed governor by Per-Albin Hansson himself to provide a firm hand over the police and political extremist movements in the city.\(^{382}\) Possibly because of his chairmanship of the FFSFF, Nothin also became one of the first figures to attempt to organise a civilian aerial protection organization. Already in 1933, Nothin (possibly together with the liberal politician and Governor, Nils Edén) established an office under his jurisdiction working solely on aerial protection training for the local police force in Stockholm. This was, arguably, Sweden’s first comprehensive aerial protection plan to be put into practice.\(^{383}\) In the long term, Torsten Nothin

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379 See the volume “Arbetsutskottet för luftförsvar”, in Föreningen för Stockholms fasta försvar’s archives, volume F3:1-2, Royal War Archives, Stockholm, Sweden.
380 Ibid.
381 ”Brottstycen av föreningens fyrtioåriga historia”, Meddelanden från Föreningen för Stockholms fasta försvar (1942), vol 44. p. 21.
382 Nothin, Från Branting till Erlander., 160.
383 Nothin, 220. This first initiative to plan a civilian aerial protection organization is described in Red. ”Civilbefolkningens skydd mot luftanfall”, Meddelande från Föreningen för Stockholms fasta försvar (1933), vol. p. 23-26.
and his connections to the FFSFF would also have a significant effect on the formation of the state’s aerial protection efforts. Nothin’s influence over the appointment of members of the Beskow commission and Civila luftskyddsutredningen in 1936 is unclear, but at least two of the commission’s members came directly from the FFSFF’s working group for aerial protection, including Kjell Magnell. The FFSFF’s working group also submitted two memos to the Beskow commission, one of which was written by Emil Fevrell.\(^3\)

Moreover, the person who held Nothin’s aerial protection office was a member of the FFSFF, Captain Ejnar Nordlund.

Nordlund is an interesting figure in that he symbolizes the FFSFF’s attempts to inform and disseminate aerial protection awareness in Stockholm during the mid-1930s, but also that the networking relations played a major role in the formation of early aerial protection measures. Through his office, Nordlund became known as the aerial protection expert in Stockholm and, as the FFSFF’s representative, he would subsequently lead the first aerial protection instructor courses for the public. These courses were developed by the FFSFF’s working group for aerial protection, of which Ejnar Nordlund was a member.\(^3\) From the mid-1930s, he appeared as a public figure in daily newspapers and in journals such as Teknisk Tidskrift [“Journal of Technology”], Meddelanden and the Red Cross journal, sometimes together with Nothin and Magnell.\(^3\) The Red Cross also funded study trips for Ejnar Nordlund.\(^3\) Even his critics addressed his ideas and him personally. The radical leftists and pacifists, Elin Wägner and Barbro Alving, particularly directed their attention of aerial protection towards Captain Ejnar Nordlund, who they thought symbolized the sort of militarism they criticized. During a public lecture, Wägner observed that he

\(^3\) See the volume “Arbetsutskottet för luftslydd”, in Föreningen för Stockholms fasta försvar’s archives, volume F3:1-2, Royal War Archives, Stockholm, Sweden


and his audience must have had “kullager i sina kranier” [“their heads full of ball bearings”] since their plans seemed to work so smoothly.388 Nordlund was, however, thoroughly supported by the FFSFF. From 1936 to 1937 the FFSFF used SEK 86,000 of previously acquired funds to fund his educational activities for the public when money became scarce.389 Nordlund’s course in aerial protection at Karlberg’s Palace near Stockholm was Sweden’s first ever course in civil defence with the purpose of training leading personnel in the state aerial protection organization, which had been formed in 1937. Nordlund held courses for so-called försvarsassistenter [“defence assistants”], luftskyddschefer [“aerial protection chiefs”], brandchefer [“fire service marshals”] and industriluftskyddsledare [“industrial aerial protection chiefs”]. In other words, everyone who would play a leading role in the state’s newly formed aerial protection organization was trained by members from both the Governor’s Office and the FFSFF, before the state’s own government body could assume responsibility for these activities.390 In 1937, both the course activities and the funds were carried over into the newly established Luftskyddsförbundet, LSF (later known as “Riks”luftskyddsförbundet, RLSF) [“National Association for Aerial Protection”], an organization started by the FFSFF and in which Torsten Nothin became the chair and Kjell Magnell became the secretary (more on this in chapter 5).

Moreover, the FFSFF also helped finance the LFS’s publishing company, which produced much of the late interwar and war period’s propaganda materials, including the LSF’s primary journal at the time, Flyglarm.391 The basic educational material used by the LSF was written by Ejnar Nordlund and Kjell Magnell.392 Thus, not only did the FFSFF spearhead the intellectual debates surrounding aerial protection, they also financed some of the most pivotal material investments during the 1920s and 1930s for both active and passive aerial defence, influenced the commissions of inquiry, instigated and

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392 Hans Engström’s concept, vol 2. Kjell Magnell’s archives, Royal War Archives, Stockholm, Sweden. Hans Engström claims that this was the last mark Magnell was to make on the LSF before he entered full-time service.
built the early volunteer organization, and also educated and financed the earliest educational activities and propaganda campaigns.

\[\text{Figure 28: Governor Torsten Nothin (second from the right), inspecting the recruits from Ejnar Nordlund’s (second from the left) course on civil aerial protection at Karlberg’s Palace, Stockholm, in 1938. See Edelswärd “Föreningen och det civila luftskyddet” in Meddelanden (1942) vol.48. p.112.}\]

4.2.2 The Swedish Red Cross

Another civilian organization that concerned itself with aerial protection early on was the Swedish Red Cross. This organization was quite different from the FFSFF since it was mainly built on volunteer humanitarian work conducted by middle-class citizens and had an international origin and leadership structure. The organization and the political profile of the majority of its members were conservative and pro-defence women.\textsuperscript{393} The chair and protector of the organization was Prince Carl (1861–1951), brother of the Swedish king, Gustav V, and, as such, had a significant influence on public opinion.

The Swedish Red Cross was an increasingly popular organization at the time. The organization more than doubled its membership during the First World War and interwar era, from 60,000 in 1915 to 150,000 in 1937, making

\textsuperscript{393} Christina Florin, Lena Sommestad and Ulla Wikander, eds., Kvinnor mot kvinnor: om systerkapets svårigheter (Stockholm: Norstedt, 1999), 23,30.
it quite an influential organization in the Swedish public sphere. Around one half of the members were concentrated in Sweden’s largest cities. Similar to the FFSFF, the Red Cross published its own journal and conducted educational activities and propaganda events, although the foundational idea was not political defence propaganda or fundraising, but rather practical humanitarian aid during war and crises for both civilians and soldiers. The main purpose of the Red Cross was training in first aid and organizing first-aid services. During peacetime, the Red Cross also provided disaster aid of various kinds and engaged in social and hygiene problems. During conferences and international meetings, the Red Cross’ activities and standpoints were also directed from its international office in Geneva, meaning the organization was less affected by local political events and trends, while simultaneously bridging changes in the transnational setting.

This practical approach to any situation in which humanitarian aid was needed, as well as its international orientation, is also why early on the Swedish Red Cross concerned itself with civilian aid and protection from aerial warfare. For the Red Cross, chemical warfare and how to aid civilians in this respect became an early concern and was something that developed into a general air-mindedness during the 1930s as other forms of aerial attacks came to the fore. In 1929 it was the first organization in Sweden to produce a comprehensive booklet on the nature of new war and how to organize volunteer medical aid. Reflecting on the organization’s international connections, the booklet was a response to the International Red Cross conference in Brussels on chemical warfare. The international leadership urged the national organizations to plan for civilian aid in case of chemical warfare, which caused the Swedish Red Cross to form a “gas protection committee” that would produce guidelines and educational material for use in Sweden. The Swedish colonel, Eric Virgin, and politician, Axel Enström, participated on behalf of the Swedish Red Cross, took home materials and reports, and subsequently participated in the gas protection committee alongside FFSFF member, Hugo Jungstedt and others. This was also a joint effort with the ongoing Christenson’s commission of which Axel Enström was a part. When finished, 4,000 copies of the

396 Söderberg, Svenska röda korset 1865-1965, 272–273. This meeting was probably the inspiration behind Eric Virgin’s article on civilian protection in Ny militär tidskrift the same year. Eric Virgin, ”Civilbefolkningens skyddande mot flyganfall” Ny militär tidskrift (1929), vol 3. p. 122-125.
booklet were published and were sent free of charge to the Swedish Red Cross districts, as well as to government bodies, the military and municipalities and regional offices. This booklet effectively functioned as an unofficial propaganda campaign, which the Red Cross also confessed in its own journal. Although claiming that this was an “objective” dissemination of the problem at hand, the booklet and the Red Cross’ publication strategy clearly had a political element. In an editor’s letter the same year, the author stated that there should be no uncertainty regarding the Swedish Red Cross’ stance to the prospect of a chemical war so that the general public would have a clear understanding of what awaited them.397

Like the FFSFF, the Red Cross also changed its aims and strategies during the interwar period in concert with the technical development of weaponry, as well as recent international debates. In line with its earlier engagement with chemical warfare, the Swedish Red Cross instigated a permanent committee in 1934 aimed at medical gas protection, the so-called “gassjukvårdskommittén”. Two years later in 1937, the board notified its members that the committee had now changed its name to “Svenska Röda Korsets luftskyddskommitté” [“The Swedish Red Cross’ aerial protection committee”], signifying a change in attitude to gas and aerial warfare during the mid-1930s. The board was probably responsible for the Red Cross’ updated booklet of 1935, which was a more thorough description of gas and aerial warfare than the first booklet.398 The board also included Eric Virgin and members of the LSF (started by Nothin and the FFSFF), as well as the state’s Luftskyddsinspektionen, LI (instigated in 1937, more about this below) suggesting the Red Cross’ close ties with the network of organizations, officers, politicians, and eventually the state, which surrounded these topics.399

The Red Cross’ political and networking connections can also be seen during the late 1920s. During the work of the Christenson commission from 1927 to 1931, the Swedish Red Cross held meetings with the commission, presenting an aerial protection programme that foreshadowed what was to come later.400 Also here, the international connections appeared to be important.

398 Röda korset, Civilbefolkningens skydd mot gasanfall från luften.
400 The Red Cross held meetings with the Christenson commission on 7/5, 22/5 and 3/6, 1928. The
The archive contains a report from Brussels, signed by Eric Virgin and Axel Enström, including a complete programme for an urban aerial protection organization, which was discussed at the conference. The report describes the use of air raid shelters and that they would preferably be placed in basements and provide protection from both gas and “brisansbomber” (“blast bombs”). A copy of the report and materials can also be found in Axel Bredberg’s archives. He most likely wrote the concepts for the home front segments of Christenson commission’s report. On 3 June, 1928, the director of the Swedish Red Cross, Prince Carl, also delivered a memo to the Christenson commission on the role that the Red Cross would be willing to take in forming a civilian aerial protection organization which, in view of future developments, looks like the archives also contain a series of memos presented by the Red Cross to the Christenson commission.

volunteer organization that was subsequently developed by the FFSFF through *Luftskyddsförbundet, LSF*. To a large extent, then, at an early stage the Swedish Red Cross took the opportunity to engage in the politics of aerial protection and appears to have influenced the considerations made by the Christenson commission from 1928 to 1931.

As suggested above, the Swedish Red Cross also had close ties with the FFSFF and the Governor’s Office in Stockholm. In the practical sense, through Hugo Jungstedt, vice-chair of the Red Cross during the 1920s, Jungstedt was also the chair of the committee that produced the Red Cross’ gas protection booklet. The Governor of Stockholm and director of the FFSFF, also invited the Swedish Red Cross to provide first-aid services when planning Stockholm’s first aerial protection plan in 1933.\(^{402}\) Given the Red Cross’s interest in influencing Christenson’s commission a few years earlier, this invitation from the Governor’s Office was most likely of mutual benefit. Moreover, in 1930, the Red Cross had already conducted public drills in Stockholm, including aerial elements, not only showing its ability to co-operate but also its political alignment and propaganda skills.\(^{403}\) The fortifications officer, Kjell Magnell, also a member of the FFSFF, is also said to have contributed to the updated 1935 version of the Red Cross’ aerial protection and gas protection booklet and, from 1937, he was the LSF’s representative on the Red Cross’ board.\(^{404}\) Moreover, both the Red Cross and the FFSFF funded Kjell Magnell’s and Ejnar Nordlund’s study trips to Europe. Kjell Magnell was also fond of the Red Cross and wanted the volunteer aerial protection movement to be modelled after it. In 1937, when he and Torsten Nothin initiated the LSF, he publicly announced that the LSF should not be treated as a political or militaristic organization, but rather be understood as an humanitarian organization “liksom Röda korset höjd över de politiska intressena” [like the Red Cross, “freed” of or “unfettered” by political interests].\(^{405}\)

In other words, the Red Cross was an important organization that not only lobbied for a state-financed and led aerial protection organization during the 1920s and 1930s, it also actively informed, educated and drilled large groups of volunteers in gas sanitation and aerial protection, before the parliament and government managed to push through policies. Moreover, it clearly formed an


\(^{404}\) Se Svenska Civilförsvarsförbundet’s archives, volume A1:2, Royal War Archives, Stockholm Sweden.

\(^{405}\) “Riksorganet för civilt luftskydd inför sin start”, Falu läns tidning 5/2, 1937.
important part of the unofficial network of experts, politicians and military intellectuals involved in the formation of Swedish aerial protection policies, forming a triumvirate with the FFSFF and the Governor’s Office. Prince Carl’s role in forcing political change has been discussed in the volunteer movement’s own chronicles. The author and civil defence official, Jan-Olof Hagelin, has argued that an interview with Prince Carl in Nya Dagligt Allehanda created some controversy in 1936, suggesting that the Prince’s held some political influence and could force political action. Moreover, for the coming aerial protection organization, the LSF, the Red Cross functioned as a template and a forerunner in both its practical methods, as well as in its organizational model and propaganda activities. Throughout the 1920s and 1930s, the Red Cross excelled at publishing and distributing booklets and information, performing public drills and hosting propaganda events, producing films and exhibitions and educating large swaths of civilian volunteers. These would become staple activities of the LSF during the late 1930s up until the early 1960s. In this, like the FFSFF, they represent an important local niche for the development of aerial protection policies and technologies.

4.2.3. The Jung-Clique and the New Military Journal

A third important sub-political interest group were the authors and editorial board behind the previously mentioned military journal Ny militär tidskrift. The group, since known in Swedish historiography as the NMT group [“New Military Journal Group”], comprised a number of officers who all advocated a thorough overhaul of the land army, mechanization, as well as greater funding for the newly established and independent air force. Looming in the background were progressive young officers who wanted to confront an older generation of naval officers who argued that the air force should only play a supportive role in relation to the other arms branches, as it had before 1925. As seen above, during the 1930s, the NMT group won the debate and eventually became highly influential by aligning with the liberal left’s views on defence politics.

In particular, the publication of the book Antingen-Eller (“Either-Or”) in

406 Jan-Olof Hagelin “Luftskyddsfrågan före 1937” Civilförsvar (1962), November issue p. 141. I have been unable to find the original article. Thus, the extent of Prince Carl’s influence in this particular event is unknown. He was, however, a well-known public figure and political actor in his day.

407 The NMT group’s influence over military politics has been described by the Swedish military historian, Arvid Cronenberg. See Cronenberg, Militär intressegrupp-politik; See also, Andrae, Kretsen kring Ny militär tidskrift och 1930 års försvarsutredning.
1930, which gained the authors influential posts in FK1930, is a testament to the NMT group’s growing influence on the military debate. This publication has become known as a benchmark event in Sweden’s military history.\textsuperscript{408} As I mentioned above, the book was a counter-proposal to the proposal presented by the Åkerman commission of 1928 and helped the NMT group to adopt a position as military experts in the next generation of commissions of inquiry. Helge Jung, editor of Antingen-Eller, who functioned as secretary of FK1930, selected the experts who would be called, and could therefore dominate the military-political discussion throughout the five years that FK1930 operated. In relation to aerial protection, the NMT group’s ambition, and eventually its success – to uphold aerial technology as a pivotal defensive measure – helped legitimize the state-organized and tax-funded aerial protection for civilians. Antingen-Eller included long sections dedicated to the need for a functional air force and it forcefully concluded that aerial warfare represented an unstoppable technological development for which the Swedish nation needed to carefully plan.\textsuperscript{409} According to the authors, a consequence of this new warfare, however, was that the “sensitivity” of the nation – including industry and the people – to bombing raids would play a significant role in the outcome of a war.\textsuperscript{410} The book also included a chapter solely dedicated to defence of the “home front” for these reasons. Much of these ideas were carried over to FK1930 and through this transfer would profoundly affect Swedish military politics, making the NMT group’s work an important part of the political process of aerial protection. As the military budget issues had been resolved in 1936, Helge Jung also actively campaigned for the instigation of a civilian aerial protection commission.

Apart from the NMT group’s books and participation in FK1930, its journal also became an important forum for modern military strategy and aerial warfare during the late 1920s and 1930s. Consequently, a few of the authors who wrote here would play important roles in the subsequent development of aerial protection policies. During the years immediately after the journal’s formation in 1927, the journal focused and commented on the prospects of

\textsuperscript{408} Cronenberg, Militär intressegrupp-politik, 10; Andrae, Kretsen kring Ny militär tidskrift och 1930 års försvarskommission; Jung, Antingen-eller.

\textsuperscript{409} ”Flygmaterielens utveckling, flygstridskrafternas ökade prestationssärmåga samt flygorganisationernas stärkande och utvidgade åro företeelser, vilka tala sitt tydliga språk. Utvecklingen har slagit in i en viss bestämd riktning, som icke står att hejda. Det gäller att icke bliva efter utan att följa med i denna utveckling, att icke uteslutande rikta blicken bakåt utan även framåt.” quoted from Jung, Antingen-eller, 46.

\textsuperscript{410} Jung, 72.
aerial and gas warfare from both a military-strategic and a political perspective, with authors such as Erwin Engel, C. A. Ehrensvärd, G. Sergel and Åge Lundström. Towards the 1930s the journal also began discussing aerial protection issues, and military authors noted elsewhere in this dissertation wrote here about such topics, one example being the above-mentioned colonel, Eric Virgin. As early as 1929, Virgin presented a proposal for an aerial protection organization in the NMT similar to that of Jungstedt’s in Meddelanden, probably based on his experiences from the Red Cross conference in Brussels 1928–1929. In 1930, the military engineer, Ragnar Lindblad, also wrote an early example on the construction-physical effects of blast bombs on urban buildings, which makes him the only person other than Emil Fevrell to take such an approach at this early stage.

Towards the mid-1930s, civilian aerial protection was more often to the fore and the journal presented special issues and commented on recent air raid drills. The previously mentioned Axel Bredberg (part of Christenson’s commission) wrote a short piece in 1935 on the financial burdens of real estate owners in building air raid shelters. In other articles from this era, industrial sector came into focus with reviews of drills at Swedish General Motors, L. M. Ericsson and various power stations in the country, among other places.

There are also a few examples of civil engineers who also wrote, such as Patrik Rydbeck. In Rydbeck’s case, this concerned a drill conducted at Svenska Kullagerfabriken, SKF in Gothenburg (which produced ball bearings). From 1936 until 1946, the journal commented on most events, both domestic and

413 Ragnar Lindblad ”Verkan av flygbomber mot stadsbyggnader” Ny militär tidskrift (1930), vol. 4. p. 359-360.
international, that related to aerial protection and civilians, including parliamentary politics, new technologies and bombing raids abroad.

An important note is that some of these authors would eventually get involved in important political settings that specifically related to civilian aerial protection, and the NMT journal appears to be the arena from which these people were selected. For example, Ehrensvärd, Engel and Rydbäck were involved in the commission of inquiry on civilian aerial protection in 1936, *Civila luftskyddsutredningen*. In the aftermath of FK1930, Carl August Ehrensvärd from the NMT group was invited to the Beskow commission in 1936 to give a lecture. Both Patrick Rydbäck and Erwin Engel were permanent members of the commission. Engel wrote an appendix on the prospects of producing civilian gas masks. Other members of the NMT group had also been part of previous commissions. In the Christenson commission’s report, instigated by Defence Minister Rosén in 1927, the newly formed NMT was represented by Axel Gyllenkrok, who appeared to have a great influence on the committee’s work. Axel Gyllenkrok was a leading officer in the Swedish air force, a frequent writer in *Ny Militär Tidskrift* and a co-author of the book *Antingen-Eller* together with Carl August Ehrensvärd and Helge Jung. The military author and historian, Arvid Cronenberg, has argued that it was Axel Ljungdahl who wrote about permanent aerial defences and Axel Gyllenkrok who wrote the sections on aerial warfare in *Antingen-Eller*.417

Axel Gyllenkrok’s participation in Christenson’s commission also resulted in a conflict that echoes the NMT group’s role in shaping and directing the framework for Sweden’s aerial warfare doctrine. Apparently, Gyllenkrok was unhappy that the naval military branch had approached the committee and had wanted to participate in its work with one of its naval officers. In a memorandum, Gyllenkrok argued that the naval forces played only a marginal role in upholding the country’s aerial defences and should be kept at arm’s length. Sweden’s aerial defences were a matter that primarily concerned the air force and the civilian sphere, and if naval officers demanded representation, Gyllenkrok argued ironically, Christenson’s commission would be expected to permit representation from the fortification corps, the artillery, the Swedish Red Cross, the telegraph board and the state railway company as well.418 The rest of the commission did not agree. Nevertheless, here is a visible attempt by representatives of the air force and the NMT to assume responsibility for

417 Cronenberg, Militär intressegrupp-politik, 35–36.
418 ”Protokoll hållet vid luftförsvarsutredningens sammanträde den 23 oktober 1929” and Gyllenkrok’s following appendix, Luftskyddsutredningens arkiv 1928, vol 2, National Archives, Stockholm Sweden.
a problem by stating their own importance and keeping other branches out. An undercurrent can also be sensed in the conflict between the naval forces and the newly established air force. Gyllenkrok’s influence on aerial protection issues did not stop here, either. He appeared in Försvarksommissionen 1930 together with Jung from the NMT group, in which the most of the foundational guidelines for civilian aerial protection organization had been laid out. 419

In sum, then, although the NMT group did not necessarily engage in idea development on aerial protection problems on its own in the same way as the Red Cross and FFSFF, for example, it was present via its representatives in all discussions on a parliamentary level concerning this topic. More importantly, as politically influential advocates of independent air forces and Douhet-inspired military doctrines, the group made its mark and set the military framework for civilian aerial protection and thus – both directly and indirectly – supported the idea of a state-led aerial protection organization that could cover the whole of Sweden. Through the Christenson commission’s report, in the book Antingen-Eller, and FK1930, the group actively strove to maintain control of aerial warfare planning and attempted to keep the naval branch out. They did not always agree with each other, as shown by the dispute between Ljungdahl and Gyllenkrok during Christenson’s commission. Nevertheless, they had a decisive influence on military politics. When FK1930 delivered its report to the government, it also included a set of guidelines on how civilian aerial protection should be produced and organized. These guidelines had been under the scrutiny of the NMT group and eventually provided the frame of reference for the Beskow commission of 1936 and Civila luftskyddsutredningen.

4.2.4. Foundational structures

Even if the period from 1927 to 1937 can be described as a low tide for aerial protection in parliamentary politics, engagement in the sub-political field was on the rise. Each of these independent organizations and associations would play an important role in shaping aerial protection politics during the 1930s, and their engagement can partially be interpreted as being fuelled by an inability or lack of interest from the “high” politics of parliament and government. Seeing these sub-political groups together, it is possible to divide their influence on Sweden’s path into a state-organized aerial protection organization comprising three fields.

419 For a biographical account of Axel Gyllenkrok, Axel Ljungdahl, Carl August Ehrensvärd and Helge Jung, see Artéus, Svenska officersprofiler under 1900-talet.
Spreading information and debate. First of all, the work conducted by these organizations and interest groups helped spread the idea of aerial protection and, in its wake, various technologies such as air raid shelters. In the words of the historian, Peter Fritzsche, these organizations fostered a general public “airmindedness”, so to speak; a public awareness of all the problems that future air wars would cause. And as the historian of technology, Mats Fridlund, concluded, such airmindedness was directly associated with a certain set of technologies during this era, such as anti-aircraft artillery, gas masks, searchlights and air raid shelters. This was a clearly stated objective of the FFSFF and the Red Cross with the aim of forcing political change and was directed towards both a local political setting and to a wider audience on both a local and national level. For example, the FFSFF had a clear local perspective for its activities concerning its historical focus on Stockholm, in terms of both where it thought civilian defence measures were needed and also in the way it approached the problem. The FFSFF used its connections with local politicians to advocate aerial protection measures at a government level, while at the same time also providing training and instructor courses for citizens holding key positions in Stockholm’s industrial sector or government departments. The FFSFF’s fundraising campaigns were aimed at local citizens with the purpose of funding specific technologies or fortifications, thereby fostering a perspective on the urban setting as something that needed to be fortified and protected from the next generation of warfare.

The Swedish Red Cross also provided a breeding ground for knowledge dissemination solely aimed at care of the civilian, as well as offering platforms for volunteer engagement from the public. However, the Red Cross did so from a more national and international perspective. As a purely civilian and humanitarian organization, the Swedish Red Cross could promote ideas on aerial protection to a wide audience through its organization without being confronted with critical remarks on the militaristic features of its risk management schemes. The international organizational model also made them an important factor in the dissemination of risk management ideas and technologies, functioning as a knowledge network with branches all over Europe.

421 Fridlund, “Buckets, Bollards and Bombs.”
Not surprisingly, some of the first comprehensive guidebooks on aerial and gas warfare emanated from the Red Cross. Its early involvement with producing a gas warfare pamphlet in 1929, as well as its involvement in Christenson’s *Luftskyddsutredningen* around the same time, are a testament to its influential role. It is also from this point that there are early examples of air raid shelter designs and arguments aimed at the civilian population, not just experts, military intellectuals or politicians. Prince Carl, Chair of the Swedish Red Cross, also had an important role as a public figure, who embodied both national cohesion and the need for volunteer engagement.

Looking at the role of the NMT group in a longer perspective, its inclusion in aerial protection is perhaps less tangible than the FFSFF or the Swedish Red Cross in terms of organizational heritage or material investments. However, its role in shaping the strategic political decisions for the Swedish military solidified the need for aerial protection measures in parliamentary politics. Thus, its ambitions, status and strategic alliance with the Social Democratic Worker’s Party was one of the prerequisites for how an aerial protection organization would subsequently be fashioned. Also, on a more detailed level, the way in which the NMT described and argued for air-war doctrines and the necessity of involving civilians, shaped the kind of solutions that were deemed viable when politicians eventually had to handle aerial protection.

*Networking and reform technocrats*. Seen together, these groups also formed a network that connected key individuals who co-operated and supported each other while politicians in the parliament discussed other problems. With Per Lundin’s and Niklas Stenlås’ work in mind, some of the individuals involved in these settings can be understood as *reform technocrats* using the organizations as political platforms for their ideas.423 Hugo Jungstedt is one example of someone who made use of the political access that the networks provided. Jungstedt was a member of the FFSFF, editor of the journal *Meddelanden*, as well as vice chair of the Swedish Red Cross. Axel Gyllenkrok is another example, an air force officer and representative of the NMT group, enrolled in Christenson’s aerial protection committee. He subsequently took a seat on the *Försvarskommissionen 1930* where he continued to argue for home

423 See Per Lundin’s and Niklas Stenlås’ contribution in Vandendriessche, Peeters and Wils, Scientists’ Expertise as Performance, 135–146. Reform technocrats is a term that is very similar to that of Hughes’ system builder, and can be defined as “key actors” with “expert status who could access the political system and affect legislation and reform policies” (p. 145). While Thomas P. Hughes stresses the key actors’ vested interest in a particular system, often connected to financial interests or market forces, reform technocrats are less focused on an actors’ personal gain, other than perhaps prestige.
front preparedness together with other members of the NMT group. Torsten Nothin, chair of the FFSFF, Governor of Stockholm, as well as a high-ranking member of the Social-Democratic Worker’s Party, is yet another example of a figure moving from one chair to another. Kjell Magnell is perhaps the best example of this networking aspect. A high-ranking fortifications officer, first enrolled in the FFSFF, cooperating with the Red Cross, fortifications expert in parliamentary investigative committees and, after 1937, spearheading volunteer aerial protection as secretary of the LSF together with Torsten Nothin. This networking aspect also resulted in some official and tangible co-operation between the organizations.

Organizational and material infrastructures. Another important legacy that these sub-political interest groups provided was a set of tangible infrastructures that foreshadowed how aerial protection measures and air raid shelters would be developed and organized. This is mostly relevant in the case of FFSFF and the Swedish Red Cross, and only to a lesser extent, the NMT group and its cohorts. In the case of the FFSFF, this topic relates to its endeavour to raise funds and finance high-end technologies and constructs that were given to the military establishment for its use. These technologies and structures facilitated knowledge of how aerial protection could be handled and, moreover, established some of the first important infrastructure that was required for the implementation and proper functioning of a technology such as air raid shelters. Without surveillance and alarm signals, without drills, organizations and shelter signs, as well as public airmindedness, air raid shelters were of little use. With this in mind, the FFSFF can be said to have spearheaded the introduction of aerial protection in Stockholm and eventually throughout Sweden by forcing the introduction of these surveillance and organizational systems into the urban setting. The importance of these projects was not unknown to the FFSFF at the time, either. In a chronicle of the history of the association, one of the founders of the organization, F. W. Edelswärd, claimed that the air raid surveillance headquarters had made possible “luftvärnsövningars bedrivande i tidigare inom vårt land okänd grad” [“allowed air-defence exercises to an unknown extent”] since its construction, thereby making clear the role the FFSFF had played during these years. 424

The Swedish Red Cross’ activities at the time can also be seen in relation to this. The problem of the gas war was what stirred its original interest in aerial protection, and through this it communicated ideas on air raid shelters, filter

equipment and gas masks to a wider audience. However, when the gas scare subsided, it had not only introduced such technologies. What the Swedish Red Cross’s activities had shown was that it was possible to involve much of the population in contingency exercises and drills. The Red Cross worked by forming small local clubs while also providing educational material and instructor courses. This organizational model was also copied in 1937 by the volunteer organization, LSF, and became the basis for how it worked in the years to come. Moreover, the Swedish Red Cross was an expert in public propaganda and the dissemination of health and risk management information, which was deemed pivotal in making aerial protection measures useful for the public. It is therefore no coincidence that it was the Swedish Red Cross that produced Sweden’s first pamphlet on gas warfare and civilians, not the state’s government body Luftskyddsinspektionen or the volunteer organization, LSF, both founded in 1937. These organizations merely copied the organizational format of the Red Cross.

4.3 Social democratic policies and civilian aerial protection

Besides the military political deadlock and the influence of sub-political interest groups during the period, another layer should also be added that can explain parts of the “civilian” prefix and Kjell Magnell’s above-mentioned “humanitarian” approach to aerial protection towards the middle and end of the 1930s. At a time when liberal and – particularly in the 1930s – reform socialistic political ideas were on the rise, organizations with conservative middle-class and nobility profiles such as the FFSFF and the Red Cross would not find support without making concessions. In this, the Social-Democratic Worker’s party, SAP, would play an important role in shaping aerial protection politics, comparable to that of the NMT group. While the NMT group set the military framework, explaining the nature of the threat and potential solutions, the social-democratic politicians set the political framework, suggesting what the government would be willing to do.

Thus, the ability to frame and align aerial protection politics with the SAP’s political programme became a key element in achieving anything towards this end. Appeasing the SAP was also increasingly important during the 1930s for merely practical reasons. In 1928, the SAP received 37% of the votes in the second chamber of parliament. In 1932, this increased to 41%, and in 1936 it increased further to 45% of the mandates in the second chamber. Although
dominating both the first and second chamber at this point, it still relied on support to gain a majority for certain issues, although this was resolved through strategic alliances during the period. The so-called “kohandeln” [“Cow trade”] with the Bondeförbundet [“Farmer’s League”] in particular in 1932 has been remembered as a watershed. In 1940, however, the SAP gained a majority of its own for the first time in parliament with 53% of the votes. In other words, whatever needed to be done during the 1930s, all political proposals had to find support from social-democratic politicians at some level since they had the power to stop any political proposal from reaching parliament.

In relation to aerial protection, the political streamlining of the 1930s primarily focused on the grey zone of military and civilian interaction and resulted in a new focus on civilian management. In other countries throughout Europe the newly established aerial protection organizations were often organised under the respective state’s defence department or, in other ways, were led by the military. This was the case in, for example, Belgium, Germany, Poland and Switzerland, as well as in many other countries. The German aerial protection organization, for example, had begun as a civil organization already in 1927 under the leadership of the Ministry of Aviation but was effectively taken over by the German Luftwaffe from 1933 onwards. Previous attempts and proposals for an aerial protection organization in Sweden had also followed similar lines. Fevrell’s proposal from 1927, as well as Christenson commission’s proposal from 1931, both forced the aerial protection organization under military leadership, during both peacetime and wartime. However, while Sweden suffered from a deadlock in military politics from 1925 to 1935, which blocked aerial protection proposals, it also became clear that the involvement of civilians abroad in many cases had taken a fascist and totalitarian turn.

This made the matter of aerial protection for civilians and shelters controversial. Consequently, when Försvarskommissionen 1930 delivered its report in 1935, the authors had become increasingly concerned about the apparent militarization of Poland, for example, and therefore added a recommendation that peacetime preparedness activities were not recommended. At the same time, the idea was voiced that an aerial protection organization should be directed

425 Betänkande med förslag till ordnande av Sveriges försvarsväsende D. 2 Arméorganisationen, Statens offentliga utredningar (Stockholm: Nord. bokh. i distr., 1935), 45–46. In FK1930, the authors claimed that while most aerial protection organizations are led by civil authorities, the military leadership provides directives.
426 Sjölin, I skuggan av kriget, 201.

196
by the department of social affairs, instead of the military department, and that leadership should be provided by the local police.428

Concerns about militarization through aerial defence organizations can be put into context with the internal political situation in Sweden. Parallel to fears of actual imperialistic war campaigns from the Soviet Union or Germany, there were fears of a growing domestic political extremism and militarism, from both the left and the right. Some authors have suggested that the SAP party leader and Prime Minister from 1932 to 1945, Per Albin Hansson, was particularly against any form of militarization of civil life. During his early career, Per Albin Hansson had made antimilitarism, pacifism and disarmament policies his trademarks.429 This legacy would eventually also affect the SAP’s view of aerial protection. The SAP’s congress in 1936 had been sceptical of defence. Per Albin Hansson, together with the leader of the Social Democratic party at the time, Richard Sandler, and the leader of the liberal party, C.G. Ekman, were also the driving force behind Sweden’s disarmament decision of 1925 (Per Albin Hansson had been Minister of Defence from 1924 to 1926).430 For these reasons, Per Albin Hansson was loathed by large groups in the military who saw a connection between the growth of the SAP, parliamentarism and the decline of the military apparatus.431 Since the decision to organise a conscript army at the start of the twentieth century, Swedish politicians had also been concerned about military loyalty. Democratically-inclined politicians understood that with the help of a huge conscript army, the military establishment could wield political power, and the turn towards fascism on the continent heavily emphasized the danger of this throughout the 1920s and 1930s. Sat the same time, the military elite, often comprising right-wing conservatives, equally feared the growing socialist tendencies in society and did not trust the social-democrats and their claim of having the revolutionary elements in their party under control.432

Indeed, the SAP’s fears were not without reason. The 1930s saw a great many national gatherings that honoured Hitler’s work, and many military officers openly confessed to having Nazi sympathies. Swedish historian, Karl Nilsson, has claimed that fascist ideas were widely accepted among the Swedish

428 FK1930 D. 2., 47.
429 See sections “antimiliaristen” and “fredsaktivisten” in book 1, Anders Isaksson, Per Albin (Stockholm: Wahlström & Widstrand, 2002).
430 Oredsson, Svensk rädsla, 132–133, 177.
431 Nilsson, Svensk överklassnazism, 62–63.
military establishment in general. The military was full of officers who feared
Communism a lot more than Nazism and were willing to act independently.
Some of them we have already met, for example, Axel Gyllenkrok and Emil
Fevrell.\footnote{Nilsson, Svensk överklassnazism, See the chapter “Officerskåren och antikommunismen”.} Nazi sympathies were apparently so well established that the head
of the NMT group and subsequent Supreme Commander of Sweden’s Armed
Forces, Helge Jung, complained that the Nazis had taken the defence issue
“på entreprenad” [“on contract” or “[have become] defence entrepreneurs”].\footnote{Nilsson, 259, also 254–259.; For more on this see Karl N. Alvar Nilsson, Överklass, nazism och högerextremism: 1945-1995 (Stockholm: Carlsson, 1998); Nilsson, Svensk överklass och högerextremism under 1900-talet.}
Also, during the 1930s, many people in Sweden were joining in Fascist and Nazi
organizations, as well as Communist unions,\footnote{Oredsson, Svensk rädsla, 193–195.} some of which were violent
and therefore posed a real threat to the Swedish state. The communist parties
also posed a potential threat. During the election of 1928, these had received
6.4% of the vote, and four years later two communist parties received a total
of 8.3% of the vote.\footnote{Oredsson, 191–192.}

With this political history in mind and given the European turn towards
fascism and militarism during the 1930s, Per Albin Hansson’s and the SAP’s
reluctance against everything military is understandable. In fact, the Swedish
historian, Alf Johansson, has argued that Per Albin Hansson’s and the SAP’s
political programme during the interwar era can be viewed as a protracted
attempt to initially fend off revolutionary communists in their own party and
then wrestle with the fascists on the right wing. This was a tactic that worked
in two directions in order to provide what they thought would be a safer and
more democratic form of progress for Sweden’s development.\footnote{See these two titles in particular for more on this. Johansson, Den nazistiska utmaningen, 127–137; Alf W. Johansson, Per Albin och kriget: samlingsregeringen och utrikespolitiken under andra världskriget (Stockholm: Tiden, 1993); see also Oredsson, Svensk rädsla, 143–160.} On the one
hand, the SAP needed to shield itself from radical communists while still
offering serious domestic reforms for the working classes so that they wouldn’t
turn towards fascism. On the other hand, in order to be tolerated in parliament
the SAP also needed to come across as a national unifying force towards the
Liberals and particularly the right-wing audience, who bathed in nationalist
rhetoric. When the SAP came to power in 1932, the government presented a
number of proposals in parliament that strengthened the state police, forbade
uniformed protests and armed clubs or other forms of revolutionary organi-
ations that were not directly controlled by the state. Many of these proposals were aimed at right-wing extremists but Per Albin Hansson also directed his energies towards communist organizations when he had the opportunity.\footnote{Oredsson, Svensk rädsla, 192.}

The attempt by Per-Albin Hansson and the Social-Democrats to launch the political social reform programme, \textit{Folkhemmet} in 1932 [“\textit{The People’s Home}”], a conceptual forerunner to the Cold War Social-Democratic welfare state, was also a means of tackling these problems.\footnote{For an historical account in English on the birth of the Social-democratic welfare state, see Misgeld et al., \textit{Creating Social Democracy}.} In order to fend off Swedish fascism in the wake of Hitler’s rise to power, the SAP argued that the only preventive measures would be “handlingskraftig socialdemokratisk politik” [“forceful social-democratic policies”] and in 1933 the SAP’s Minister of the Interior, Gustav Möller, announced that “solving the crisis issues is the most important matter in the fight against fascism”.\footnote{Misgeld et al., \textit{Socialdemokratins samhälle}, 255–257.} The concept of \textit{Folkhemmet} as a general reform programme was very much the epitome of this idea. Subsidized industry and housing policies in particular became important parts of this programme. It was as much an attempt to provide a moderate alternative to right-wing totalitarianism as it was reform-socialism. In order to achieve this, \textit{Folkhemmet} also had to challenge the hijacking by totalitarian ideologies of the technological progress of modernity and ideas about technical rationalism and effectiveness. Much of the appeal lay in the idea that totalitarian forms of government could provide an efficient and rational government, instead of the slowness of parliamentary work and lengthy debates. In the words of the historian, Alf Johansson, Per-Albin Hansson’s launch of the \textit{Folkhemmet} was an attempt to display the “superfluousness of fascism in a country like Sweden.”\footnote{Johansson, \textit{Den nazistiska utmaningen}, 129.}

This is an important context, from which aerial protection and air raid shelters also need to be viewed. On the one hand, there was a great fear of domestic violence and take-overs by armed political organizations, In Germany, Poland and Italy, aerial protection organizations had precisely this problematic aura of para-military fascism and the militarization of civilians. Politically, it was obvious to the Social-Democratic Worker’s Party that supporting this kind of organization would be extending the influence of the military in ways that could eventually be fatal for the parliamentary progress of the state of Sweden. Securing control over any such attempt to organize a civilian home front had to be a priority. According to Thomas Munch af Rosenschöld, secretary in Beskow’s aerial protection commission of 1936, Per Albin Hansson
was “allergic to all attempts to extend the military organization’s territory”.

This also meant that, above all, it had to remain civilian, since the military establishment was deemed to not be trustworthy in terms of democratic ideals. On the other hand, the same period was an era in which radical reforms were presented that offered to profoundly transform Sweden and, in the long term, dismantle the class society. This was what Per Albin’s utopian reform programme *Folkhemmet* was attempting to achieve. One part of this, perhaps the most important part, were the housing policies that the SAP presented towards the end of the 1930s. These policies offered a radical transformation of the urban environment with modern urban planning, modern housing and modern materials and building methods.

Thus, to be successfully implemented in the parliamentary landscape of the mid- and late 1930s, advocates of aerial protection and air raid shelters, such as the FFSFF, the Red Cross and the NMT group, needed to navigate this political environment. A state-led aerial protection organization needed to be framed as something that was purely civilian, humanitarian and politically unproblematic, as well as constantly under state control, if it were to be accepted by a social-democratic government that abhorred any attempt to militarize civil society. Air raid shelters also needed to be seamlessly integrated into the new developments in housing policies and building methods that the SAP supported and, moreover, framed as a purely passive civilian aerial protection measure, for both economic reasons, so as not to make construction too expensive, and for political reasons, so as not to appear as a militaristic supplement to the new and modern urban environment.

From here on, this section will be split into two sections that will discuss these developing lines in Social-Democratic policy-making during the mid-1930s. Both sections will show how parliamentary politics transgressed and facilitated a development towards a civilian and state-controlled form of aerial protection. The first section will discuss how social-democratic policy-making attempted to set the limits for the armament of civilian organizations in an effort to secure the parliamentary governed state’s survival. Through this process the SAP, perhaps unwittingly, also produced a state governed and armed police force that could replace the military leadership upon which previous proposals for aerial protection hinged, and thus remove some of the militaristic stigma with which the otherwise military-led aerial protection organizations abroad struggled. The second section is about how the SAP’s housing policies during the mid-1930s paved the way for the potential intermingling of some of the

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ideas discussed by the fortifications officers in chapter one. The SAP’s proposed urban transformation created a window of opportunity for construction-technical aerial protection, thereby allowing air raid shelters to sneak into government-supported housing policies without causing criticism of militarism or the militarization of public life.

4.3.1. Avoiding para-military organizations

One of the most interesting events in the SAP’s early anti-militarism campaigns was its reaction to the exposure of the Munckska kåren in 1931–1932 [“Munck’s Corps”]. The Munck’s Corps controversy has also been discussed by Swedish historians in other academic settings. Historian, Karl Nilsson, has described it in terms of an example of Swedish upper-class Nazism. For his part, historian Sverker Oredsson used it as an example of the SAP’s fear of domestic insurgency during the 1930s, and how it led to policies to resolve it. However, the Munck’s Corps controversy should also be linked to the question of aerial protection, as an example of how the fear amongst politicians from both the left and right forced through legislation that sharpened the edges around who would be able to bear arms and for what purposes.

Moreover, the Munck’s Corps used the epithet aerial defence organization as a cover for its reactionary agenda, making it a frightening example of the problematic nature of aerial defence organizations that could be seen abroad. In the long term this controversy fostered an attitude from the social-democratic politicians that is later visible in the attempt to shape a purely civilian organizational context around aerial protection issues. The founder of Munck’s Corps, Bror Munck, was a retired general lieutenant, a known advocate of voluntary participation in military armament, and was particularly interested in organizing voluntary aerial defence details in Stockholm. Together with local police commissioner, Gustaf Hårleman, the two arranged for a secret reserve police force called Stockholms luftförsvars frivilliga understödsförening [“Stockholm’s Aerial Defence’s Voluntary Support Organization”] that could function as an armed guard in case of communist attempts at revolution on Swedish soil. The corps was initiated in 1927 and counted 2,000–3,000 members, including one of the military authors in this dissertation, Emil Fevrell. The corps was organised along military lines with platoons, companies and

44 Oredsson, Svensk rädsla, 157–160.
battalions, was intended to serve the local police, and was armed with firearms for self-defence purposes.

Politicians were probably aware of the existence of the Munck’s Corps and it was possibly formed in co-operation with either C. G. Ekman’s government of 1926 to 1928 or Lindman’s government of 1928 to 1930, although its armament and its ideological connection to the national socialists appears to have been less apparent.\textsuperscript{446}

However, the corps’ exposure to the public came directly through its fascist and Nazi connections, due to internal strife. In 1931, the founder of Sweden’s first fascist party, Konrad Hallgren, in an act of revenge, exposed the banker A. W. Högman for financing and smuggling unlicensed arms for both the political fascist organizations as well as the Munck’s Corps.\textsuperscript{447} The event caused widespread anxiety in parliament since it revealed that this volunteer-based para-military reserve organization was functioning less as a voluntary aerial defence organization and more as a secret pro-fascist armed corps with military officers in command. The SAP responded quickly with a proposal for a legislative ban of any form of armed corps organization – and was supported by the Liberals.

Especially prominent in these debates was the SAP politician, Gustav Möller, who would later play a key role in forming aerial protection politics. In times of revolutionary propaganda from both political extremists and from nations abroad, the SAP argued, Sweden did not need a corps that could divide the country politically using arms.\textsuperscript{448} The right-wing politicians protested, but Prime Minister C. G. Ekman supported the proposal with the help of his party and armed corps such as Bror Munck’s were lawfully banned from 1932 onwards.\textsuperscript{449} The law became publicly known as “Lex Munck”.\textsuperscript{450} On the other side of the coin was the threat from the communists. After all, the Munck Corps had begun as a reaction to fears about revolutionary communist tendencies amongst the unions and socialist parties in Sweden. When the SAP presented Lex Munck, right-wing politicians also complained that the social-democrat, Gustav Möller, had not mentioned the threat of these red factions when he advocated banning armed corps. In the same spirit, a conservative youth organization, Konservativ Ungdom, held an open meeting in 1934 under the

\textsuperscript{446} Torsten Nothin argued in his memoirs that the corps was probably initiated with the support of either Lindman’s or Ekman’s ministers of social affairs. Nothin, Från Branting till Erlander., 214.
\textsuperscript{447} Nilsson, Svensk överklass och högerextremism under 1900-talet, 58–59.
\textsuperscript{448} Oredsson, Svensk rädsla, 158.
\textsuperscript{449} Oredsson, 157–159.
\textsuperscript{450} ”Lex Munck”, Svenska Dagbladets årsbok (1934), vol. 12. p. 95.
slogan “mot en Lex Munck, för en Lex Kilbom-Sillén.” [“against Lex Munck, towards Lex Kilbom-Sillén”] Kilbom-Sillén referred to the leaders of the two communist parties who had taken some 8% of the seats in the Swedish parliament. Likewise, one of Per-Albin Hansson’s closest friends, Oscar Lövgren, claimed that the communist factions had been the reason for the creation of the Munck’s Corps, and that he himself had been a communist but had left the party when he heard the news that Moscow had urged unions and communist parties to form armed corps themselves. The Munck’s Corps controversy in 1931 should also be put in context with the shootings in Ådalen the same year. In Ådalen, the local police had called in the army in an attempt to regain control of a growing socialist protest movement. This resulted in five people being shot and killed. Most tragic was the killing of 20-year-old bystander, Eira Söderberg. Although she was standing a considerable distance from the site of the shootings, she was hit by a ricochet. In the aftermath of the Ådalen shootings, much blame was directed at the communists who had started the protest. None of the soldiers were convicted for the killings. Politically, the Ådalen shootings also resulted in the strengthening of the state police force in order to make it unnecessary for the local police to summon help from the military establishment, as well as to prevent any attempts at a communist coup. Also, the Munck’s Corps controversy resulted in the banning of armed corps, which the social-democrats mainly saw as a right-wing fascist problem.

These events show the delicate political environment within which civil defence politics were born. Both the Ådalen shootings and the Munck’s Corps controversy emphasized the need to keep volunteer organizations away from arms, as well as the importance of an independent police force that could be used for leadership roles and therefore replace the military’s previous role in taking control of civilians in times of crisis and war, and which had ended in tragedy at Ådalen.

451 Dagens Nyheter, 18 April, 1934. p. 4. See also the advertisement in Svenska Dagbladet, 14 April, 1934. p. 4.
452 Oredsson, Svensk rädsla, 158.
453 Oredsson, 156.
454 Oredsson, 153–156. As the 1930s ran its course, and eventually as the Second World War began, the conflict between the political environment and the military establishment became even more strained. The Swedish historian, Alf Johansson, as well as Karl Nilsson, have claimed that in 1940 there was even a group of officers who discussed a military coup d’état, including the previously mentioned Axel Gyllenkrok and Axel Rappe from the NTM group, as well as Admiral Charles de Champs, who tried to force the old King Gustav V to remove Prime Minister, Per-Albin Hansson, from office. Nilsson, Svensk överklass och högerextremism under 1900-talet, 56–57.
The practical results of these events also reached the key figures who were involved in aerial defence politics. The person tasked with instigating the new police force was the same person who spearheaded Stockholm’s aerial defences, Torsten Nothin, Governor of Stockholm and director of the FFSFF. As a close friend of Per Albin Hansson and one of the top politicians in the Social-Democratic party, Nothin was appointed to reform the state police and also pass the final judgement on the future of the Munck’s Corps.

In his memoirs, Nothin himself noted that Per Albin Hansson personally appointed him as Governor of Stockholm and gave him the responsibility of organizing the city’s police force in order to gain a firm hand in an age of revolutionary tendencies. In his memoirs, Nothin also mentioned the recent memory and influence of the Munck’s Corps controversy in the police force in Stockholm during his first years as governor. It was Nothin was who finally withdrew the Munck’s Corps’ firearms license as a result of the political turmoil they had caused. The firearms were handed in and, paradoxically, were passed to the police force, thereby resulting in Sweden’s first armament of a state police force.

In essence then, the Munck’s Corps was not entirely scrapped but was used as model and inspiration for a similar organization, although this time under civilian government control instead of fascists and the military. An interesting note that shows the importance of network relations and Nothin’s role is that when the Swedish parliament finally ratified the first air raid statute of 1937, it was suggested that the head of Nothin’s new state police, Alvar Zetterquist, could also head the government body, Luftskyddsinspektionen, LI, that was supposed to handle the new aerial protection organization. Zetterquist took this position and lead the LI from 1937 to 1940.

In sum, the Munck’s Corps controversy and the Ådalen shootings offer interesting perspectives on how aerial protection was perceived and organized in the mid-1930s. Not only did these two political events highlight and bring to surface the political extremist undercurrents in Swedish society, they also reinforced the distrust between the military and the burgeoning worker’s movement, thereby giving rise to a new police organization that was tied to the state, not only to the local setting. The Munck’s Corps controversy became a memorable event for criticism and a warning against the enrolment and militarization of civilians during the late 1930s, as well as a warning about the fascist tendencies of military officers. As late as 1938, some people argued that

455 Nothin, Från Branting till Erlander., 160.
456 Nothin, 214.
the new aerial protection clubs that were emerging around the country were yet another attempt by the officer’s corps to impose their fascist agenda, urging the reading audience to consider the coup in Spain and remember that the “the inspiration for our own Munck’s Corps came from military officers”.\textsuperscript{457} Such criticism was primarily from Moscow-friendly revolutionary socialists and was in a clear minority at this point. However, liberal newspapers also commented on military volunteer work as late as 1940, using it as a frame of reference, suggesting that there still was a worrying connection between the willingness of the officer’s corps to organize civilians for supportive roles and fascist organizations. In this sense, the Munck’s Corps became a symbolic event and a point of reference. When discussing the new landsturm organization of 1940, presented by the current Chief of Staff, \textit{Dagens Nyheter} offered assurances that no “Munck’s Corps will arise out of this.”\textsuperscript{458}

Since the events of the early 1930s resulted in a ban on armed voluntary and uniformed organizations, it is also interesting to consider the connection to Christenson’s aerial protection report from the winter of 1931 to 1932 in this light. It was C. G. Ekman, Prime Minister in 1931, who shelved the Christenson commission’s report on aerial protection, but he also passed the final verdict on the SAP’s proposal to ban uniformed and armed volunteer organizations. The Munck’s Corps had been exposed in the same autumn that the Christenson commission’s report on aerial protection was delivered. Given the political conflicts between left and right extremists at the time, it is not unreasonable that this coincidence affected the incumbent government’s reluctance to make politics out of the Christenson commission’s report.

This is within the realm of speculation. Nevertheless, the controversies of 1931 do show that questions about the military’s involvement in civilian matters were controversial at the time and, moreover, that para-military organizations could pose a real threat if they were not directly controlled. In this respect, the social-democratic government’s enforcement of a purely civilian aerial protection organization from 1936 to 1937 should be considered alongside its attempts in the early 1930s to consolidate and draw up boundaries between the left and right, as well as between the civilian state and the military organization. The fact that we see the same persons moving from the politics of policing to aerial protection politics is equally a testament to the network relations and how SAP politicians at the top carried with them a certain mentality on how state-civilian relations like this should be handled. Thus, not only did

\textsuperscript{457} See, for example, “Kungl. Maj:ts rebeller.” Norrskensflamman, 28 February, 1938.

\textsuperscript{458} \textit{Dagens Nyheter}, 5 February, 1940, p. 3.
experiences from abroad show how aerial protection organizations could turn into paramilitary groups under military control, controversies at home, such as the Munck’s Corps, showed the necessity of organizing a non-political, state-controlled and, above all, civilian organizational context for the problems caused by the extreme political environment of the 1930s.

In this sense, the laws and organizational changes that resulted from these events can be interpreted as niche developments which, during the early period of aerial protection politics, had an encumbering effect on its development. In the same way, they functioned constructively during the later period since they could be used as a frame of reference and as a signifier of what aerial protection services should not become.

### 4.3.2. Social-democratic housing policies and air raid shelters

Apart from the SAP’s anti-militaristic leanings, there is another political context that helped underpin the implementation of aerial protection technologies and especially air raid shelters: the SAP’s social reform programme, Folkhemmet, [“The People’s Home”] and, more particularly, the housing policies that it included. SAP’s housing programme was one of the most important prerequisites introduced during the interwar era to enable a political streamlining of aerial protection politics, particularly Magnell’s concept of Construction-Technical Aerial Protection. Before the Folkhemmet idea, a solely passive organization based on a bomb-resilient cityscape was considered to be both practically and economically utopian. The aerial protection organizations presented by, for example, Hugo Jungstedt and in Christenson commission’s report, stressed that a city’s defences hinged on the military side, and that passive measures and architectural alignment with the demands of aerial defences would only be secondary considerations. Moreover, transforming an urban environment into a fortified bomb-resilient cityscape would take decades, and could therefore not address the urgent needs of the 1930s. Folkhemmet, however, and the housing policies that it included, offered the pretext for a reformation of the urban environment that appeared to be practically possible in the long term, and which was also in line with a passive and civilian type of defence that the SAP found acceptable. Productivity in the housing sector also increased significantly during these years, suggesting that an urban transformation was within reach. Thus, with the concept of Folkhemmet and the SAP’s subsequent housing programme, Kjell Magnell’s concept of Construction-technical aerial protection could find a fruitful political context to work towards.
A major part of the social unrest of the 1930s can be traced to the development of the urban environment during the early decades of the twentieth century. The urban population in Sweden grew immensely during the interwar years and caused many problems in the form of transportation, sanitation and a lack of housing. In 1920, the population of Stockholm was estimated to be 488,000. In 1940, this number had risen to 726,000. Parallel to this was an increasing unemployment rate due to the industrial recession in the wake of the Great Depression.

Thus, for politicians, providing housing became as much a social as a practical matter. In light of this development, a decent and affordable living standard became a social-democratic honorary policy in its Folkhemmet concept, as well as a means of providing employment using Keynesian economics. Even if the SAP’s housing programme would not come to full fruition until after the war, it was successful during its launch in the early 1930s and caused a doubling of housing projects. In 1933, the Minister of Social Affairs, Gustav Möller, instigated Bostadssociala utredningen [“social housing commission”], whereas the name itself reveals the SAP’s attempt to solve social problems through housing construction. As Swedish historian of architecture, Eva Rudberg, has claimed, the SAP’s ascendancy to government power in 1932 very much hinged on its attempt to solve the housing issues during the 1930s. From 1933 to 1939, the construction rate doubled, peaking in 1939 with 59,000 dwellings that year, before plummeting by 71% following the outbreak of war. In 1940, 26,000 apartments were built and in 1941 only 17,000. It took 18 years before the pre-war productivity levels were reached again.

459 Hadenius, Svensk politik under 1900-talet, 50.
460 Lundin, Stenlås and Gribbe, Science for Welfare and Warfare, 238.
461 Misgeld et al., Socialdemokratin samhälle, 156–158.; Lundin, Stenlås and Gribbe, Science for Welfare and Warfare, 238. For a thorough history of the SAP’s housing programme, see chapter 11. It should be mentioned, however, that the SAP’s interest in housing policies extends far back to the late nineteenth century. See, in particular, Kerstin Thörn’s dissertation for more on this. Kerstin Thörn, En bostad för hemmet: idéhistoriska studier i bostadsfrågan 1889-1929 = A place to call home: studies in the housing question, 1889-1929 (Umeå: Univ., 1997), 297–319.
462 Rudberg, Folkhemmets byggande, 14.
463 The productivity of the housing sector was central to civil defence planning and followed it closely. In Civilförsvarstyrelsen’s statistics in 1962, the housing sector shrank from 59,000 constructed apartments in 1939 to 26,000 in 1940 and 17,000 in 1941. Thus, over two years, productivity in this sector plummeted by 71%. See PM. Enskilda skyddsrum, som tillkommer I samband med uppförande av skolor, industrier, kontor etc,”, and Civilförsvarstyrelsen’s archives, vol B7:1, Royal War Archives, Stockholm Sweden.
464 Lundin, Stenlås and Gribbe, Science for Welfare and Warfare, 238.
The political endeavour to reform the urban environment was also matched by new ideals within the building sciences that promised a fruitful partnership between the two. During the 1920s and 1930s, civil engineers and architects in Sweden began to turn towards modernistic forms of urban planning, building methods and architecture that challenged the romantic, traditional classicist and Jugend styles of the late nineteenth century. In accordance with the credo of the interwar era, form would now follow function, *functionalism*, and would therefore prevail over aesthetics and tradition, *classicism*. The Stockholm exhibition of 1930 and the publication of the debate book *Acceptera!* in 1931 are the most recognized events to mark the spread of functionalist architecture and planning in Sweden.\textsuperscript{465} Internationally, this new form of building style is often coupled with Le Corbusier’s writings and designs and, in Sweden, architects such as Gunnar Asplund and Uno Åhrén are often seen as Swedish interpreters of Le Corbusier’s modernism. They were both co-authors of *Acceptera!* and Uno Åhrén took part in Möller’s *Bostadsociala utredningen*, making him one of the key actors, or one of the reform technocrats of Swedish housing policies.\textsuperscript{466}

However, the breakthrough of modernism was not only a new style in architecture and urban planning; the modern ways of building houses also had a financial side to them. Sleek, cubical buildings with no ornamentation or elaborate aesthetic work outside were inexpensive to build, particularly if they were used in conjunction with the modern building material, ferro concrete.\textsuperscript{467} This new form of architecture also allowed for mass production and the use of unskilled labour in ways that the romantic building styles could not match.

This was, of course, not an unintentional consequence but rather part of what modernist architects were attempting to achieve. The American historian of technology, Amy Slaton, discussing modern building styles, argued that the uniformity of modernist architecture was a celebration of its “science-like” and standardized character, something that also allowed for rational and effective construction.\textsuperscript{468} This idea also made an impact in Sweden during the 1920s and 1930s, particularly through the work conducted by the Svenska...

\textsuperscript{465} Eva Rudberg, Stockholmsutställningen 1930: modernismens genombrott i svensk arkitektur, Monografier utgivna av Stockholms stad, 0282-3899; 141 (Stockholm: Stockholmia, 1999); Gunnar Asplund, *Acceptera!* (Stockholm: Tiden, 1980).

\textsuperscript{466} Lundin, Stenlås and Gribbe, *Science for Welfare and Warfare*, 238.

\textsuperscript{467} For an interesting book on the consequences of concrete on architecture, see Forty, *Concrete and Culture*; for more details on the introduction of concrete and its consequences for the American labour market, see Slaton, *Reinforced Concrete and the Modernization of American Building, 1900-1930*.

\textsuperscript{468} “the majority of reinforced-concrete factory buildings erected after 1900 bared their gray concrete framing to the world and offered no cladding, ornamentation, or other distraction from their modern
Teknologföreningen, STF [“Swedish Technologists’ Association”], and the book *Acceptera!* also contained a strong ethos regarding the standardisation and modernisation of construction methods.\(^{469}\)

If the urban environment of the interwar era offered the politicians an obstacle to the politicians, the modernist building sciences offered tools to bypass it. The new engineering and architectural ideal fit neatly into the SAP’s idea of how the *Folkhemmet* should be, and therefore became the foundation stone of the SAP’s reform programme upon which the SAP’s reform programme was placed. It would take until the 1960s before these dreams were fully realized, but the foundation had already been laid.\(^{470}\) Similar to the reasoning of the authors of *Acceptera!*, Gustav Möller, Uno Åhrén, Alf Johansson and the other members of the Bostadssociala utredningen built on the idea that all citizens had quite similar needs and desires regarding how they wanted to live. Thus, through the central organisation of industrial production and the provision of housing according to rational and effective means, the lower classes would eventually achieve the same standard of living as the upper classes.\(^{471}\)

In this political environment, the modernist idea of standardization and the systemisation of construction methods, Keynesian economics and urban planning offered a means of directed politics that could kick start the SAP’s welfare programme and quickly provide results concerning the effectiveness of reform socialism. This turn towards a controlled housing market made large-scale housing projects economically feasible since buildings made of ferro concrete offered the possibility of cheap mass production.\(^{472}\) Although most of these political dreams would be realized in the post-war years, Sweden managed to double its production during the 1930s.\(^{473}\) In other words, the

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\(^{472}\) Hall and Vidén, “The Million Homes Programme,” 303.

\(^{473}\) Misgeld et al., *Socialdemokratins samhälle, 157.*
Figure 30: The aerial protection advocates argued that their ideas were in line with modern housing norms. This image shows the kind of urban dreamscape Magnell wanted Sweden to adopt. The images show various locations in Stockholm. See Civilförsvarstyrelsen’s archives, F14: volume 6. Royal War Archives, Stockholm, Sweden.
SAP not only managed to use the idea of the Folkhemmet as a metaphor for the national organism as a whole, with the help of the modernist turn in the building sciences, it also managed to conjure up and launch an idea of an actual and material People’s Home that could challenge the totalitarian approaches to social unrest that were yielding results on the continent.

For aerial protection and its many technologies, this political context should be appreciated for the willingness for the radical transformation of the urban environment that it engendered. The radical growth of the urban environment during the 1930s was an opportunity to do things right, as the modernist architects claimed, and not just let the city grow at a whim. This political package also included a type of multi-storey concrete building that aerial protection advocates considered being optimal. The SAP managed to make politics out of this attitude towards the city’s development and, in doing so, also paved the way for implementing technological concepts that had previously been ruled out as being too expensive or even utopian. Thus, the reform socialist turn towards housing policies and the SAP’s partnership with modernist architecture, as well as its ability to stimulate a huge increase in productivity in the industrial construction sector, represented yet another window of opportunity for the system builders of aerial protection technologies.

This was a political context that could only be seen on the horizon when Fevrell and Christenson’s commission discussed the implementation of air raid shelters during the early 1930s, but forcefully aided Magnell’s envisioned construction-technical approach only a few years later. The triad of bomb problems – gas bombs, fire bombs and blast bombs – that needed construction-technical solutions such as air raid shelters, ferro-concrete building types and spacious planning to be handled, could now be presented as less utopian, perhaps even realistic in the long term, if the city as a whole was being reconsidered at the same time. Above all, the modern, functionalist and social-democratic city was a vision of the future, and aerial protection measures could be seamlessly built into that future with ease. Moreover, the partnership between the modernist building sciences, social-democratic policies and aerial protection measures also helped to frame aerial protection measures as something that was in line with the civilian context for aerial protection that the SAP was attempting to achieve.
4.4. Summary

In summary, this chapter shows the importance of considering the sub-political context of Swedish aerial protection policies during the interwar era. Three different intertwined contexts have been discussed in an effort to explain how the political field considered and handled the aerial protection problem from 1927 to 1936. Three questions have been key to this chapter: What was the basis of the political stalling? What were its consequences in relation to aerial protection politics? And thirdly, what caused the turn towards a “civilian” approach to aerial protection during the mid-1930s?

Firstly, the military-political debates that followed parliamentary politics between 1925 and 1935 functioned impeding to any attempt to produce a state-financed and regulated aerial protection services. Even if the Christenson commission’s report was in line with the contemporary view of aerial protection and defence, and found wide support, the debates and the many and complex commissions of inquiry caused any attempt to produce legislation to be shelved. This stalling also had consequences relating to military strategy and other political considerations. While the politicians debated funding, the military experts’ views on the role of aerial warfare, as well as the available aerial technology, changed significantly. If air-to-air and ground-to-air defences had been discussed as the primary solution for all forms of aerial defences in the late 1920s, in the mid-1930s, passive defences, such as air raid shelters, evacuation and gas masks emerged as the primary solution instead.

Secondly, because of the political stalling, any initiative towards aerial protection was up to the concerned volunteer and lobbying organizations. While the high politics field wavered, interest groups such as the FFSFF, the Stockholm Governor’s Office and the Red Cross strengthened their bonds and their position as experts on aerial protection measures and technologies. An important and informal network of organizations and leading key actors emerged at this time. The activities of these organizations also helped to introduce both technologies and management systems to the urban setting, simultaneously generating both the material foundations as well as a group of experts such as Emil Fevrell, Kjell Magnell, Ejnar Nordlund and Torsten Nothin, and others – ready to take leading positions whenever the state’s attention was directed at aerial protection.

Thirdly, during the 1930s, the SAP grew in size and mandates and became the dominant political force. While the NMT group dominated military-strategic considerations, offering a new turn towards passive measures, the SAP dominated civilian politics and saw many advantages to such an approach. The
SAP’s political programme during the 1930s was also very influential regarding how aerial protection would develop as the political stalling in military politics subsided. During the early 1930s, the SAP strove to keep the army away from urban life in ways that permitted a perspective on aerial protection to be something that was strictly civilian. The Ådalen shootings and the Munck’s Corps controversy highlighted the need to keep the military out of civilian life, which enabled civilian organizational formats, passive defence strategies and state instead of military control, when aerial protection was implemented. Moreover, around the same time that Kjell Magnell presented his vision of a fully integrated air raid shelter, the SAP had launched a welfare programme in which the reconstruction of Swedish urban environments was a pivotal part. Thus, the SAP’s housing policies became a window of opportunity for the kind of air raid shelter that Magnell advocated.

As a final remark, these contexts should be analysed in relation to Geels’ theoretical model. All of the sub-political contexts mentioned in this chapter can be treated as either local niche developments that in some way contributed or encumbered the development of aerial protection politics; or as evidence of political pressure on the meso level, the socio-technical regimes, set to handle the incoming and threatening developments on the landscape level. While, for example, the Christenson commission is evidence of political pressure on the socio-technical regime in the face of new threats, the activities of the Red Cross and the FFSFF can rather be seen as local niche developments that had multiple roles. Perhaps most importantly, these associations and lobbying groups provided political pressure, but also produced technical solutions or knowledge thereof, experts, information and propaganda, and gave their support to political change. The construction-technical approach to aerial protection and the air raid shelter envisioned by Kjell Magnell, which he presented within this concept, was exactly that: a niche development, an imported innovation, funnelled through a local lobbying organization such as the FFSFF that was ready to be adopted if the state’s political machinery would allow it.
5. The Beskow commission and its aftermath 1936–1940

Between 1935 and 1936, a series of sub-political as well as high political circumstances aligned, creating a new window of opportunity for aerial protection politics. These circumstances can be derived from and were sometimes further fuelled by events on the so-called socio-technical “landscape” level, in the shape of failing disarmament politics and the rise of the Nazi-German Reich, as well as political pressure and significant changes on the meso level coming from below, through new political formations in parliament, or through sub-political interest groups and the network of experts and associations binding them together. In essence, these aligning processes from both above and below produced a symbolic event in the shape of yet another government-induced commission of inquiry in 1936. Previous research has argued that this commission is the starting point of Swedish civil defence. There are, however, more things to be said about it. The formation of a commission, its working conditions, the report it produced and its aftermath are the focus of this chapter.

The commission, set in motion in the spring of 1936, was called Civila Luftskyddsutredningen [“Civilian Aerial Protection commission”] and was the third report on aerial protection produced by the Swedish state during the interwar era. The commission was led by the Governor of Kronoberg in Southern Sweden, August Beskow, and will therefore be referred to from here on as the Beskow commission (the Beskow commission’s report refers to the document the commission produced, SOU 1936:57). The importance of the Beskow commission lies in the fact that it led to an actual implementation of state-organized aerial protection. Other commissions, such as the Christenson commission and Försvarskommissionen 1930, had failed or not attempted to produce a set of law proposals that could be adopted. Thanks to the political context, the Beskow commission managed to create Sweden’s first set of laws, the Aerial protection statute SFS 1937:504 and the formation of a government body, Luftskyddsinspektionen, LI, making it the first successful political endeavour to form a state-led aerial protection organization. Thus, the underlying question
in this chapter is: what did the commission do that made it successful in the contemporary setting? Once more, the fortifications officer, Kjell Magnell, and the concept of Construction-technical aerial protection will take up some space because, as we will see, his ideas shone through heavily in the Beskow commission’s report. However, I will also show the networked nature of the commission and how the contents of the report reflected a decade of political debate on aerial protection and air raid shelters, as well as the involvement of the FFSFF and the Red Cross, discussed in the previous chapter.

5.1. Forming the Beskow commission

5.1.1. A new setting for aerial protection politics

The instigation of the Beskow commission was directly linked to the military-political turmoil between 1925 and 1935. It was not until the decade that the long discussions on Sweden’s military budgetary framework had been resolved that parliament could turn towards lesser, yet urgent, problems such as aerial protection. Moreover, the actual years of the military debate were complicated. Part of the SAP’s leading tier was still reluctant to agree to rearmament and a final decision could not be reached until the SAP had gained further mandates in parliament after the election of 1936.

This last push began with the delivery of the reports of FK1930. In 1935, FK1930 delivered a six-volume report on Sweden’s military situation, presenting it to the government and parliament, along with a budget proposal. However, the SAP, with strong pacifist voices in its party, decided to go against the commission’s proposal and instead argued for further disarmament, voting for their own proposal of 114 million Swedish kroner. This caused a break in the incumbent government’s relations. The SAP’s collaborating partner Bondeförbundet [“The Farmer’s League”] decided not to support the SAP, but presented its own proposal built along the lines of the FK1930 report. The right-wing and liberal parties favoured the proposal of the Farmer’s League. By side-lining the SAP at this critical moment, the proposal produced by FK1930 was accepted and the military budget was raised from SEK 118 million to SEK 148 million, constituting around 1.5% of the national gross product.474 After more than

474 Oredsson, Svensk rädsla, 180–181.; Böhme, Svenska vingar växer, 14. This caused a crisis of confidence and subsequently, in spring 1936, the sitting SAP government fell momentarily, before resuming control after the election of the same autumn. The background to this dispute was, however, a play for the galleries. While the decision by the Farmer’s League to vote in favour of FK1930’s proposal has been argued as being the work of Helge Jung, the SAP’s decision to vote for its own proposal has been interpreted as being purely strategic, due to the upcoming election in the autumn of 1936.
ten years of debate, from 1935 to 1936, parliament had reached a consensus. All parties accepted the current defence budget, as well as FK1930’s strategic considerations, and in the following year, the SAP, after a new election, would also align itself with FK1930’s recommendations.

For aerial protection politics, this turn of events meant that many of the trends that were visible during the early 1930s were consolidated from 1935 to 1936. Just as the NMT group had hoped, the biggest winner was the Swedish air force, which more than doubled its budget from SEK 11 million to SEK 28 million, focusing now on mid-range bombers and pre-emptive strikes abroad. Helge Jung was appointed commander of the land army and also promoted to colonel as a reward for his work in FK1930.475

With the military budget frame settled and the progress of the air force secured, high politics could now turn towards the matter of aerial protection. In the eyes of contemporary commentators, FK1930 had also been a disappointment in this respect. What FK1930 did offer, however, was a set of guidelines for an aerial protection organization and the recommendation that civilian aerial protection should be investigated independently, in yet another separate report. Simultaneously, European politics had made a turn for the worse and the lack of government initiatives was beginning to irritate newspaper commentators, interest groups and politicians in parliament in a way that differed greatly from how the Christenson commission’s report had been received in 1931 to 1932. Although the Minister of Defence, the Social-Democrat, Ivar Wennerström, who presented the SAP’s budget proposition in 1936, referred to FK1930’s guidelines and described the matter as being “complicated”, the criticism from parliament as well the press and military journals hinted that the SAP-dominated government was not able to prolong aerial protection politics.476

In their editor’s letters in 1936, the editors of both Ny militär tidskrift and the journal Meddelanden commented on the government’s lack of initiative. They argued that several commissions of inquiry had already shown the need for a

Some have argued that Helge Jung had the Farmer’s League’s leader, Janne Nilsson, under his political influence and, through him, tried to convince Per Albin Hansson to accept Jung’s and the NMT group’s considerations. See more in Axel Ljungdahl and Bengt Nordensköld, En flygofficers minnen (Stockholm: Norstedt, 1972), 67; Andrae, Kretsen kring Ny militär tidskrift och 1930 års försvarskommission, 47, 54. When the SAP once again formed a new government in September 1936, it also accepted the previous decision taken before the election and promised not to challenge the current order, suggesting that its counter-proposal was merely a strategic act to console the pacifist members of the party. In practice, the SAP’s leadership appears to have supported the foundational basis of FK1930 as the report was released. Cronenberg, Militär intressegrupp-politik, 109–110.

475 Oredsson, Svensk rädsla, 182.
476 Proposition 225, 1936, s.135-137;
centrally governed aerial protection organization and that there was no point in vacillating. Most aggressive was Helge Jung, through Ny Militär Tidskrift, who argued that the military establishment had done its part and the rest of Sweden was waiting for a starting command:

Will the day come, or will the government continue to carry the burden of this great deficit in our aerial defences that lies within the fact that a state-organized civil aerial protection is still lacking?477

Conservative newspapers such as Svenska Dagbladet also asked “what is the government waiting for?” and argued that it was a strange situation that although Sweden expresses the idea of “safety first” in all things, it still lacks a proper aerial protection organization.478 Comments from interested personalities such as the General Director of the Swedish Red Cross, Prince Carl, were also heard through newspapers commentaries and provided them with critical arguments on the government’s lack of action.479 In parliament, the right-wing leader, Gösta Bagge, made a counter proposal, claiming that protection of the civilian sphere had been treated as a question “for the future” and demanded that state-governed organization be set up immediately. In this, Bagge was supported by a party colleague, Erik Hagberg, who voiced demands for an aerial protection bureau at the Ministry of Social Affairs.480 Hagberg argued that although the matter had been discussed since the 1920s, recent events had accentuated the need for immediate action. Politicians also began stressing the need for a political initiative beyond Stockholm. The politician, Lithander, for example, with support from the well-known radical pacifist and Umeå-born, Elof Lindberg, complained that while the eastern parts of the country, including Stockholm, had seen some preparations, Sweden’s second largest city and biggest port, Gothenburg, along with the entire western coast, had been completely left to its own devices in terms of aerial protection.

In other words, the change in attitude was quite dramatic over the ten years that had elapsed since 1927. At this point, if the government had managed to present a proposal to parliament in 1936, the current zeitgeist would not have resulted in lone voices in the wilderness, but would have promised widespread

478 Svenska Dagbladet, 3 December 1935. p. 5.
479 Prince Carl’s original comments have not been found. See the reference in “Luftskyddet före 1936” Tidskrft för Svenskt Civilförsvar (1962). p. 140-141.
480 Erik Hagberg et al. motion in second chamber, 1936:730.
political support. In response to this political pressure, at the end of April 1936, Defence Minister, Ivar Wennerström, instigated a new commission of inquiry that could produce material upon which to base a proposition. The commission was called *Civila luftskyddsutredningen* [“The Civilian Aerial Protection Investigation”] and was led by the Governor of Kronoberg, August Beskow. According to the commission’s objectives, it had three problems to solve. Firstly, the many local initiatives lacked national co-ordination. Secondly, no state funds had been allocated to nationally coordinated aerial protection measures. Thirdly, the authors of FK1930 had failed to prioritize anything in their guidelines. This last objective also contained the fear of a militarization of society that went too far. Thus, in order to navigate the difficult waters of militarization, the Beskow commission had to identify what measures had to be taken in peacetime, and what could wait.

This further underscores the importance of FK1930 in the contemporary setting, as well as the difficulties in claiming that the Beskow commission was the genesis of Swedish aerial protection and, in the long term, the origin of Swedish civil defence. Not only was the Beskow commission instigated as a consequence of FK1930, Fk1930 also provided the Beskow commission with a set of initial questions to solve, as well as a budget and strategic military framework. In this, from the start, the Beskow commission was bound in a military-political context that had developed since the disarmament decision of 1925.

The Beskow commission’s report was published in December 1936, after only eight months of work. In March 1937, after an initial round of submission ("remiss"), Gustav Möller, the Minister of Social Affairs, presented a reworked proposal to the government cabinet. Two months later, on 29 May, 1937, the proposal was presented and passed by parliament. Thus, in spring 1937, Sweden finally received its first aerial protection jurisdiction, and on 1 July, 1937, the new government body handling aerial protection, *Luftskyddsinspektionen*, or LI, [“Aerial Protection Inspection”] began its work. The current head of the state police, and close colleague of Governor Torsten Nothin, Alvar Zetterquist, was offered the position of General Director. After almost a decade of political inactivity, through the Beskow commission, the Swedish parliament finally ratified the jurisdictional foundation for an aerial protection organization.

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481 Betänkande angående det civila luftskyddet, 38–40.
482 "Ett genomförande i fred av ett vittgående program för luftskyddets ordnande, som skulle avse eller resultera i ett mer eller mindre fullständigt organiserande av samhället mot en eventuellt hotande fara från luften, bör enligt kommissionens åsikt icke ske." Betänkande angående det civila luftskyddet, 39–40.
The reason why the Beskow commission managed to achieve jurisdiction in such a short time was intrinsically connected to the network of experts and organizations, as well as the build-up of knowledge resulting from the previous reports. The Beskow commission was the third commission of inquiry to handle the problem of aerial protection measures for civilians in only ten years and could therefore benefit from the work of its predecessors. Christenson’s commission from 1927 was the first and FK1930 was the second. Thus, large parts of what had been written in the Beskow commission’s report could be carried over from the previous commissions, or in other ways used as starting points.

Moreover, nearly all the experts included in the new commission had either a history of concerning themselves with aerial protection matters on various levels or had been members or experts of previous commissions. In this sense, the Beskow commission’s report was a compilation of the development of aerial protection ideas from the interwar period. Defence Minister Wennerström also understood this and wrote in the Beskow commission’s work description that the purpose of the commission was to “complement” earlier works.\textsuperscript{483} In terms of the report’s historical value, that fact that the report had been successfully re-worked into a subsequently ratified proposition also meant that the authors of the report managed to transform and process ten years of aerial protection and air raid shelter ideas that had previously been considered problematic, into practical policies.

5.1.2. The composition of the commission

Looking more closely at the commission’s composition, Minister of Defence Ivar Wennerström’s call resulted in the gathering of individuals with years of experience of aerial protection measures. The commission’s composition was a neat synthesis of the network relations between the different interest groups and organizations, as well as the involvement of a group of reform technocrats, discussed in the previous chapter. Apart from the, by now, known fortifications officer and FFSFF member, Kjell Magnell, the commission included the author and military officer, Åke Kretz, as well as the chief engineer at SKF, Patrick Rydbeck, who had been writing during the 1930s for both Teknisk Tidskrift and Ny Militär Tidskrift. The list of civil engineers included Hjalmar Granholm and Torsten Gustafsson. Granholm was an expert on building engineering who would subsequently become a professor at Chalmers University of Technology and wrote articles on concrete in Teknisk Tidskrift, for example. Torsten Gus-
tafsson would subsequently find work in the state’s *Luftskyddsinspektionen*, LI, (inst. July, 1937) as its so-called air raid shelter expert.

For expertise on chemical warfare and the related technical solutions, the commission added two appendices authored by the chemist Gustaf Ljungren and engineer Erwin Engel, both of which appeared in the journal *Ny Militär Tidskrift* around the same time. The same year as the Beskow commission began its work, Gustaf Ljungren was enrolled in the newly formed *Försvarets kemiska anstalt*, FKA (“Defence-Chemical Research Institute”), but since the late 1920s had worked on gas warfare and civil protection at the University of Lund. It also appears that some of the members were friends or had work-related connections. Engel was responsible for gas protection products for the military at Åkers krutbruk (“Åkers gunpowder factory”), of which another member of the commission, Carl Gustaf von Otter, was manager. Also, the officer, Torsten Schmidt, who was included as an expert on artillery, was a childhood friend of the commission’s chief secretary, Thomas Munck af Rosenschöld.\(^484\) The extent to which these relationships shaped Wennerström’s invitations is still unknown, but it is likely that recommendations from one person to another shaped Wennerström’s decisions and that Torsten Nothin affected these decisions in the background.\(^485\)

The influence of social relations and the networks of expertise can also be seen in the invited experts who were to inform the commission’s work. The secretary of the commission, Thomas Munck af Rosenschöld, has claimed that these hearings reflected the influence of the “energetic” Torsten Nothin’s circle of trustees on the commission.\(^486\) According to Rosenschöld, one of the first experts the commission called was Ejnar Nordlund, the previously mentioned chief of the Governor’s Office’s aerial protection board since 1933, and member of the FFSFF. Consider also that Nothin was the director of the FFSFF during this period in which both Magnell and Kretz were active.

Moreover, since Magnell was leading the FFSFF’s committee on aerial protection, “Arbetsutskottet för luftskydd”, this might have been used as a pretext towards Ivar Wennerström in choosing Magnell as a member of the commission.\(^487\) For example, correspondance suggest that Torsten Nothin had discussed the FFSFF’s committee with Defence Minister Wennerström

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\(^{485}\) I have studied correspondence in Torsten Nothin’s archives between Per Albin Hansson, Gustav Möller and Ivar Wennerström, but no details on the Beskow commission can be discerned. It is most likely that recommendations were handled informally at this point.


\(^{487}\) Torsten Nothin probably used the AU as an example of what the members of the FFSFF were capa-
in May 1936.\textsuperscript{488} The Beskow commission also called in military expertise from the General Staff’s office, meaning members of the NMT group.

The ideas that were raised by its representatives show how the Beskow commission worked in a different setting than its predecessors. According to Rosenshöld, the commission invited Carl August Ehrensvärd to explain the military establishment’s views on the matter of aerial warfare and civilian protection.\textsuperscript{489} Ehrensvärd was a founding member of the NMT group, and one of Helge Jung’s closest colleagues. He also wrote about aerial warfare and military politics in the NMT group’s debate book \textit{Antingen-Eller} from 1930, in its journal, as well as attending \textit{Försvarsommissionen 1930} as a military expert, likely appointed there by Jung himself.\textsuperscript{490}

Ehrensvärd’s involvement symbolizes the NMT group’s dominance during this period in all matters related to aerial warfare, but also the importance of settling the military framework before producing an aerial protection organization. According to Munch af Rosenshöld, Ehrensvärd pushed for two things. On the one hand, the new commission needed to work quickly because the European political situation was deteriorating; on the other hand, the organizational format he proposed focused less on military aid during bombing raids. According to Munck af Rosenshöld’s memoirs, C. A. Ehrensvärd’s informative lecture made clear to the commission how dire the situation was and had a different “tone” than the Ministry of Defence in the government. Without a functioning aerial protection organization, the country could quickly be “brought to its knees”:

\begin{quote}
The department chief of the general staff’s office, C.A. Ehrensvärd, delivered another blinding lecture. He convinced us that without a functioning civil defence, our nation would quickly be brought to its knees through air raids on the so-called home front. Furthermore, he conveyed the military situation in such a manner that made us understand the necessity of finish-
\end{quote}

\textsuperscript{488} See the letter to Ejnar Nordlund of 27 May, 1936, FFSFF’s archives, “Arbetsutskottet luftförsvar”, vol F1:2. Royal War Archives, Stockholm Sweden.

\textsuperscript{489} Munck af Rosenshöld, Minnen från 1900-talet, 223; For a biographical account on C. A. Ehrensvärd, see Artéus, Svenska officersprofiler under 1900-talet, 343–353.

\textsuperscript{490} Ehrensvärd’s work with the NMT group as well as his work in FK1930 is discussed in Carl August Ehrensvärd’s, \textit{I rikets tjänst: händelser och människor från min bana} (Stockholm: Norstedt, 1965), 74–79; See also Cronenberg, Militär intressegrupp-politik, 34–36; Also, C. A. Ehrensvärd, “Sveriges läge ur luftförsvarsynpunkt”, Ny militär tidskrift (1929), vol 3. p. 87-95.
ing our investigations with exceptional haste. This was quite a different tone from what had been communicated by the department of defence. 491

This way of perceiving the threat was directly linked to the recent turns in aerial warfare doctrines, as well as the subsequent change in tactics of the air force. The new air force organization that the NMT group had promoted would be of little use if the civil population on the receiving end was not prepared for the type of warfare for which they and their potential enemies had planned. New trends in air-war thinking also emphasized this. The dispute between Axel Ljungdahl and Axel Gyllenkrok during the Christenson commission reflected a change towards a strategy in which the Home front was deemed impossible to protect on an air-to-air basis. By the time of the Beskow commission, this idea had become the norm. As Ljungdahl had argued, the new air force organization would focus more on the pre-emptive bombing of enemy airbases and less on defending the cities at home. In other words, the military establishment would not be able to defend civilians in the cities. Ehrensvärd, who was a convinced advocate of a civil aerial protection organization, 492 meant exactly this when he explained to the Beskow commission that the nation could quickly be “brought to its knees” if it didn’t finish the report quickly and civilian citizens were made ready. 493 A strain of Douhetism is still visible through the emphasis on the civilian population’s sensitive moral element, but the counter-act against it had changed in favour of passive forms of defence since Christenson commission’s report. The civilians were increasingly left to their own devices in this new setting.

The NMT group’s influence was also indirect since it was involved in preparing the guidelines for aerial protection presented in Försvarskommissionen 1930. Wennerström’s mission statement to the Beskow commission was to complement the previous investigative committees. In practice, this meant rejecting Christenson commission’s report from 1931 and instead building an

491 “En annan mera bländande föredragning fick vi av avdelningschefen i försvarsstaben dåvarande majoren C.A. Ehrensvärd. Han övertygade oss om att utan ett fungerade civilförsvar kunde vårt land snabbt bringas på knä genom luftkrig mot den s.k. hemorten. Vidare målade han upp det militära läget på ett sätt, som kom oss att inse nödvändigheten att vår utredning måste föras excep-

492 Ehrensvärd’s influence and ideas on civil defence from the period around the Second World War can be read in his memoirs. Ehrensvärd, I rikets tjänst, 213–215.

493 This was likely a lecture that built on some of Ehrensvärd’s ideas previously presented in Ny militär tidskrift and in the book Antingen-Eller in 1929. See, for example, C. A. Ehrensvärd “Sveriges läge ur luftförsvarssynpunkt” Ny Militär Tidskrift (1929), vol 3. p. 87–93.
organizational proposal along the lines suggested in 1935 by Försvarsutkommisionen. These guidelines were also clearly produced to provide a demarcation line between civilian and military efforts, as well as emphasizing the passive defensive measures. Possibly it might have been favourable for the air force, as well as the military establishment as a whole, if this new addition to the budgetary framework would not devolve on the military. For example, the guidelines suggested that an aerial protection organization’s relationship to the military establishment should at all times be advisory only; preparations for aerial protection should only be executed when there was a direct threat of war, in order to prevent the “militarization of society”, as had happened in other countries. Further, all efforts by a national aerial protection organization had to remain voluntary. Moreover, the state should assume responsibility for national jurisdiction. The guidelines also included arguments for keeping civilians in the cities and providing them with air raid shelters. The recommendation was that evacuation would be used “cautiously”.

For those people who remained in the cities after evacuation, the role of “urban planning” was described as playing an important part in providing citizens with protective shelters in parks, as well as reinforcing basement air raid shelters.

494 The guidelines in Försvarsutkommisionen 1930 were presented as follows.

1) The military establishment should only have an advisory role in relation to civilian aerial protection. FK1930 D. 2., 46.; The military shall combat air raids on the home front through pre-emptive bombing raids of enemy airbases. FK1930 D. 2., 136–138.; In relation to the Christenson commission, FK1930 argued that anti-aircraft artillery would not be used to the same extent as previously thought. An extensive air force would have better functionality. Betänkande med förslag till ordnande av Sveriges försvarsväsende D. 1 Inledande avdelning., Statens offentliga utredningar (Stockholm: Nord. bokh. i distr., 1935), 172–173.

2) Preparations for aerial protection should be made under direct threat to avoid the militarization of civil society, FK1930 D. 2., 45,48.; FK1930 had shown that there were clear trends suggesting that entire populations had become heavily militarized through the threat to the home front. FK1930 D. 1., 64, 68.; 3) Aerial protection should be based on volunteer work. FK1930 D. 2., 47–48. 4) Relevant government bodies should investigate further, FK1930 D. 2., 41. 9) Evacuation should be used cautiously, FK1930 D. 2., 44. 6) City planning should consider the needs of aerial warfare and ensure that cities are built spaciously with parks that allow air raid shelters, as well as air raid shelters in basements. FK1930 D. 2., 44.; 7) Civil aerial defences should not be generalized, since cities and regions have different needs, depending on their composition and geography, FK1930 D. 1., 45, 47. 8) Civil aerial protection is necessary in order to uphold a country’s moral elements, FK1930 D. 2., 40–41. 9) Costs should be divided between the state, municipality and the individual. FK1930 D. 2., 46. 10); The state should assume responsibility for aerial protection through state jurisdiction FK1930 D. 2., 47.; 11). These considerations were concluded through comparisons with other countries. FK1930 D. 2., 45–46.; FK1930 D. 1., 64–68.

495 Ibid. Point 5.
496 Ibid. Point 6.
All in all, FK1930’s guidelines had been carefully phrased. Given the influence of the SAP’s leadership on the Beskow commission and the fact that one of the NMT group’s closest collaborators, C. A. Ehrensvärd, had played a foundational role in informing it, it naturally “found no reason to waive from what the defence commission has suggested” and produced a proposal which, in every respect, was in line with Försvarskommissionen 1930’s ideas on how civilian aerial protection should be organized. In this way, the military-political debate during the interwar era and also the NMT group, had a significant influence on the work of the Beskow commission by setting the frame and providing a clear demarcation line between military and civilian responsibilities. Already from the outset, the commission also focused on de-militarized passive aerial protection measures, which must have been understood by the SAP as being preferable.

Another important influence was from the political sphere. The social-democratic leadership wanted this to be a commission which, from the start, was aligned with the SAP’s policies. The Defence Minister, Wennerström, made sure that he had a loyal politician on the commission. The commission’s secretary, Rosenshöld, later claimed that Wennerström chose politician Johan Nilsson as a member for this purpose. Nilsson would exuberate “political wisdom” to the Beskow commission. A known pacifist, Axel Höjer, also joined the commission. However, according to Rosenschöld, he was put there “as a hostage”, probably to please the still confrontational pacifist groups within the SAP’s ranks, particularly the Women’s League. The conservative newspaper Svenska Dagbladet duly criticized Höjer’s involvement, using it as another example of the government’s inclination to prolong the political attempts to provide national security.

On more practical terms, however, the SAP’s political streamlining of the commission appears to have been primarily related to the civilian addition to the Beskow commission and its connection with FK1930. The most symbolic change in this respect was a change of names. From 1928, Christenson’s commission had been called Luftförsvarsutredningen, [“The Aerial Defence Investigative committee”]. However, in accordance with FK1930’s recommen-

497 Betänkande angående det civila luftskyddet, 80–81.
498 Munck af Rosenschöld, Minnen från 1900-talet, 223f.
499 Munck af Rosenschöld, 223.
500 Höjer was a known pacifist and socialist and wrote for Holm, Krig eller kultur in 1929. His invitation to the Beskow commission also reflected his work as the General Director of Medicinalstyrelsen 1935-1952. Höjer was also involved in the Red Cross. See also Andersson, Kvinnor mot krig.
dation, Beskow’s equivalent had a civil prefix, *Civila Luftskyddsutredningen.* [“The Civil Aerial Protection Investigation”]. Moreover, the term *defence* had also been replaced by the less militaristic and passive term *protection.* The civilian foci were likely a prerequisite for the SAP, which was reluctant about any military influence on civil life.

In this, the SAP’s ideas could also be aligned with the NMT group. Building on the developments in Central Europe, *Försvarskommissionen 1930* had also highlighted the risks of militarization by starting preparations during peacetime. In an interview with author Hans C. Pettersson, Rosenshöld also claimed that Torsten Nothin heavily influenced the committee’s work and wanted it to be “civil”, and that behind Nothin loomed “Per-Albin [Hansson]”, who was against any attempt to expand the “military establishment’s territory”.

This is probably why Munck af Rosenshöld was told that the matter of aerial protection for civilians was “highly controversial” when he received the job over the phone, and this is likely also the reason why it was important for Wennerström to have a loyal party member in the Beskow commission. Thus, the turn towards a civilian framework that had been voiced in the years immediately prior to the Beskow commission was fully endorsed and was a prerequisite of the SAP’s leading tier.

### 5.1.3. The commission at work – a European outlook

In terms of assessing the problem, the Beskow commission worked from two principles. The first principle was the hearings of invited experts from established organizations or interest groups. The second principle was the study trips to Europe, as well as the close study of imported materials by the Ministry of Foreign Affairs.

502 Rosenschiöld claimed that he introduced aerial protection during the commission’s work “since aerial defences were already taken”. Sjölin, I skuggan av kriget, 198. However, attempts to civilize aerial defences in this way had also previously transpired. Instead, there were demands for a civilian format in the open within the experts and organizations involved. Both Ejnar Nordlund and Kjell Magnell, for instance, used terms connecting both “civil” and “protection” such as “civilskydd”, and “civila luftskyddet” from 1934 to 1936, before the Beskow commission was initiated and Rosenschiöld became involved. Also, the Red Cross had used the term “civilbefolkningens skydd” in 1935. Thus, the terms used for Beskow’s title were well dispersed both within and outside the immediate circle of the Beskow commission.

503 Sjölin, I skuggan av kriget, 199.

504 Munck af Rosenschiöld, Minnen från 1900-talet, 224.

505 Unfortunately, the Beskow commission did not produce an archive for its work, which usually is the case. However, a number of documents from the commission have been found in LI’s archives, for example, reports from foreign aerial protection organizations, suggesting that the LI took over
The final report reflects a European outlook upon which the commission based its work. As discussed in the previous chapter, the situation abroad was different to the 1920s. The second half of the 1930s had seen a few air wars, and many states in Europe and elsewhere had already begun drilling their populations in aerial protection. At the same time, aerial wars in Abyssinia and Spain provided lessons and the opportunity to follow developments at close quarters. Study trips of various kinds became popular during this time.\(^{506}\)

Thus, the working conditions of the Christenson report in comparison to that of the Beskow commission’s report was different. The focus could now be directed away from the political problem and the prospects of militarization prospects, in favour of a focus on worrying examples from abroad, or Sweden’s position in comparison to its neighbouring countries. Given this new situation, the first measures taken by the commission were to conduct study trips abroad to see what knowledge could be brought home. As mentioned in the preamble to this dissertation, Kjell Magnell, Hjalmar Granholm, Torsten Gustafsson and Patrick Rydbäck conducted a trip to Central Europe during June and July 1936 for such a purpose. A written report from this trip was presented separately in the journal *Meddelanden* and in the form of a lecture at the FFSFF’s annual meeting. The director of the commission, August Beskow, and another member, C. G. von Otter, as well as the officer, T. A. Schmidt, also visited England and France in October of the same year to evaluate Western European responses to the threat from the air.

These experiences from abroad became an important foundational structure in terms of motivating the introduction of a state-led aerial protection organization and also differ from the Christenson commission as well as earlier writers such as Jungstedt and Virgin. With the backdrop of the European development as well as the lessons learned from ongoing wars, the commission could now argue that Sweden was falling behind. The Beskow commission’s report contained quite extensive sections solely dedicated to aerial protection legislation in other countries for this purpose.\(^{507}\)

This flood of information also appears to have been connected with the

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\(^{506}\) For example, in 1934 the previously mentioned chief of the air force, Eric Virgin, was sent to Abyssinia as a military advisor on aerial warfare to Haile Selassie. Olof Ribbing, another high-ranking officer and popular author, later known for his work in the League of Nations, spent time in Spain during the Spanish Civil War, writing a brief report on the bombing of Barcelona. Olof Ribbing, *Bombanfall mot Barcelona* (Stockholm: Allm. försvarsfören., 1939).

\(^{507}\) See chapter 4, in *Betänkande angående det civila luftskyddet*, 19–37.
SAP’s reluctance to accept anything that came from Nazi Germany. Author Hans C. Pettersson claimed that the report’s pan-European outlook was quite misleading. In the report, it was claimed that Portugal, Ireland and the Nordic countries were the only nations in 1936 with no proper civilian aerial protection organization. However, Rosenschöld noted, no European nation other than Germany had well-organized aerial protection services at the time that the report had been written.\textsuperscript{508} Contemporary research also supports this. Although many countries considered aerial protection in some way, producing legislation and plans during the mid-1930s, the countries that spearheaded the development were the United Kingdom, France and Germany.\textsuperscript{509} As Kjell Magnell had emphasized in his own reports of his travels published in Meddelanden, the German model for handling aerial protection was also the most viable one for Sweden. Magnell admirably concluded that the German aerial protection services had managed to inspire the population as a whole, and their scientific resources had been flexed to their fullest: “The powers of science and practical technical knowledge have been set in motion to their fullest in this field in order to generate first-class results.” \textsuperscript{510}

Similarly, the Beskow commission’s report concluded that most of the small states in Europe had organized their aerial protection services with the “German model as a paragon, in both an organizational and a technical respect”.\textsuperscript{511} The general outline of the Swedish aerial protection system in Beskow’s proposal also bore close similarities to the German model, for example, the role of the volunteer organization as well as the building permit laws regulating air raid shelter construction in all new buildings.

\textsuperscript{508} Pettersson supports his argument from Sjölin’s chapter in the same anthology. Sjölin, I skuggan av kriget, 51–55, 201. Source material from the Swedish Luftskyddsinspektionen, LI, also suggests a few European attempts during the early 1930s to handle the aerial protection issue, with varying degrees of intensity. It is quite difficult to assess the effect these documents and statements had in reality at this early stage.

\textsuperscript{509} The historical works written by, for example, Koos Bosma and Nicholas Steneck and others confirm this to a certain degree. The UK in particular has been argued as being the most advanced country in terms of the scope and scale of its aerial protection measures. For a better account of the German, British and Dutch aerial protection organizations, see Bosma, Shelter City; See also Steneck, Everybody Has a Chance; Haapamäki, The Coming of the Aerial War; Holman, The Next War in the Air; Grayzel, At Home and under Fire.

\textsuperscript{510} “Vetenskapens och den praktiska teknikens alla krafter voro spända för att på detta område åstadkomma ett högvärdigt resultat.” Kjell Magnell, ”Byggnadstekniskt lufskydd”, Meddelanden från Föreningen för Stockholms fasta försvar (1937), vol. 42. 11-49. See, in particular, Magnell’s hagiographic summary of the German aerial protection system on pages 48–49.

\textsuperscript{511} Betänkande angående det civila luftskyddet, 25–26.
Connections with Germany, however, were quite controversial in neutral and SAP-governed Sweden and may have been downplayed in the report. By exaggerating the aerial protection policies of other countries and, in the process, downplaying the German state’s efforts, it could be perceived as being just another example, thereby making the adoption of such principles appear less controversial in a Swedish context. It is difficult to assess the extent to which this sensitivity played a significant role in the final product. The SAP does not appear to have produced any official documents or articles revealing its official stance towards aerial protection and its German heritage, although there is some evidence to suggest that the individuals involved in Beskow commission and in the LSF had to tread carefully whenever they looked towards Germany, either through intellectual exchanges or through study trips. During a visit in 1937, for example, when Kjell Magnell and another officer, Erik Lidström, visited the German Reichluftschütz und RLB, they were ordered by the dept. chief of intelligence at the General Staff’s office, Carlos Adlercreutz, to keep their visit secret. Adlercreutz thought that visits to Germany in the current conditions might spark “malicious and wrongful comments”.

This was not without cause as the historian, Peter Fritzsche, has claimed that the German RLB was predominantly an organization with an ideological agenda, although it refuted this claim. From 1933, the German aerial protection organization was led by Herman Göring, one of Hitler’s closest advisors. Ideas about the German Volksgemeinshaft and its resistance and stoicism towards aerial threats guided the aerial protection organization’s plans to a higher degree than actual knowledge. Although there are few references in Swedish sources to the connection between German militarism and aerial protection,

512 Although not unlikely, due to the history of the SAP and Per Albin Hansson’s pacifist interest during his early political career, publicly presented material on the SAP’s position towards German aerial protection remains primarily anecdotal. For example, the militarized nature of Germany and the role of the Reichluftschützbund was discussed in the SAP’s own journal. Tiden. But how this connected to the prospects of a Swedish aerial protection organization appears to only have been discussed unofficially.

513 Sjölin, I skuggan av kriget, 202. Sjölin’s book claims that the study trip was connected to the Beskow commission. Hans Engström’s concept in Kjell Magnell’s archives reveals that this comment originated from Carlos Adlercreutz in 1937 as the result of a study trip to the German aerial protection school conducted by Erik Lidström and Kjell Magnell. Engström quoted LSF protocols from 29/9 1937, one year after the Beskow commission: “Chefen för Fst finner det önskvärt, att underrättelseutbytet liksom besöken icke offentliggöres i pressen, enär detta skulle kunna tänkas utlösa felaktiga och illvilliga kommentarer.” Kjell Magnell’s archives, vol 2. See Engström’s concept p. 13, Royal War Archives, Stockholm, Sweden.
Adlercreutz’ comments and Rosenschöld’s memoirs suggest that it played a major role at this early stage of aerial protection planning.114

In sum, already from the start, due to a combination of influences from both the NMT group and the SAP’s political streamlining, the Beskow commission worked from an entirely different context than its predecessors. Niche developments now appeared to work in favour of a political endorsement of aerial protection rather than encumbering it, but only as long as certain requirements were met.

On the one hand, the military viewpoint had changed, which implied a withdrawal of military personnel from the urban environment, proposing passive measures instead. The air force would now make pre-emptive strikes on enemy airbases, leaving the civilians to their own devices.

On the other hand, the Social-Democratic Worker’s Party’s leadership had now accepted that civilian aerial protection was needed, but still wanted it to be aligned with its own ideas. Its previously pacifist strain was reduced to only a symbolic influence through the invitation of Axel Höijer, while ensuring that the commission would work with a civilian administrative format in an effort to minimize the militaristic aspects of aerial protection. The use of a civilian prefix that had appeared the year before the Beskow commission could function as a catalyst that was able to connect and align these two trends.

Moreover, members of the commission were carefully chosen and were drawn from the network of experts and lobbying organizations that had worked independently during the previous ten years. A civilian scope was consolidated early on, building on the considerations presented in FK1930. In terms of workflow, the commission also worked on entirely different principles than its predecessors due to the hectic rearmament and subsequently emerging aerial protection legislation and volunteer leagues in Europe. An emerging problem in this context was how to handle connections to the German model.

5.2. The contents of the Beskow commission’s report

5.2.1. Civil aerial protection vs. military aerial defence

Although settling for a civilian administrative framework and the push towards passive forms of defence had already been implied at the outset of the commission’s work, the contents of the Beskow commission’s report had a wide scope.

114 Fritzsche, Nation of Fliers; See also Torrie, For Their Own Good, 15–21.
In the Beskow commission’s report, aerial protection was conceptualized as a vast system, comprising technologies, social organization and management systems. The Beskow commission’s report discussed alarm technology and the adjoining communications technology, mass blackouts, camouflage and air raid shelters in the same way that the aerial protection concept had been discussed since Jungstedt. The role of education and mass drills was similarly emphasized, as well as a functioning first-aid medical service with gas decontamination capability. In these cases, the Red Cross was also mentioned as an example of how such things could be organized. Thus, the foundational structure for aerial protection seen since Jungstedt’s article on First World War aerial defences in Paris had not changed significantly since the mid-1920s and, in terms of what total war and aerial warfare would mean to the population, arguments were framed in a similar manner – often stressing the civilians’ moral elements and their perceived psychological sensitivity to aerial warfare.

The major difference from the previous work were the kind of delimitations forced by the new contemporary political setting. The absence of military measures affected what measures were deemed to be a priority. In the Beskow commission’s report, the aerial protection system had been narrowed down to include only the civilian components. The most important change in this respect was the introduction of the “civil” prefix as well as a semantic turn from defence to protection. What Christenson’s commission had called Aerial Defences for the Home Front was called Civilian Aerial Protection by the Beskow commission. This change in scope influenced the way in which the authors envisioned how the plethora of technologies would be organized and controlled. Put simply, things that were not “civil” were excluded. The Beskow commission did not include any form of active military countermeasures or co-operation in the way that previous authors and commissions had done. The six chapters that represented the formula for aerial protection were of a solely passive kind: Surveillance and alarm measures; blackouts and camouflage; evacuation; construction-technical measures; individual gas protection (meaning gas masks); and finally, the aerial protection organization built on the existing police and fire-fighting services. Gone were anti-aircraft guns, supporting fighter planes and spotlights, as well as the military leadership that had shaped much of the earlier discussions. The military establishment’s role was separated from its civilian counterpart and contacts were presented as being restricted to an advisory role.

The authors also found supportive arguments for eliminating active defences in recent developments in technology and warfare doctrines. This was an
aspect that had changed since the Christenson commission’s report and also reflects the changing tide between the mid-1920s and the mid-1930s. It is also something that illustrates the importance of settling the military framework. Contemporary developments and experiences from the First World War, they argued, suggested that it would be “outförbart” [“unattainable/impossible”] to equip all cities with artillery or engage in time with fighter planes. Moreover, and just as Axel Ljungdahl had argued when criticizing the Christenson commission’s report from 1931, had such a thing been possible, the enemy would still be able to pass overhead and drop its bombs. The active defensive measures had to be pre-emptive and would therefore not necessarily meet the enemy in the air. According to the Beskow commission’s report, this had changed the whole concept of how aerial protection should be organised. Cities would be left to their own devices and active defensive measures had to be complemented by protective measures of a passive and purely civilian kind:

Active engagement must therefore be complemented with protective measures – civilian aerial protection. To the same degree to which aerial attacks have been perfected, ideas about the most suitable gestalt for aerial protection have changed.

This turn towards non-military technological solutions for aerial defence had been in the open during the years before the Beskow commission’s report and was little more than the result of such ideas dominating the network of experts related to the topic, as well as a political shift in government politics. In effect, this shift in focus meant that the aerial protection concept, in a sense, had been whitewashed in the Beskow commission’s report, which had profound consequences for how the technical measures included in the aerial protection concept would be viewed. Tangible measures such as air raid shelters and gas masks, previously seen as being primarily a complement, could now form part of a key technology in creating a civilian aerial protection organization. Fev-

515 "De under världskriget vunna erfarenheterna hava i avgörande utsträckning varit bestämmande för luftskyddets följande utveckling. Det framträdde sålunda tydligt, att förefintligheten av luftvärn och jaktflyg icke helt kunde förhindra luftanfall, åtminstone icke mot mål med större utsträckning. Icke sällan inträffade, enligt vad officiella rapporter utvisa, att angripande flygstridskrafter trots eldgivning från försvararens luftvärn och jaktflyg lyckades komma in över målet och fälla sina bomber. Härtill kom, att det visade sig outförbart att ens tillnärmelsevis förse alla de orter med aktivt luftförsvar, vilka kunde tänkas blika utsatta för anfall.” Betänkande angående det civila luftskyddet, 19.

rell’s early writings and the Christenson commission’s report had a much more inclusive idea about how aerial defences would work together and suggested an organizational format in which the civilian city was to be considered as something that resembled a fort.

In the Christenson commission’s report, air raid shelters were even discussed under the heading “övrigt luftskydd” [“other forms of aerial protection”] implying their secondary position in the overall organization.\(^{517}\) In the Beskow commission’s report, however, when the active part of the active-passive aerial defence complex had been removed, one of the few actual and effective defensive measures, anti-aircraft artillery, was challenged as the main technical measure. For air raid shelters, this not only meant that the military function and bunker heritage with which they had previously been associated was diminished, it also meant that they became the only physical barrier left that could be used in a civilian context. Alarm technology, mass drills, education and administrative control of the public remained but, in relation to bombs, these measures were supportive and secondary. The air raid shelters that had previously only been treated as a complement in a wider aerial defence setting, now became the crown jewel of the new concept of aerial protection. Together with personal gas masks, they became the primary defensive barrier in the aerial protection concept. Stated differently, the new political framework, resulting from the involvement of both the SAP and the NMT in aerial protection politics, forced the civilian air raid shelter into the foreground.

### 5.2.2. Aerial protection and modern housing policies

Putting air raid shelters at the forefront of aerial protection also meant that they had to be carefully considered and designed in a way that made implementation possible from an economic and practical perspective. One of the negative sides of air raid shelters, previously raised, for example, in the Christenson commission’s report, were the economic and temporal aspects. According to the Christenson commission’s report, an air raid shelter programme was “unfeasible” and would not provide a significant number of shelters in the “foreseeable future” because of the cost and time it would involve.\(^{518}\) This argument was rooted in the previous era of architectural styles, which regarding stone as being the primary building material. Since stone buildings had a considerable lifespan,

\(^{517}\) Luftförsvarsutredningens betänkande, 55–56.

\(^{518}\) Ibid. 94.
it was argued that their substitution would take decades. The opportunity to include air raid shelters would not solve the immediate short-term demand. However, Kjell Magnell, who was a member of the Beskow commission, rejected these problems with reference to modern building styles, and presented the commission with the concept of Construction-Technical Aerial Protection. As explained in the previous chapter, using this method, air raid shelters were to be built into the foundational structure of new buildings by including a spacious concrete basement in the designs. This also included a wider scope on urban planning in order to produce aerially resilient urban environments. This method of producing a resilient cityscape had many advantages from a productivity and economic perspective, since the inclusion of air raid shelters in construction plans was significantly less costly than adapting already existing basements into bunkers.

Magnell’s proposal also reflected a change in architectural style which had now turned towards ferro-concrete and its endless adaptability and economic advantages. Although previous reports had been quite clear about the downside of such air raid shelter programmes, the Beskow commission fully accepted Magnell’s position on air raid shelters established it as the norm for how an aerially resilient cityscape could be achieved. Consequently, a whole chapter in the Beskow commission’s report was dedicated to “Byggnadstekniska åtgärder” [“Construction-Technical Measures”]. It is no wild guess that Magnell wrote this chapter in the report. Air raid shelters were sorted in this chapter and this categorization would remain for years to come. The temporal problems that remained to be solved and which had been key to Christenson’s rejection, were conveniently omitted from their argumentation.

This implementation of a new mindset towards air raid shelters, and the construction-technical approach in the Beskow commission’s report, also found support from those people who were considering developments in chemical warfare. Both Fevrell and Magnell had previously voiced the idea that aerial gas attacks on civilians were improbable and were laden with a lot of uncertainty. They were supported by Erwin Engel, who was also enrolled in the Beskow commission. According to the Beskow commission’s report,

519 Luftförsvarsutredningens betänkande, 94.
520 In 1936, parallel to his work on the Beskow commission, Magnell also wrote a separate article on this topic based on his study trip. The construction-technical concept was borrowed from the German aerial protection model and was intellectually connected to the work of the German engineer, Hans Schosberger. Hans Schoszberger also visited Sweden in 1936, see section 4.x.x.
521 Betänkande angående det civila luftskyddet, 59–71.
522 See, for example, Erwin Engel, “Nyare åskådningar beträffande gaskriget”, Ny militär tidskrift.
chemical warfare was plagued by technical problems and its effects were also uncertain since the effectiveness of gas largely depended on the elements. Thus, the gas questions in the Beskow commission’s report focused on other areas such as producing inexpensive gas masks for the population or setting up decontamination stations and training personnel, not building gas shelters of the kind discussed in the 1920s. When the probability of gas attacks was the subject of doubt during the mid-1930s, the solution offered in Beskow commission’s report was to provide “individual gas protection” and eventually privatize gas protection by offering citizens the chance to buy their own gas masks at a state-subsidized rate. These considerations would eventually lead to a state-financed gas mask industry in Brastad that would serve the nation’s needs. For air raid shelters, this meant that gas could be eliminated from design considerations. Another direct consequence was that the ventilation problem could be removed from air raid shelters, making them more appealing from both an economic and subsequently a political perspective.

The Construction-technical aerial protection concept also caused Magnell and the authors of the Beskow commission’s report to consider the role of Swedish urban planning more critically than before. As discussed in the previous chapter, Magnell had argued that certain types of urban planning ideals had an effect on cities perceived structural resilience and could also work prophylactically. In the Beskow commission’s report, this method was thoroughly tested in the Swedish landscape. By studying building materials, street plans, parks and topography, the authors argued for an evaluation of

523 Betänkande angående det civila luftskyddet, 17–18.
524 See, for example, part 5 in chapter VII. See also Erwin Engel’s discussion on civilian gas masks. Betänkande angående det civila luftskyddet, 73–74, 170.
525 Proposition 1937:212. p. 19. The Minister of Social Affairs mentions here that an industry should be placed favourably from an employment point of view: “arbetslöshetsynpunkt”. Brastad was eventually chosen for this purpose. Brastad had recently suffered an employment crisis when the local stonework industry went bankrupt. 200 women were employed in Brastad as a result of the gas mask industry. In September 1938, LI ordered 273,000 gas masks from Brastad for aerial protection personnel. See “Gasmaskfabriken i Brastad äntligen igång” Flyglarm (1938), p. 38; see also Munck af Rosenschöld, Minnen från 1900-talet, 227.
526 In the long term, air ventilators became standard equipment from 1939 to 1940 and beyond, but at this point their superfluousness was presented as a supportive argument for Magnell’s kind of air raid shelter. See, for example, Kjell Magnell, “Civilbefolkningens skydd mot luftanfall” Meddelanden från Föreningen för Stockholms fasta försvar (1936), vol. 41. p. 10-11.
the resilience level of Swedish cities. For example, according to sources, the report stated that in 1936, 10% of buildings in Stockholm were timber, whereas 90% of the buildings in Västerås were timber. Consequently, Västerås would be highly susceptible to bombing since the cityscape would likely be razed to the ground or collapse immediately following an air raid. These architectural problems also had a regional dimension. Southern Sweden, for example, had practically no wooden buildings in its cities and was therefore considerably safer. However, the complete dominance of wooden buildings in the north had to be “considered carefully” from an aerial protection perspective, since they would be much more susceptible to bombing raids.\footnote{Betänkande angående det civila luftskyddet, p. 61–63.} Echoing Magnell’s own article from 1937, the Beskow report also argued that the city planners should try to promote garden cities since their decentralized form with lots of space in between dwellings would be an effective defence against aerial raids, as well as being highly prophylactic, clearly stating that such factors did not “invite” bombing raids.\footnote{Ibid. p. 60.}

Zooming in, in Magnell’s report and consequently the Beskow commission’s report, the focus on urban planning and the general composition of cityscapes also reinforced the connection between modern forms of housing and air raid shelters. By considering the urban cityscape at large, the durability of air raid shelters could be reduced since the building above would be able to absorb much of the damage, making them interdependent. A robust building, preferably a steel-skeleton type of building or a reinforced concrete building, would simply cause bombs to explode high up in the building, thereby protecting the shelter in the basement. A building’s resistance to fire was also key to this argument, further emphasizing the use of concrete.\footnote{Ibid. p. 61–62.} According to the authors, this also had an economic side. With respect to experiences from abroad, the authors argued that the possibilities of producing direct-hit-proof air raid shelters for the entire population was not tenable. Similarly, a Danish report cited by the authors suggested that converting already existing basements was potentially dangerous since it was expected that such shelters would become overcrowded and also provide no protection from the building above.\footnote{Ibid. p. 63–64.}

However, if the general guidelines for “Construction-Technical Aerial Protection” were followed in construction and planning, producing “robust
buildings”, the air raid shelters would only have to be capable of withstanding the collapse of the building above and would therefore be easier to implement.\(^{531}\) Such design types, the authors noted, were the most common types in Europe and were not impossible to promote from an economic perspective.\(^{532}\) A sealed basement space cast in concrete, a steel door, underpinned with wooden supports and an emergency exit in one of the outer walls would be sufficient to withstand shrapnel, gas and the collapse of the building above. This argument also worked in the opposite direction, which further reinforced the need to consider the construction-technical approach. If a building could not properly withstand a falling bomb, if it was old and made of wood, the usefulness of an air raid shelter could be very questionable. If a bomb simply traversed all the floors above without exploding, the inhabitants would not survive when it reached the basement.\(^{533}\) This suggested that modern principles of planning and architecture provided more than just an advantage or enhanced the protective effect, they were framed as a requirement: Without them, the question was “whether an air raid shelter could be justified at all” [“blir det däremot fråga om skyddsrummets berättigande över huvud”].\(^{534}\) Here, Magnell’s construction-technical aerial protection concept also aligned with the SAP’s housing policies, providing a link between fortification considerations and social-democratic policy-making. According to the Beskow commission, the aerial resilience philosophy it presented was in accord with the current trends in urban planning and architecture. Consider the introduction in section 4 of the Beskow commission’s report:

When planning cities in olden times, considerations of the population’s protection often played a dominating role. Unfortunately, the current zeitgeist necessitates that such considerations will have to be made yet again. However, fortunately enough, aerial protection measures will, to a large extent, lead to an urban environment which, from a hygienic and general social perspective, must be understood as being highly satisfactory.\(^{535}\)

Although the idea that aerial protection considerations were in line with new trends in architecture was not new, this way of presenting the connection between functionalism and aerial protection was directly linked to the SAP’s

\(^{531}\) Betänkande angående det civila luftskyddet, p. 63–64.
\(^{532}\) Ibid. p. 63.
\(^{533}\) Ibid. p. 63–69.
\(^{534}\) Ibid. p. 65.
\(^{535}\) Ibid. p. 59.
housing policies, providing a new and fruitful alignment between military demands and politics. Christenson commission’s report had already mentioned that the new ideas of “light and air” in urban planning facilitated a resilient cityscape.\textsuperscript{536} However, in the Beskow commission’s report, the air raid shelter was presented as depending on light and air, and was therefore also dependent on the SAP’s ongoing housing policies. Thus, the idea of “hygienic” and “social” aspects was an attempt to present the air raid shelter as being an aligned and unproblematic addition to what was already happening. Such words were frequently used in minister Gustav Möller’s (since 1933) ongoing commission of inquiry \textit{Bostadsociala utredningen} and its many reports that shaped the housing policies of the 1930s.\textsuperscript{537} Furthermore, the recent increase in productivity in the construction industry promised that the long time frame could be reduced. Notably, the Beskow commission’s report was also specifically aimed at the state department of social affairs, in which Gustav Möller was minister, suggesting that this attention to the social aspects of modern construction was deliberately aimed at Möller and the social-democratic leadership.

Moreover, at this point, the functionalist architect and co-author of \textit{Acceptera!}, Uno Åhrén, was also involved in Möller’s commission on social housing. The Swedish historians Per Lundin and Niklas Stenlås have argued that Uno Åhrén is a prime example of a reform technocrat, in this particular case, in the sphere of housing policies.\textsuperscript{538} Åhrén was also one of the most prominent advocates of “air-minded” architecture and urban planning and in 1936 had discussed such ideas in the journal \textit{Byggmästaren}, providing an opportunity to attract political support for the ideas of Magnell’s and the Beskow commissions. Immediately after the publication of the Beskow commission’s report, these ideas would also garner support from the architects and engineers of the \textit{Kungl. Byggnadsstyrelsen}, KBS, [“Royal Board for Public Building”], which judged Beskow’s considerations to be “correct”.\textsuperscript{539} The famous architect and public intellectual, Uno Åhrén, was also supportive of aerial protection.

\textsuperscript{536} Luftförsvarsutredningens betänkande, 94.
\textsuperscript{537} See, for example, the two SOUs 1935:49 and 1937:43. Möller’s commission of inquiry is described in Misgeld et al., Socialdemokratins samhälle, 156ff.
\textsuperscript{538} Vandendriessche, Peeters and Wils, Scientists’ Expertise as Performance, 139.; See also Eva Rudberg, Uno Åhrén: en föregångsman inom 1900-talets arkitektur och samhällsplanering, T / Statens råd för byggnadsforskning, 99-0136496-5; 1981:11 (Stockholm: Statens råd för byggnadsforskning:, 1981).
5.2.3. Legislation and organizational formatting

Another important change in the Beskow commission’s report in relation to the previous commissions was the attempt to push aerial protection into a civilian management format, eventually transforming the way in which a raid was perceived and, in the process, changing the relationship between civilian and military. An important part of implementing aerial protection was deciding who would be in charge of the organization during both peacetime and war. This was also something that caused political problems. The Beskow commission’s discussions about the overarching organizational and jurisdictional structure of aerial protection was shaped by the earlier conflicting ideas of civil and military relations and the commission was therefore eager to position itself in relation to its predecessors. In this sense, the Beskow commission separated itself from the Christenson commission which, it argued, wanted to place aerial protection directly under military control during war, and instead aligned itself with the guidelines provided by Försvarskommissionen 1930. Here were also traces and consequences of the turn away from a military interpretation of an aerial attack in favour of the civilian and technical perspective, emphasising the idea that an air raid was a form of disaster scenario.

The most important change in regard to this was the Beskow commission’s recommendation to place the proposed government body for aerial protection under the Ministry of Social Affairs, instead of the military department. As noted above, by this stage the previously used term “Aerial defences” had also become “Aerial protection”. The primary motif was that aerial protection should be viewed as a form of “Katastrofskydd” [“Disaster protection”] and therefore related to government bodies that handled similar issues, such as the police organization and the fire department. This also had local benefits, since the civil services was responsible for order and safety in peacetime as well. They were also likely to have more “local” expertise and knowledge than a military organization. Even if aerial protection was understood to be a form of defence, the Beskow commission argued that it would be better to have a locally rooted civilian organizational framework in which non-military personnel would plan and lead the organization.

This change in rhetoric sounds reasonable but was still quite a dramatic

540 Betänkande angående det civila luftskyddet, p. 80–81.
541 Ibid. p. 81.
542 Ibid. p. 81.
543 Ibid. p. 87.
544 Ibid. p. 81, 87.
breach of civil-military relations since it suggested that aerial protection was disconnected from the act of war. An air raid can never be understood in terms of a disastrous event since it depends on a deliberate order from an opposing belligerent force to be executed.\textsuperscript{545} However, it could be argued that this form of attack is somehow impersonal and disaster-like since the distance, or the psychological remoteness, so to speak, between bomber and civilian is so great and its effects indiscriminate.\textsuperscript{546} Consequently, a disaster was something different from war, and could not be the responsibility of the military establishment. Also, since aerial protection, as it was framed in the Beskow commission’s report, included no active military defences, it was also easier to motivate a move from the military department to the department of social affairs if this semantic transformation was accepted.\textsuperscript{547}

This argumentative strand was also reinforced through a form of technical mentalité, as the Swedish historian, Mats Fridlund, would describe it.\textsuperscript{548} In the Beskow commission’s report, aerial protection was primarily framed as being a problem of a “technical nature” that could be handled with tangible assets and techniques.\textsuperscript{549} If so, it also aligned better with a form of technical system preparedness rather than war, further strengthening the idea of civilian disaster protection rather than a military defence system.\textsuperscript{550} This idea also shaped how the Beskow commission’s report envisioned the role of the new state department. The authors argued that a central government body with “technical expertise” was needed and therefore looked at the civil engineering profession as the profession that would lead this new phenomena in state governance.\textsuperscript{551} Moreover, forming a central government body that could co-ordinate the different regions was a way of levelling out the quality of aerial protection nationwide, by creating a uniform technical model for aerial protection. This also aligned well with the reduction in military defensive measures and the adoption of Construction-Technical Aerial Protection as the lodestar of urban transformation, in itself a concept that emphasized the technical nature of defending against acts of war.

\textsuperscript{547} Betänkande angående det civila luftskyddet, 81.
\textsuperscript{548} See Fridlund, “Buckets, Bollards and Bombs.”
\textsuperscript{549} Betänkande angående det civila luftskyddet, 80.
\textsuperscript{550} Ibid. p. 81.
\textsuperscript{551} Ibid. p. 80.
In terms of air raid shelters specifically, the emphasis on technicalities and disaster scenarios, as well as the civilian administrative format, were directly associated with how the Beskow commission envisioned their management. This resulted in an important break between the civilian and military spheres. An important question for the commission was how to solve and promote air raid shelter construction in the future through organizational and legislative means. The general public, the industrial sector and administrative and cultural buildings required air raid shelters in this era of total warfare. To achieve this, the state needed to apply jurisdictional force, but without having to finance and produce air raid shelters through decree. Towards this end, the authors of the Beskow commission’s report proposed legislative solutions regarding the state’s building regulations to make way for a steady increase in air raid shelters. The proposed solution was to make air raid shelters a mandatory part of all new construction projects, meaning something that would be related to Byggnadstadsstatgan [“The construction statute”].

Towards this end, the Beskow commission’s report presented two key arguments that reflected Magnell’s earlier writings in Meddelanden, funnelled through the political setting and the resulting practical policies: Firstly, air raid shelters were aligned with the current trends in modern building methods and could therefore be seamlessly incorporated with no conflict of interest. Secondly, by introducing air raid shelters as a mandatory measure at the construction phase, the cost of such measures could be cut to almost zero. “According to German experiences”, constructing a fairly basic air raid shelter with the above-mentioned traits would only cost around 2% more, or even less in total construction costs. Through a jurisdictional spin, it would also be possible to “reduce” this figure even more if air raid shelter regulations could be ratified by law. In which case, the authors argued, their construction would not be treated as something “extra”.

All in all, given the technical turn, if air raid shelter legislation was rooted in an existing civilian bureaucracy, it would render the implementation of air raid shelter structures invisible from an economic and political perspective. Thus, similar to the construction-technical topic, the Beskow commission strove to introduce air raid shelter construction through the back door, as part of an overall urban planning philosophy, instead of treating it as a supplement and a dictate from an increasingly militarized state, which, in effect, it was.

However, introducing air raid shelters through construction legislation was a

552 Betänkande angående det civila luftskyddet, p. 99–104.
553 Ibid. p. 103.
554 Ibid. p. 103–104.
complicated matter, and was also a long and protracted process that hinged on a combination of factors that were only partially related to political expediency and sudden events on the socio-technical landscape level. The move towards a civil interpretation of aerial warfare created new problems on other fronts. As mentioned above, the Christenson commission had argued against air raid shelters for these reasons – particularly emphasising the temporal aspects – and the Beskow commission and Magnell’s other writings never fully approached these problems.\textsuperscript{555} The building sector was subject to processes other than aerial protection, such as resource availability, real estate prices and market economics in general. In a scenario in which the housing sector increased in productivity every year, Magnell’s and Beskow’s proposal might be worked to the fullest. However, if the housing sector staggered for some reason, it could fail entirely. As mentioned above, after the outbreak of war, productivity in the construction sector also dropped by 71%. 59,000 apartments were built in 1939 and this plummeted to 17,000 in 1941, which caused the implementation of Magnell-style air raid shelters to falter significantly.\textsuperscript{556}

Regulation of the housing sector was also a process that involved other institutions and government bodies such as Kungl. Byggnadsstyrelsen and the industrial sector. Due to the problematic nature of its proposal, The Beskow commission’s report concluded that such legislative solutions would have to be considered by yet another commission since the question would involve laws and regulations in other fields such as urban planning and construction in general.\textsuperscript{557} Moreover, the guidelines developed during FK1930 clearly stated that the state should refrain from initiating aerial protection measures during peacetime in order to prevent undesirable social developments and the militarization of society.

Thus, the turn towards the construction-technical perspective, the alignment with modern housing policies and an emphasis on the civilian aspects were not without problems. The step away from the military framework also meant a step towards civilian bureaucracy, while also exposing itself to market forces.

\textsuperscript{555} Luftförsvarsutredningens betänkande, p. 94.
\textsuperscript{556} In Civilförsvarrstyrelsen’s statistics in 1962, the housing sector shrank from 59,000 constructed apartments in 1939 to 26,000 in 1940 and 17,000 in 1941. Thus, over two years, productivity in this sector plummeted by 71%. See PM. Enskilda skyddsrum, som tillkommer I samband med uppförande av skolor, industriar, kontor etc.,, and Civilförsvarrstyrelsen’s archives, vol B7:1, Royal War Archives, Stockholm Sweden; see also See Carina Gräbacke and Jan Jörnmark, “The Political Construction of the “Million Housing Programme”: The State and the Swedish Building Industry” in Lundin, Stenlås and Gribbe, Science for Welfare and Warfare, 233–249.
\textsuperscript{557} Betänkande angående det civila luftskyddet, 129–130.
As a result, although a powerful argument was made for *Construction-technical aerial protection*, the proposition that was based on the Beskow commission’s report did not include any law of this kind.

To conclude this section on the contents of the Beskow commission’s report, three important changes can be identified.

Firstly, the Beskow commission effectively removed all forms of military participation, forcing what was known as aerial defences into the realm of civilian protection. This brought air raid shelters and gas masks to the fore, making them the primary solution for civilian protection in a new way. At the same time, Kjell Magnell’s concept of Construction-technical aerial protection was incorporated, making it easier to align air raid shelters with contemporary social-democratic policy-making and the concurrent architectural trends.

Secondly, when aerial defences were placed in the civilian sphere, arguments were also raised regarding why aerial protection should be thought of as a form of disaster protection. This had several effects on the further development of aerial protection. The fire-fighting services and the police force assumed responsibility for the executive element of aerial protection.

Thirdly, the technical nature of aerial warfare was emphasized and planning activities were aimed at the engineering field. In terms of organization and management, the turn towards disaster, protection and technical issues also enabled the seamless integration of the existing civilian and construction-technical bureaucracy, which caused another important break between the military and civilian aspects of aerial protection and air raid shelters. Even if these ideas did not reach parliament immediately, the ice had been broken. Air raid shelters could now be argued to be something that should form part of the state’s general construction norms and would thus be interwoven with the modern welfare state as simply a technical matter.

5.3. The aftermath of the Beskow commission – 1937–1940

5.3.1. From idea development to material investments

The Beskow commission finished its work on 21 December, 1936. The director of the commission, August Beskow, and the secretary, Thomas Munck af Rosenschöld, personally delivered the completed report to the current Minister of Defence, Janne Nilsson. Nilsson had also invited Helge Jung to the event, now working as the Chief of *lantförsvarets kommandoexpedition* [“The Administrative
The report was generally well received without any major criticism from either the political ranks or the public sphere. The deliberations presented by the Beskow commission’s report were taken at face value. The only major criticism was towards the government’s slow processing in January 1937, causing a window of opportunity to be missed as the budget for the coming year had been fixed.

On 1 February, the report was submitted for public consultation. Shortly afterwards, Thomas Munck af Rosenschöld was transferred to the department for social affairs to write a proposition based on the report, under the leadership of the minister Gustav Möller and his secretary, Wilhelm Björck. Consequently, on 5 March, 1937, the results of the Beskow commission’s report could be presented to the cabinet in the shape of two government propositions (1937:211 and 212), one concerning jurisdiction, the other about funding and the instigation of Luftskyddsinspektionen, LI.

Two months later, on 4 June, 1937, the two propositions were unanimously ratified by both the first and the second chamber. As a result, SEK 2,446,000 was allocated to the creation of Sweden’s first aerial protection organization. This budget included SEK 450,000 for alarm equipment, SEK 1,025,000 for gas protection and a SEK 300,000 subsidy to produce public air raid shelters in Swedish municipalities. A further SEK 500,000 was set aside for state loans for the construction of air raid shelters and aerial protection command posts, specifically directed at government bodies and state institutions.

The new government body, Luftskyddsinspektionen, received SEK 126,000 for employment costs, rent and other expenses to start its undertakings under the leadership of Alvar Zetterquist, the former head of the state police. SEK

558 Munck af Rosenschöld, Minnen från 1900-talet, 226.
559 The right-wing politicians Domö and Bagge, for example, argued that if it was not addressed quickly, other forces might take over and that the defence resolution of 1936 would be useless if civilians were not protected. Domö, Osberg and Bagge, see parliamentary protocol: FK1937:87, AK 1937:129, 213.
561 Munck af Rosenschöld claims that he presented three proposals, the third being “förslag till lag om förfogande rätt för luftskyddets behov”. However, according to the parliament’s registry, this proposal was processed in 1938 (prop. 1938:4). Munck af Rosenschöld, 227.
562 This was, however, less than half of what the Beskow commission had recommended, a total of SEK 7,426,000. Alarm equipment funds were reduced by 50%, from SEK 1,150,000 to SEK 450,000. The biggest reduction was the gas mask budget, from the proposed SEK 5,000,000 to SEK 1,025,000. LI also received less than demanded, as well as funds for state and public air raid shelters. the Beskow commission, did, however, recommend that its budget should be divided over two or three years, which was probably why these costs were reduced in Möller’s proposal. Betänkande angående det civila luftskyddet, 147–148.
45,000 was set aside for educational activities.\textsuperscript{563} This last budget entry was divided in two and directed towards the Red Cross, as well as the newly formed LSF, instigated as late as 1 March, 1937. Since the Red Cross, the FFSFF and the Governor’s Office had maintained their activities throughout the 1930s, their organizations could therefore be directly enrolled to support the new state organization.\textsuperscript{564} However, concerning a general air raid shelter programme, the proposition provided no solution. Reflecting the Beskow commission’s reluctance to general guidelines being built into the state’s construction statutes without further investigation, Möller’s proposition did not contain any clear statement and the question therefore remained unresolved. Möller primarily argued that the state was to serve its own needs at this point and could not support “construction-technical aerial protection measures” in some general sense.\textsuperscript{565}

Although these propositions marked the end of the decade-long discussions on the guiding principles of aerial protection, it did not mean the end of the air raid shelter programme. Rather, the period from 1937 to 1940 was characterized by a steady increase in government proposals and commissions of inquiry, intended to complement the existing jurisdiction and force material investments and public participation.\textsuperscript{566} Eventually, the matter of implementing a general air raid shelter programme also returned to the political agenda.

However, a significant difference is that in these post-Beskow years, the subsequent commissions of inquiry and reports that followed, as well as most of the budget proposals, did not include new concepts in terms of idea development. They mostly referred to previous ideas, demanded stricter implementation and increased budgets. Air raid shelters and gas masks in particular became a sinkhole of state funds as the budget entries for aerial protection were increasingly inflated as war drew closer to Sweden’s borders. The reluctance towards peacetime preparations and the general militarization of civilians that had shaped most of the interwar period was no longer debated. The Münich Crisis of 1938 in particular was cited by the government as being the primary catalyst for this change in attitude. In January 1939, SEK 1.1 million was set

\textsuperscript{563} See Riksdagens skrivelse 1937:395.
\textsuperscript{564} Proposition 1937:212, p. 25-26.
\textsuperscript{565} Proposition 1937:212, p. 30.
\textsuperscript{566} Apart from propositions 1937:211-212, see, for example, 1938:4, 1938:61, 1939:127, 1939:137, 1939:274, 1940:18, 1940:43, 1940:79, 1940:184, 1940:165, 1940:187. Topics vary from additional funding, changes in legislation, expropriation, employment and forced air raid shelter construction. Political activities of this kind continued until 1944. Every year, budgets for aerial protection can be found in the government’s annual budget proposal (19XX:1-2). In 1944, aerial protection was incorporated into a new legislative structure with the Civil Defence Law. All older laws and statutes were gathered under this new concept. See proposition 1944:268-270.
aside for a new aerial defence headquarters in Stockholm, SEK 18 million was directed to the construction of air raid shelters at state institutions, another SEK 4.3 million for air raid shelters in every municipality, and a further SEK 68 million for the production of gas masks for civilians.\textsuperscript{567} Even the Royal Family received a shelter, worth SEK 96,000.\textsuperscript{568} One of the most prominent investments around this time was the introduction of subsidized state loans for general air raid shelter construction in 1940, which reached SEK 15 million.\textsuperscript{569}

In terms of scale, the change in attitude was profound. Only a few years earlier, whole governments would have fallen for even considering such amounts of money for these quasi-military efforts. This should, however, be seen in context with the general military expenditure during these years. In 1938, the defence budget was raised to SEK 180 million, making the previous decade-long debates on Sweden’s military obsolete in an instant. Similarly, in 1939, the defence budget was raised even further – to SEK 220 million.\textsuperscript{570}

In other words, the politics of the period from 1937 to 1940 were fully focused on building and producing materials and tangible assets, and less focused on idea development and the political stickiness of aerial protection and rearmament in general. Similarly, the threat of militarization and other political problems that had shaped much of the debates between 1925 and 1935 were pushed into the background in favour of the introduction of quasi-military martial laws and expropriation rights. Consider, for example, the ratification of “förfoganderättslagen för luftskyddets behov” [“Expropriation law for the aerial protection services”].\textsuperscript{571} This law stated that the aerial protection organization could force people to move and expropriate facilities and equipment as they saw fit during a special state of “aerial emergency”, called “Luftskyddstillstånd”.

Luftskyddstillstånd could be announced whenever the government desired; it meant that the country was not in an actual state of war, but as close as it could be. For the civilian population, this was the start of the so-called preparedness years. Although the consequences of this law – as well as the introduction of a quasi-form of state of war – meant a serious breach of civil rights, the criticism

\textsuperscript{567} See Proposition 1939:1, p. 37-47.
\textsuperscript{568} ”Till anordnande av skyddsrum i Stockholms slott anvisas å tilläggsstat I till riksstaten ett anslag av 96,000 kr”. See proposition 1939:75.
\textsuperscript{569} Proposition 1940:187.
\textsuperscript{570} Oredsson, Svensk rädsla, 182–184.
\textsuperscript{571} Proposition 1937:4, ratified in 1938.
against it was only nominal during the years immediately before the outbreak of war, both in the public and the political sphere.\footnote{See C. A. Reuterskiöld’s comments in FK Motion 1937:167. Reuterskjöld’s criticism was aimed at the idea of permanent evacuation. The liberal newspaper, Dagens Nyheter, discussed the air raid shelter laws from time to time in its editorials but was generally positive to strict implementation. See, for example, 8 October, 1938; 16 August, 1939; 27 December, 1939.}

This trend reached its peak in 1944 when aerial protection was merged with \textit{Statens Utrymningskommission}, SUK (“The State’s Evacuation Commission”), forming the concept that would become Civil Defence. Luftskyddsinspektionen, LI also changed its name to Civilförsvarsstyrelsen, CFS (“The Civil Defence Administration”) the same year. Included in this jurisdictional package was a paragraph stating that civilians could now be conscripted for civil defence duties. This was called “civilförsvarsplikt” (“civil defence duty”) and was a civilian form of military service.\footnote{Proposition 1944:268} Even if the volunteer movement had grown significantly, the services provided by the many clubs were apparently not enough. From 1944 onwards, civilians were now being openly forced into civil defence work in a similar manner as Fevrell had suggested as early as 1927. The need to ratify such laws can also be seen in context with the fear of Douhet-like scenarios. Both the Soviet Union’s invasion of Finland and Nazi Germany’s invasion of Poland had begun with fierce raids on Helsinki and Warsaw, confirming fears that had been voiced for a decade. And in 1940 and 1941, the British experience of the “Blitz” fully confirmed what could happen in terms of both material destruction and civilian casualties. From 9 April, 1940, Denmark and Norway were also occupied through Operation Weserübung, leaving Sweden wedged in between two imperialist superpowers.\footnote{For English works on this episode, see Gilmour, Sweden, the Swastika and Stalin; Gilmour and Stephenson, Hitler’s Scandinavian Legacy.}

From 1937 onwards, this development in aerial protection policies also differed from the previous period in that the political work was now conducted by the state’s own representatives. The sub-political interest groups and networks that had previously played a pivotal role were replaced by “high” politics, so to speak, and volunteer organizations became endorsed by the state. Most notably, as \textit{Luftskyddsinspektionen} began working on 1 July, 1937, it eventually became a political actor in its own right, producing memos for the government on law amendments, potential investments and recommendations for the population, as well as participating in investigations and consultations. The LI also calculated its own budgets and submitted its recommendations.
to the government, along with other proposals for extra subsidies.\footnote{The LI commented on most topics during its brief existence, including air raid shelter jurisdiction, expropriation laws, employment issues, investment in gas protection materials and budgeting, etc. See “Underdåninga skrivelser” Luftskyddsinspektion’s archives, volume B1:1, National Archives, Stockholm Sweden.} As we will see in another chapter, the “technical” experts who flocked to the LI also engaged directly in public controversies and attempted to quell criticism from 1939 to 1940. LI representatives would subsequently write articles in military journals, urging political action. Also, \textit{Kungl. Byggnadsstyrelsen}, KBS [“Royal Construction Board”] was increasingly involved in the development of aerial protection measures and politics.

Byggnadsstyrelsen was not only responsible for planning and constructing air raid shelters on the state’s estates, it was also appointed by the government to conduct investigations and report on jurisdiction towards this end.\footnote{A particularly interesting P.M. was produced by the KBS at some point during 1936, urging the government to continue investigating the possibility of producing laws that could force aerial protection considerations in urban planning. See KBS’s archives, Kungl. Byggnadsstyrelsen, Admin. A-Säk, series F, volume 2, 5, 6, 10 and 11. This series is still classified and secret. However, some documents are available, describing KBS’ engagement in aerial protection and air raid shelter development since 1936 onwards.} The public role of the Red Cross and the FFSFF in the 1920s and 1930s was also increasingly taken over by the LSF, which in just a few years grew immensely in terms of membership, eventually becoming a politically endorsed popular movement, sporting an extensive propaganda machine (more about this below).\footnote{For more on aerial protection propaganda, see Bennesved and Norén, “Urban Catastrophe and Sheltered Salvation.”}

In only a few years, then, not only had aerial protection politics changed its entire focus since the Beskow commission from idea development to material investments, the main political actors and proponents had also changed significantly in nature and had become fully endorsed by the state.

\subsection*{5.3.2. From sub-politics to state endorsed popular movements}
An important event that changed the political landscape during the spring of 1937 was the instigation of the \textit{Luftskyddsförbundet}, LSF, later known as \textit{Riksluftskyddsförbundet}, RLSF [“National Aerial Protection Association”]. I have discussed this organization above, as well as its connections to the FFSFF in the previous chapter (see section 4.2.1).

Demands for a national volunteer movement had been made since the start of aerial protection politics. The writings of Emil Fevrell in the late 1920s and
Christenson commission’s report of 1931 to 1932 included discussions on how to enrol and sometimes force public participation. These suggestions included volunteer aerial defence associations, landsturms, and sharpshooter associations. Maintaining popular support and volunteer personnel were described as being pivotal to educating and managing aerial protection, as well as maintaining the civil population’s moral integrity through propaganda. In the journal Meddelanden, Magnell in particular claimed in his own reports from 1936 and 1937 that the formation of a national volunteer organization that could inform the public was completely “critical”.578 As a role model, he supported humanitarian organizations like the Red Cross and its work abroad.579 His encounter with the German Reichluftschützbund, RLB, during his travels also provided inspiration. In 1937, Magnell concluded that in only a short time, the RLB “had already managed to create a notion of the necessity of aerial protection organizations” for the German people.580 The Beskow commission’s report also concluded somewhat apologetically that such a thing might feel “arbitrary” in the Swedish context (“under Svenska förhållanden främmande”), but was nevertheless vital.581 To some degree, such an organization also contradicted the previous guidelines from FK1930, which were very careful in proposing organizational measures that could facilitate general militarization. The solution, however, as presented in the Beskow commission’s report, as well as Magnell’s own writings, was that volunteer organizations should be directly linked to the state department for aerial protection, LI.582 In practical terms, the LI would provide training for instructors and key personnel, information material and expertise in technical matters, thereby remaining in control of the development of volunteer organizations.

Regardless of the political reluctance to any form of uniformed para-military movement, Magnell was eager to start up a national organization of this kind as soon as possible. With the help of his close associate from the FFSFF, Torsten Nothin, the two initiated the first attempt months before the Beskow commission’s report had been reworked into a proposition and ratified by parliament. According to Nothin’s memoirs, the idea came solely from Kjell Magnell, once more underscoring his importance as a catalyst for

579 Ibid. p. 37.
580 Magnell, Byggnadstekniskt luftskydd, 46–49.
581 Betänkande angående det civila luftskyddet, 90.
582 Betänkande angående det civila luftskyddet, 90. See also Kjell Magnell, "Civilbefolkningens skydd mot luftanfall”, Meddelanden från Föreningen för Stockholms fasta försvar (1936), vol. 41. p. 37. 42.
change. Moreover, in 1936, Magnell and Ejnar Nordlund travelled around the country to encourage local politicians and governors to form local aerial protection organizations that could subsequently be incorporated into the national organization. Correspondence to the LSF from the many local clubs to emerge from 1937 to 1938 is ample, describing Magnell’s work in this respect. Eventually, Nothin stopped them from doing the same thing in Stockholm until a national association had been established that could be an umbrella for the local associations and bring them under state supervision through the LSF. For the local clubs in Stockholm, the FFSFF functioned as the central organization.

According to an essay concept written by Hans Engström, the decision to finally organise a national organization for voluntary defence was also met with initial disappointment after the submission of the Beskow commission’s report in December 1936, suggesting that Magnell’s and Nothin’s initiative was an individual enterprise only supported by their close associates in the FFSFF. One of the advantages of delivering Beskow commission’s report at short notice was that a proposal for a state-financed aerial protection organization should have been included in the government’s annual budget proposal to parliament in January 1937. For unknown reasons, this window of opportunity was missed. This appears to have urged Nothin to finally act together with Kjell Magnell, regardless of any potential criticism. Nothin, however, discussed the matter with the director of the Beskow commission, August Beskow, himself before proceeding, suggesting that Nothin made sure that he anchored his ideas. The first protocol from the constitutional meeting also included a PM dated 28 January from Defence Minister Ivar Wennerström, supporting the enterprise. On 30 January, 1937, Nothin duly invited all governors of Sweden to his office in Stockholm and urged them to initiate local aerial protection organizations.

583 Nothin, Från Branting till Erlander., 223.
584 See the volume “In- och utgående handlingar”, in Föreningen för Stockholms fasta försvar’s archives, volume Fr:1, Royal War Archives, Stockholm, Sweden.
585 Sjölin, I skuggan av kriget, 201–202.
586 Nothin's concept p. 6-7, Kjell Magnell’s Archives, vol 2. Royal War Archives, Stockholm, Sweden.
588 Nothin, Från Branting till Erlander., 223.
589 Torsten Nothin’s concept p. 4-5, Kjell Magnell’s Archives, vol 2. Royal War Archives, Stockholm, Sweden.
under the leadership of a national voluntary organization. At its start, this organization was called Sveriges Centralförbundet för Civilt Luftskydd, but was later renamed Luftskyddsförbundet, or in short, LSF (in 1938, another letter was added, Riksluftskyddsförbundet, RLSF).

Figure 31: A photograph of the legendary meeting that initiated the LSF in January 1937. The headline reads: “In the threatening shadow of war” “Personal engagement – a demand of the folk”. Torsten Nothin, who initiated the meeting, is seen in the middle. In this setting the image was used as propaganda to convey the resolve of the Swedish governors before the war broke out. The original article can be found in the propaganda magazine, Sverige i vapen, from 1940.

The initial board contained a cohort of members known from the networks of experts. On Nothin’s recommendation, the entrepreneur, Sigfrid Edström, was elected as director. The head of the Beskow commission, August Beskow, became vice director. The rest of the board comprised the initiator and board member of FFSFF, F. W. Edelswärd, Stockholm’s head of police, Eric Forssellius, Captain Kjell Magnell, Major Hjalmar Odquist, Captain Ejnar Nordlund and Dr. Hjalmar Granholm. The secretary of the Beskow commission, Åke

592 For more on the initiation of RLSF and its work, see, Sjölin, I skuggan av kriget, 198–213.
593 Gillis Ericson, Sverige i vapen: en skildring i ord och bild av vår samling för frihet och fred (Stockholm: Redaktionskommittén för Sverige i vapen:, 1940).
Kretz, was also included. In other words, no less than four members of the Beskow commission were included on the LSF’s initial board. Moreover, one board member came directly from the FFSFF’s board, and a starting grant was received by the FFSFF. Thomas Munck af Rosenschöld, secretary of the Beskow commission and currently working on Gustav Möller’s proposal at the Ministry of Social Affairs, was asked to officially request funds from the state’s account. Torsten Nothin and Kjell Magnell held the opening speeches for the meeting. Magnell’s work as a secretary appears to have dominated the LSF during its initial years. Thus, the LSF was based entirely on the already established networks of experts that had developed during the 1930s.

A month later, in March 1937, the government presented its proposal, building on the Beskow commission’s report and finalized aerial protection’s jurisdictional framework. Although it had significant financial difficulties before the state began officially contributing, the LSF began its activities. Apparently, Munck’s success in acquiring funding had been modest. As the LI began working in July 1937, LSF became an integral part of the state of Sweden’s collective national endeavour to attain a functioning aerial protection system.

Although the government was reluctant to provide any significant financial support at this stage, Möller, Hansson and SAP supported the organization. From October 1937 onwards, the LSF also appointed a representative of the LI on its board and, in January, 1938, this position was filled by Alvar Zetterquist himself. From here on the two organizations developed a division of labour in which the LI trained instructors and the LSF trained volunteers, as well as spread propaganda and materials. The two organizations also shared premises for the LSF’s gain at Riddargatan 23 in Stockholm. The LSF rented premises for SEK 3,500 per quarter. For its part, the LI rented two rooms from the LSF in the same office for SEK 3,000 per quarter, in effect, covering the majority of the LSF’s rental fees. It also shared its office with Stockholm’s landsturm

596 Hans Engström’s study of LSF’s protocols reveals that the LSF suffered from severe financial deficits during its first years. Kjell Magnell’s archives, vol 2. Royal War Archives, Stockholm, Sweden.
597 For a discussion on the LSF’s early propaganda machine, see Bennesved and Norén, “Urban Catastrophe and Sheltered Salvation.”
association. As the international situation deteriorated, the LSF also succeeded in enrolling a huge number of people and significantly grew during the Second World War. Although the initial years before the war were flavoured by a “war of the souls”, meaning competition between the many volunteer organizations, the LSF appeared to win this particular war. In 1938, the LSF had 80,000 members dispersed over 283 local clubs; in 1939, this had grown to 159,000 members and 411 local clubs. By the end of 1944, it counted 593 local clubs and 667,362 members, around 10% of the entire population, including Per Albin Hansson himself. At this point, the LSF had become a popular movement of unmatched proportions. Eventually, its success would also be made permanent through the ratification of civil duty in 1944.

Although the LSF peaked in 1945, at least in terms of the number of members, over the years this organization became the state aerial protection project’s foremost education and propaganda machine for the general public. During information campaigns and the relentless formation of local aerial protection clubs, the LSF engendered a sense of airmindedness in the population, and connected this new notion with technologies. For example, how to build and furnish ad-hoc air raid shelters, extinguish fires, put on gas masks and administer first-aid. For such purposes, a variety of aerial protection pamphlets, magazines and books were published in the hundreds of thousands, dozens of films were produced and circulated, propaganda events such as “luftskyddets dag” were held, as well as public exhibitions. Particularly famous was the aerial protection train, which contained an exhibition, and which travelled to 75 different cities and towns around the country in 1938 and received an estimated 110,000 visitors. This exhibition was compiled and produced by the engineer, Ivar Lundbäck (see section 5.2.1.) The local club setting was pivotal in educating, although the LSF also attempted remote-learning techniques. In

599 The LSF continuously held meetings with the LI after 1938 to settle the division of labour between the two organizations. See, for example, PM. No. 697, of 5 November in Sveriges Civilförsvarsförbund’s archives, volume A2; For the LI’s and LSF’s rental contracts, see appendix to the protocol of 23 April, 1938, Sveriges Civilförsvarsförbund’s archives, volume A2. Royal War Archives, Stockholm Sweden. See also Hans Engström’s concept, p. 15. Kjell Magnell’s Archives, Royal War Archives, Stockholm, Sweden.


1939, the LSF had over 35,000 recipients for its correspondence course in aerial protection.\textsuperscript{602} Thus, over the years, the LSF built up a vast media “system”, which funnelled its ideas and also educated the Swedish civil population.\textsuperscript{603}

Figure 32: The LSF’s exhibition train drawing a crowd in February 1939, either in Uppsala or Gävle. Photo by Carl Larssons fotografiska Ateljé AB. XLM.CL004096-1. CC-BY-NC. https://digitaltmuseum.se

\textsuperscript{602} Riksluftskyddsförbundets verksamhet 1937-1945, in Sveriges Civilförsvarsförbund’s archives, F:10, vol 1; See also Civilförsvastyrelsen’s archives, F XIV, vol 1. “Utkast till civilförsvarets historik”, Royal War Archives, Stockholm Sweden.

\textsuperscript{603} Bennesved and Norén, “Urban Catastrophe and Sheltered Salvation.”
Figure 33: The LSF’ exhibition train, opening here in Gävle, March 1939. The exhibition was initiated by the LSF under the leadership of the industrial entrepreneur and engineer, Ivar Lundbäck. Photo by Carl Larssons Fotografiska Ateljé AB. ID: XLM.CL004090. CC-BY-NC. https://digitaltmuseum.se.

Figure 34: Interior of the exhibition train. A miniature of the Bofors 40mm anti-aircraft gun on display in the foreground. In the background, a model city attacked by different kinds of bomber aircraft. Photo by Carl Larssons Fotografiska Ateljé. ID: XLM.CL004085. CC-BY-NC. https://digitaltmuseum.se.
Figure 36: The LSF cooperated with many other organizations. Here, a fire-fighting vehicle is used as a means of spreading the word of the attic tidying campaign in 1939. Disorganized attics were claimed to be a major fire hazard during aerial raids and were therefore the subject of the LSF’s propaganda campaigns. The sign reads: “I’m tidying my attic, are you?”. Photo by Carl Larsson. ID: XLM.CL012953-10 CC-BY-NC. https://digitaltmuseum.se.

Figure 35: During these events, the local LSF clubs organised parades, or a sort of demonstration, encouraging citizens to join the LSF through its clubs. Here, a member is dressed in gas protection gear holding a sign saying “Luftskyddsförbundet”. February 1939, either in Gävle or Uppsala. Photo by Carl Larssons Fotografiska Ateljé AB. ID: XLM.CL004097-2. CC-BY-NC. https://digitaltmuseum.se.
Also, just like the police force’s involvement in the aerial protection organization and leadership, the success of the LSF also hinged on loyal Social-Democratic support from Torsten Nothin and, more specifically, Magnell’s ability to frame it in the Beskow commission’s report as something uncontroversial yet necessary, even if the organization was strangely similar to the German and heavily nazified RLB. Moreover, the introduction and growth of the LSF is equally a testament to the power of sub-political groups in making things happen, and also the key role Kjell Magnell seemed to play in this setting. As stated elsewhere in this dissertation, the two initiators of the LSF came directly from the FFSFF and acted independently of the state. The FFSFF also transferred SEK 86,000 directly to LSF to fund Ejnar Nordlund’s educational activities.

At the same time that the first legislation on aerial protection was ratified, the government earmarked SEK 20,000 for volunteer organizations for their efforts in training. This was a small amount that did not suffice. However, through lobbying and political groundwork, both Nothin and Edström managed to gain financial support for the LSF and eventually had it officially sanctioned by the state. Only a year later, the state’s contribution to the LSF increased tenfold to finance its training and propaganda activities, effectively taking over the FFSFF’s former role. From 1941 to 1944, the state continued to increase its support of the LSF (now called “Riksluftskyddsförundet”, RLSF), peaking in 1942 with a subsidy of SEK 430,000.

In the post-war years, the LSF remained an important part of Swedish Civil Defence for the rest of the twentieth century. Through the LSF, aerial protection, its many technologies, and the threat of war was partially facilitated and domesticated. It was through the LSF that Swedish citizens came to learn about how to construct air raid shelters, how to interpret sirens, put on gas masks, and where to go during evacuations, in terms of both training and propaganda. As such, it was an expression of a militarizing trait in interwar culture and politics, particularly emphasizing the importance of citizens enrolling in the volunteer movement and connecting their participation with tangible technologies.


5.3.3. The Petersson commission and the statute of 1940

Although the Beskow commission’s report and Möller’s subsequent proposition did not contain any solution for how the general public could acquire air raid shelters for themselves, this question did not disappear from the political agenda during the years that followed. True to the previously mentioned trend, the state’s own endorsed government body took over the task of pushing aerial protection policies and subsequently also pushed for a renewed effort for an air raid shelter programme in the period 1937-1940. Moreover, as noted above, these subsequent political initiatives were also solely aimed at covering the material deficits faced by the aerial protection organization – air raid shelters and gas masks – and therefore contained little news in terms of idea development. The decisive changes that were made during the period were taken directly from the Beskow commission’s report or from Magnell’s earlier ideas. Key to this development was Torsten Nothin’s old colleague and also the General Director of the LI, Alvar Zetterquist.

On 10 September, 1937, only two months after the LI had begun its work, it presented an official memo to the government concerning the urgency of considering an air raid shelter programme, building on discussions in the Beskow commission’s report.606 The LI argued that the Beskow commission’s arguments that air raid shelter construction would be based on volunteer engagement would not suffice.607 Even if the state set aside funds to be distributed to municipalities around the country for building air raid shelters, the laws regulating aerial protection were not strict enough to force them. Moreover, only during “Luftskyddstillstånd” could construction be enforced. However, air raid shelters for personnel in particular needed to be constructed during peacetime.608 Regardless of the success of the Beskow commission and the ratification of the first aerial protection law of 1937, political and military reluctance had lingered in the background and made the existing policies lack in rigor. Following the discussions in the Beskow commission’s report, the matter of implementing a general air raid shelter programme would also concern other factors than the aerial protection laws, prompting a renewed need to investigate how to cope with these changes. Air raid shelter matters would concern the complex construction statutes (Byggnadsstadgan, SFS

606 P.M. No. 713, 1939. in Underdåniga skrivelse, Luftskyddsinspektion’s archives, vol. B I: 1. The original P.M., however, has not been found, but another P.M., produced by the LI in 1939, discusses its content and the subsequent events; see also Proposition 1940:18, p. 8-9.
608 Ibid. p. 4-6.
1931:364) and not necessarily the aerial protection laws produced after the Beskow commission (Luftskyddslagen, SFS 1937:504).

Subsequently, on 8 October, 1937, the government transferred the LI’s memo to the Kungl. Byggnadsstyrelsen, KBS, and ordered a report and a proposal for legislation. The KBS had also presented a PM in 1937 that favoured such legislative solutions, referring directly to the Beskow commission’s report. This process took time, however, particularly because of a prolonged public consultation and subsequent disagreement on how such amendments to the construction statutes should be made. One year later, on 19 September, 1939, the Royal Construction Board delivered a PM to the government with a proposal for a law on “Byggnadstekniskt luftskydd” (“construction-technical aerial protection”). With only a few suggested changes, this proposal was supported by the LI.

However, at the same time as the Royal Construction Board was working, fears of gas attacks were also renewed within parliament. After a subsequent vote, it was clear that a majority in parliament demanded a new commission of inquiry on the matter of providing the general public with gas masks. Inspiration for this also came from the UK, which had decided to provide gas masks for its 45 million inhabitants. Since the air raid shelter problem had not been resolved either by local municipalities or for the general public, the government decided to instigate a new commission of inquiry that would resolve these two problems. As a result, the Minister of Social Affairs at the time, Albert Forslund, organised a commission of five experts who would settle the question of funding and responsibilities and all surrounding questions regarding air raid shelters and gas masks.

The commission, led by the General Director of the Swedish Maritime Administration, Torsten Petersson, was aimed directly at solving the material deficit in the national aerial protection project. The report was called 1939 års luftskyddsutredning [“Aerial protection investigation of 1939”] (henceforth referred to as the Petersson commission). Both the objective and its membership composition reflected the trends visible already during the Beskow commis-

611 Proposition 1940:18, p. 8.
613 See following comments FK 1939:152 and AK 1939:191.
614 Bosma, Shelter City, 66.; Betänkande med utredning och förslag angående civilbefolkningens förseende med gasmasker samt inrättande av skyddsrum för luftskyddsändamål, §.
sion. Air raid shelters and individual gas protection in the shape of gas masks had become the key tenet of keeping the civil population alive. The political problem to be solved was how to facilitate its production. Also, its working objective was framed by the state’s own government bodies, which now housed the main expertise, with support from parliament. The General Director of the LI, Alvar Zetterquist, took a symbolic position on the commission and maintained an influential role.615

5.3.4. Momentum is gained: the air raid statute of 1940
The period from the instigation of the Petersson commission to the submission of the report in December 1939 was a turbulent period in terms of European politics and is difficult not to consider as an important context. Great Britain’s failing appeasement politics, French isolationism, and Hitler and Stalin’s aggressive war campaigns against Finland and Poland resulted in a new war. For Swedish politicians, aerial protection personnel, military officers and commission members, everything was now tainted by the bitter taste of European belligerence after 1 September, 1939.

For the Petersson commission, this meant that, on the one hand, the commission begun too late and, on the other hand, both the Governor’s Office, the LI and the military establishment publicly announced their support of mandatory air raid shelter legislation in the face of war, providing political pressure for the smooth implementation of the commission’s results. Practical air raid shelter construction now also began. In the same way as the Spanish Civil War had accompanied the progression of the Beskow commission and the subsequent legislation, the outbreak of the war, particularly the Soviet-Finnish Winter War, had an important catalyst function towards legislation at this point. In mid-September 1939, the Governor of Stockholm, Torsten Nothin, urged the government to impose “Luftskyddstillstånd” [“State of aerial emergency”] in Stockholm and its surroundings, thereby activating the law on “luftskydds förfoganderätt” [“right of expropriation for aerial protection purposes”] in order to make preparations possible without restrictions. The so-called preparedness years had now begun. He particularly urged the government to consider “construction-technical” arrangements as soon as possible.616 Moreover, on 8 December, when the Petersson commission delivered a notice along similar lines to the Governor’s Office, the Petersson

615 Betänkande med utredning och förslag angående civilbefolkningens förseende med gasmasker samt inrättande av skyddsrum för luftskyddsändamål, 1–2.
616 Proposition 1940:18, p. 10.
commission was supported by the LI, which delivered a similar account, as did the Chief of Staff.\textsuperscript{617} Thus, several state bodies co-operated and urged for quite radical temporary political changes with the European war as a background that foreshadowed the legislation that was soon to come.

In December 1939, almost exactly three years after the Beskow commission, the Petersson commission delivered its report, which will be the last report to be discussed in this dissertation. Regarding air raid shelters, the Petersson commission’s report led to two propositions, both of which were taken up by the government’s cabinet on 19 January, 1940. The first proposition concerned shelters and the government’s authority to enforce shelter construction in municipalities: Proposition 1940:18. The proposition effectively enforced responsibilities in providing shelters for personnel as well as for pedestrians in general (allmänna och offentliga skyddsrum). Proposition no. 18 was presented by the Minister of Social Affairs and high-ranking social-democrat, Gustav Möller. The group of ministers in the so-called “samlingsregeringen”\textsuperscript{618} [“Coalition government”; Sweden’s wartime government included all democratic parties regardless of the SAP’s dominance and is therefore referred to as the “coalition” government], approved of the proposition without any remarks and urged parliament to accept it.\textsuperscript{619} The second proposition regarding shelters was Proposition no. 1940:43 and concerned the question of forcing real estate owners and industrial owners to provide shelters in all buildings of certain sizes and for a variety of purposes: commercial, domestic, cultural and industrial. An important part of the proposition concerned making shelter construction a mandatory part of all new buildings through an amendment to the building permit laws (enskilda skyddsrum) and that a city’s chief of aerial protection had to be present on the “byggnadsnämndens sammanträden” [“The city council’s construction board”].\textsuperscript{620} Thus, this proposition was, in essence, the direct descendant of Magnell’s Construction-technical aerial protection concept and the ideas that were presented in the Beskow commission’s report in 1936, but which, in this setting, were presented as building on the KBS’s

\textsuperscript{617} Proposition 1940:18, p. 10-11.
\textsuperscript{618} For works in English concerning wartime politics in Sweden, see Kent Zetterberg’s contribution in Gilmour and Stephenson, Hitler’s Scandinavian Legacy, 101–128.; See also Gilmour, Sweden, the Swastika and Stalin.
\textsuperscript{619} On 7 February, “första lagutskottet” delivered its statement (1940:6), and accepted it with no remarks. On 14 February, lagutskottet’s comments and the proposition were discussed in parliament. Only one politician in parliament opposed the proposition. Olsson i Mellerud Protokoll 1940:11, p. 16.
\textsuperscript{620} Proposition 1940:43
memos and the Petersson commission. Proposition no. 43 was handled on the same day as its sibling, but was presented in another department since it was regarded as being connected to Byggnadsstadgan, not Luftskyddslagen of 1937 (However, the same ministers were in the room.).

At this point, the many reservations that had been voiced since the late 1920s had disappeared, and a strict air raid shelter programme was now being considered by the government and parliament. The government and both chambers in parliament accepted these law proposals as presented. The members of the legislative council did not request any amendments to the proposition. Four comments were presented in parliament concerning a relaxation on industry regarding its responsibilities, as well as an appeal to the government to cover at least 25% of the cost of fitting existing houses with shelters. However, none of their demands were considered by the legislative council and on 28 February, the two propositions were presented to parliament. There was some discussion, but in the end, the proposition was passed as presented, with only some technical changes. This resulted in the Air raid shelter statute of 1940 (SFS 1940:43, as well as some changes to SFS 1931:364). The Air raid shelter statute stated that in areas to be determined by the government, air raid shelters would be implemented (“förses med skyddsrum”):

1. Ports, railway stations or other comparable buildings of importance to public transport.
2. Industrial facilities, in which more than 25 persons are employed.
3. Educational or healthcare facilities, hotels or boarding houses, intended to accommodate 25 persons or more.
4. Buildings of two storeys or more, intended to be used as dwellings or offices.
5. Any other facility or building in which people live or dwell, if air raid shelters are necessary considering the building’s structural integrity and location.

Concerning the type of shelters that were required, paragraph 4 stated that the shelters needed only to be capable of withstanding shrapnel, contain some basic gas protection, and moreover, be capable of withstanding the collapse of the building above. In essence, this was exactly the kind of air raid shelter that Magnell had proposed in 1936 to 1937. Moreover, real estate owners were also

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622 First legislative council’s comment. 1940:7.
623 Motion First Chamber 1940:145,146, Second Chamber 1940:201,202.
624 Protocol First Chamber, 1940:13.
obliged to accept inspections by state representatives (§16) and could be fined or convicted of neglecting air raid shelters (§17–19). As stated in the amendments to Byggnadsstadgan (SFS 1931:364, §13 and 15), local aerial protection expertise had to be present on the regional administration’s building permit boards, thereby ensuring that new city plans and construction designs included aerial protection considerations. In effect, this law would cover any urban area that the government deemed to be a potential target of aerial attack, either through tactical bombing raids or terrorizing bombing attacks. To ease the financial burden on real estate owners and the general public, parliament continuously included a reimbursement fund in its annual budget during the war period and let the aerial-protection agency manage the distribution of funds. The previously mentioned SEK 15 million reserve budget for air raid shelter loans was used for this purpose.

Thus, by spring 1940, the idea of the air raid shelter had finally completed its transformation from the trench war environment to the city. Since its introduction in 1927 as part of a proposed state-led aerial protection system, the air raid shelter had been cleansed of its military bunker heritage and become part of the civil urban environment. From April 1940, air raid shelters now had to be included in all new construction plans in most Swedish municipalities and provinces and, up until 1944, real estate owners, industrial owners, municipalities and state departments of all kinds had to convert their basements as shelters or construct air raid shelters in the vicinity. From 28 February, 1940, air raid shelters continued to be produced up until 2002, thus marking the moment when the air raid shelter system was set in motion, or gained momentum, in Hughesian terms.

5.4. Summary

From the perspective of parliamentary politics only, the working process of Ivar Wennerström’s initiative, the Beskow commission and Gustav Möller’s proposition that followed, took around one year, which must be considered quite exceptional. However, as this chapter has shown, the Beskow commission and the report it produced can be problematized in several ways. The report can be treated as a compilation of a decade of aerial protection discourse that needed only to find an acceptable political framework upon which to build. The opportunity given by Defence Minister, Wennerström, in 1936 was exactly that window of opportunity.

Firstly, as this introduction has suggested, one of the foundational pre-requisites for even instigating the Beskow commission was the settling of the
military-political disputes that had been ongoing for over ten years. Thanks to this, the military establishment could now begin the build-up of a new military organization. With these issues settled, it was easier for both politicians and military officers to see what was lacking in terms of civilian aerial protection, and thus what an organization needed to complement the overall defences. It was an NMT member, C. A. Ehrensvärd, who guided the Beskow commission on the military aspects of aerial warfare and, in doing so, influenced and set the frame for its work. Moreover, the relationship between the SAP and the NMT group, which began during FK1930, also influenced the Beskow commission. The guidelines produced by FK1930 were inscribed in the commission’s objective and here the concerns about militarization were openly expressed. FK1930 also downplayed the role of anti-aircraft artillery, which further removed the need for military participation in the defence of the city. For the SAP, which had spent the first half of the interwar era propagating for disarmament and multilateral treaties, these guidelines were fully in line with its preferences.

Secondly, the existing network of interested organizations and individuals produced a pool of knowledge, experiences and technologies that could be inspiring and that could be borrowed by the type of aerial protection organization that the Beskow commission was aiming towards. A list of names stemming from these circles of expertise was enrolled in the Beskow commission, and their ideas were represented in the report. This point should also be seen in light of the air raid shelter system envisioned by Kjell Magnell, introduced under the name Byggnadstekniskt luftskydd. Magnell’s Construction-technical aerial protection system was the epitome of a decade of design development that had transgressed in these circles of expertise. Only when incorporated into the Beskow commission’s report, however, did Magnell’s ideas manage to take wings. Starting as a local niche emanating from Germany, Magnell presented this concept to the Swedish military-intellectual environment which “picked it up” and considered it as a potential solution. Through this process it was funnelled through the Beskow commission and from here it managed to reach the higher echelons of state governance, eventually establishing itself as the lingua franca of aerial protection measures through the Air raid shelter statute of 1940.

Moreover, the educational and propaganda activities through the LSF, which had fostered practical knowledge about these technical measures, were also spurred by Magnell’s initiative in the FFSFF. Thus, Magnell not only conceptualized and politically streamlined the air raid shelter system, he also
produced the social and cultural context that fostered the general public’s knowledge of it.

In this sense, although he was surrounded by many other figures and lobbying organizations, Magnell represents the primary system builder, or *reform technocrat*, who initiated the air raid shelter system that saw its dawn through the air raid shelter statute of 1940. Similar to Thomas P. Hughes’ well known example of the inventor and entrepreneur Thomas Edison, Magnell not only introduced the concept of an air raid shelter “system”, the invention so to speak, he also created the demand side of the system by initiating the popular movement that was assigned to handle it.
6. A new lodestar: Engineers and architects 1934–1945

All that we encounter in this day and age and what past centuries bear witness to, illustrate that the threat of total war has not yet been triumphed, and that we must try to align our construction efforts so that they are shepherded in the most fortificatorily suitable direction.

Gösta Smitt, “The City as Fortifikation”
*Tidskrift i Fortifikation, 1944.*

6.1. Aerial protection – a technical matter

At the same time as Kjell Magnell launched the concept of *Construction-technical aerial protection* in the Swedish setting, interest in aerial protection also began to grow within the engineering community. This was not coincidental. As I have mentioned elsewhere, from the political, military and engineering community, aerial protection measures acquired a *technical mentalité* – a technical mindset – suggesting that an air war could be handled as a technical problem.\(^{626}\) The air raid shelter in particular acquired a technical aura around itself after the *Construction-technical aerial protection* paradigm had been rooted. Another reason was probably strategic. According to the dominant view on the role of engineering sciences and technology, a technical problem could not be a political problem.\(^{627}\) A technical problem required no normative statements

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\(^{625}\) ”Allt vad vi uppleva i denna tid och historiens vittnesbörd från gångna sekler tyder på, att det total krigets hot ej övervunnits och att vi sålunda måste söka ordna vår byggnadsverksamhet så att den ledes i fortifikatoriskt sett rätta banor.” Gösta Smitt, “Staden som fortifikation”, *Tidskrift i Fortifikation* (1944), vol. 40. p. 29.

\(^{626}\) Fridlund, “Buckets, Bollards and Bombs.”

\(^{627}\) The Swedish historian of technology, Boel Berner, discussed the engineer’s self-image during the early twentieth century. Boel Berner, Teknikens värld: teknisk förändring och ingenjörarsarbete i svensk industri = *[The world of technique]: [technical change and technical labour in Swedish industry]* (Lund: Arkiv för studier i arbetarrörelsens historia, 1981), 272–277.; See also Hans
to be solved (at least of the openly declared kind), only rational thinking and scientific methods. A semantic reconfiguration towards a disaster interpretation of air raids also facilitated this turn. Consequently, when the Minister of Social Affairs, Gustav Möller, presented the proposal for an Aerial Protection Law in 1937, several reference statements from concerned organizations and government bodies emphasized the “technical nature” of aerial protection and how the proposed government body tasked with handling aerial protection needed to primarily include “technical expertise”. This point was stressed by the Beskow commission, but also in a referral from Governor Torsten Nothin, as well as from the Kungl. Byggnadsstyrelsen, KBS. Now, when the nature of the problem had been settled and the military’s role had been determined, it was the rational engineer’s turn to shoulder the task of the practical implementation of aerial protection in society.

However, the engineering community did not necessarily need to be summoned to engage. As we shall see in this chapter, from 1934 onwards, there was a growing interest in aerial protection that was directly derived from the engineering and architecture community. Many of the individuals we will meet were well established and respected in their fields and they began questioning what they could do to solve the problems that the military and the politicians had started to discuss. They wondered how already established methods and practices at their disposal could facilitate aerial protection and started talking about a kind of aerial protection-mindedness in their different fields. By doing so, the engineering community openly performed a kind of “public service” and once again proved its worth as a professional caste that held the future in its hands. There was likely also an economic rationale behind its interest. After all, someone had to produce the steel doors and the ventilation equipment for all the air raid shelters that the politicians claimed were needed. While the military officers and politicians tended to force aerial protection upon them for political and strategic reasons, engineers and architects also pulled from their end, willingly appropriating the tasks for idealistic reasons but also out of sheer opportunism.

Following this line of thought, this chapter will consider the engineering

Weinberger, “Physics in uniform: the Swedish Institute of Military Physics, 1939-1945” in Thomas Kaiserfeld, Marika Hedin and Svante Lindqvist, eds., Center on the Periphery: Historical Aspects of 20th-Century Swedish Physics, Uppsala Studies in History of Science, 0282-1036 ; 17 (Canton, Mass.: Science History Publications, 1993), 143; More recently, the British historian, Melissa Smith, has also discussed the engineer’s roles and rationalist mindset in civil defence planning. Smith, “Architects of Armageddon.”

and architecture community’s discussion on aerial protection. It will focus on how this community discussed the need, rationale and its professional roles in designing and managing air raid shelters and the urban environment into which they were to be integrated. Following some notes on previous research in this field, the chapter will be divided into three sections. The first section concerns the engineering and industrial community’s involvement in aerial protection and war industries, including a case study on the industrial aerial protection figure, Ivar Lundbäck. The second section concerns the scientific controversy between the state-organized LI, Swedish technical higher education institutes and universities. The third section will approach the architect community. In sum, the chapter will provide an idea of how aerial protection and air raid shelters were increasingly understood as a technical problem towards the end of the 1930s and what consequences this had for these civilian professions.

6.1.1. Engineers between war and civil society

The history of engineers and architects of the 1930s has been quite comprehensive in Sweden. An earlier generation of scholars such as Svante Lindqvist, Bosse Sundin, Henrik Björk, Torsten Nybom and Boel Berner have studied the role of Swedish engineers and engineering research during the 1930s. These authors have shown how engineers and engineering research rose to a new societal position during the early twentieth century through the establishment of institutions such as the Royal Institute of Technology, KTH, Chalmers Institute of Technology, CH, the Royal Swedish Academy of Engineering Sciences, IVA and the Technical Research Council, TFR. To synthesize their works, during the age of technological optimism, engineering graduates entered the Swedish industrial and political arena with the idea that research and technology were two disciplines that could push Swedish society into a modernist utopia. These engineers and scientists thought of themselves as being

somehow politically unbiased and rational, offering a form of “public service”, as opposed to squabbling politicians.  

More recently, the rationalist mindset of the engineering community has been complemented with studies of its ability to shape both public opinion and politics through networking activities. This newer generation of scholars has given birth to concepts such as “networking entrepreneurs”, “reform technocrats” and “development pairs”. During the interwar period, the contract between the engineering community and society also became formalized and ratified by the state through government-funded research academies positioned in between the state, industry and academic research institutes. The Swedish historian of technology, Thomas Kaiserfeld, has called these hybrid organizations “knowledge intermediaries” to signify their role in spreading expert knowledge outwards into society in general, one of the earliest and most influential being the *Kungl. Ingenjörsvetenskapsakademien*, IVA [“Royal Swedish Academy of Engineering Sciences”] (1919).

These organizations also provided an interesting vantage point from which the engineering community and its networks engaged in civil-military relations. From the IVA, committees were formed, aiming at particular scientific goals and problems that the members regarded as significant. This included fuel and energy, building technologies and industrial rationalization, as well as war technologies, which eventually led to engineering research directly engaging in problems such as civilian aerial protection. During the 1930s, for example, the “Technical Preparedness Committee” was formed from members of the IVA. In 1940, the committee, according to this line of thought, presented a plan for an institute researching military physics, *Militärfysiska institutet*, MFI. Another example is the gas research laboratory for military service that had already started in 1920 at Åkers Krutbruk [“Åkers Gunpowder Factory”]. Eventually, part of its activities were moved to the university in Lund in 1926. In 1929 a similar institution was formed at Uppsala University and seven years later, in 1936, the two institutions in Lund and Uppsala merged as *Försvarets Kemiska*

630 Kaiserfeld, Hedin and Lindqvist, Center on the Periphery, 143; Berner, Teknikens värld, 272–277.  
634 Kaiserfeld, Hedin and Lindqvist, Center on the Periphery, 142–147.
Anstalt [“The Defence’s Chemical Institute”] and, as the name implies, the FKA was placed under military control. In 1944, the FKA and MFI merged as Försvarets Forskningsanstalt, FOA [“National Defence Research Institute”], which played a major role in military R&D, as well as civilian protection research during the entire Cold War.635

Zooming in on the particulars of air raid shelters, there are similar development patterns to consider. Fortifications were one of the research topics that started during the 1930s through hybrid organizations, and that eventually gained civilian use. The military organization demanded more research on reinforced concrete and, as we have seen, some of the first people to demand research on civilian air raid shelters were fortifications officers such as Hugo Jungstedt, Emil Fverell and Kjell Magnell. However, civilian institutions and government bodies were also interested because of the all-encompassing use of reinforced concrete. In 1940, a cohort of government bodies of a civilian nature, including Marinförvaltningen [“The Naval Administration”], the Luftskyddsinspektionen, Vattenfallstyrelsen [“The State’s Hydropower Board”], and Svenska Cementföreningen [“The Swedish Association for the Concrete Industry”] formed a technical concrete research bureau to develop norms and more efficient forms of concrete use, Betongteknisk byrå för forskning [“The Technical Concrete Research Bureau”].

That this was a strictly war-related question at the time is clear. The bureau was divided into two divisions: one division worked on dynamic blast damage to air raid shelter designs and the other division worked on military applications. In 1941, however, both of these two research divisions were placed under control of Armeförvaltningens fortifikationsstyrelse. [“The Military Administration’s Fortifications Board”] Thus, air raid shelter R&D became for the responsibility of military research facilities, although its purpose was aimed at the public and the people engaged in its R&D were primarily civilians.636

In an intellectual setting in which technology was thought of as something that could decide the fate of a military endeavour, state-financed institutions conducting research into military technology and the establishment of industries towards that end were easily justified and engineers and scientist were keen to engage.

Eventually, these state-financed research institutes and industries grew in importance as the Second World War started. They became intellectual arenas in which the scientist and the engineer could work for the common

636 Wangel, Sveriges militära beredskap 1939-1945, 433.
public good. As the historian, Sven Widmalm, has noted, the establishment of these research institutes was also a highly social and network-related affair, which also reflects the previously mentioned networking traits of aerial protection policies. Indeed, as we will see in this chapter, the network relations between FFSFF members such as Ejnar Nordlund and Kjell Magnell played an important role in initiating engagement in aerial protection from the engineering community. Unsurprisingly, when Magnell left his post in the FFSFF and LSF in late 1940, he became the chief of Arméförvaltningens fortifikationsstyrelse from 1941 to 1944.

There are further examples of connections between scientists and the military-industrial companies that show the connections between state-funded research activities, civilian engineers and scientists and the military apparatus. Widmalm, for example, has shown how one of the newly founded Biochemistry labs, FKI, at Uppsala University, under the leadership of physicist Theodor Svedberg, had close ties with the arms industry and that the research conducted there was directly aimed at facilitating new products at Bofors, for example. Doctoral candidates conducted research while the institution as a whole worked to facilitate a general scientific breeding ground by compiling and synthesizing recent works in the field and organising seminars with invited representatives of the industry. Some of the scientists and engineers who worked at the state-financed, military-orientated laboratories also engaged with technologies associated with air raid shelters and civilian protection in general. For example, gas protection research initially focused on military objectives at FKA, could easily be transferred to civilian use when the demand for civilian protection grew in volume. Researchers such as Gustaf Ljunggren, “Feta J:et” [“Fat J”], the head of FKA, was an example of someone eager to transfer his knowledge of gas protection to civilian use. His involvement in the topic also gained him public recognition, and he eventually became something of a public intellectual. He appears as the author of articles and books on the topic.

637 One important topic was finding fuel substitutes after the outbreak of war. See Motorspriten kommer!, Weinberger, Nätverkentreprenören, 79.
638 Widmalm, Vetenskapens sociala strukturer, 73.
640 see Sven Widmalm, “Forskning och industri under andra världskriget”, in Widmalm, Vetenskapens sociala strukturer, 55–97, 73ff.
during the late 1930s, including *Det kemiska kriget och civilbefolkningens skydd*, as well as being a public figure in daily newspapers as Sweden’s first “defence professor”, embodying the positive effects of science and research for the general public, thereby offering his research as a form of public service.\textsuperscript{642} Gustaf Ljunggren also participated in the Beskow commission as an expert chemist.

6.1.2. The Swedish Technologist’s Association

There were, however, other figures from the engineering and science community who directly engaged in aerial protection issues and air raid shelters, and often in public, performing and displaying technical expertise, but without necessarily being directly engaged with the military research facilities or arms industries. As the British historian, Melissa Smith, has argued (with support from the writings of David Edgerton), this “faceless group of experts” played an important role in state-led civil defence planning, but has been overlooked in British civil defence history – and I would argue the same for Swedish historiography.\textsuperscript{643} Not all of them can be regarded as having played a decisive role in the development of aerial protection technologies and organizational measures. Nevertheless, they contributed to defence planning by developing important niches, or aiding other institutional transformation processes.

In the following section I will examine a few of these figures who worked somewhere in between, and where the topic of aerial protection provided an opportunity to take part in military research or, for that matter, a stage on which to display virtue towards the nation. More specifically, I will look at Ivar Lundbäck, John-Erik Ekström, Torsten Gustafsson and Ragnar Schlyter, all of whom are from the engineering community and who appeared in public in different ways, discussing or debating the issue of aerial protection and air raid shelters in *Teknisk Tidskrift*. None of them can be considered to be reform technocrats in the context of aerial protection. Nonetheless, they played important supportive roles for the institutions they represented. Through both articles and public lectures, the STF and TT became the centre stage for these figures and will therefore provide an entry point into this part of my study.

The STF started as a student organization in 1861 with the opening of the Royal Institute of Technology but eventually included graduate students as

\textsuperscript{642} “Sveriges första försvarsprofessor”, Dagens Nyheter 30 September 1939.; See also ”Laboratoriet bakom fronten” Dagens Nyheter 6 April, 1941. Gustaf Ljunggren, *Det kemiska kriget och civilbefolkningens skydd*. (Stockholm, 1937).

well. In 1887, the growing association was split into different sections, based on technical field. At the same time, membership was also extended to allow individuals who worked in the field but were not from the Royal Institute of Technology in Stockholm. This change meant that, towards the turn of the century, the STF could claim to represent all of Sweden’s technological expertise and consequently was increasingly employed in matters that required technical expertise. The STF engaged directly in politics from time to time as a consultative organization to the government’s proposals and commissions of inquiries, *Statens offentliga utredningar*, SOUs. For example, the previously mentioned *Civila Luftskyddsutredningen*, the Beskow commission’s report, as well as the Petersson commission’s report, were submitted to the STF for consultation.

The STF also rallied its members on its own initiative by forming investigative committees such as the war-preparedness committee and organising study trips to Finland during the winter of 1939 to 1940. These activities were presented in *Teknisk Tidskrift*, as well as at the annual meetings of local associations. During a meeting in February 1940, for example, when a meeting about the study trip of the war-preparedness committee to Finland was to be presented, over 1,000 people attended the meeting to listen to their experiences and, in the same volume, the STF published a general recommendation on civilian and industrial air raid shelters and aerial protection, building on their experiences from Finland. The journal *Teknisk Tidskrift*, TT [“Journal of Technology”] was published by the *Svenska Teknologföreningen*, STF [“Swedish Technologist’s Association”] to which most engineers in the country belonged. However, the STF and *Teknisk Tidskrift* were not the only technologically focused journals that engaged in these matters during the 1930s, although, apart from the journals *Meddelanden* and *Ny militär tidskrift*, were among the earliest. Moreover, the journal was used as a general news forum for technical matters, which meant that developments and news on many different topics, such as aerial protection, were frequently reported in the journal. Thus, aerial protection was not just any topic with which the engineering community engaged; towards the end of the 1940s, the topic was a priority for the community.

All of the individuals that we will meet in this chapter were initially associated with government bodies such as *Luftskyddsinspektionen*, LI, or cooperating associations, industries or institutes that dealt with aerial protection in one way or another, but used the STF and *Teknisk Tidskrift* as a platform for their

646 Axel Ekwall “Anfalls- och försvarsmedel” Teknisk Tidskrift (1943), vol. 70. p. 60.
ideas and as the main forum for discussion on matters relating to modern warfare and aerial protection. Thus, the journal functioned as an intellectual waterhole for people working on these topics, but who were not necessarily engaged with military institutions in the same way as Gustaf Ljunggren and Theodor Svedberg. When conflicts surfaced in the community, they were also published in the journal and the editor also attempted to take a stand on certain issues concerning, for example, aerial protection and the management problems surrounding it. During 1940, the Luftskyddsinspektionen’s most dramatic year, and the climax of air raid shelter construction in Sweden, a conflict also emerged concerning air raid shelter design that brought the issue of the engineers’ loyalty to the state out into the open; this was mainly played out in the Teknisk Tidskrift.

6.2. “Appealing targets”: Industrial aerial protection

Industrial entrepreneurs and engineers had their own take on the problems of aerial protection and air raid shelter technology, differing significantly from urban civilian aerial protection. Under the banner of “Industriskydd” (and subsequently “verkskydd”) (“industrial protection”), the problems of aerial protection motivated a number of engineers and industrial entrepreneurs during the 1930s and engaged them in the ongoing discussion on how to make Sweden safe from aerial warfare, or at least less vulnerable. The journal Teknisk Tidskrift includes a handful of examples of authors who were involved in aerial protection from the mid-1930s onwards, and who voiced the need for a specific industrial focus, ranging from concerned military representatives, industrial managers and state-employed construction engineers. The earliest examples of aerial protection discussions in the STF to this end comprise published lecture manuscripts from a meeting in 1934 in Stockholm. On 17 October, 1934, the previously discussed Ejnar Nordlund and Kjell Magnell, together with the engineers, Harald Ekman, Ludvig Block and Ernst Håkansson, discussed a variety of topics associated with aerial protection such as gas protection in buildings, streetlights, alarm equipment and smoke screens.647 At the same meeting the manufacturer Birger-Carlsson AB also displayed new gas mask models to the audience.648 This occasion appears to have been the start of STF’s and TT’s

647 Ejnar Nordlund "Civilskydd vid luftanfall", Teknisk Tidskrift (1934), vol. 64. p. 397; Kjell Magnell "Civilskydd vid luftanfall" Teknisk Tidskrift (1934), vol. 64. p. 414; also Harald Ekman "Alarmeringsanordningar" Teknisk Tidskrift (1934), vol. 64. p. 415.

interest in the matter and, once again, members of the FFSFF appear to have been the initiators.\(^\text{649}\)

The matter returned to the journal’s agenda in 1936 and from then on, the interest in aerial protection was on the rise, now also increasingly focused on the industrial aspects. Nevertheless, it was the military establishment that had initiated the discussions. In September 1936, a captain in the air force, Nils Lindquist, gave a lecture on industrial aerial defence that was published in the journal.\(^\text{650}\) From 1937 onwards, these discussions took on the character of an internal discussion with more practical details and less talk about the overarching principles and rationale.

Industrial aerial protection quickly became its own entity, discussed differently than its civilian and urban counterparts. In 1937, for example, the hydropower engineer, Axel Ekwall, worked together with the military establishment to design bombproof hydropower stations, the results of which were presented at the STF’s annual meeting.\(^\text{651}\) Axel Ekwall was also part of the STF’s previously mentioned delegation to Finland and was therefore partially responsible for the STF’s recommendation for aerial protection, including recommendations for industrial aerial protection. During the first aerial protection course held in Stockholm on 9 September, 1937, the press interviewed several engineers from companies such as Sandvik, from the steel industry, and weapons manufacturer, Bofors, which revealed that it had implemented aerial protection plans in 1937 and had practised drills the same year.\(^\text{652}\) Such issues were reported continuously during the period 1936–1939.\(^\text{653}\)

Moreover, in 1937, Patrik Rydbeck, manager of Svenska Kullagerfabriken, gave a lecture on industrial aerial protection and, in 1938, the engineer Ivar Lundbäck launched a full industrial aerial protection programme in the journal (more on this below).\(^\text{654}\) In 1939, Teknisk Tidskrift and the STF also took a political stand on the topic in two editor’s notes written by Editor-in-Chief Karl A. Wessblad. Also, the STF published its considerations on the ongoing

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\(^\text{649}\)The meeting also drew attention from the pacifists who commented on the event in the journal Tidevarvet. See the article “Dimbildning över Stockholm” in Wägner, Vad tänker du, mänsklighet?, 167–171. Originally published in Tidevarvet on 27 October, 1934.

\(^\text{650}\) Nils Lindquist, ”Industriens luftförsvar”, Teknisk Tidskrift (1936), vol. 66. p. 475.


\(^\text{652}\) ”Luftskyddet växer fram, intresset överlag stort” Dagens Nyheter, 10 September 1937.

\(^\text{653}\) ”Vattenfallsstyrelsen luftskyddsplan klar.” Dagens Nyheter, 28 June 1939; ”Luftvärnet måste ökas för hemortens försvar. Kraftverk, industrier och järnvägar stå främst i skottlinjen” Svenska Dagbladet, 18 February 1937; ”Skyddsrum för de kommunala verken” Dagens Nyheter, 8 May 1938.

\(^\text{654}\) Patrik Rydbeck ”Civila luftskyddet inom industrin” Teknisk Tidskrift (1937), vol. 67. p. 181.
commissions of inquiry on air raid shelters and other related matters.\textsuperscript{655} Thus, from the first initiations by Nordlund and Magnell from 1934 onwards, industrial aerial protection established itself as a topic for the engineering community to handle and it also became increasingly practical in its scope. Lectures and texts presented from 1938 to 1939 focused more practical production of plans and technical measures and less on the overarching rationale of aerial protection as part of a change in warfare doctrines.

The foundational motif of the industrial sector’s engagement in aerial protection was the result of the introduction of the total war doctrine in combination with aerial warfare. Many of the important military industries such as the aircraft manufacturer, SAAB, and the weapons manufacturer, Bofors, were involved in aerial protection drills during the late 1930s and were also among the first to acquire blast-proof underground workshops. One of Sweden’s most important industries, L. M. Ericson, had anti-aircraft artillery on the rooftops of its premises in Stockholm during the Second World War.\textsuperscript{656}

However, the major question for industrial engineers was not about the kind of measures that were needed, but rather how to resolve leadership and management issues. Moreover, industrial aerial protection was not discussed as something that was secondary, but was rather a prioritized component that concerned the whole country. Industrial aerial protection extended beyond the defence-industrial complexes and directly adjacent military operations. For example, according to the above-mentioned officer, Nils Lindquist, writing in 1936, the enemy would aim its attacks at \textit{all} industries that supported the nation’s livelihood in one way or another. Consequently, aerial warfare demanded a new kind of industrial-territorial overview of the nation, demanding all industries to adapt:

Aerial attacks against industry form part of combating the so-called home front. Like all other forms of offensive warfare, its ultimate goal is to subjugate and force concessions from the counterpart. Through repeated air raids on industrial enterprises, a belligerent seeks to paralyze the industrial output upon which the other part depends. In other words, it is not only the war industry that becomes a target in combating industry.


\textsuperscript{656} Ed. "Industrianläggning med egen luftvärnsmateriel" Teknisk Tidskrift (1939), vol. 69. p. 275.
All industrial enterprises of vital importance to a nation’s sustenance can be expected to represent appealing targets for a belligerent’s aerial forces.  

An important difference between the civilian kind of aerial protection and this industrial context was that although the idea of industrial aerial protection was closely connected to how the military interpreted the role of industry and its own ability to maintain military operations, solving the problem of industrial aerial protection became the responsibility of the engineering community itself. This was not something that the state or the military would handle. If the civilian and urban variant of aerial protection resisted military control, the engineering community itself resisted the influence of civil servants such as the police. From the perspective of the editor of Teknisk Tidskrift, any attempts by laymen to take charge of industrial aerial protection from outside the engineering community were strongly discouraged. Thus, some form of competition and border conflict was present. This was, for example, the topic of the Editor-in-Chief Karl Wessblad’s entry into the debate in 1939. What made Karl Wessblad’s heart stir was the dreadful realization that the leadership of industrial aerial protection had ultimately been placed in the hands of policemen, people who, according to Wessblad, had no technical or industrial competence whatsoever. Industrial aerial protection needed to be handled by the engineering community, its “production management experts” and the industries themselves and was not something for laymen with no technical education. If not the engineers, who could solve the problems of total war?

But, you have to ask, from an aerial protection perspective, whether it can be considered wise to put policemen in the highest position when determining whether aerial protection plans that industrial managers have let their industrial management experts develop to protect both industrial output and personnel. Laymen on this specific topic who, by the way, are not even educated in the technical arts, should, in other words, have the final say in issues that concern the most vital aspects of industry and its output, during and after aerial raids!


658 ”Men nog måste man fråga sig, om det ur luftskydds-organisatorisk synpunkt kan kallas klokt att
There were also others who publicly displayed a willingness to make virtuous sacrifices in the name of the nation and instead suggested subjugation to the army’s need and not independence. One of the best examples of this civilian mobilization is the engineer Sven Platzer’s introductory lines in the article “Byggnadsfronten” [“The construction front”]. The article contained not only a discussion on the construction industry’s role in warfare, but also a strong moral message of patriotic engagement. Here, Platzer suggested that the construction industry could function as a civilian army, ready to be yielded to the military:

Are we ready to fully utilize the construction industry’s human and material sources, in service of the defence organization during a potential future war? Have our construction engineering managers sought to understand what will be demanded of them during a modern war, and have our military officers a clear understanding of how the civil construction sector can be utilized?659

Put differently, in its early stages, industrial aerial protection was approached very differently than its civilian and urban counterparts during the mid-1930s. While politicians worried about the military influence over the aerial protection organizations, the industrially-minded segments of the engineering community saw difficulties in allowing civilian professions other than their own to scrutinize their plans and measures. Their relationship with the military was also very different in that they seemed to accept their role as vital components in the total war doctrine, some even arguing for the militarization of the construction sector.

659 “Stå vi beredda att med samlad kraft sätta in vår byggnadsindustri mänskliga och materiella resurser i försvarets tjänst under ett eventuellt krig? Ha våra byggnadsfackmän satt sig in i, vad som kräves av dem under ett modernt krig, och ha våra militära chefer en klar uppfattning om hur det civila byggnadsfacket kan utnyttjas?” Sven Platzer, ”Byggnadsfronten” Teknisk Tidskrift allm. avd. (1940), vol. 70. p. 275-277.
Figure 37: The construction sector quickly tried to adapt to wartime production. Concrete sections of pipe that had been used in urban construction in various ways were presented as potential air raid shelters. These pipe shelters would be a common feature of Stockholm’s many public parks during the preparedness years from 1939 to 1945. They were also discussed in detail in the journals Betong and Cement och Betong. The photograph depicts a couple of workers at Uppsala Cementgjuteri AB. Photo by Paul Sandberg. ID: PS0867. CC-BY-NC-ND. https://digitaltmuseum.se.

Figure 38: Advertisement for “industrial air raid shelters” of the concrete pipe type. This type of air raid shelter and its usefulness were discussed in journals such as Cement och Betong and Betong. See, for example, the article by Sven Kjellberg & Sven Jakobsson in “Fabriksstillverkade betongprodukter för luftskyddsändamål” Cement och Betong (1940), vol. 15, issue 15.
Figure 39: Pipe shelter design proposal seen in the journal Betong from 1940. This article particularly discussed the air raid shelter projects that were set up in Stockholm during the winter of 1939 to 1940. Nils Lidwall “Stockholms luftskyddsrum på allmänna platser”, Betong (1940), issue 2. p. 60.

Figure 40: The “Luxi” air cleaner from Electrolux AB, one of many air cleaners that emerged on the market during the late 1930s and early 1940s. Photo from unknown source. ID: TEK Ao068696. Public Domain. https://digitaltmuseum.se.
Although the greatest urgency in industrial protection appears to have been voiced by the military establishment and from within the engineering community itself, there were also political attempts to address the problem of industrial protection. Engineers would find ample support in commissions of inquiry and other political initiatives of the 1920s and 1930s. As early as 1928, the state initiated plans and preparations through the instigation of the government body Rikskommissionen för ekonomisk försvarsberedskap, RKE [“National commission for economic preparedness”], in cooperation with Ingenjörsvetenskapsakademien, IVA [“Academy of the Engineering Sciences”], in an effort to plan for Sweden’s industrial sustenance in the event of war. Also, all the commission of inquiries on this topic during the 1930s included sections dedicated to how to manage protection of the industrial sector. In some cases, key industries and the cities close to them also worked as markers for where the enemy might attack.

The Christenson commission worked in this way and expressed the need to identify vulnerable industrial and urban zones that had to be protected. From the start this was discussed as an individual enterprise and not something that the state should subsidise or control. The archival material of this report comprises a list of all key industries and power stations in the whole country, as well as demands to account for air raids in corporate planning. FK1930 also contained lengthy discussions on how to maintain industrial production during war, as well as the need to protect it from aerial attacks. Also, in 1936, underscoring the notion that the engineering caste wanted to supervise this on its own, the Beskow commission’s report stated that industries needed to organize themselves in the same way as cities with a hierarchical organizational structure and with private fire-fighting teams to protect production. This mindset would later be solidified through the work of the state’s LI. In 1938, the LI released its seventh report: Luftskyddsinspektionens allmänna anvisningar Nr 7: Planläggning och organisation av industriluftskyddet ["Planning and organization of industrial protection"].

Ejnar Nordlund also produced a booklet for the LSF’s courses on industrial aerial protection the same year. It should also be noted that the persons involved in the politics of aerial protection tended to be the same persons to appear in Teknisk Tidskrift and elsewhere. The political engagement and the engineering community’s enga-

660 See more in, Månsson, Industriell beredskap.
661 Luftförsvarsutredningen’s archives, vol. 3-4, Royal War Archives, Stockholm, Sweden.
662 Luftförsvarsutredningens betänkande, 60–61; Betänkande angående det civila luftskyddet, 118–119.
663 Planläggning och organisation av industriluftskyddet (Stockholm: Luftskyddsinspektionen, 1938).
664 Ejnar Nordlund, Industriluftskyddet (Stockholm: Riksluftskyddsförbundet, 1938).
agement should not be interpreted as being simultaneous and parallel developments, but rather the result of networking relations and co-operation. One example is Ejnar Nordlund. Not only was he a leading figure in triggering the engineering community’s interest, he also used this new-found demand for his own purposes. Nordlund started his own industrial protection consultancy business together with civil engineer, Åke Nordenfeldt, and was able to promote his business as working in co-operation with the LI. The engineer, Patrik Rydbeck, was also involved. Rydbeck was general manager at SKF, itself a major war industry, and took part in Beskow’s study trip to Germany together with Kjell Magnell, Hjalmar Granholm and Torsten Gustafsson, as well as being one of the first to write in Teknisk Tidskrift on the topic. In April 1937, Rydbeck was invited to Svenska Teknologföreningen, STF’s annual meeting and gave a speech on “Civilian aerial protection within the industry” that was

Figure 41: Ejnar Nordlund and the civil engineer, Åke Nordenfeldt, provided an industrial aerial protection consultancy business for industries and companies. This was one of many companies to take advantage of contemporary fears. The headline reads: “Aerial protection service, a valuable innovation for rational control of aerial protection for industry and business”. Included in the package were revisions of plans, inspections and drills, consultancy and even “question time” for employees. An important part of its service was that it was “authorized” by the LI. Dagens Nyheter 14 August, 1940.
Moreover, in 1937, Patrik Rydbeck also wrote of his employer’s involvement in an aerial defence drill in *Ny militär tidskrift*.

### 6.2.1 Industrial aerial protection in practice

In practical terms, the major difference between industrial aerial protection and what could be called “normal” or civilian aerial protection during the 1930s and 1940s was that the civilian, in this case, understood as the worker, was just one of many things that had to be protected by air raid shelters and other aerial protection technologies. It was not the potential risk of political collapse that was at stake in this case. Within the concept of *Industriskydd*, the civilian was treated as a resource or component necessary to sustaining the industrial apparatus, similar to other parts of production, and therefore had to share that status in the underground or concrete spaces with industrial machinery and material resources. While the civilian in *civilian* aerial protection was a valuable asset in maintaining the national will of resistance, thereby referring to the *political* dimension of the military apparatus, the civilian in *industrial* aerial protection was rather understood as being a tool or a resource for maintaining war production and, by extension, military operations on a very practical level.

This shift of mentality in the aerial protection discourse also meant that considerations had to be made about what resources in the industry needed to be prioritized, representing a dilemma for industrial managers and engineers. However, the overall purpose, proposed technologies and plans were quite similar. Industrial protection included a range of strategic technological systems and aerial protection activities that were hard to separate from the normal civilian form of aerial protection. Civilian workers had to be protected both at work and at home and the strategies for this – air raid shelters, exercises and alarm technology – were more or less the same in both cases and were often exercised simultaneously. Air raid shelters were used in both cases but could also be extended to include the protection of materials and machinery.

The differences were of a managerial nature. Aerial protection at an industrial complex was organized as a self-sufficient unit with its own fire service and air raid shelters built for the workers and other personnel only, and did not necessarily depend on public and tax-financed fire-fighting units and aerial protection organizations in the same way as civilian aerial protection. This development also coincided with a contemporary awakening of industrial workplace hazards through campaigns such as “Safety First”, which also

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spread to Sweden from the US. Such issues, and particularly the problem of fire, had persuaded industrial entrepreneurs and managers to make provision for their own fire protection before the aerial dimension became an issue. Industrial aerial protection could build on this already established trend and thus acquired a special managerial profile in this sense.

The proponents of industrial protection would also put emphasis on protective strategies that were less usable in urban and civilian protection, one of them being industrial dispersal. The historian of architecture, Jean-Louis Cohen, has claimed that this surge in industrial protection during the 1920s and 1930s was quite influential in the long term, particularly in the USA, and forced a “new industrial geography” that was distinctly different from how industries and urban environments had previously intermingled. Since industrial complexes could draw a belligerent’s attention, protection strategies also had to include workers’ housing. This included the idea of dispersal, something that also connected well with the new urbanism ideals of garden cities, suburbs and satellite cities promoted by such architects as the Frenchmen, Le Corbusier, and the German, Hans Schoszberger. As we will see later, Swedish architects and city planners such as Uno Åhrén also indulged in similar ideas (but perhaps more often used the word decentralization to describe the same phenomenon).

Dispersal also functioned as a guiding principle at the specific site, in some cases, including how shelters were placed. In an editorial article published in December 1940 in Teknisk Tidskrift, for example, the authors described moveable and multiple switchboards produced by Atlas Diesel AB for an industry’s power supply. These were to be dispersed over an industrial site to ensure that production could be maintained even if one or more of them was destroyed. Authors such as Nils Lindquist also recommended that air

667 See editor’s note, Kapten Götherström “Årliga brandskadorna 5,000,000,000 kr.? ” in Brandskydd. Svenska Brandskyddsförbunken Tidskrift (1929), vol. 10, Issue 9. in the same issue, see also “Ingjenjörerna och brandskyddet”. p. 222–223.
668 Cohen, Architecture in Uniform, 82.
raid shelters would not be built inside the industrial complexes, but rather outside in other buildings or as separate structures away from the main target of the enemy, but still close enough for the staff to be able to evacuate in time. Thus, the idea of dispersal or decentralization worked as a principle on many different levels, nationwide, regional and locally, within industrial complexes or sites. This was a major difference from aerial protection for an urban population, in which the distance between air raid shelter and subject needed to be as short as possible.

Other strategies for industrial protection were more focused on hardening the actual design of the industries or took the shape of camouflage. Sturdy steel and concrete plants were regarded as being bombproof, or the architects could make them windowless in order to make night-time camouflage easier. Here, authors such as Nils Lindquist, Patrik Rydbeck and Ivar Lundbäck tended to emphasize blackouts, fake buildings and smoke screens, at least before the Second World War had started. In other more extreme cases the entire industrial apparatus could be “sheltered” by moving it underground completely or covering it in massive concrete roofing. However, this strategy, as the most expensive alternative, was usually restricted to industries closely tied to the military apparatus or which produced important industrial infrastructure. For example, in 1937, the hydro power and construction engineer, Axel Ekwall, proposed a design for a thick layer of concrete over hydropower turbines, thus creating an air raid shelter for industrial equipment rather than for people. Ekwall argued that for economic and geographical reasons, the totally protected underground turbines at the hydropower stations at Porjus and Krångede would not be viable everywhere, but that with dispersal planning and thick concrete roofing, much could be gained. The personnel would need their own air raid shelters in the vicinity. These hardened hydropower stations also gained popular attention and were discussed in public, heralding the forthcoming large-scale shelters such as Hötorget in Stockholm’s city centre, as well as the nuclear population shelters of the 1950s.

672 Cohen, Architecture in Uniform, 88–98.
674 Axel Ekwall ”Luftskydd vid vattenkraftverk” Teknisk Tidskrift allm. avd. (1937), vol. 67. p. 175.
675 See, for example, ”luftskydd åt kraftverken kostar 24 miljoner kr.” Dagens Nyheter, 13 January 1939; ”Vattenfallsstyrelsens luftskyddsplan klar.” Dagens Nyheter, 28 June 1939.
Some of these hardened industrial sites and structures that emerged during the Second World War have become world famous due to their monumental underground size. The most commonly known sites are the Mittelwerk V1 and V2 rocket factories in Penemünde, Germany, the “Weingut” Messerschmitt factory in Bavaria, and the massive U-boat pens, reinforced by seven metres of concrete, which the Nazi administration constructed as part of Operation Todt, along the European Atlantic coastline. This method of protecting industries was also attempted in Sweden and in many other countries. For example, both the weapons manufacturer Bofors, which produced the famous Bofors 40mm gun and the aircraft manufacturer, SAAB, began blasting out huge underground workshops during the Second World War in Karlskoga and Linköping, both of which were completed towards the end of the war.

6.2.2 Ivar Lundbäck and scientific management

One particularly strong voice who introduced industrial aerial protection to a wider public audience in Sweden during the late 1930s was the engineer and industrial entrepreneur, Ivar Lundbäck (1900–1965). After graduating from the Royal Institute of Technology, KTH, in 1923, Ivar Lundbäck entered the Swedish wood pulp industry. Eventually, and after a series of management positions in the USA and Sweden, he became general manager of a large wood pulp factory,

676 Cohen, Architecture in Uniform, 82–109.; For more on German U-boat bunkers, see Williamson, Under sju meter betong.
Emsfors Bruk, in Southern Sweden. His first appearance in *Teknisk Tidskrift* was in 1933 with a transcript from a presentation at STF’s annual meeting for the chemistry division, where he discussed the uses and production of masonite. Masonite and plywood would subsequently become one of the most useful materials for blackouts along with “mörkläggningsgardiner” [“blackout curtains”] and paper sheets, which is likely how Lundbäck came into contact with aerial protection. Lundbäck was also an author and experimented with dossier-styled crime stories under the pseudonym, Ivan Järnfeldt.

Ivar Lundbäck’s involvement in industrial protection provides an interesting case for two reasons. Firstly, he is an interesting example of an engineer and industrial entrepreneur who engaged in aerial protection problems from an industrial and engineering perspective. With his focus on the role of industry, his humble public presence and his background position in the overall aerial protection discussions, Ivar Lundbäck’s persona embodies the engineering community’s engagement in aerial protection at this point in time. He is one of those engineers – similar to the previously mentioned Patrik Rydbeck and Axel Ekwall – who was educated at Swedish technical institutes and worked within the STF community, offering his rationalist and technical mindset as a “public service” to the nation. Lundbäck was active in organizing, producing and spreading knowledge about industrial aerial protection through *Teknisk Tidskrift*, public lectures, or as a representative at official meetings. From 1938 onwards, Ivar Lundbäck appeared in a number of situations as the spokesperson for industrial protection in Sweden. Apart from his explicit appearances in *Teknisk Tidskrift*, he also held a position on the state-financed war-preparedness board Rikskommisisonen för ekonomisk försvarsberedskap 1938–1940 and, in 1938, initiated and chaired the industrial protection division at the association for Swedish industry’s subsidiary consultancy company, *Industribyrån AB* [“The

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679 Suggesting that Lundbäck also had financial interests in promoting the widespread use of blackout equipment towards the late 1930s. Companies specializing in aerial protection equipment sold masonite and plywood boards to be used as blackout equipment. The aerial protection authorities also promoted such materials for blackouts through the public press and through their own materials. See, for example, Luftskyddsinspektionens allmänna anvisningar nr. 3. (1938), p. 22-23; See also “Fönster avskärmas med ogenomskinliga, tättslutande förhängen, rullgardiner eller skärmar. Skärmar kunna utföras av papp, plywood och träfiberplattor eller av ogenomskinligt tyg”, Dagens Nyheter, 13/8 1938.
This aerial protection division provided industrial protection plans and in June 1939, it reported to the LSF that 230 plans had been provided for a median cost of SEK 2,400.\(^{681}\)

Similar to Patrick Rydbeck, Lundbäck’s ideas also appeared to spread and were taken seriously by a wider audience, including the prestigious *Kungl. Krigsvetenskapsakademien*, [Royal Swedish Academy of War Sciences]. For example, the lecture he gave at an STF meeting in January 1938 was published in the journal of the Royal Swedish Academy of War Sciences, making direct

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**Figure 43**: Two boys inspecting the Bofors gun from inside Lundbäck’s train exhibition in 1938. The Bofors 40mm gun became world famous during the Second World War and eventually became one of Sweden’s most successful exports. During the preparedness years, it also became a symbolic manifestation of Sweden’s ability to support its military with state-of-the-art weapons from its domestic industry and was often displayed like this or in military showcases. The Swedish arms industry was also one of the first major industries to be hardened by building a large underground workshop. Photo by Dan Gunner. ID: 409-60-1. Public Domain. [https://digitaltmuseum.se](https://digitaltmuseum.se).

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contact between the engineering sciences and the military establishment. In July of the same year, he was enrolled by the LSF as the chief organizer and presenter of Sweden’s first aerial protection exhibition at Liljevalchs in Stockholm, which was frontpage news in Dagens Nyheter. This exhibition, inspired by a Belgian predecessor, was developed in Eksjö in the southern part of Sweden in June 1938 and was subsequently installed on a train, which toured some 75 cities in Sweden during 1938 and 1939 and attracted an estimated 150,000 visitors, thus covering a large part of the country (see section 4.3.2 on the birth of the LSF). The exhibition also displayed some of the key industrial products, such as the Bofors gun and Birger Carlsson & Co AB’s gas masks. Lundbäck’s Industribyrå AB also donated SEK 2,000 to the exhibition.


Protocol 30 June, 1938 §7; and extra meeting protocols from Eksjö, 3 July §1; protocol of 6 August, 1938 §2, Svenska Civilförsvarsförbundet’s archives, volume A:2, Royal War Archives, Stockholm Sweden; See also “Luftskydd visas på utställning” Dagens Nyheter 6 September, 1938.

Protocol 12 September, §4 Svenska Civilförsvarsförbundet’s archives, volume A:2, Royal War Archives, Stockholm Sweden.
Ivar Lundbäck’s public speeches and lectures were also repeatedly reported and quoted in Teknisk Tidskrift and Dagens Nyheter throughout the first years of the Second World War. After a study trip to Finland, Ivar Lundbäck also produced articles for the LSF’s own journal, Flyglarm, on the “Psychology of the air raid shelter.” Apart from Walo von Greyerz and Torsten Husén, Lundbäck was one of a few who considered military psychology and its role in aerial protection at this early stage. Also, on 15 May, 1941, he gave a lecture on the psychology of the air raid shelter “Livet i ett skyddsrum” [“Life in a shelter”].


687 Ivar Lundbäck "Skyddsrumsvistelsens psykologi, några synpunkter" Flyglarm (1941), vol 5. p. 355.

688 Torsten Husén, Psykologisk krigföring (Lund: Gleerup, 1942). See also Husén’s article "Luftskyddets psykologi" in Ny militär tidskrift (1942), vol. 15. p. 558–561; Walo von Greyerz also wrote on this topic early one: von Greyerz, "Masspsykologiska synpunkter på luftskyddet. Ett försommatt kapitel?", Svenska Dagbladet, 21 April, 1939. Walo von Greyerz would later become the head of Civilförsvarsstyrelsen’s medical planning.

689 “Luftskyddspropaganda” Dagens Nyheter, 15 April, 1941.

Figure 45: Birger Carlsson & Co AB’s gas mask model from 1939 for civilian use. The label says: “For passive aerial protection”. Nordiska Museet. ID: NM.0302811+. CC-BY-NC-ND. https://digitaltmuseum.se
Secondly, Ivar Lundbäck’s ideas about how to organize *industriskydd* provide an example of how the contemporary management ideas and discourse, such as scientific management as a new mode of thinking, affected industrial management at this time. While he clearly agreed with what other contemporary commentators described as proper industrial aerial protection, Ivar Lundbäck also presented an idea of how the “production management expertise” of which, for example, Editor-in-Chief Karl A. Wessblad had spoken, could be used in practical terms. He did not restrict himself to promoting industrial aerial protection only, but tried to show the kind of generic skills and abilities an engineer could use to practically assess the problem.

In this respect, Lundbäck’s ideas of industrial aerial protection are perhaps best described as a fusion of the burgeoning establishment of American Taylorism, the German idea of *Psychotechnik* and the political and military understanding of total war within the industrial community in Sweden.690

690 The historian of economics, Hans de Geer, has discussed the introduction of Taylorism and also the German concept of Psychotechnik in the Swedish industrial community as a means of optimizing industrial output. See Eva Rudberg, *Dædalus: Sveriges tekniska museums årsbok*. Årg. 54(1985), Museet och 30-talet: om arkitektur, kultur och teknik under 1930-talet och Tekniska museets nya museibyggnad (Stockholm: Sveriges tekniska museum, 1986), Årg. 54. p. 64.; See also de Geer’s
In a sense, these were contemporary “niches” operationalized by Lundbäck in order to solve an incoming threat. This is also emphasized by the platform upon which Ivar Lundbäck was working. *Industriförbundet* was formed out of the *Industriförbundet* [“Association for Swedish Industry”] with the purpose of spreading ideas of rationalization throughout Swedish industry, a typical “knowledge intermediary”. The process of the rationalization of Swedish industry was regarded as proceeding too slowly and the formation of the *Industriförbundet* in 1911 was seen as a means of speeding up this process with the help of modern scientific methods. The bureau’s organizational form was also aimed at particular sectors deemed important, such as traffic, industrial management, taxation, fire protection and, in Lundbäck’s case, aerial protection.

Lundbäck’s vision for how industrial protection would function was primarily directed at maintaining production as seamlessly as possible during the war. His plan was to use scientific management ideas to control workforce behaviour during air raids. These ideas surfaced in the previously mentioned lecture he gave at an STF meeting in January 1938 called “Synpunkter på driftens säkerställande vid luftangrepp mot industrianläggningar på landsbygden” [“Notes on securing industrial operations during aerial attacks on industrial enterprises in rural areas”]. The lecture was published in *Teknisk Tidskrift* in February 1938, as well as in *Svenska Papperstidning*, [“Journal of Swedish Paper”], the official voice of the Swedish wood pulp industry, as well as in the journal for the Royal Academy of War Sciences the same year.

Like Nils Lindquist, Lundbäck wanted to focus on the vulnerability of the nation’s industrial apparatus as a whole, as well as emphasize that it was up to the industrial managers themselves to solve this. Due to the nature of total war, an industrial manager, whether he liked it or not, would find himself in a dissertation on the topic, Hans De Geer, *Rationaliseringsrörelsen i Sverige: effektivitetsidéer och socialt ansvar under mellankrigstiden = [The rationalization movement in Sweden]: [efficiency programs and social responsibility in the interwar years] (Stockholm: Studieförb. Näringsliv och samhälle (SNS), 1978).


delicate position, possibly deciding the fate of his workers. Thus, the independent position, free from the state, that the engineering community had acquired for itself also resulted in moral dilemmas that it now had to deal with on its own. Lundbäck stated that the most important objective of aerial protection is to protect the lives of the general population. But what happens if people’s lives are prioritised “to the detriment of the material?” A flight of panic by Swedish industry, he argued, particularly “key” sectors such as steel, wood pulp, arms and food, would make a crisis many times worse. And like the military at certain times, “people’s lives must be sacrificed” in order to protect material. To a certain degree, Lundbäck continued, Swedish industry can expect help from the state, particularly in the form of surveillance and alarm technology. However, overall, the industry was on its own in this and would have to manage independently.

This was a problem that also echoes the ongoing discussion on geographic industrial dispersal. By moving industries away from urban areas, they also lost contact with the surveillance systems organised by the military, often directed at the coastlines and close to cities. The state’s alarm and surveillance technology was crude and there were several industries within range of coastal regions that made it hard to determine which one of them would be targeted. Thus, the state’s aerial protection apparatus had to be provided on industrial sites and considerations regarding when to take measures and evacuate would be up to individual general managers. Lundbäck was eager to emphasize the role of the industrial manager in handling this problem. It was the manager who needed to decide whether to prioritize material safety over workers’ safety, or vice versa. Some industrial machinery could not be switched off as easily as other machinery and the start-up procedure could sometimes take hours. Leaving certain industrial operations unattended could cause significant danger, sometimes worse than actually being bombed. This was quite a delicate choice to make, Lundbäck continues:

Of what has been said so far, the industrial manager in exposed zones will find himself in a very delicate position. He cannot order people to do everything; his employees are not subject to the laws of war. What is he

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696 Ibid. p. 9.
697 Ibid. p. 9.
supposed to do in order to not disregard humanitarian principles but also not risk the continuity of production.\textsuperscript{698}

The solution presented by Ivar Lundbäck to this moral dilemma imposed by the realities of modern warfare was a scientifically managed aerial protection organization that focused heavily on maintaining production at all costs, but still protected the workers through the establishment of alarm equipment, exercised and planned objectives for each worker in times of crisis and the carefully managed evacuation of personnel into air raid shelters.\textsuperscript{699} The result would be a sort of miniature aerial protection organization at each company, including its own surveillance and fire-fighting team. Assigning workers with the best eyesight and hearing to surveillance and alarm teams was pivotal in this, since it enabled production to be maintained and the avoidance of false alarms: “Calm and well-balanced personalities with perfect eyesight and hearing” had to be chosen for this task.\textsuperscript{700} Lundbäck also promoted double alarm signals: One for an initial evacuation and one for personnel operating machinery so that they could continue working for as long as possible. The key was to delay the evacuation to air raid shelters of personnel operating machinery to the very last minute, even to the last second. And to succeed in this, even the alarms had to be separated and assigned different roles.\textsuperscript{701} In other words, management solutions and technology could bridge the problem of humanitarian considerations and productivity goals. The air raid shelter also became a pivotal technology for this mode of thinking.\textsuperscript{702}

\textsuperscript{698} “Av vad som nyss sagts torde framgå, att industrichefen i farozonen befinner sig i en utomordentligt ömtålig situation. Han kan icke kommendera folk till vad som helst, hans underlydande stå ej under krigs slagarna. Hur skall han förfara för att icke åsidosätta humanitetens bud, men samtidigt så litet som möjligt äventyra produktionens kontinuitet?” Ivar Lundbäck, “Synpunkter på driftens säkerställande vid luftangrepp mot industrianläggningar på landsbygden” Teknisk Tidskrift (1938), vol. 68. p. 9.

\textsuperscript{699} Ibid. p. 10-11.

\textsuperscript{700} Ibid. p. 11.

\textsuperscript{701} Ibid. p. 11.

\textsuperscript{702} Lundbäck’s vision of how the industrial air raid shelters would look also echoed many of the previous discussions. Similar to Kjell Magnell and his writings in the journal Meddelanden and later on the Beskow commission, Lundbäck made clear that creating a completely bombproof shelter was a complex and costly matter. As a source of expertise, Lundbäck invoked another well-known figure who was also Kjell Magnell’s primary source of inspiration, namely, the German aerial protection specialist and engineer, Hans Schoszberger, and his book Bautechnischer Luftschutz from 1934, from which he borrowed a few details concerning dimensioning and structure. Lundbäck also proposed that the air raid shelters should be dimensioned and positioned to permit families and other civilians working or living within a radius of 500 metres to be allowed to enter them, demonstrating how
Perhaps the most interesting aspect of Lundbäck’s vision of the industrial air raid shelter was the evacuation procedure that he promoted. Together with the alarm procedures, the “management” that Lundbäck proposed echoes his background in the rationalization movement of the interwar period. Evacuation was to be closely linked with the surveillance service and the nature of the operating machinery, and carefully managed so that workers were evacuated to the air raid shelter in a precise order, filling it up like parcels in a mail van. According to Lundbäck, this was the most important aspect to consider and something that also brought the initial dilemma of material vs. worker safety to the forefront: “There are many ways an evacuation can be organized, depending on how you rank the value of things. What should be first? What considerations should be made?” These were important questions to consider since every industrial manager had to ensure that his air raid shelter spaces would be allocated in the most “rational” way possible, while still considering the humanitarian aspects of the evacuation.

In this mindset the air raid shelter also became involved in a new setting, in which its management had to be carefully considered. For example, Lundbäck continued, workers such as office clerks or people working with packaging, cleaning or distribution, who had no responsibility for machinery or whose duties could be easily abandoned without harmful consequences for production, were to be the first to be evacuated into the air raid shelter after the alarm sounded. Lundbäck argued that it was important that they moved to the shelters that were farthest away, so that the closest shelters would be available to the second group, still operating the machinery. The second group were to evacuate only at the last minute, at the second local alarm, to ensure that production did was not interrupted more than necessary, or to ensure that a production stop was conducted properly without damaging materials or machinery. Moreover, the tasks that were necessary during evacuation and the time spent in the air raid shelter were to be carefully selected for each individual depending on their personal traits, to ensure that these tasks were carried out properly and efficiently. Such work had to be carefully considered beforehand and documented and distributed to the most appropriate individuals.

There were also psychological considerations to be made here, particularly difficult the distinction between civilian, industry and war operations had become. Ivar Lundbäck, “Synpunkter på driftens säkerställande vid luftangrepp mot industrianläggningar på landsbygden” Teknisk Tidskrift (1938), vol. 68. p. 12.

703 Ibid. p. 12.
705 Ibid. p. 13.
since during a crisis the working staff were likely to be underaged people and women, prone to “hysteria” and collapse. Lundbäck concluded, “tjänar blott till att hjälpa fienden” ["hysteria benefits only the enemy"]').

Through detailed planning the moral issues involved in an independently functioning aerial protection organization could be resolved. Lundbäck was not alone in promoting industrial aerial protection in this way, either. Contemporary authors writing in *Teknisk Tidskrift* and other journals such as *Brandskydd* tended to emphasize planning, shelter construction and fire-fighting equipment. There was also an inclination to treat the organizational aspects of industrial areal protection in a very strict and managerial way, as Lundbäck had suggested. The previously mentioned engineer, Patrick Rydbeck, and member of the Beskow commission, predating Lundbäck by a year or so, emphasized the need to divide staff into active and passive personnel with accompanying tasks and give them the appropriate equipment for these tasks. After a military aerial defence drill along the western coast of Sweden in 1937, Rydbeck presented his experiences of turning this into practice, in

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an article in *Ny Militär Tidskrift* on the SKF’s participation in the drill. At the plant, everything was marked and planned well in advance and after the evacuation, Rydbeck concluded that after exactly 2 minutes and 30 seconds, the evacuees had found their places at their pre-allocated air raid shelters “according to plan”.

To sum up, the engineering community’s engagement in aerial protection increased in intensity during the 1930s and towards the end of the decade it had established itself as experts responsible for leading and developing aerial protection measures. This can be interpreted as a sort of internal transformation process of the kind discussed by Geels. In the face of major changes, the engineering community found reason to make itself useful so as not lose its privileged position as the leading socio-technical regime for societal progress. It therefore attempted to incorporate solutions that would guarantee its independence from some other regime that might threaten to take over, such as the military establishment or the state.

Within the field of industrial aerial protection in particular, the engineering community’s expertise was exhibited through drills, lectures and political spiel. In this sense, Lundbäck’s adoption of *Psychotechnik* and Taylorism can be viewed as a niche that was operationalized to ensure hegemony. By using known theories and methods, industrial managers effectively demonstrated that they did not require government aid or control. Moreover, the engineering community’s engagement also produced new organizations working as knowledge intermediaries, such as the aerial protection committee at *Industribyrån*, with the purpose of facilitating and aiding industrial companies in producing their own aerial protection services. Industrial aerial protection also evolved differently from civil aerial protection in that the management procedures differed. Building on a pre-existing tradition for handling industrial hazards on their own, industrial aerial protection was regarded as a self-sufficient enterprise.

Moreover, certain aspects of aerial protection were particularly promoted in this field, such as hardening and dispersal, changing the nature of industrial aerial protection. The LI’s own official booklets and guides on industrial aerial protection also followed the views of Ivar Lundbäck and others on how to organize it in this manner. The state’s LI booklet no. 7 was a guide book on how a company could organise its own industrial protection, outside of the state’s care, following Lundbäck’s reasoning. However, as the Lundbäck example also shows, the engagement of engineers in protection measures also

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710 See Planläggning och organisation av industriluftskyddet.
put humanitarian considerations to the fore. Their independence from the state’s own measures was not without problems. The perceived role of industry in the total war setting forced industrial managers to consider their actions and plans in a wider national perspective, and they were inevitably alone in this. Again, the rational and scientific management of aerial protection would ensure that these humanitarian dilemmas could be resolved. The air raid shelter was clearly a place in which this kind of management would come into play.

6.3. The Shelter Controversy of 1940

In 1940, the general situation for aerial protection was quite different from the initial engagement of Lundbäck and the engineering community from 1934 to 1938. In only a few years, the aerial protection services had developed significantly in terms of funding, material investments and the number of volunteers. The war in Europe had also started, putting pressure on Swedish industry to adapt. Moreover, the engineering profession had been fully integrated into the new Luftskyddsinspektionen and aerial protection had increasingly become what the Beskow commission had wanted: a technical matter.

Starting with only a handful of employees in 1937, the LI had grown to 61 employees by 1940 of which one third comprised engineers and personnel with technical expertise. These engineers and personnel worked on air raid shelter consulting and inspection, organising drills, as well as government procurement of aerial protection equipment.711 Aerial protection was also discussed in new engineering communities at this point. Journals such as Brandskydd and Cement och Betong now engaged in aerial protection matters from time to time, and aerial protection matters also had a general presence in the daily press. Thus, the forthcoming problems involved a much larger audience than before, and the engineering community’s engagement was no longer the subject of debate.

The next section of this chapter concerns how the engineer’s role in air raid shelter discussions played out during the autumn of 1939 and reached its peak in July and August 1940, and similarly exemplifies this contextual change. While from 1934 to 1938, the engineers in STF debated whether or not to take control of this new phenomenon called aerial protection, the Shelter Contro-

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711 Engineers and technical personnel accounted for almost a third of the LI’s staff, 19, while military officers were limited to 4. Half of the inspectorate’s personnel, 31, had administrative functions (here included some 20 women titled only as Miss or Missus, most likely hired as secretaries and typist). “Luftskyddsinspektionen AB. Adress- och telefon förteckning” Svenska Civilförsvarsförbundet’s archives, Cirkulärskrivelser, vol. ELIII:1. Royal War Archives, Stockholm, Sweden.
versy of 1939–1940 was an attempt to maintain this hegemony at a time when the overall framework had been established. During the Shelter Controversy, a range of actors debated the state’s guidelines on air raid shelter design, all of which were coming from, and acting within, the engineering community in one way or another. Teknisk Tidskrift and the STF acted as the main arena for the ongoing debate, along with the journal Byggmästaren (“Master Builder”), as well as the daily newspaper Dagens Nyheter. The event also brought into the open conflicting ideas on the loyalty of engineers towards the state and its government bodies and how much restraint could be exercised by such loyalty on what was being said in public when there was an imminent crisis. Showing loyalty to the state was a way of avoiding risking the profession’s and technocratic mindset’s reputation of being able to solve the problems entailed by aerial protection. Thus, the controversy provides an opportunity to uncover some of the problems of the engineering community’s engagement in aerial protection in general. The conflict that emerged vividly demonstrated that there obviously was a “right” way of engaging in aerial protection and that not everyone was keen on accepting this unofficial truth.

6.3.1. The controversy

The Shelter Controversy began in December 1939 with the publication of an article in Teknisk Tidskrift called “Skyddsrumsfrågan” (“The Air raid shelter issue”) written by the civil engineer, Fritz Söderbergh. The article fiercely criticised the LI’s mass distributed technical guidelines on shelter designs and methods, Luftskyddets allmänna anvisningar nr. 6 Tekniska anvisningar för anordnande av skyddsrum, published in 1938 and revised several times during the Second World War (continuously revised since this time, a similar booklet is still published today).

Fritz Söderbergh was a well-known construction engineer who graduated from the Royal Institute of Technology, KTH, in Stockholm in the 1880s, had a range of successful projects on his curriculum vitae and therefore carried some authority. The kind of shelter that Söderbergh discussed was the ad-hoc version that both the LI and the LSF had promoted since the start of the new European war, and not Magnell’s proposed integrated model. There was little time to produce such shelters in 1940 since they hinged on the construction

of new buildings. As mentioned elsewhere, the construction sector had been heavily impacted after the outbreak of war. Thus, the integrated kind of shelter that would later become common could not be produced en masse. What was under debate here was how to adapt existing basements into reasonably safe makeshift air raid shelters; and for this, the LI’s and the LSF’s guidelines played a major role. Moreover, this was important for real estate owners who

Figure 48: Images from the LI’s guidelines on how to construct air raid shelters. It is these two pages that were subject to debate from 1939 to 1940. On the left-hand side, the vaults are supported by wooden beams. The right-hand side shows recommendations for gas protection measures. See the section “åldre skyddsrumsregler” on the MSB’s website. https://www.msb.se (accessed 2020-02-13).

714 See also Gråbacke and Jörnmark in Lundin, Stenlås and Gribbe, Science for Welfare and Warfare; This also had to do with the lack of fuel. See, for example, the declining import of fossil fuels after 1939, in Motorspriten kommer!
depended on the guidelines to produce the air raid shelters required by the new laws, the LI and “Luftskyddstillstånd”.

Söderbergh’s criticism was mainly based on two issues, the first being the issue of gas warfare. As he saw it, current events on the continent, such as the Civil War in Spain and the invasion of Poland did not involve any gas attacks. So the technical guidelines should be revised and the equipment guidelines that were directed at gas warfare removed. Although military authors and parliamentary reports had argued that the gas problem had been exaggerated, technical measures against gas were still included in the LI’s guidelines, which Söderbergh considered a waste of time and money. Secondly, he heavily criticized the LI’s advice about using wooden beams to support vaults to prevent a collapsing building above from penetrating the shelter. Most likely, this practice had been imported from Schoszberger’s dissertation, in which he used wooden supports for vaults. Söderbergh also referred to an air raid shelter he had seen at “Jakobsgatan”, which must have been the air raid shelter that Magnell had produced for the FFSFF, using Schoszberger as a consultant.

According to Söderbergh, using wooden beams in this way would actually undermine the arches and be counter-productive. Söderbergh argued that the LI’s reasoning was so illogical that he considered it an insult to the general knowledge of the building sciences in Sweden and even wanted to remove these pages from the book:

The page describing the reinforcement of vaults should be removed from the book since it must be considered an embarrassment to the state-of-art of the Swedish construction sector. The publication of the book might fit the technologists’ Gåsblandaren [a student magazine], signed: This was my style before I entered KTH.

After Söderbergh’s article, the matter was not commented on further until July 1940, when Tech. Dr. John-Erik Ekström entered the scene. Dr. John-Erik Ekström graduated from KTH in Stockholm in 1925 and continued his

studies afterwards. For some years he taught the mechanics of materials, and mathematics and in 1933 he defended his thesis on the construction of domes, acquiring the title of Doctor of construction physics. In 1940, he became an associate professor at KTH and was widely regarded as something of a genius within the field. His dissertation was widely used and was even translated into Russian. In July 1940, Ekström continued Söderbergh’s discussion and published an article in *Teknisk Tidskrift* called “Luftskyddsinspektionens tekniska ledning” [“The LI’s technical leadership”] concerning the “Shelter Issue”. An explanation as to why it took almost six months to produce a response was given in the first sentences of the article.

During the past winter and spring, the foreign political situation has been such that public criticism – although well deserved – of Swedish government bodies and their supervision, would not be appropriate. This loyalty should, however, not be taken to its extreme.

Ekström felt that amongst those who had wanted to voice their opinions and criticism of the state and its government bodies in the name of national unity, there had been cause for constraint. Indeed, the winter and spring of 1939 and 1940 had been a dramatic time with all of Sweden’s neighbouring countries being attacked or occupied by either Germany or the Soviet Union. However, in the rest of the article, Ekström continued to write in the same manner as


721 This problem had also been discussed in an Editor’s Note by the Editor-in-Chief Karl Wesselblad in November 1939: ”Vi ha redan en gång förut i dessa spalter deklarerat, att vi icke äro några anhängare av den på sina håll framförda åsikten, att det är orätt att under nuvarande tidsläge utöva saklig kritik mot åtgärder vidtagna av statliga eller andra myndigheter. En dylik åsikt bottnar enligt vårt förmenande i en felbedömning av vad rikets väl kräver. Väl kan det tyckas, att den närmast till hands liggande vägen för framförande av kritik vore att till vederbörande myndighet osv. göra en direkt hänvändelse under hand. Tyvärr är det blott alltför känt och omvittnat, att denna väg ofta nog är oframkomlig och för initiativtagaren mer än oacktsam. Tyvärr är det nog också så, att offentlighet och press till slut är den väg, som måste beträdas, för att få ett spörsmål av allmännare intresse objektivt ventilerat.” Ed. ”Det industriella luftskyddets organisation och ledning. Några synpunkter” Teknisk Tidskrift allm. avd. (1939), vol. 69. p. 523.
Fritz Söderbergh, showing little restraint in the name of national unity, and directed devastating criticism at large sections of the LI’s designs for air raid shelters, as well as the LI’s general competence. He highlighted several inconsistencies, vague descriptions or fatal flaws in its designs. As scientific evidence, he referred to his own article published in March 1940 in *Byggmästaren*, in which he discussed and compared elastic stress on the joist systems of different materials.\(^{722}\) It would likely be impossible, Ekström concluded, to find even one experienced constructor in Sweden who wouldn’t regard the LI’s proposed designs as being expressions of “okunnighet och dilettantism vittnande opus” [“ignorance and amateurism”]. The guidelines had to be changed immediately if they were not to remain a “compendium absurdum.”\(^{723}\)

Ekström’s devastating and rambling article apparently felt important to a wider audience as the daily newspaper *Dagens Nyheter* reported about it immediately. Representatives of the LI also reacted quickly by explaining themselves in the public media.\(^{724}\) The next day, 14 July, one of the LI’s officials, Torsten Gustafsson, who worked on air raid shelters and design, appeared on the front page of the daily newspaper *Dagens Nyheter* to make a statement about Ekström’s criticism.\(^{725}\) He was also a civil engineer, a member of STF and had worked with the LI since its start in 1937. He therefore represented the LI and, by extension, the state’s view. He had started his aerial protection career as part of the Beskow commission, where he appeared as a delegate on the study trips abroad together with Rydbeck, Magnell and the construction physicist, Hjalmar Granholm. After 1937 he often appeared as a representative of the LI or gave lectures on aerial protection and air raid shelters and was regarded as the LI’s air raid shelter “expert”. On a few occasions he also appeared on national radio.\(^{726}\) In effect, Gustafsson functioned as the second-in-command at the LI.\(^{727}\) Gustafsson would eventually also become involved

\(^{722}\) John-Erik Ekström, ”Elastisk understöttning av bjälklag” Byggmästaren (1940), issue 6, p. 86–94.

\(^{723}\) John-Erik Ekström, ”Luftskyddsinspektionsens tekniska ledning.” Teknisk Tidskrift allm. avd. (1940), vol. 70. p. 275.

\(^{724}\) ”Stöttor försvaga skyddsrumsvalv säger tekniker. Luftskyddsinspektionen kritiseras för dilettantism” Dagens Nyheter, 13 July 1940.

\(^{725}\) ”Dr Ekströms kritik oriktig, anser luftskyddsinspektören”, Dagens Nyheter, 14 July, 1940.

\(^{726}\) Torsten Gustafsson appeared in a number of settings. See, for example: Sveriges Radio & Henrik Dyfverman, ”Intervju med ingenjör Torsten Gustafsson, Blanchegatan 16, Stockholm.”, SMDB; Torsten Gustafsson ”Civilbefolkningens skyddande mot luftanfall. Radioföredrag av civilingenjör T. Gustafsson.” Flyglarm (1940), vol. 4. p. 126; Torsten Gustafsson ”Några luftskyddsfrågor” Cement och Betong (1940), vol. 15. p. 11; ”Högsäsong för luftskydd” Dagens Nyheter, 4 June, 1938.

\(^{727}\) Torsten Gustafsson headed the inspectorate work when Alvar Zetterquist was out of office and was the second highest paid employee until he disappeared from the LI’s records in 1941. See U.PM.
in a legal process concerning fraudulent inspections during an air raid shelter project in Stockholm. From 1941 to 1943 he only functioned as a technical consultant at the LI, probably as a result of him falling out of favour.

On this occasion, however, Gustafsson had little to say about the facts as laid out by Ekström. Gustafsson mainly described them as misinterpretations and argued that the guidelines were only guidelines and were not set in stone. Every remodelled basement had to be “individually assessed”. The guidelines could hardly be blamed for faulty workmanship. Furthermore, the guidelines were produced in co-operation with the Kungl. Byggnadstyrelsen, a government body that had undisputed authority, Gustafsson argued. Thus, Gustafsson’s argumentation was two-pronged. One the one hand, every real estate owner could interpret the guidelines as they saw fit. On the other hand, Ekström’s criticism could be disregarded since the booklet had been approved by a state institution. Instead, and perhaps to divert attention, Gustafsson addressed the problem of voicing issues like this in the public media and questioned Ekström’s loyalty to the nation. Patriotism became a pretext for covering something that was an internal scientific problem. Gustafsson did not “care to” discuss these things in newspapers but felt he had to give response to Ekström. Thus, Gustafsson also made it clear how such issues should be properly addressed. Had Ekström approached the LI earlier with his concerns – given they had any real grounds, that is – Gustafsson would have interpreted Ekström’s behaviour as an expression as “a sound patriotic spirit” [“god samhällsanda”]. Now, however, Gustafsson continued, Ekström’s motives had come into question. The guidelines had been public for years – so why was he talking about them now?

Ekström’s article also enraged other actors in the STF and the LI. A colleague of Gustafsson, the civil engineer, Ragnar Schlyter, worked as an air raid shelter expert at the Luftskyddsinspektionen from 1937 to 1940 and had been secretary of the STF virtually throughout the 1930s. Schlyter formulated a response to Ekström in Teknisk Tidskrift. However, the journal’s loyalty to Ekström and not Schlyter was quite clear in the editor’s note that introduced...


728 "Skandalös luftskyddssaffär" Dagens Nyheter, 7 August, 1941; "Skyddsrumsbysget vid rådhusrätten" Dagens Nyheter, 7 November, 1941.

729 "Dr Ekströms kritik oriktig, anser luftskyddsinspektör. "Beror på misstolkning av våra anvisningar””, Dagens Nyheter, 14 July, 1940.

730 Together with Selldén, Olof Sundell, Ragnar Schlyter was one of three consulting “experts” at LI. See Luftskyddsinspektion’s Archives, volume B I:1 "U. PM. Angående Luftskyddsinspektionens personal”. National Archives, Stockholm, Sweden.
Schlyter’s response. According to *Dagens Nyheter*, *Teknisk Tidskrift* had initially refused to publish Schlyter’s response until he threatened to leave the STF entirely if it didn’t. Eventually, and according to the editor’s note, it allowed his response to be published, primarily to teach Schlyter a lesson by exposing his erroneous ideas to the journal’s readers.\(^{731}\)

The editorial board’s disapproval was partially justified. Ragnar Schlyter barely addressed Ekström’s arguments as to why the guidelines were flawed in his article. Instead, Schlyter’s response was an expression of pure disdain towards the writers at *Teknisk Tidskrift* and, like Gustafsson’s response, the matter was turned into a question of loyalty and national solidarity. “Time after time”, Schlyter argued, the Journal of Technology has allowed itself to criticize the LI while refusing to let its officials respond by rejecting letters and articles from the LI. Now, Schlyter continued, it has gone so far that the journal has decided to publish Dr. John-Erik Ekström’s manuscript which “quite bluntly is supposed to undermine the confidence of the general public”:

...which quite bluntly is aimed at undermining the confidence of the general public in the nationwide work that has been undertaken to provide

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\(^{731}\) Ragnar Schlyter ”Luftskyddets ledning. Några genmälen.”, *Teknisk Tidskrift* (1940), vol. 70. p. 289.
our country with air raid shelters to protect life and limb in the event of war. Associate professor Ekström simply questions whether the air raid shelters are fit for purpose and he delivers his critique at a time of utmost danger and after most of the air raid shelters have been constructed. He and the journal have perceived themselves as being obliged to spread this irresponsible criticism, aimed just as much at Luftskyddsinspektionen as it is at Kungl Byggnadsstyrelsen. This cannot be argued mitigating during a period in which the concept of societal spirit has been promoted as the credo and a lodestar for every Swede.\(^732\)

Although Schlyter’s tone here was not particularly aimed at the actual facts and arguments that Ekström had laid out, the article did contain some excuses for the lack of rigor in the LI’s work. However, this was covered in rhetoric upholding the LI’s leadership, particularly towards the LI’s General Director, Alvar Zetterquist, whom Schlyter thought was an “example for everyone and who understood how to encourage job satisfaction in everyone” [“föredömme för alla och förstod att ingjuta arbetsglädje hos envär.”]\(^733\) Schlyter also addressed the fact that the LI had managed to compile 18 volumes concerning more or less every topic on aerial protection in only a few years. Zetterquist had organized a series of small committees comprising one to three persons each, which produced guidelines on various topics.\(^734\) The first booklets were more

\(^{732}\) "vilket helt enkelt syftar till undergrävande av förtroendet hos den stora allmänheten för det landsomfattande arbete, som under de senaste månaderna bedrivits för att förse vårt land med skyddsrum till skydd för medborgarnas liv och lem i händelse av ofärd. Docenten Ekström ifrågasätter helt enkelt om skyddsrummen äro lämpliga för sitt ändamål, och han kommer med sin kritik just nu i en för landet ytterst farofylld tid och först sedan huvudparten av skyddsrummen färdigställts. Han och tidskriften har ansett sig börja giva största möjliga spridning åt den ovederhäfthiga kritiken, som riktar sig lika mycket mot Luftskyddsinspektionen som mot Kungl, Byggnadsstyrelsen. Detta kan näppeligen anföras såsom någon förmildrande omständighet i en tid, då begreppet samhällsanda uppsatts som ett rättesnöre och en ledstjärna för varje svensk” Ragnar Schlyter ”Luftskyddets ledning. Några genmälen.”, Teknisk Tidskrift allm. avd. (1940), vol. 70. p. 289.

\(^{733}\) Ragnar Schlyter ”Luftskyddets ledning. Några genmälen.”, Teknisk Tidskrift allm. avd. (1940), vol. 70. p. 290.

\(^{734}\) To produce so many booklets, the LI hired experts for short periods. These might comprise engineers, medical personnel and military officers. For example, Ragnar Schlyter was hired by the LI from January to May 1939 as an expert consultant. He conducted study trips and gathered materials that were handed over to the LI. Other individuals, such as the medical doctor, Walo von Greyerz, were hired to produce a manuscript for the LI’s medical care booklet, and a captain in the naval forces, Björn Liliequist, was hired to produce a booklet on naval aerial protection. A fire brigade captain, Götherström, known from the journal Brandskydd, was also hired to produce a special booklet on fire fighting. See the Luftskyddsinspektion’s archives, volume B I:1. National Archives, Stockholm.
or less translations and re-worked guidelines taken from abroad, and compi-
led together with experiences from study trips to Germany, Belgium, France
and England. Moreover, the proposed equipment, such as shelter doors and
hatches, gas masks and so on had to be tried and tested: A “humongous” task
[“en väldig […] prestation”] that was successfully completed against all odds.
And, as far as Schlyter was aware, the results made Sweden the best prepared
nation in the world in 1939, apart from perhaps Germany. If these guidelines
had not “permeated” [“genomsyrat”] the population just yet, Schlyter conclu-
ded, it was barely the LI’s fault. And, of course, like all the other guidelines,

Figure 50: The LI produced around 20 booklets like this on various topics, over only
a few years and distributed them in various ways. This booklet, no. 3, produced in
1938, is the forerunner of the famous Cold War pamphlet “Om kriget kommer” [“If
war comes”].

70. p. 290.
735 The LI’s archives describe a series of trips for the LI’s enrolled engineers and experts. Ragnar Schlyter
himself had conducted such a trip to Berlin in November 1937 as well as in 1939. Luftskyddsinspek-
tionens Archives, E I: 1, “Nädiga brev 1937–1944” Riksarkivet, Stockholm, Sweden; See also volume
”Underdåniga skrivelser” B I: 1.
736 Ragnar Schlyter ”Luftskyddets ledning. Några genmälen.”, Teknisk Tidskrift allm. avd. (1940),
vol. 70. p. 289.
the guidelines of booklet no. 6 concerning the construction of air raid shelters had been continuously updated.  

Concerning the matter of gas protection and whether or not to include it, like Gustafsson, Schlyter also voiced the problem of being a government body and the responsibility this entailed towards the general public. Schlyter’s statement on this also reveals the intricate and complex problems a government body was forced to deal with regarding the protection of civilians. Although a number of authors claimed that gas attacks were unlikely, as a government body responsible for handling such issues they could not disregard it. How, Schlyter asked conclusively, could a state department such as the LI ever bring itself to decide on such an intricate and huge question as to whether or not gas warfare was likely and, moreover, decide whether or not to plan for it?  

With this question, Schlyter not only made clear that the LI had to plan for

738 Ibid. p. 290.
events that were unlikely – solely in the name of risk and responsibility – he also described the ultimate problem of planning civilian protection for a state. Söderbergh and Ekström were simply asking the impossible.

It was obviously impossible for such a limited government body to predict the kinds of weapons and technologies of death that warring nations would use. The limits of aerial protection were ultimately only restricted by the limits of the imagination of war and its technologies. What Schlyter meant was that whatever war could be imagined, given the current state of technology, it had to be planned for, including gas warfare, whether it was likely or not. 739

Schlyter’s response in Teknisk Tidskrift was not the final chapter in the debate. However, the final turn in the discussion did not emphasize the question of the engineers’ loyalties to the state or any perceived national solidarity in these matters. The article by Hjalmar Granholm and Nils Royen, “Luftskyddets tekniska ledning ännu en gång”, from 10 August, 1940 which concluded the debate, was aimed at the scientific content of John-Erik Ekström’s critique, and not particularly at Ekström’s motives for criticizing, even if they did mention it. 740 I will not elaborate further on the content of Granholm’s and Royen’s article, nor Ekström’s response to it. It was mainly a very narrow discussion of the function and structure of vaults and different forms of dynamic stress on them. What is interesting about this last piece is that it closed the circle of involved institutions in the Shelter Controversy and how the topic involved many different individuals and intellectual environments associated with the engineering community.

Most of them also appeared to know each other from previous projects and commissions, showing that the network relations built up during the Beskow commission were still in play and could be rallied for support against criticism. Like Ekström, Umeå born physicist, Hjalmar Granholm, was a Professor of Construction Engineering at Chalmers Institute of Technology and had been part of the Beskow delegation to Europe in 1936, together with Patrik Rydbeck and Torsten Gustafsson. He was a pioneer in the modernisation of the Swedish building industry, with a focus on reinforced concrete, and was employed as chief designer for several famous landmark projects in Stockholm and Gothenburg, including Katarinahissen and the nuclear reactor in Studsvik, outside Stockholm. 741

740 Hjalmar Granholm & Nils Royen, ”Luftskyddets tekniska ledning ännu en gång.”, Teknisk Tidskrift (1940), vol. 70. p. 315.
741 Rudberg, Dædalus, 75ff, 97.
We have also met him previously as a member of the Beskow commission. Nils Royen was a general manager at the KBS and had long experience working at the Royal Institute of Technology, KTH, in Stockholm, as well as on a range of government boards and interest groups aimed at technical and engineering issues and sciences. From 1939 to 1940, Royen became something of a public figure and a representative of Stockholm city’s air raid shelter programme. As an employee of the KBS he designed public shelters and also demonstrated them at propaganda events. He also developed plans in the STF’s journals.\footnote{See for example, "Luftskyddets söndag" & "Bergasalen på Kidhasskär", Dagens Nyheter 27/10, \textit{1940}; "Tusen sago skyddsrummet på Riddarholmen", Dagens Nyheter, 28/10, \textit{1940}; Nils Royen, "Naturstren till husbyggnader och skyddsrum", Byggmästaren (1942), p. 223.} In February 1940 he was part of a delegation to Finland during the Russo-Finnish Winter War, together with Torsten Gustafsson and Alvar Zetterquist from the LI. The delegation’s objective was to evaluate the Finnish aerial protection system.\footnote{From the LI, Alvar Zetterquist, Torsten Gustafsson and Harald Abelin went on this trip. However, according to the news media, representatives of the military and Kungl. Byggnadsstyrelsen also participated. See the Luftskyddsinspektionen’s archives, E I:1, Riksarkivet, Stockholm, Sweden; "Bombfria bombstudier" Dagens Nyheter, 9/3, \textit{1940}.} Notwithstanding how invested these persons were in the aerial protection system, it was unlikely that they would align with Söderbergh’s and Ekström’s criticism. Granholm’s and Royen’s article in \textit{Byggmästaren} was also taken up as the LI’s official line. A copy of the introduction to the article was circulated by the LI to concerned government bodies and organizations as the state inspectorate’s official response to Ekström’s criticism.\footnote{Skrivelse No. 1643 T.D, \textit{1940}, Svenska Civilförsvarsförbundet’s archives, Cirkulärskrivelser, EIII:1. Royal War Archives, Stockholm, Sweden.}

To conclude, with Granholm’s and Royen’s last article in \textit{Teknisk Tidskrift} on the Shelter Controversy, representatives of the Swedish building sciences, old and new, from all the major and important institutions, had appeared in \textit{Teknisk Tidskrift} debating this issue, including the Royal Institute of Technology in Stockholm, Chalmers Institute of Technology in Gothenburg, KBS, the LI and the STF. The issue of aerial protection – and particularly air raid shelter design – engaged engineers from the STF community without them having to be directly employed at the research institutes.

The controversy can also possibly be interpreted as evidence of a much larger underlying problem. Since the mid-1930s, politicians, military officers and the engineering community itself had argued that aerial protection was mainly a technical issue that they would have to manage. Söderbergh’s and Ekström’s criticism showed that was not without problems and suggested that
the recommendations for aerial protection were completely inadequate which, in the long term, could have devastating effects on civilians.

Moreover, Schlyter’s response in Teknisk Tidskrift also suggested that the LI found it difficult to decide on what had to be done. It was only imagination that appeared to set any limits on the LI’s scope. Perhaps the call for patriotic self-censoring emanated from a deeper scepticism about what the engineering community was capable of doing. At the same time, the LI and the government were under heavy pressure from the recent turn of events in Scandinavia, such as the Winter War and Hitler’s invasion of Norway and Denmark. Since 1937, its activities were aimed at production and not necessarily idea development, which meant that Söderbergh’s and Ekström’s criticism surfaced during a time in which the enrolled engineers were focusing on practical implementation. In the summer of 1940, there was simply no room for either debate or idea development and the old networks of expertise could be mobilized to guard against any such attempt. Materializing air raid shelters through large scale production was more important than re-assessing their optimal functionality.

6.4. Architecture, urban planning and air raid shelters

The involvement of architects in the question of aerial protection during the 1930s was not as comprehensive as that of the engineering community. Nonetheless, it was important. As I have mentioned elsewhere, the modern architect’s functionalist style was regarded as an ally in the Social-Democratic welfare programme and therefore had a significant impact on society at large during the 1930s (see section 4.3.2.). Similarly, the architects’ views on aerial protection were used as leverage by the military intellectuals since they could provide a link between air raid shelters, modern urban planning and the political realities of the 1930s. Military intellectuals such as Kjell Magnell used the architects’ new-found position as guardian angels of the social-democratic utopia for their own purposes. Magnell and the other authors of the Beskow commission’s report would also find ample support for this position from the architect community. For this reason, the architects’ discussions on aerial protection, air raid shelters and urban planning are very interesting.

The history of Swedish architects in the 1930s has perhaps attracted less attention than the history of engineers. Yet their involvement in aerial protection and air raid shelters is similar. Much of what we know about their professional development in Sweden is from the historian of architecture, Eva
Rudberg, and her many works, as well as Lisa Brunnström more recently.\footnote{Rudberg, Uno Åhrén; Rudberg, Dædalus; Rudberg, Folkhemmets byggande; Rudberg, Stockholmsutställningen 1930; Brunnström, Det svenska folkhemsbygget; For more on the “million programme” during the Cold War era, see Hall and Vidén, “The Million Homes Programme”; Lundin et. al. have also taken an interest in the architect, Uno Åhren, using him as an example of a “reform technocrat”. Lundin, Stenlås and Gribbe, Science for Welfare and Warfare; See also Lundin & Stenlås contribution, in Vandendriessche, Peeters and Wils, Scientists’ Expertise as Performance.} The historian of science and ideas, Kerstin Thörn, has also contributed with a study of the social aspects of modern housing.\footnote{Thörn, En bostad för hemmet.} What they have shown follow a similar path as the engineers, but perhaps with less obvious connections between the technologies of war and society. The “air-mindedness” of architects is less obvious in 1930s’ urban planning and architecture than it was with the engineers and research institutes working directly with military technologies and counter-measures that were more tangible.\footnote{Peter Fritzsche used this term to describe the German aviation culture of the 1920s and 1930s. Fritzsche, Nation of Fliers. More recently, historian of technology, Mats Fridlund, has developed this further. Fridlund, “Buckets, Bollards and Bombs.”} However, the architects shared the perceived unbiased and rationalist approach to urban planning and architecture with their engineer colleagues. This is also a group that is perhaps not reform technocrats or system builders, but nevertheless comprises an important supportive group of “faceless experts” who aided the transformation of the institutions in which they were involved.\footnote{Smith, “Architects of Armageddon.”}

This was similarly a Swedish example of a European phenomenon. The French scholar of architecture, Jean-Louis Cohen, has discussed the emergence of a European conversation on the “menace from the air” during the interwar era and how it affected progressive urban planning. Building on a similar analysis, Bosma has discussed the emergence of a “shelter city” concept during the 1930s, particularly in Germany and Great Britain.\footnote{Bosma, Shelter City, 38–45.} The common ground for these individuals was the idea that the urban environment itself could, and should, be adapted to meet imminent air raids.\footnote{See chapter 5 in Cohen, Architecture in Uniform, 141–179.}

Leading and internationally renowned intellectuals such as the Frenchmen Paul Vauthier had already discussed how to organize future cities in the 1920s in order to make them air-war resilient, using modern materials such as reinforced concrete and other technologies, all the while commenting on Russian and Japanese works in the field. Another world-famous French architect, Le Corbusier, was also at the forefront of modelling air-war-resilient urban designs.
and architectural styles, building on Vauthier’s ideas (Le Corbusier also tended to include an aircraft somewhere in his sketches).  

Moreover, in Great Britain, Ove Arup developed controversial designs for a “deep shelter”, a spiral-shaped cylinder that was to be built below ground. In Germany, more technically-orientated building engineers such as Hans Schoszberger discussed city plans and building norms in great detail, while building on a wide array of German literature on the topic. During their time, however, such ideas, although progressive and part of a general European trend, would not always be accepted by the public and in the British case, for example, it sometimes ended in controversy and failure. In the Cold War era, the “shelter city” concept also gained interest in North America, resulting in a kind of fallout-induced “imagineering” style of architecture, as discussed by the Canadian historian of architecture, David Monteyne. Although Monteyne discusses a phenomenon of the 1960s and 1970s, it was nonetheless connected to a larger history of architectural interest in producing resilient cityscapes with its origins in the 1920s.

Thus, when engaging with the problem of aerial protection and the city, Swedish architects tapped into an existing European topic and the question for them was not whether modern architecture could provide protection, but rather what design philosophy would be the most efficient. For this type of discussion, government bodies also played a major role. Kungl. Byggnadsstyrelsen, [“The National Board of Public Buildings”] engaged in questions of aerial protection and invited, for example, Hans Schoszberger to Stockholm, or representatives of the Luftskyddsinspektionen to discuss urban planning and air war. Public lectures and discussion fora such as these provided an intellectual agora for architects, engineers and state representatives to meet and spread knowledge within their circles about how to protect Swedish cities. Architects and their firms also found new markets in air raid shelters and were often hired during the 1940s to design them. One of the most elaborate voices in this field was Uno Åhrén, mentioned above as part of the Minister of Social Affairs Gustav

751 Cohen, 143–147; Le Corbusier, La Ville Radieuse : éléments D’une Doctrine Urbanisme Pour L’équipement de La Civilisation Machiniste (Paris: Éditions Vincent, Fréal, 1964) See the chapter “Et la guerre aérienne ?”
752 Schoszberger, Bautechnischer Luftschutz.; Cohen, Architecture in Uniform, 147–150.
755 Brunnström, Det svenska folkhemsbygget, 59.
Möller’s commission of inquiry, *Bostadssociala utredningen*. The Swedish historians Per Lundin and Niklas Stenlås have called him a reform technocrat par excellence, although in the context of social housing.

In the following I will expand on Schoszberger’s travels to Stockholm, as well on the writings of Uno Åhrén and his colleagues to show how modernist architects discussed and, at times, debated the question of aerial protection during the second half of the 1930s. Similar to engineers, the main stage for this conversation was the STF, although not the journal *Teknisk Tidskrift*. Initially, architecture and urban planning were included in *Teknisk Tidskrift* but in 1922, architecture branched off into its own journal, *Byggmästaren* [“Master Builder”], although the architects themselves still remained within the STF. Another important factor here is that the architect community’s engagement with aerial protection issues coincides with Magnell’s articles, as well as the work of the Beskow commission. This means that their engagement surfaced at a time when both politicians and military officers demanded policies in this direction. The networking aspects also played a significant role here.

6.4.1. A transnational conversation

Similar to *Teknisk Tidskrift*, the journal *Byggmästaren* took up the topic of aerial protection in the mid-1930s. Two significant articles were written in 1936 that form something of a starting point for discussing aerial protection from an architectural and urban planning perspective. The first occasion was an editor’s note and the second was an article in the same volume written by the German architect and building engineer, Hans Schoszberger, based on a lecture he gave in Sweden at the Kungl. Byggnadstyrelsen, KBS, organised in cooperation with the STF. In general, the emerging discussions in *Byggmästaren* should be seen as being intertwined with the KBS at the time. Unlike aerial protection, the KBS already had a government body that could begin investigating the effects of aerial warfare as this topic emerged. The KBS was not responsible for the protection of private citizens, it was responsible for protecting the state’s own estates. Consequently, throughout the twentieth century, air raid shelters in the offices of government bodies, governor’s offices, embassies and the Royal Family, as well as bombproof storage for antiques, files and gold reserves, and all bombproof requirements of the state that were not directly associated with the military, were designed and produced by the architects and engineers of the KBS. The KBS would also become a politically important consultative

756 See Kungl. Byggnadstyrelsen’s archives. Administrativa enheten, A-Säk, F I, volume 5, 10–12. National Archives, Stockholm, Sweden. Large segments of this archive are still classified since many of the
institution that co-operated with the LI when the process for air raid shelter legislation started. Against this background, the KBS’s invitation to Hans Schoszberger was an understandable attempt to acquire the latest German knowledge on air raid shelter construction in order to remain relevant and retain the status of an expert institution. Similarly, the STF-controlled journal *Byggnästaren*, the primary agora for architects and building engineers both inside and outside the KBS, published the lecture.

Schoszberger has appeared a couple of times in my study and is an interesting author in that he provides a very tangible link between the German and French urban planning discussions of the 1930s and the Swedish position. Throughout this chapter we have also met with Schoszberger’s ideas through references from other Swedish authors. Ivar Lundbäck, for example, used some of Schoszberger’s norms for designing air raid shelters and referred to Schoszberger as the “major expert in the field”. However, Kjell Magnell was also influenced by Schoszberger’s approach to aerial protection (see section 3.3.2 “Construction-Technical Aerial Protection). The concept of Construction-technical aerial protection that Magnell presented in the Swedish context was directly lifted from Schoszberger’s dissertation and was likely the result of personal ties between Magnell and Schoszberger.

After studying at the technical institutes in Berlin, Vienna and Brünn, Schoszberger began his career in 1932 as an independent architect. In 1934 he defended his thesis on construction technical aerial protection, called *Bautechnischer Luftschutz*, which became a widely cited book in aerial protection circles. According to architectural historian, Jean-Louis Cohen, Hans Schoszberger was in direct contact with the great French modernist architects such as Le Corbusier, and Schoszberger even sent Le Corbusier his dissertation with a personal note and Le Corbusier referred to it in his chapter “What about Air War” in *La Ville Radieuse* from 1933.

However, Schoszberger’s role in this transnational conversation on aerial protection was rather different from the French view that preceded him. Since the 1920s, Le Corbusier, together with his colleague, the military officer and intellectual, Paul Vauthier, had discussed the problem of aerial protection but had emphasized large-scale urban planning. They argued that housing should

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758 Le Corbusier, *La Ville Radieuse*.
759 Cohen, *Architecture in Uniform*, 143–146; Le Corbusier, *La Ville Radieuse*. See also Paul Vauthier
be built with lots of space in between to facilitate firefighting and lessen the effects of explosions from bombs. Le Corbusier touched upon the problem in La Ville Radieuse by stating that urban planning and the dispersal of the built environment would solve the problem. Should world leaders unleash war, the people of the “present-day” city would be killed. The only solution was the adoption of “MODERN TIMES”. The modern city would not let fire rage, let gas remain and 50-storey buildings would absorb falling bombs on their roofs. 760 Vauthier and Le Corbusier also proposed a dispersal of societal functions – industry, commercial districts, political buildings and housing – to divert enemy bombing raids so that projectiles would not damage more than one structure a time. The gas problem could also be structurally managed by preventing long and enclosed buildings, so-called “continuous street fronts,” by separating constructions from each other.761

Concerning shelters per se, Le Corbusier and Paul Vauthier offered perhaps less intellectual content. According to Cohen, their view on air raid shelters was

Figure 52: Schoszberger emphasised the “linear city” as a means of producing aerially safe urban environments. See Schoszberger’s Bautechnischer Luftschutz (1934), p.211.

Le danger Aérien (1930).
restricted to designing them as being structurally independent of the above, or adjacent building. This is however, the point at which Hans Schoszberger entered the discussions. Schoszberger agreed with much of what Le Corbusier and Paul Vauthier claimed to be a necessary development for modern cities but also added the air raid shelter as an intricate part of modern architecture. Thus, Schoszberger’s book was similar to that of his predecessors, a continuation of Le Corbusier’s and Vauthier’s ideas of using urban planning and design as a means of protecting the modern citizen. However, Schoszberger took it further and provided a detailed account of how this idea could be put into practice. Hence, the term “Bautechnischer”, meaning construction-technical or, in Swedish, “Byggnadstekniskt”, which was the same term that Magnell used. Alongside discussions on the general resilience of modern buildings and appropriate general city plans, Schoszberger’s dissertation contained instructive guidelines on air raid shelters specifically and how they could be designed and built, including discussions regarding placement in the building, air cleaning equipment, appropriate materials and dimensions. These topics provided a link between the air raid shelter and the conversation in which Le Corbusier and other modernist architects were engaged. With this, Schoszberger also made air raid shelter design issues, and the construction-technical science behind their use, an integral part of the modernist discourse on urban planning and architecture.

Air raid shelters and the construction-technical matters surrounding them were also the topics of Schoszberger’s visit to Stockholm in 1936. The event led to the publication of an article in the journal Byggmästaren. In April 1936, the KBS, at the time led by the leading architect, Ivar Tengblom, invited Schoszberger to a lecture in cooperation with the STF. The event was reported on the front page of the daily newspaper Dagens Nyheter on 29 April. Framed as “Europe’s leading expert on the issue of civilian bombing protection”, Schoszberger’s visit assumed the nature of a business-minded propaganda trip. Dagens Nyheter reported that Schoszberger made sure to mention that German aerial protection was no longer an issue: “Technically, we consider that the aerial protection problem in Germany has been solved”, Schoszberger stated. Nor did knowledge in the field have to remain a secret, either. According to Schoszberger, Germany was even interested in selling shelter equipment to Sweden, thus suggesting that air raid shelter technology and knowledge pro-

762 See the chapter “Schutzraum”, in Schoszberger, Bautechnischer Luftschutz., 103–168.
763 See especially “Schutzraum in neubauten”. Schoszberger, 144–158.
duction on air raid shelter could somehow become a platform for transnational co-operation between the two countries.

Kjell Magnell and Schoszberger met at this meeting, and most likely Einar Nordlund and Fevrell also attended, as well as other figures from these circles. The meeting between the two was probably a warm one. After all, they had met once before in Berlin, during Magnell’s study trip organised by the FFSFF a year earlier. Judging from the correspondence between them, however, it is difficult to state the extent to which Magnell was responsible for the invitation. However, it is not unlikely that Magnell worked as a mediator between Schoszberger, the KBS and the STF. On this occasion, Magnell and the FFSFF also made sure to make use of Schoszberger’s expertise. Magnell had taken a set of air raid shelter designs to the lecture at KBS, which he wanted Schoszberger to comment on. A few months later, after his return to Germany, Schoszberger duly responded and sent Magnell a set of shelter designs for the FFSFF’s new shelter at Jakobsgatan which was, according to Magnell, the “height of modernity” [“på höjden av modernitet”].

According to newspaper materials, representatives of Vattenfallsstyrelsen [“The Royal Hydropower Board”] also consulted Schoszberger at this meeting, which probably means that the previously mentioned Axel Enström was there, showing Schoszberger his designs for aerially protected hydropower stations. It is also noteworthy that in these designs, as well as in Schoszberger’s article, supports for vaults were recommended, something that would later lead to the controversy of 1940 over the LI’s shelter guidelines. Schoszberger also recommended such measures in his dissertation.

A few months after the meeting, Schoszberger’s article in Byggmästaren, “Luftskyddets byggnadsteknik” was published. It was a pivotal moment for the architectural community and for the modernist architects within it. Many
of the ideas that eventually would find their way into Swedish aerial protection policies during the Second World War era were presented by Schoszberger in this article. The idea that air raid shelters needed to be part of a general modern architectural type in order to function properly was voiced and illustrated here. Reflecting what would later become the norm, Schoszberger’s article stressed that making air raid shelters completely bombproof was more or less structurally impossible, but with a modern building above that could absorb the velocity and explosive force of falling bombs to a certain degree and protect against shrapnels, such precautions would not be necessary. Reinforced concrete and a skeleton-type building with lighter materials in between the iron frame were particularly emphasized.\(^{769}\)

There was also the question of a building’s interior; it also needed modernizing to provide some safety against fire. Everything usually made of wood was to be replaced by metal materials or concrete and attics had to be cleaned of anything combustible.\(^ {770}\) The importance of legislation and enforcing shelter construction in all new buildings was also mentioned by Schoszberger. Planning an air raid shelter in advance before the construction of a building would provide the most cost-effective solution, and using materials that were “modern” in themselves [“modernare byggnadsmaterial”], would, for the most part, be enough to create a safe basement air raid shelter.\(^ {771}\)

Similar to how Magnell would subsequently argue, Schoszberger also presented the audience with the idea that conforming architecture to the demands of aerial warfare was in line with the modern requirements for social and hygienic building practices. These guidelines for shelters, Schoszberger noted, can only be understood as one small part of the whole process of urban transformation. The city, as it is built now, “can never be fully protected from aerial warfare”. The city needs to be decentralized and carefully planned with wide streets and green parks. As we have seen, this was something he shared with Le Corbusier and Paul Vauthier and something that would provide significant fuel for the politically-minded Swedish architects. Schoszberger concluded:

> The purpose of aerial protection is to promote a close relationship between urban and rural areas. Every endeavour in this spirit, either concerning industries moving out of the city, or the civilian population moving out to rural areas, or the sanitation in unhygienic parts of the city will be greeted

\(^ {770}\) Ibid. p. 370.
\(^ {771}\) Ibid. p. 370.
with satisfaction from the perspective of aerial protection. […] The aim of aerial protection is extended and spacious urban planning, a village with the culture of a city; an urban environment with the spaciousness and extension of a village, but which will retain technical systems, traffic and news mediation. Decisive to such an endeavour in aerial protection is that these last requirements of aerial protection will go hand in hand with the social-political and hygienic demands of our times. 772

This wording returned in the Beskow commission, in the KBS, and aligned well with the SAP’s reform politics. Schoszberger was clearly the inspiration behind Kjell Magnell and other authors such as Ivar Lundbäck, and his entry into the Swedish air raid shelter discourse had a great impact on how air raid shelters politics were shaped. In terms of actual air raid shelter design and its place in a building, he provided inspiration for Swedish architects and military intellectuals, as well as providing an important link between the intellectual and transnational conversation about modernist architecture on a much wider scale and in the Swedish context. Wording referring to modern social and “hygienic” needs, construction methods and urban planning, inspired by ideas presented by Schoszberger, re-appear in the Beskow commission, and in early 1937, in internal PMs written by representatives of the KBS. 773 It is not surprising then that images from Schoszberger’s book return in the writings of Kjell Magnell, probably with Schoszberger’s approval, and likely some of the images from the LI’s booklets were also borrowed from the same source. Kjell Magnell’s travel report from 1937, in particular, published in the journal *Meddelanden*, includes several images directly inherited from Schoszberger’s materials.

Schoszberger’s visit also gives some insight into how knowledge spread within these quite small intellectual circles. The KBS’s interest in these matters and its invitation to Schoszberger to Stockholm, in cooperation with Magnell, Nordlund and the FFSFF, meant that the discussions that took place between

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German and French intellectuals were brought directly into the Swedish intellectual environment. Such meetings also appeared to have very specific results, in the form of published articles, on-site consultations and practical air raid shelter designs. Once again, Kjell Magnell appears as a key agent in making this happen. In a wider perspective, Schoszberger’s visit also shows how the KBS, understood as an established socio-technical regime at the meso level, also began an internal transformation process at this stage. Just like the STF, it tried to adapt and remain relevant in the face of oncoming threats seen on the European horizon; and Schoszberger’s visit is an example of this. Apparently, this also worked well, for when the Shelter Controversy played out during the summer of 1940, the KBS was praised for its expertise in shelter design. There also appears to be proposals of business cooperation beneath the surface, implying that the topic that Schoszberger discussed was not only official, but also provided an opportunity for transnational co-operation and business opportunities.

Schoszberger’s business proposals would subsequently take a bizarre turn when it was revealed that his trip to Sweden was used as a means of getting hold of industrial plans and military information at the behest of the Nazi regime. Perhaps the co-operation between Schoszberger, the FFSFF, Vattenfallstyrelsen and the KBS was inspiring for the Nazi-German regime, or Schoszberger was simply a Nazi collaborator. In February 1937, both Dagens Nyheter, Svenska Dagbladet and Norrskensflamman reported about a fake letter that had been circulating, urging industrial managers to submit detailed information to the German Ministry of Aviation, where the plans would be consulted by “Dr. Ing. Schoszberger” in the same manner as the designs of the FFSFF and Vattenfallstyrelsen. In the letter, Schoszberger’s connections to the KBS, FFSFF and Vattenfallstyrelsen [“The Swedish Hydropower Administration”] were used to convey Schoszberger’s good intentions and reputation. This likely meant the end of Schoszberger’s contacts with Sweden. However, it shows that the in this setting, the interested actors took these things seriously and that even the seemingly non-political and “technical” nature of air raid shelter construction could take deeply troubling turns.

774 ”Tyske experten ville ”bearbeta” industriplaner”, Dagens Nyheter, 19 February 1937; See also ”Olämpligt erbjudande om luftskyddsplanering.” Svenska Dagbladet 18 February, 1937; and ”Tyskt industripionage i Sverige har avslöjats.” Norrskensflamman 22 February, 1937.
6.4.2. A new lodestar in urban planning

With the publication of Schoszberger’s article in *Byggmästaren*, Schoszberger’s ideas also moved beyond the audience of his presentation at the KBS; they spread to the entire architect community and eventually triggered some discussions and the occasional debate on how architects should handle the problems of aerial protection. However, Hans Schoszberger and the KBS were not the only parties to engage in aerial protection issues at this early stage. In 1936, the previously mentioned Uno Åhrén also spearheaded discussions within the architect community. According to architecture historian, Eva Rudberg, Uno Åhrén was one of Sweden’s most influential theoreticians and intellectuals amongst the architects of the twentieth century. He was a prominent public figure and the spokesperson for the functionalist architectural and urban planning style and promoted his ideas through authoring, designing and lecturing. In 1932 and 1943 he was the chief city planner in Gothenburg. I have mentioned elsewhere that he was heavily involved in the Stockholm Exhibition of 1930 – described by Rudberg as the starting point for Swedish modern architecture – as well as a co-author of the functionalist manifesto, *Acceptera!*, which was part of the *Bostadssocial utredningen*. For these reasons, Lundin, Stenlås and Gribbe also used him as a prime example of a reform technocrat, a person who through lobbying and political work eagerly attempted to reform society from within, mainly for his prestige and for his ideological conviction.\(^{775}\)

More importantly, for our sake, Åhrén wrote for the journal *Byggmästaren* at this time, and was one of the first to comment on the architect’s role in aerial protection after Schoszberger’s visit to Stockholm. For a brief period he was also editor of the journal.\(^{776}\) At the time of the publication of the article “Stadsplanering och luftskydd” in 1936, which we will look further into below, Åhrén was chief city planner in Gothenburg and the Beskow commission’s work had just started.\(^{777}\) In this sense, the article provides an example of how a prominent Swedish architect such as Uno Åhrén related the emerging norms of aerial protection to the urban environment within which he was working.

The overarching argument presented by Uno Åhren in his article comprised two parts. The first part stated that although the construction of air raid shelters was a question for the military organization, modern urban planning could provide decisive help by creating an urban environment that was sui-

\(^{775}\) Lundin, Stenlås and Gribbe, Science for Welfare and Warfare, 16–19.; Vandendriessche, Peeters and Wils, Scientists’ Expertise as Performance, 138–141.
\(^{776}\) Rudberg, Uno Åhrén, 10.
table for to air raid shelters and evacuation, if, and whenever, such things would be needed. Secondly, evacuation as a form of air protection, regarded by Åhrén as the primary solution, apart from air raid shelters, could not be trusted to function completely effectively during a crisis and Swedish industry needed to continue producing during war. These two things necessitated an architectural and city-planning engagement with aerial protection in order to reduce the effects of bombs to the “least possible” level [“verkningarna [av bomber] ska kunna reduceras till det minsta möjliga”].

This was, however, not necessarily a problem for Åhrén, for the norms of modern architecture, according to him, were “in line” with the demands of the modern city. Thus, if aerial protection measures led to improved living conditions, Åhren argued that they should be pursued:

Demands which, from an aerial protection perspective, are presented concerning the shape of the urban environment largely intersect the principles that have long been deemed necessary in urban planning to achieve a sound and functional urban development. For my part, I argue that regardless of how sceptical you are about the likelihood of protecting the civilian population at all, you should still not neglect any measures that might provide some form of protection, if they also results in a general improvement of the normal living conditions of people.

The aerial protection-suitable urban environment to which Åhrén was referring could be built in several ways. Architectural solutions such as tower blocks and low-rise apartment buildings were one solution, since they offered no enclosed building fronts for gas to accumulate and provided good fire protection by separating buildings from each other. A distance of 30–70 metres between each building, depending on the number of storeys, for example, would be viable enough to promote both the modernist ideal of light and air, as well as adequate fire protection, and also reduce the risk of a direct hit by a falling bomb. General decentralization was also pivotal. Through progressive

779 “De fordringar, som ur luftskyddssynpunkt uppställes beträffande utformningen av stadsbebyggelsen sammanfaller nämligen i stort sett med de principer som man sedan länge upprättat inom stadsplanetekniken såsom nödvändiga för en sund och ändamålsenlig utveckling av städerna. För min del anser jag att man bör ställa sig på den ståndpunkten, att hur skeptisk man än är beträffande möjligheterna att över huvud taget skydda civilbefolkningen vid luftanfall, bör man icke underlåta att vidta sådana åtgärder som synas kunna erbjuda något skydd, ifall de samtidigt innebär förbättring av de normala levnadsförhållandena för människorna.” Ibid. p. 453.
780 Ibid. p. 456.
urban planning such as the inclusion of park areas and leaving large spaces untouched, as well as through separating different forms of city functions from each other, the vulnerability of a city could be significantly reduced, according to Uno Åhrén. These unbuilt areas would provide “protective belts” between the different zones and functions of the city.\(^{781}\)

For Åhrén, Gothenburg provided a good example of how the aerial protection issue could be solved: along Göta älv, Mölndalsån and Säveån, industrial areas had been built and between them and the other forms of urban areas there were still large, unexploited spaces that separated industry from housing. These areas were also a good example of the linear city model [“bandstadssystemet”]. The linear city, according to Åhrén, had great advantages in terms of transport efficiency and was equally efficient from an aerial protection perspective, since it was a urban planning ideal that promoted a separation of industry from the workers’ dwellings and allowed a planned and long-term development of the cityscape.

Lastly, Åhrén proposed a general “sanitisation” of old city centres.\(^{782}\) Density, not only in the shape of buildings, but also in the form of numbers of people, was a factor that Åhrén identified as something to be considered. As problematic examples, Åhrén used Gothenburg again and also the capital, Stockholm. In 1930, some 12,000 people lived in Gothenburg’s central parts and Norrmalm in Stockholm in the same year had 8,000 inhabitants.\(^{783}\) This number of people in an enclosed area was too much. Here Åhrén suggested that a general sanitisation of these city areas should be considered, not only in terms of reducing density by lowering the number of dwellings and renovating old buildings, but also to separate the different city functions that might be cramped into one zone. Uno Åhrén did not want people living in city centres at all, arguing that these zones should be dedicated to administration and economic functions.\(^{784}\)

Given these examples – adopting architectural styles, promoting decentralization in urban planning and the sanitisation of old city areas – how could they be achieved then? For Uno Åhrén, creating a suitable urban environment for aerial protection was a problem of controlling the urban environment through progressive socialist state politics. There is no \textit{laisse faire} mindset at work here, rather the opposite. The form of urban planning ideal voiced by Åhrén through his article in Byggmästaren was a strictly controlled city

\(^{782}\) Ibid. p. 456.
\(^{783}\) Ibid. p. 457.
\(^{784}\) Ibid. p. 456-457.
environment that was to be developed according to an already set plan and with no private interference. This became evident when Åhrén articulated what obstacles existed to aerial protection-minded urban planning. Funding and land control were the big issues to resolve. His own ideas of producing public air raid shelters for Gothenburg had been scrapped by the municipality because of the cost, something that forced Åhrén, somewhat complacently, to conclude that air raid shelters for everyone would not be a feasible solution. Another danger was capital interest in land control. The unexploited “protective belt” of the land in between city areas had to remain unexploited and Åhrén warned the municipality not to allow investment interests to be prioritized over citizen protection.  

If these areas were to be exploited, he argued, the protective role of the unexploited land would be lost. Åhrén’s inclination to promote the control of land zoning through state politics also extended outside and beyond the city. He also included rural areas in his article by proposing that recreational areas such as the beaches and camping areas surrounding Gothenburg should be expropriated and planned for in such a way that they could house evacuees. Uno Åhrén was quite clear about the fact that the municipality should be given the right to expropriate land from private hands in order to ensure that the protective role of the cityscape were maintained: “Experience has shown that the division of land amongst multiple different owners renders proper urban planning impossible.”

Calling this mindset social engineering is an understatement. Uno Åhrén is clearly envisioning a utopian urban environment in a way that recalls what the anthropologist, James Scott, called “high modernism” and in this he shares his legacy with many of the other modernist architects of his time. With rationalist science and a powerful state toolbox, society as a whole could be reformed into modernity. Having said that, it is also clear what powerful allies the modern architects had become to the Social-Democratic Party’s welfare programme. The linkage between the party’s envisioned workers’ utopia and Cold War civil defence, identified by the media historian Marie Cronqvist, was thus present already at this early stage. Moreover, there was nothing liberal about modern urban planning, and in this combination of politics and

786 Ibid. p. 455–456.
788 See for example, Cronqvist, “Det befästa folkhemmet: kallt krig och varm välfärd i svensk civilförsvarskultur.”
architecture there was also support for the implementation of air raid shelters and an aerial protection-minded design philosophy. Transforming the city to the reality of modern war was an equally influential part of being modern, but in the process, the urban landscape was thoroughly militarized. The distance between buildings was to be measured in terms of how likely a fire might spread between them, although such an argument could also be underpinned by the fact that these distances also provided a spacious and light cityscape. A modern office building in the city centre was desirable, but not if the people in it stayed overnight. In terms of total war, unexploited land, otherwise known as “nature”, in between city areas, or as recreational areas outside the city, was no longer just unexploited nature but rather a “protective belt” or an evacuation zone to be activated and utilised for the service of urban population.

The idea of a protective belt was also associated with the military side of aerial defences. According to Åhrén, the whole idea that protective belts and long distances between buildings would work hinged on the fact that anti-aircraft artillery would force the incoming bombers up to 5,000 metres, a distance from which the accuracy of falling bombs was greatly reduced. And regarding air raid shelters, Åhrén equally made clear that he thought they were a military matter. However, what the architects could do was to provide a suitable environment in which they could work. Thus, the protective function of the aerial protection-susceptible urban environment hinged on having integrated military functions to create preconditions for them to function properly. Uno Åhrén tried to comfort himself by claiming that this was just something that happened to be in line with modernity and urban planning in general, but then in a brief passage also expresses relief at the fact that he does not own any real estate in central Madrid in this day and age.

As I suggested at the beginning of this section, Uno Åhrén, although the first of the Swedish architects, was not alone in seeing the connection between modern architecture, urban planning and aerial protection. Ideas in line with Åhrén’s article had been voiced in an editor’s note in 1936 introducing Schoszberger’s article, particularly concerning the state’s important role in assuming control of the development of the city. In 1937, the KBS also began to discuss these matters in response to the Beskow commission’s report. In 1938, in an official comment on a law proposal concerning shelters, Svenska Arkitekters Riksförbund, SAR [“The Swedish Architects’ Association”] emphasized that

790 Ibid. p. 454-455.
effective measures towards aerial protection can only be accomplished if “the public [det allmänna] state and municipality assume total responsibility for the costs.”\textsuperscript{792} In 1939, interest in these matters appeared to have peaked. That year, the journal \textit{Byggmästaren} published a lecture on the “Shelter Issue”, given by Ingvar Strömdahl, an engineer working for the LI. On this occasion a range of individuals from the engineering community and the LI were represented and debated the latest plans and designs, including the previously mentioned John-Erik Ekström, Torsten Gustafsson and the head of the LI, Alvar Zetterquist.

Moreover, in a debate between Tage William-Olsson, Moje Bergström and Carl-Fredrik Ahlberg that took place between 1938 and 1939, Uno Åhrén’s initial article from 1936 was treated as matter of fact. Although Tage William-Olsson was sceptical about aerial protection being the “new lodestar”, stating it was a tragic witness to the state of the world and, more so, a total waste of money, he accepted the hard facts of modern war and his role in doing his duty towards the people and the state.\textsuperscript{793} Regardless, Moje Bergström bore down heavily on William-Olsson and defended Åhrén’s statement that there was nothing to be worried about, just design modern architecture and the aerial protection problems would solve themselves.\textsuperscript{794} Carl-Fredrik Ahlberg, who worked closely with Åhrén in Gothenburg, also supported Åhrén as he delivered his final comments on the issue in 1939.\textsuperscript{795} Although this small debate reflects a general consensus amongst the architect community, it also recalls the controversy of 1940 in that it showed how intensely some of the individuals within the STF community defended aerial protection as the norm, and how criticism was not allowed. It did not matter that all of these three authors more or less agreed on what had to be done. That fact that William-Olsson voiced criticism and claimed that remodelling the city into a modern fortress would not be in line with modern architectural norms was enough for Moje Bergström to criticize him in public. The pattern is recognizable in the Shelter Controversy one year later.

\textsuperscript{792} Ed. “Svenska arkitekters riksförbunds yttrande.” \textit{Byggmästaren} (1938). p. 403.
\textsuperscript{793} Tage-William-Olsson, “Luftskydd: Ett inlägg om stadsplanekonstens nya ledstjärna”, \textit{Byggmästaren} (1938), p. 382.
\textsuperscript{795} C. F. Ahlberg, “Att sätta sig in i vad saken gäller.” \textit{Byggmästaren} (1939). p. 31f.
6.5. Summary

To sum up, this chapter has shown how the engineering community, analysed through two journals published by the STF, engaged with the matter of aerial protection in general and air raid shelters in particular between 1934 and 1940. My reading of these journals, alongside press discourses and archival materials, has shown that air raid shelters engaged many different areas of expertise such as scientific management, construction sciences, architecture and urban planning, as well as individuals working in both private industry, higher education, government bodies and municipalities, originally stemming from the engineering community. Without necessarily engaging with the military sciences directly, these authors emphasized the need to rally the engineering community for the sake of the nation, offering their rationalist and scientific mindset and methods to combat the demands of modern war. Although a sort of patriotism is evident in the background, this development can also be analysed as a way of maintaining the engineering community’s credibility in the face of disruptive developments in Europe. The quasi-military field of knowledge, loosely described as aerial and industrial protection, has been shown to have functioned as a stage or arena in which the engineers and architects determination could be communicated and displayed to the public, as well as an opportunity for the adaptation and transformation of the socio-technical regime that the engineering community formed, showing that the expertise harboured by these professional groups was of importance to a new military setting.

In all cases, the air raid shelter surfaced and became the object of interest, in other cases, as one of many aerial protection technologies that needed to be handled. In Ivar Lundbäck’s case, it became something in which both management expertise and loyalty to the state could be shown through building air raid shelters and subsequently planning for their use. Rational planning using scientific methods could also resolve the moral issues faced by industrial entrepreneurs. The industrial community needed to know that the nation hinged on its participation. Thus, individuals such as Ivar Lundbäck offered aerial protection as a field of knowledge in which industrial entrepreneurs and engineers could display their efficiency and expertise to the utmost. In John-Erik Ekström’s case, the shelter became a topic of dispute and the object for which the proper design could be associated with the survival of the nation. A proper design could mean the difference between life and death and, by extension, a mistake, or a design flaw could turn a normal air raid shelter into a death trap. But then again, criticism of an official air raid shelter design was
regarded as disloyal behaviour, causing representatives of government bodies and institutes of higher education to be pitted against each other. The previous networks of expertise appeared to matter here, being once again operationalized to guard against criticism from outsiders.

With architects such as Schoszberger, air raid shelters were also inscribed in modernist urban planning ideals and therefore paved the way for an interpretation of the air raid shelter as something that was integrated into what was to be considered modern. In Uno Åhrén’s case and within the Swedish architect community, air raid shelters emerged as an object that the rest of the urban environment would have to sustain and also as something that made clear that although the architects had tried to confront the aerial protection problem as something that could be handled by conforming to modernism itself, the amendments to and proposals for the city plans that they created hinged on a form of military participation that effectively blurred the boundary between civilian urban environments and military fortifications. The urban environment was read in an entirely new and militarized way. Were these men designing modern cities or citadels? The distinction between these two concepts was no longer clear. Similarly, Åhrén argued that it was possible to accept aerial protection if it worked in society’s favour.

Although the examples I have raised here only extend to 1940, the engineering community’s interest in aerial protection was demonstrated on other occasions during the early 1940s. The engagement of the engineering community in particular constituted the start of a process that has not ended to this day. Noteworthy is a report series concerning technical issues with direct-hit-proof air raid shelters that was published in Teknisk Tidskrift in 1943. On this occa-

796 1940 was certainly the most hectic year, with some two dozen notifications and brief news bulletins, discussing developments within the field of aerial protection. Interest continued in the coming years, however, although now with lectures and research papers. See, for example, the meeting held by the division for “våg och vattenbyggnad” [“Road and Waterworks”] at the STF in May 1943. Sune Lundquist, Nils Royen and Ragnar Schlyter were present at this meeting and discussed Lundquist’s presentation. Ed. “Föreningar” in, Teknisk Tidskrift: Väg och Vattenbyggnadskonst, Husbyggnadsteknik (1943), vol. 73, issue 7, p. 111-112; Erik O. Jonsson, “Reglering av luftfuktigheten i skyddsrum”, Teknisk Tidskrift: Mekanik, (1941), vol. 71, issue 8, Sune Lundquist, “Förebyggande luftskydd – en uppgift för ingenjörrer”, in Teknisk Tidskrift allm. avd. (1943), vol 73, issue 9;

797 Perhaps of greatest interest is the six-part article in a special issue on air raid shelters in bedrock, produced in 1943. The issue included authors such as Kjell Magnell, Gustaf Ljunggren and Gösta Smitt: see the articles by Kjell Magnell, ”Inredning av bergskyddsrum”; Torsten Teorell, ”Fysiologiska grundvalar för luftkonditionering”; Gustaf Ljunggren, ”Allmänna principer för avfuktning och ventilation av bergskyddsrum”; C. H. Johansson, ”Temperatur och fuktighet i bergskyddsrum vid olika avfuktningssystem”; Kapten F. Hansen, ”Inbyggnads- och ventilationsproblem i bergskyddsrum”;
sion, representatives from all the different institutions and interest groups were present. Including Kjell Magnell (at this time representing the military fortification establishment) and Gösta Smitt, architect and city planner previously engaged in shelter construction through the journal *Tidskrift i Fortifikation*. Dr. Gustaf Ljunggren represented *Försvarets Kemiska Anstalt*, FKA. A group of engineers and scientists from the Royal Institute of Technology in Stockholm and Chalmers Institute of Technology in Gothenburg also participated, including the physiologist, Torsten Teorell. The event was published in *Teknisk Tidskrift* in six parts and not only shows that aerial protection and specifically shelters at this point provided a common ground for the state, the military and the engineering community to perform their duty, it also shows how shelter technology at the time had gone through a significant process of scientification and had become a proper and serious research topic. The reports and the type of research that these men were performing was much more advanced than it had been during the last part of the 1930s and included temperature management, ventilation technology, psychological problems and even interior design. For some people, like Gösta Smitt (who also studied air raid shelter furnishings) and Kjell Magnell, this new scientific engagement in air raid shelters developed into careers that lasted well into the 1950s and 1960s.

Gösta Smitt, "En tillämpning av de nyare principerna på inredning av personskyddsrum i berg"; Erik O. Jonsson, "En anordning för luftavfuktning med kiselgel"; Henrik Conradi, "Avfuktningssaggregat för bergskyddsrum": All can be found in Teknisk Tidskrift. Allmänna avdelningen (1943), vol.73. issue 31. p. 357-394.

798 See, for example, Gösta Smitt, “Bombsäkra betongkonstruktioner” *Tidskrift i Fortifikation* (1940), vol. 40, p. 20-23; “Stadsbyggnadet och våra byggnadskonstruktioner” *Tidskrift i Fortifikation* (1940), vol. 40. p. 78-84; Gösta Smitt “Staden som fortifikation” *Tidskrift i Fortifikation* (1944), vol. 44. p. 22-29.

Luftskyddsinspektionen, LI, fused with Statens utrymningskommission in 1944 and changed its name to Civilförsvarsstyrelsen, CFS.


800 Magnell would later build his career on deep shelter structures within the military. Similarly, the architect, Gösta Smitt, conducted research on large-scale shelter structures during the mid-1940s and 1950s, possibly in cooperation with Magnell, initially in the journal Tidskrift i Fortifikation and later in Byggmästaren. See, for example, Gösta Smitt, “Fullträffsäkra civila skyddsrum” *Byggmästaren* (1950) issue 19. p. 305-313. Gösta Smitt’s article from 1951 was also circulated at the CFS. See the separate publication “Fullträffsäkra civila skyddsrum” Civilförsvarsstyrelsen’s Archives, vol F14:7, Royal War Archives, Stockholm, Sweden.
In 1943, the engineer and state representative, Sune Lundquist, also appeared in Teknisk Tidskrift and his article will represent the climax of my study on the engineering community. Sune Lundquist, who worked for the LI and after 1944 for Kungl. Civilförsvarsstyrelsen, CFS [“Royal Civil Defence Administration”], would eventually play a major role in the post-war era of Swedish civil defence. In his article “Förebyggande luftskydd – en uppgift för ingenjörer” [“Pre-emptive aerial protection – A task for the engineer”] he effectively sums up much of the arguments in this chapter, claiming that aerial protection was not only an architectural revolution of sorts, it “ran through the veins” of the engineering community. Stalingrad, Lundquist claimed, was a perfect example of how protection from an air war had become, first of all, a technical matter. The siege of the city had not been successful because of its modern architectural and construction-technical framework and it clearly demonstrated to Lundquist

801 In 1944 the LI changed its name to CFS.
802 Sune Lundquist, ”Förebyggande luftskydd – en uppgift för ingenjörer”, in Teknisk Tidskrift allm. avd. (1943), vol 73, issue 9, p. 129.
803 Ibid. 132.
that engineers and architects needed to integrate “aerial-protection mindedness” [“luftskyddstänkande”] into their system and work.\textsuperscript{804} Lundquist’s choice of words recalls the historian Peter Fritzsche’s term “air-mindedness” about the German interwar culture and further shows how this mentality, which began to be imported around the time of Schoszberger’s visit, had now become fully established in the Swedish intellectual community. The introduction to the article is worth quoting here at length:

From the aerial protection perspective, this is of utmost importance, not least since here lies evidence of the fact that, ultimately, aerial protection is a technical matter. It involves problems that should and could only be solved by city planners, engineers and architects; by people with technical expertise. For each and every of these technologists, economic, social and hygienic factors run through the veins when they approach the problems at hand. Now, another factor must be added, a new factor — the aerial protection factor. It is a novel business — revolutionizing our entire way of thinking and perceiving, this business of aerial raids — that it is only natural that a period of adaptation must be expected.\textsuperscript{805}

Towards the end of the article Lundquist also shows great concern about the sense of duty amongst the industrial community and claims that total war “gives no hope of a more gentle form of warfare” and ultimately it is the engineers and architects who are responsible for finding a solution. “Blue-eyed optimism” and hopes for a better future had nothing to do with the real political and rational mind of the technologist:

As is obvious from what has already been said, pre-emptive aerial protection is a 100% technical undertaking. City planning, building designs and technical-municipal services plans are problems that must be solved by engineers and architects. The numerous problems that could occur in

\textsuperscript{804} Sune Lundquist, ”Förebyggande luftskydd – en uppgift för ingenjörer”, in Teknisk Tidskrift allm. avd. (1943), vol 73, issue 9. p. 129.

\textsuperscript{805} ”Ur luftskyddssynpunkt är detta av allra största betydelse, inte minst därför att här föreligger ett påtagligt bevis för att luftskyddet till ”syvende och sidst” är en teknisk angelägenhet. Det rör sig här om problem, som skola och måste löisas av stadsplanerare, ingenjörer och arkitekter, överhuvudtaget av folk med teknisk skolning. För var och en av dessa tekniker ligga ekonomiska, sociala och sanitära faktorer i blodet, när de gå att lösa sina uppgifter. Nu måste ytterligare en sådan faktor, en ny sådan, också komma att ligga i blodet ---- luftskyddsfaktorn. Det är så nytt, så revolutionerande i hela vårt sätt att se och tänka, detta med anfall från luften, att det helt naturligt tar en viss tid för ”omställning”. “ Ibid. p. 129.
various kinds of industries could also be mentioned, as it has been planned that these would provide heightened protection during war. This is also a technical matter. It appears that these issues are not yet clear to everyone. It should not be as it is now, that these issues are being assessed by aerial protection officials or governors’ offices, who, for the most part, lack technical expertise. They should not even have to be assessed. It should rather run through the veins of consultancy and construction technicians that aerial protection is a factor that you must always consider. […] “Total war” offers no hope of gentle forms of warfare in the future. The medieval town was built as a fortress with metre-thick stone walls, surrounding a densely packed urban environment. In those days, attacks came from the sides. Now, they come from the air. The city must aim its protective measures to the sky and via other measures, such as dispersal, blackouts and camouflage, “impede air raids and limit the effects of such raids”, all according to the wording of the aerial protection law. This cannot be neglected. It is the engineer and the architect who shoulder the responsibility.806

Both these events – the civil-military research programme presented at the STF and Sune Lundquist’s attempt to appeal to the engineering community – effectively sum up what I have tried to show in this chapter. Air raid shelters were one of many aerial protection technologies that came to be established as a shield of knowledge for co-operation between many different parts of the engineering community. In this, aerial protection was transformed into a

technical question and this view would eventually prevail as the Second World War and the Cold War ran their course. The network also played its part. These events were also the last time that air raid shelters and aerial protection appeared publicly in *Teknisk Tidskrift* for quite some time and thus mark something of a climax to the civil engineering community’s engagement with it, which had started in the mid-1930s. In 1944, the government proposed an all-encompassing military research institute that would continue to research topics such as military operations and defence technologies, including air raid shelters. In 1945 when the proposal was turned into practice, the *Försvarets förkningsanstalt* FOA [“Defence Research Institute”] was finally instigated and, as the atomic bomb appeared the same year, this type of research was removed from the public sphere and into the state research laboratories under heavy secrecy. With this change, the engineering community’s role in aerial protection became naturalized as a part of the state’s machinery. The research conducted was classified as secret and the patriotism of the engineering community no longer had to be called upon, because the war had ended and also because the aerial protection-mindedness that Lundquist had called for had been successfully integrated at that point and needed no further explanation.
7. The Air raid shelter in public 1930–1940

Aerial protection and air raid shelters were not only discussed by expert groups and politicians. They also had a public side to them that was an equally important part of how policy development during the interwar era. A culture of air raid shelters and aerial protection emerged in the daily press during the interwar era that shaped aerial protection politics. There was, however, not just “one” culture or narrative but several that overlapped and co-existed. The way in which air raid shelters and aerial protection were framed differed in both style and purpose during the period and also affected the ongoing political discussions in different ways. At times, public media narratives appeared to resist the use of air raid shelters, while at other times they appeared to support it.

This chapter will try to depict three such narrative strands in an effort to see how military experts, politicians, engineers and public discourse shaped each other in concert. Each will be exemplified by a study of some key works by the journalists and authors Elin Wägner, Barbro Alving and the perhaps less known, Gerd Ribbing. These figures are not to be considered the only ones who discussed air raid shelters and aerial protection in public, but they can be said to represent a certain genre. As a supplement, this chapter will also include a discussion about some general trends in the emergence of air raid shelters in the daily press between 1939 and 1940.

The dissertation’s overarching scope will provide an important context to how public sentiments shaped aerial protection and air raid shelter politics during the period. The varying ways in which air raid shelters began to appear provided new and competing ways of interpreting their future roles in Swedish society, and could thus underpin and provide widespread support for the implementation of aerial protection politics. The media discourse provided windows of opportunity for political ideas and technologies to establish themselves. Thus, in relation to the analytical framework of this dissertation, this chapter intends to consider some of the impact of the changes in the landscape, as well as how the press discourse and media could provide support or resist political changes at the meso level.

Gas masks and air raid shelters in general were a sensitive matter for politically-minded women during the interwar period. As mentioned in section 3.3.2–3, the early discussions on aerial protection in both the military, intellectual and political sphere were followed by criticism from both the national and the international setting. A catalyst for this change were the disarmament discussions initiated by the League of Nations and international conferences such as the Red Cross conference in Brussels in 1929, as well as books like Rudolf Hanslian’s and Fredrik Bergendorff’s *Das chemische krieg*, published in 1925.\(^807\)

The gas scare resulting from these international discussions led to attempts by military authors to respond. Thus, men like Hugo Jungstedt and Emil Fevrell tried to provide practical solutions, including presenting the idea of gas shelters and other aerial protection measures.

While this was happening, the women’s roles in politics experienced a fundamental change. A few years previously, women had achieved almost universal suffrage and many of them felt obliged to show their worth as political beings and take action against the political evils of the world, sometimes represented by the novel technologies of military authors.\(^808\) Consequently, the emerging international peace movement of the interwar period was a political arena in which women actively participated. Women’s rights activists in particular from the reformist left became involved.\(^809\) However, liberal and conservative women also actively worked for pro-defence politics, sometimes rallying just as many women as the left-wing pacifists.\(^810\) The major issue for these groups was the increasingly problematic prospect of the complete militarization of civil society that total war seemed to imply, with particular focus on women’s enrolment in the war machinery.

In the Swedish setting, the journal *Tidevarvet* became key and up until 1936 was the intellectual waterhole for the pacifist cause and also for criticism

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807 Rudolf Hanslian and Fredrik Bergendorff, Der chemische Krieg: Gasangriff, Gasabwehr und Raucherzeugung (E. S. Mittler & Sohn, 1925).
808 For more on this topic, see Östberg, Efter rösträtten; See also Kjell Östberg’s article “Krig och fred i Svensk kvinnorörelse”, in Florin, Sommestad and Wikander, Kvinnor mot kvinnor, 31–32.
809 Andersson, “Women’s Unarmed Uprising against War.”
of aerial protection plans or a lack of clarity thereof.\textsuperscript{811} Although a group of women encouraged resistance in Sweden, the author and journalist, Elin Wägner (1882–1949), came to represent the movement to a large extent. She also led the Swedish section of the Women’s International League for Peace and Freedom, (WILPF), together with a group of women from the famous left-wing group, \textit{Fogelstadgruppen} [“The Fogelstad Group”].\textsuperscript{812} Many of the women in Fogelstadgruppen were also involved in \textit{Tidevarvet}, and Wägner was the first editor of the journal during its initial years from 1923 to 1927. The journalist Barbro Alving was also involved in this group and was close to Wägner (more about her below).\textsuperscript{813}

The gendered conflict of total war highlighted by these movements should also be viewed in the context of the increasingly gendered separation of warfare in the early twentieth century. This was a consequence of the professionalization of the military apparatus as well as the emergence of conscription armies. The peace movement’s activities and protests against gas masks and air raid shelters can therefore be interpreted as a phenomenon that had its roots in a much deeper societal change, ultimately extending back to the ways in which military organization changed in the late nineteenth century. With conscription armies, men earned their place in the democratic state by playing an active role in defending it.\textsuperscript{814} The military organization also became completely dominated by men and their work became more professionalized.\textsuperscript{815} Women who, for centuries, had been part of the military apparatus through maintenance and supportive roles, were now excluded from their background positions close to the front.


\textsuperscript{812} For more on Fogelstadgruppen, see Lena Eskilsson, Drömmen om kamratsamhället: Kvinnliga medborgarskolan på Fogelstad 1925-35, (Carlsson, Diss. Umeå: Univ.,Stockholm, 1991); For the Swedish history of the 1930s’ women’s peace movement, see Andersson, “Women’s Unarmed Uprising against War”; For the British perspective, see chapter six, “Trying to Prevent the War to Come”, in Grayzel, At Home and under Fire, 132–154.

\textsuperscript{813} See Andersson’s contribution “En civilförsvarsvägran med rötter i 1930-talet”, in Marcos Cantera Carломагно, När Alving blev Bang (Lund: Historiska media, 2001).


\textsuperscript{815} See Sjöberg’s chapter in Sjöberg, Sammanflätat, 131–150.
However, the aerial dimension of warfare marked their return to a position that was closer to the military apparatus, but was now masked by the separation of “military” and “civil”, a demarcation that was new during the nineteenth century and at the beginning of the twentieth century. The supportive role of women was still emphasised, however, but now through active participation at home instead of working close to the military fronts. As Susan Grayzel has shown, this was the case in Great Britain in the 1930s. With the opening of the home front, war was branded as a new but natural part of a housewife’s work. Gas masks for themselves and for their children, as well as air raid shelters, became part of the home and one of many household appliances that the women had to handle, and which eventually became part of the professionalization of the housewife. Sweden was no exception, either. A well-stocked pantry was the best insurance against war that a woman could have and this tradition continued well into the Cold War era.

Moreover, this could also be put in the context of women’s general emancipation in the urban landscape during these years. As the Swedish media historian, Kristina Lundgren, has argued, building on the works of Yvonne Hirdman, women in the 1930s suddenly found themselves on the streets, which previously had been the men’s domain. A typical example is women’s emergence as journalists during the 1920s and 1930s. This meant that they also had to handle all the problems and dangers of the streets. Social problems were brought up to close when middle class women could meet face to face with robbers, prostitutes and rapists, and all the other dangers of metropolitan streets. In this sense, the journalistic side to aerial warfare, air raid shelters and aerial protection measures in general during the 1930s functions in this respect as an excellent analogy for the emergence of women in the realm of politics and war, on the streets as journalists and citizens, as well as in the militarization of their homes. On the one hand, aerial warfare demanded their active participation as subjects and actors in the greater war scheme,

816 See the chapter “Hur det civila blev kvinnligt - och det militära manligt”, in Sjöberg, 131–150.
817 See chapter 9 “Protecting the innocent: Gas Masks for Babies and the Domestication of Air Raid Precautions” in Grayzel, At Home and under Fire, 224–250; For a similar study of American Cold War Civil Defence, see McEnaney, Civil Defence Begins at Home.
818 And as the Swedish historians, Johanna Overud and Marie Cronqvist, have shown, Sweden was no exception to this, either. See chapter seven “Att komma tillrätta: Kvinnouppgift från arbetsmarknad till hushållsarena”, in Overud, I beredskap med Fru Lojal; See also Cronqvist, “Det befästa folkhemmet.”
sizing their role in the home. On the other hand, it demanded their physical presence on the streets, in public drills and in air raid shelters. For these radical peace movements that emerged during the interwar period, aerial protection technologies and their advocates also came to represent much about what women thought was wrong with this new logic and also presented them with an opportunity to refuse as a means of political action. Authors such as Elin Wägner argued that total war had brought the complete militarization of everyday life and these technologies came to symbolically represent such a development. Wägner, for example, aimed her criticism directly at the two most prominent proponents of civilian aerial protection, Kjell Magnell and Ejnar Nordlund, as well as the governors and commission members, who were described as being “organizers of darkness” who wanted nothing more than to “cement air raid shelters and crawl into them”. Wägner even claimed that Europe was entering a “basement epoch”. Women could now accept their new roles and earn their place in the democratic state in a similar way to the men. Or they could use the power given to them by military strategists to reject war completely by refusing to participate. Thus, rejecting the new domestic technologies of war, such as air raid shelters and gas masks, became an act of resistance. As contemporary voices claimed: In France, women were actively refusing to take part in aerial protection drills by refusing to deal with both air raid shelters and gas masks. Calling themselves “Gasmaskvägrare” or “gas mask refuseniks” or “källarvägrare” “basement refuseniks” was a way of making a stand against what they saw as militarism, or the militarization of civil society. The idea was that if women refused to be herded into the basements of the “termite cities”, as Elin Wägner phrased it, they would also cripple the total war logic and force the men in power to change their strategies from armed ones to diplomatic ones. “Don’t count on us to be like robots of war!” she proclaimed, “regardless of whether they refuse deliberately or accept that they will destroy the system.” In Sweden, Elin Wägner and

820 For an interesting discussion of the problems of Civil Defence, Race and Class in Cold War USA, see the chapter “Equal in Suffering” in McEnaney, Civil Defense Begins at Home, 123–151.
824 See the article “Skräcken sitter ordförande” in Wägner, 199. Originally published in Tidevarvet, 1 February, 1936.
825 See the article “Vad tänker du, mänsklighet?” in Wägner, 187. Originally published in Tidevarvet.
the network for peace that she led, together with a small group of publicly known women, attempted to adopt this specific tactic. On a few occasions during the mid- and late 1930s, they urged the members of their network to refuse to shut their windows or turn off their lights during blackout drills. Instead of participating in an aerial protection drill in Stockholm in 1938, they marched through the city in protest, thereby willfully exposing themselves, although the drill was only intended to simulate an aerial attack.

For these authors, the aerial protection programmes also contained a conflict between the sexes that was partially covered by the separation between civil and military. Not only did air raid shelters symbolize women’s new role in the war as active, yet passive participants who needed to be sheltered while the men were fighting above, it was also an inherently “male” technology within which women like Elin Wägner could not even consider living. In this sense, she rightly identified the gendered element of air raid shelter technology about which its military advocates seldom spoke. For, what was it these military-friendly men wanted to protect with their air raid shelters, if

7 September, 1935.
826 Wägner, 170.; Andersson, “Women’s Unarmed Uprising against War,” 404-405.; See also Andersson, Kvinnor mot krig, 270-274, 279-280.
827 But while Andersson’s thorough history of Wägner’s attempts to refuse the coming war is irrefutable, it is equally true that these events were more or less completely suppressed by the Swedish press at the time. The Stockholm based liberal and right-wing newspapers such as Dagens Nyheter and Svenska Dagbladet showed no interest at all in the fight of Wägner and others against warmongering towards the end of the 1930s. These newspapers were pro-defence but did not care to mention acts and events that somehow tried to address the matter. Given how Sten Dehlgren, Editor-in-Chief at Dagens Nyheter, acted during the Spanish Civil War, it is probable that the lack of interest of any protest against aerial protection measures and drills had its background in the self-censoring of Swedish newspapers at the time.
not women? If women refused to accept the underground environment and refused to take part in the preparedness regime upon which modern total war hinged, would that not mean that war would be impossible? In one of her articles, she ridiculed the building norms and air raid shelter plans presented by Kjell Magnell during the STF’s meeting in 1934, arguing that in the same way that air raid shelters would be incapable of sustaining the collapse of the building above, its inhabitants would be unable to cope with the stress of living inside them.\textsuperscript{828}

Figure 55: Already from the start, representatives of the social democratic and pacifist women’s movement rightly predicted that women, often described as “civilians”, would be the primary users of air raid shelters as the men were involved in military mobilization. Air raid shelters were a heavily gendered technology in this sense. Aerial protection drill in Uppsala, 1944. Women and children taking refuge in an air raid shelter. Photo by Carl Larssons Fotografiska Ateljé AB. ID: XLM.CL004486-10. CC-BY-NC. https://digitaltmuseum.se.

\textsuperscript{828} See the article “Dimbildning över Stockholm” in Wägner, Vad tänker du, männsklighet?, 168–170. Originally published in Tidevarvet on 27 October, 1934. Wägner was referring here to the STF’s meeting hosted by Ejnar Nordlund and Kjell Magnell on 17 October, 1934. See “Sammanträden”
The gendered divide was also used by peace activists, sometimes using sexual undertones to enforce their message. For example, this tactic was used in the campaign *Vapenlösa kvinnors fredsuppror* [“Women’s Unarmed Uprising against War”] through using the symbolism of the play Lysistrate, a Greek drama, which was conveniently translated and performed in Stockholm in 1934, and which the campaigners were encouraged to see. Lysistrate’s attempts to end the Peloponnesian War by denying sex to her husband was cleverly picked up by Elin Wägner the following year when she argued in an article in *Dagens Nyheter* that the declining birth rate in Sweden correlated well with the growing fear of war. In this way, she connected her protests and the movement’s protests with the ongoing debate on Sweden’s population growth sparked by the book from 1934 *Kris i befolkningsfrågan*, written by Alva Myrdal and Gunnar Myrdal, and claimed that because of the growing unease in Europe and the scrambling for weapons, Swedish women no longer wanted to have children. Instead of increasing the defence budget, Elin Wägner argued, politicians would do best to support welfare programmes for women in order to make them safe, thereby solving the problem of Sweden’s declining birth rate.

### 7.2. The Spanish Civil War and Swedish journalism

The appearance of air raid shelters in the early- and mid-1930s resulted in a highly contested and politically problematic interpretation, in which the opposing sides either romanticized their use or rejected them completely. While authors such as Jungstedt and Fevrell stated that air raid shelters were necessary and pivotal, Wägner and her cohorts adopted a rejective stance by unearthing the militarizing and gendered aspects of air raid shelter technology. This was, however, something that was bound in the theories of chemical and aerial warfare as they flourished during the 1920s and early 1930s and would be subject to change as theory became practice in the following years. The Spanish Civil War in particular would become a significant event in this respect.

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Teknisk Tidskrift (1934), vol. 64. Issue 40. p. 388; see also the special issue in Teknisk Tidskrift (1934), vol. 64. Issue 42.

829 See Irene Andersson’s article on this topic, Andersson, “Women’s Unarmed Uprising against War.”


831 Andersson, Kvinnor mot krig, 159–161.; Andersson, “Luftskyddsarbete, stickning och en modern tvättambulans”; For Elin Wägner’s original texts, see in particular the articles “Dimbildning över Stockholm” and “Lysistrate och fredens timma” in Wägner, Vad tänker du, mänsklighet?
Some authors have claimed that the Spanish Civil War was a catalyst in regard to aerial protection in Sweden, but the extent to which this is true is still unknown.\textsuperscript{832} However, looking more closely at some trends in Swedish politics and in the media landscape throughout the years of the Spanish Civil War, it is clear that during this period, air raid shelters and aerial protection politics took a different turn. While Elin Wägner, Fogelstadgruppen and other pacifists tried to resist the overwhelming current, after the outbreak of the Spanish Civil War, the pacifist rejective interpretation was challenged by a new way of mediating the use and symbolic meaning of the air raid shelter. This was also concurrent with the political tidal change in military politics, eventually resulting in the formation of the Beskow commission.

This had much to do with the Spanish Civil War’s peculiar position in global politics during the interwar era. In a sense, the Spanish Civil War was a dress rehearsal for the Second World War.\textsuperscript{833} Indeed, in terms of atrocities and indiscriminate bombing raids, the Spanish Civil War foreshadowed much of what would later play out during the Second World War.\textsuperscript{834} The German Luftwaffe tested and developed its new organization during its activities in Spain, and its bombing of Guernica in early 1937 has generally come to be known as the first air raid on civilian urban environments on a huge scale.\textsuperscript{835} Experiences from these raids were directly utilised during the invasion of Poland. For the public sphere, for its civilian contemporaries, the war was a painful reminder that the peace conferences initiated during the 1920s had failed and aerial warfare had now come to Europe.\textsuperscript{836} At the very centre of this epiphany were air raid shelters and aerial protection. Not only did Spanish air raid shelters and precautions provide a model for other European countries in the wake of the war, for the first time, Europeans also experienced war from within their own cities. In Europe this led to a new political crisis, and powers such as Great Britain saw parallels in Spain to what was awaiting them.

\textsuperscript{832} See Alvar Schilén’s chapter “Civilförsvaret” Wångel, Sveriges militära beredskap 1939-1945; See also the introductory chapter in Rosander et al., Om kriget kommer.
\textsuperscript{833} Patterson, Guernica and Total War, 4–5; Haapamäki, The Coming of the Aerial War, 88.
\textsuperscript{834} For a full account of the war, see Antony Beevor, The Battle for Spain: The Spanish Civil War, 1936-1939 (New York: Penguin Books, 2006); For details on the Swedish reaction to the war, see Marcos Cantera Carlomagno, Sverige och spanska inbördeskriget (Lund: Historiska media, 1999).
\textsuperscript{835} See especially Patterson, Guernica and Total War; See also Klaus A. Maier’s contribution “The Condor Legion: An Instrument of Total War?” in Chickering and Förster, The Shadows of Total War, 285–294.; Haapamäki, The Coming of the Aerial War, 92–93.
\textsuperscript{836} Grayzel, At Home and under Fire, 182–183.
For Sweden, a nation in between the two warmongering imperial powers of Germany and the Soviet Union, the Spanish Civil War also came to symbolize the gloomy and destructive future that the small neutral states faced.

Both Nazi Germany and the Soviet Union had a great interest in pursuing their causes in Spain and neutral Sweden reflected its own position through the event. The Soviets wanted to break their isolation and hoped that Lenin’s premonition of a revolution in Spain would come true. Nazi Germany, on the other hand, wanted to initiate a military conflict to break the Versailles Peace Treaty and also use Spain as a training ground for its elite troops. The Condor Legion’s bombing of Guernica in 1937 in particular has become the symbol of Nazi Germany’s involvement. The Nazis had important trade relations with Spain that needed to be carefully handled, which also explains their willingness to involve themselves in the Spanish cause. Indeed, this was alarming for a nation like Sweden that exported vast amounts of iron ore to Germany during the interwar era. Italy was also heavily involved and its raids on Barcelona in 1938 caused as much alarm as the raids on Guernica. The historian, Klaus A. Maier, has argued that Chamberlain’s acceptance of the Munich Agreement was a direct result of the Italian raids on Barcelona.

Finally, the Soviet Union and Nazi Germany were also present and using their new technologies of war, meaning that Swedish observers could determine the military power of their closest neighbours by assessing the Spanish war scene. Thus, in many ways, the Spanish Civil War came to represent the latest notion on what the next war would be like for a nation located in between two imperialist powers. Journalists’ reports from here on came to mediate and fuel this image towards the general public.

For the Swedish social-democratic government in power during the late 1930s, with Per Albin Hansson as Prime Minister, the Spanish Civil War was evidence of how yet another nation in Europe was about to succumb to fascism. This made his own party’s situation worrying. The political stickiness made it

837 For the British perspective, see Grayzel, 182–184; According to literature historian, Ian Patterson, the Guernica bombing only appeared afterwards as the major event to symbolize the plight of Spanish civilians during the war. Also, much of this was to do with Picasso’s visualization of the event in his painting, Guernica, and its spread and use. For an interesting description of the Spanish Civil War and its symbolic history, see Patterson, Guernica and Total War.

838 Cantera Carlomagno, Sverige och spanska inbördeskriget, 23–30; See also Patterson, Guernica and Total War, 10–11.; Chickering and Förster, The Shadows of Total War, 290.

839 When seeing London from above on his way to Münich, Chamberlain is said to have claimed that Great Britain was not ready to face what the Barcelonians had just experienced. Chickering and Förster, The Shadows of Total War, 292.
a sort of Vietnam War of the 1930s. Declaring support for the fascists was out of the question. However, the Spanish left-wing republican government appeared to be weak and the large and influential groups of socialists and anarchists working from below could not, and would not, guarantee a democratic form of government, if they were to overcome Franco and assume control themselves. Thus, it was difficult for the Swedish government to proclaim loyalty to either side. At the same time, social-democratic politicians, authors and academics from the reformist left supported or led fundraising activities for the benefit of the republicans in Spain, which caused trouble among the party leadership. Also, the Swedish people predominantly supported the republican side. Svenska Hjälpkommitteen [“The Swedish Help Committee”] managed to raise SEK 3.4 million to be sent to Spain. To this figure can be added SEK 1.2 million from the workers’ unions and around SEK 500,000 from the Women’s Committee for the Children of Spain.

Swedish citizens sent a total of around SEK 5.7 million distributed via different channels depending on which organization led the work. The government also added SEK 1.2 million for refugee aid. The Spanish Civil War also rallied hundreds of volunteers on the republican side, mainly communists who wanted to push the Spanish republic over the edge into a full-scale Spanish revolution. The Swedish Communist Party, SKP, was responsible for organizing the volunteers. The SKP financed and organized the journeys to Spain via the Third International Comintern up until 1937, when all participation in the conflict was banned due to the Swedish government signing the Non-Intervention Pact. However, volunteers from Sweden continued to trickle into Spain. Of the 35–40,000 volunteers who rallied to the republican side from all over the world, around 500 were Swedes. Regardless of the difficulties faced by the Social-Democratic Worker’s Party in choosing sides, support for the republicans prevailed and there was a subsequent willingness to interpret the course of events in the republican’s favour.

Inevitably, the Spanish Civil War also changed the political conversation about aerial protection policies in Sweden, primarily by making the issue of aerial protection appear a lot more urgent. Within the inner circles of politics and military strategy the Spanish war made an impact. The commissions of

841 For a thorough account of the social-democratic entanglement with the Spanish Civil War, see Cantera Carlomagno, Sverige och spanska inbördeskriget, 39–43.
842 Cantera Carlomagno, 43–49.
Figure 56: Experiences from the Spanish Civil War appeared to confirm that air raid shelters were the way ahead. Here, a city official, Yngve Larsson, comments on a recent lecture held by a fire department official claiming that air raid shelters were the most useful form of protection. The military officer, Olof Ribbing, was also cited in the text. The headline reads: “Well-placed air raid shelters are most effective against bombs. Important experiences from Spain. Comments from known aerial protection experts. Article found in Föreningen för Stockholms fasta försvar’s archives, vol. Ö1:1. Royal War Archives, Stockholm, Sweden.
inquiry, such as the Petersson commission, used reports from the Spanish Civil War as evidence of the inevitability of implementing aerial protection.\textsuperscript{843} Statistics on the dead and injured from bombed cities and towns in Spain served as a powerful argument for an all-encompassing air raid shelter system in Sweden.\textsuperscript{844} Some of the key actors and proponents of a Swedish aerial protection organization also visited Spain to study the effects of the German and Italian bombers. For example, Kjell Magnell and Åke Kretz were two significant actors in accumulating air raid shelter knowledge for the Swedish political scene.\textsuperscript{845} Other military authors also used the bombardments in Spain as an opportunity to argue for the advancement of Swedish aerial protection

\textsuperscript{843} Betänkande med utredning och förslag angående civilbefolkningens förseende med gasmasker samt inrättande av skyddsrum för luftskyddsändamål.

\textsuperscript{844} Ibid. 23.

\textsuperscript{845} The FFSFF provided the LSF with SEK 2,000 in 1937 to fund a delegation to Spain. The delegation comprised Kjell Magnell and Åke Kretz. Föreningen för Stockholm’s fasta försvar’s archives, vol.
and the building of air raid shelters in particular.\textsuperscript{846} Gas had not been used in this war, which reduced the importance of defending against gas attacks and therefore caused some debate in the industrial community.\textsuperscript{847} Thus, during the early build-up of aerial protection, the Spanish Civil War became an important source of knowledge and experience that helped to rectify misunderstandings and also motivate further investments.

There was, however, also a public side to this development. It should be remembered that news about domestic aerial politics was reported alongside news stories of bombing raids abroad. This was the major difference from the previous discussions on chemical warfare in the late 1920s. When Elin Wägner and her cohorts started their activities, the practical usefulness of aerial warfare and air raid shelters was unknown. However, news of the publication of the Beskow commission’s report in December 1936 was delivered the same day as the journalist Barbro Alving’s report from a bombed Madrid.\textsuperscript{848} It is of course, difficult to prove any causal relationship in such cases, but it is not unlikely that this kind of “framing” paved the way for Swedish aerial protection politics and dealt a staggering blow to those who had previously fought for disarmament.

This also happened elsewhere in the world. According to British historian Brett Holman and Michele Haapamäki, the plight of the Spanish people pushed British policies towards blast bomb and fire bomb-focused air raid shelters as a solution.\textsuperscript{849} The Spanish air raid shelters became a media phenomenon associated with the republican side and Holman argued that “it is not coincidental that the [British] deep shelter campaign only began in mid-1938,

\textsuperscript{At11,} Protocol of 5 April, 1937. National Archives, Stockholm Sweden; see also Svenska Civilförsvarsförbundets Archives, volume Luftskyddsförbundets protokoll 1937, protocol 17 March, 1937.
\textsuperscript{846} See for example, Ribbing, Bombanfall mot Barcelona.
\textsuperscript{847} “Evidence from the Spanish Civil War, a major conflict on Great Britain’s doorstep in which civilians were regular targets for bombers, strongly suggested that gas would not be used and that high explosive bombs and, perhaps to a lesser extent, incendiaries, would be much more dangerous.” Holman, The Next War in the Air, 113. Olof Ribbing brought home a similar analysis but doubts about whether or not gas bombing was effective were already present in the Beskow commission’s report. Ribbing, Bombanfall mot Barcelona, 13.; Betänkande angående det civila luftskyddet, 16–18. Fritz Söderbergh argued in 1939 that the LI’s guidelines for gas protection should be scrapped, judging from the events in both Spain and Poland. See the article “Skyddsrumsfrågan.” Teknisk Tidskrift (1939), vol 69, issue 49.
\textsuperscript{848} Se Dagens Nyheter, 21 December 1936.
\textsuperscript{849} For more on the British reaction to the news of the air raids in Spain, see three notable works. Grayzel, At Home and under Fire; Haapamäki, The Coming of the Aerial War; Holman, The Next War in the Air.
after the heavy bombing of Barcelona in March.” The huge emotional, financial and personal investment that the Swedes appeared to put into the war probably makes this somehow applicable to Swedish circumstances as well. Even if the government was unwilling to officially take sides, most Swedes appeared to sympathize with the republicans and perhaps this made the air raid shelters appeal more to a population that tended to interpret General Franco’s coup d’état, and the subsequent bombing raids, as completely unjust actions against unarmed civilians. The passive form of defence that the air raid shelters came to symbolize was associated with the republican side and socialist reformist ideals.

Using the bombings of Barcelona or other places in Spain for pedagogical comparison was a strategy that was also used by journalists and authors in Great Britain at the time and further emphasizes the fact that the Spanish Civil War quickly acquired a symbolic status in Europe. Similar to Great Britain, Barcelona was also used in Sweden as the primary example of the risks of aerial warfare because of its position close to the sea. In this sense, both London and Stockholm had more in common with Barcelona than Madrid. And even if Guernica came to represent much of the most extreme horrors of aerial warfare, it was still a small, rural and undefended city that had less in common with the metropolitan London and growing Stockholm than Barcelona. Spain, although not the first country to be systematically bombed, was also in Europe, which made its experiences much easier to access for politicians, military intellectuals, engineers and journalists.

This also partially explains why the Spanish experience of war became a foundation stone in Swedish preparedness politics, only rivalled by the inflow of experiences from the Winter War of 1939–1940. Spain’s urban environments, political institutions and traditions also had a lot more in common with Sweden than, for example, Abyssinia and Manchuria, two other countries that had been heavily bombed around the same time. This meant that experiences from Spain were easier to transfer to a Swedish context and provided a basis for identification. Given the hundreds of fundraising meetings that were held and the fact that hundreds of Swedes had volunteered on the republican side, the Swedish public’s interest in the war is understandable. For the public, Spain’s accessibility and similarities to Sweden also meant that the Spanish Civil War

850 Holman, The Next War in the Air, 113.; For more details, see Haapamäki, The Coming of the Aerial War, 97–98, 113–121.
851 Grayzel, At Home and under Fire, 183.
852 Grayzel, 193–194; See also, Holman, The Next War in the Air, 205.
was the first war in which experiences of aerial protection measures and air raid shelters could be mediated more thoroughly to a wide public audience.\textsuperscript{853}

7.2.1. Barbro Alving and “Refugios”

The Spanish Civil War and the journalists’ stories emanating from it had another interesting feature. The Spanish Civil War was one of the first wars in which civilians and journalists experienced it from the perspective of the air raid shelter. In no other previous war did the air raid shelter, commonly known in Spain as “Refugios”, acquire such a symbolic role. Not only was the urban perspective somewhat new for modern warfare, journalists now also wrote from inside air raid shelters, making the experience central to the story. This started in Spain and would later become a naturalized part of war correspondence in the Second World War, particularly from Finland, Germany and Great Britain. One journalist who exemplifies this trend is Barbro Alving (1909–1987). Barbro Alving was a close friend of Elin Wägner and an important actor in the Women’s Peace movement that was active during the mid-1930s. Over the years, Alving became a prominent public figure and journalist. Her articles from Europe from 1936 to 1940 have gained the interest of media historians in Sweden.\textsuperscript{854} It has been argued that Barbro Alving’s articles from Spain are a watershed in her career.

Previously, civilians and journalists would have to go to the front to witness weapons being fired, or wait until enemy forces occupied their villages or towns.\textsuperscript{855} However, Barbro Alving’s texts about her travels in Spain were

\textsuperscript{853} For newspapers and journalists, The Spanish Civil War was a politically problematic war to follow and also a war that had a special place in the media landscape. News from Spain was censored by a direct order from the Foreign Ministry, partly due to the Social-democratic government’s ambivalence to the war. See Rolf Yrlid, Till Madrid: tre svenskar närvaro under det spanska inbördeskriget (Stockholm: Atlantis, 2006), 85–86.; For more on Barbro Alving’s trip to Madrid, see chapter 3 in Cantera Carlomagno, När Alving blev Bang See also chapter 4, pages 86–113. It should also be noted that Alving’s texts from Spain were scrutinised by the state before publication. All Alving’s articles were sent via the Foreign Ministry and were “corrected”. Sometimes the changes concerned only minor details, and other times whole sections were redacted before publication without her knowing about it. Cantera Carlomagno, 80–81, 83–84.

\textsuperscript{854} For an interesting reflection on Barbro Alving’s place in modern media history, see chapter six, “Myternas Bang” in, Cantera Carlomagno, När Alving blev Bang; See also Lundgren, Solister i mångfalden; Yrlid, Till Madrid.

\textsuperscript{855} Sometimes at great risk. Consider, for example, the Battle of Culloden in 1746. Many innocent bystanders were cut down by the pursuing English cavalry or slaughtered in their homes as the English troops conducted plundering raids nearby. See John Prebble, Culloden (London, England; Penguin, 1996).
not stories from some trench out in the woods or a hill overlooking where a battle had been fought, as had previously been the case. 

“Today,” Barbro Alving noted from Valencia in March 1938, “you can sit in your hotel room many miles from the front and still experience all the atrocities of war.” The streets, the hotels and the air raid shelter in the cities became key locations in which the experience of war was recorded, and the Spanish Civil War became a catalyst for this change.

With these journalists’ stories from the suburban perspective, we also see a continuation of a trend that media historian, Johan Jarlbrink, has discussed. During the 1930s the “high-flying” journalist became a very popular trope. It was a sort of journalistic style in which the journalists themselves co-created the story on which they were reporting. These travelling stories combined with the breakthrough of commercial flights during the interwar era made travelling easier. Thus, the journalist became a “flying” journalist. This is a feature of the writing style of many war correspondents in the late 1930s and during the Second World War. However, not all journalists were necessarily flying in the real sense of the word. George Orwell’s *A Homage to Catalonia* is an example, but there are many more. The key aspect was the personal narrative and the travelling process. One of the most significant events in the life of Barbro Alving exemplifies this trend. In one of Alving’s earliest articles she wrote about life in Valencia after taking refuge inside a Spanish air raid shelter. The article was initially published in *Dagens Nyheter* in November

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856 See the chapter “Media and Total War”, in Susan L. Carruthers, The Media at War (Basingstoke: Palgrave Macmillan, 2011).


858 Johan Jarlbrink, Det våras för journalisten: symboler och handlingsmönster för den svenska pressens medarbetare från 1870-tal till 1930-tal (Stockholm: Kungliga biblioteket, 2009), 23ff. The emblem and historical origin was the journalist, Henry Stanley, and his adventure to Africa to find Dr. Livingstone, in which the focus of the story was Stanley’s own travels, see p. 87.

859 Patterson, Guernica and Total War; Hurcombe, France and the Spanish Civil War; For some notes on the Swedish literary impact of the Spanish Civil War, see Yrlid, Till Madrid.

1937, but has become famous through a radio recording based on it. In 1938 Barbro Alving recorded her story for a radio broadcast in which she told of her evacuation from the hotel in which she was staying as the alarm sounded, fleeing through the streets and seeking refuge in a public air raid shelter. In this report, several contemporary traits converge. The high-flying journalist, the engagement of Swedish communist volunteers, total war and the civilian urban environment, the new war correspondence journalism, and the new air raid shelter.

A few of us are sitting quietly in a hotel room at the Hotel Victoria in the city centre, a couple of journalists, one of whom is a Swedish colleague, and some volunteers on leave. Suddenly the lights go out, the electricity is cut off in an instant and the room goes dark. You freeze, everyone knows what it means, no one moves, no one says anything, the intense listening grows into a black wall in the room. Someone lights a candle of the kind that can be found in every well-kept hotel room in Spain. This time it was me, and the effort needed to not let my hands shake was reinvigorating. And then the thunderous sound begins. In the beginning, far away, and then closer and closer, until you feel that the horrid and panic-spreading blasts are right there in the room. But when the minutes pass and I grow used to the darkness and the sounds, I remember with some difficulty that I am there as a war correspondent and have not come to Valencia to hide in a hotel room, wishing that I were somewhere else. My Swedish colleague and I fumble around to find our clothes. We must go out and find out what is happening. And although it is not a comfortable experience to stand at the entrance to the hotel room, staring into the darkness, it still feels a relief to get a chance to find out what is really happening. Perhaps the worst thing with city bombardments is that you have no idea what is currently happening. You can’t make out which places are being bombed, how many aircraft are up there, whether the defenders have started fighting back. You know nothing other than that each step you take could be the worst. This time we became aware of this immediately. An official at the American legation stood in the doorway and warned us not to cross the street. His face was lit up in green by the shimmering light of the enormous spotlights that relentlessly swept the sky. I’m afraid that we stared at him bitterly, his words were important, he had seen this many time before. But we were there to write about night-time in an air raid shelter and how would we possibly get there without crossing the streets when the shelter was on the other side of a grand plaza?

In any case we managed to get there, we fumbled around in the darkness,
and tried not to listen to the blasts and the sounds of windows breaking all around the plaza. The bombardment must have been close by. But after several minutes, we went down through a lit door to a brick shelter with a low ceiling. And after five minutes we regretted it. “Space for 225 people” was chalked on the wall of the shelter. But there were at least 450 inside. It was crowded like a box office queue. If I said that you could hardly stick your hand in your own pocket, it might give you an idea of how tightly we had to stand together. And in this way, we stood for several hours, 450 people with clenched faces. Small children stood tightly pressed against your knees. Old women tried to get support by the walls. No one said a word. Smoking was not allowed and ahead was the worst of prospects. A long narrow, staircase led up to the danger above, and could be blocked by an exploding bomb, leaving us to suffocate like rats. And still, the worst part of it was not that you couldn’t move, but that you couldn’t know what was happening outside, with your house and home. In our case, with those who we had left behind at the dark hotel, and not knowing when we could venture out. My colleague and I held out for a couple of hours. Then a feeling took hold of us that anything was better than standing like we were in a trap. We fought our way upstairs and ran home, half-blinded by the darkness and half-deaf from the falling bombs. After another hour the lights came back on in the city and we could relax after a long day.

In this story, the air raid shelter became the central location in which events took place for a person who could not possibly perceive things from the military’s perspective. It also showed that those who pushed themselves through the air raid shelter’s opening were no different from the usual readers back home. The soldier was absent, in favour of the civilian. In this way, the Spanish Civil War marked an important change in how air raid shelters were perceived back home.

Alving eventually left Spain, but this perspective would follow in her footsteps in stories from Berlin and Helsinki. The view from the underground flavoured much of the most gruesome stories from Finland, for example. In Alving’s later texts, the women’s perspective became more prominent, connecting to the previous era of militarization debate associated with Elin Wägner’s generation of writers and the journal Tidevarvet. While discussing a large air raid protection drill in Berlin in 1938, Barbro Alving concluded that the German women’s three Ks, “Kirchen, Küchen und Kinder”, [“Church, Kitchen and Kinder”], would be translated to their environment. The event was broadcasted on Sveriges Radio P1, “Barbro “Bang” Alving – en radiolegendär”, 2006. See the audio clip “Varje timme väntar man på bomberna”. https://sverigesradio.se.. Accessed 2020-03-31.
Children”), which were so often emphasized as being their life’s purpose and duty, had now been extended to a fourth, “Keller” [“Cellar”, referring to air raid shelters below ground]:

There she sits, satisfied and purring in the darkness, she has no black paper, but has wrapped old copies of *Dagens Nyheter* around the chandelier and thanks divine providence for the valuable Swedish wares. Yesterday
she tumbled downstairs with her husband, children and pet, at the wild sounds of the siren. The German women’s credo must be revised. From here on it should be Kirche, Kinder, Küche, Keller [“Church, Children, Kitchen and Cellar”]. But alles hat geklappt [“everything’s all right”], no Christian will have to think further beyond.  

During the winter of 1939, Alving conducted another trip to Finland and repeated her exploits in Spain and Berlin. Here, women’s roles and exposure also came to the fore. The sarcastic tone that was sometimes evident in her articles from Spain and Berlin gave way here to a much more serious and destructive reality, in which women and children were, although stoic, clearly the victims. Alving recounted the compact darkness and the quiet bitterness that the civilians felt below, of women breaking down and children running off to the streets during raids. The scenes in Viborg in particular appeared to have affected her deeply: “Viborg is a nightmare, an unreal environment of emptiness and destruction, and a monument to the warfare of our age, which I will never cease to remember.”

7.2.2. Gerd Ribbing reflects on life with air raid shelters

Elin Wägner and Barbro Alving were left-wing authors who made quite negative interpretations of the practical value and symbolic meaning of air raid shelters. The third journalist who is key to this section, Gerd Ribbing (1889–1979) should rather be understood as a representative of a liberal and more positive interpretation of aerial protection measures. Ribbing, who was a contemporary of both Elin Wägner and Barbro Alving, did not appear to sympathize with the critique of women’s rights that Wägner voiced in general. Not surprisingly, her position was definitely pro-aerial defences and her experiences in Spain also appear to have made her an even more convinced advocate of aerial

862 "Där sitter hon nöjd och spinnande i halvdunklet, hon har inget svart papper, men har svept gamla Dagens Nyheter kring förmakskronan och tackar försvinen för den goda svenska varan. I går störtade hon med man och barn och hund ned för trappan vid sireners vilda tjur, den tyska kvinnans motto får revideras, hådanefter bör det heta Kirche, Kinder, Küche, Keller. Men alles hat geklappt, längre behöver ingen kristen tänka" Dagens Nyheter, 22 September, 1938.

863 See the following articles in the newspaper Dagens Nyheter; “Evakuerede Hoglandsbor få återvända”, 17 October, 1939; “Finska soldater mjölka kor på lugna Karelska näset.”, 19 October 1939; ”Hos Karens gränsvakt.”, 2 November, 1939; ”Nobelpriset ger Finland tillföriskt”, 12 November 1939; ”Mödrar och barn på flykt.”, 1 December 1939; ”Nya regeringens första möte i ett bombskyddsrum”, 2 December 1939; ”Helsingfors tvångsutrymmes” 3 December, 1939; ”Ryska trycket på Karelska näset ökar” 7 December, 1939.

864 ”Helsingfors tvångsutrymmes”, Dagens Nyheter, 3 December, 1939.
protection measures. It is also difficult to see how the wife of a well-known military officer during the mid-1930s could publicly voice pacifist ideas, if she ever sympathized with them. She would also be in good company. Historian, Kjell Östberg, has shown that although the international peace movement attracted a huge number of women during the interwar period, pro-defence organizations were equally large in number and being pro-defence was a major part of the political programme of right-wing women. Also, organizations with a humanitarian profile such as the Red Cross and Lottakåren [“Lotta’s Corps”, a volunteer military corps for women] were mostly saturated by conservatives and were generally pro-defence.865

There were also women’s peace movements on the liberal and conservative sides, in some cases inspired by their left-wing counterparts. Regardless of a person’s political stance, however, everyday life during air raids and evacuation into air raid shelters could also be a problem for defence-friendly authors and journalists. The main difference between them and the radical pacifist and feminist organizations was that they did not use the technologies of aerial protection as technological symbols to reject in the name of politics. Although finding these technologies a sad symbol of the state of the world, just like

Figure 59: Critics like Wänner and the Fogelstad Group were in a minority as the 1930s drew to a close. Women’s magazines often published propaganda articles urging women to engage in aerial protection. The headline reads: “The threat from the sky”. The women in the photograph are the “Insurance women’s aerial protection league” in a parade in 1939. The original article can be found in Svensk Damtidning, 10 June, 1939.

865 See Östberg in Florin, Sommestad and Wikander, Kvinnor mot kvinnor, 31.
Like Barbro Alving, Gerd Ribbing was a journalist and writer at *Dagens Nyheter* and of the same generation. Starting in the late 1920s, Ribbing began writing small chronicles about city life and her travels in Europe. In 1923, she appeared in a Swedish newspaper for the first time. In 1932 her journalistic career took off, after which she wrote continuously for *Dagens Nyheter* until 1966. Ribbing had been introduced to *Dagens Nyheter* by Elin Brandell, a pioneer in Swedish journalism and in 1932, Ribbing managed to convince the Editor-in-Chief, Sten Dehlgren, to hand over the editorship of the family pages. For subsequent generations, Ribbing became something of a legend in *Dagens Nyheter*. It is likely that she is most known for her regular column called *Helenas syn på saken*, [“From Helena’s point of view”], in which she gave advice on matters of love and relationships. The column was inspired by the New York Times column by Dorothy Dix and, according to Ribbing herself, was Sweden’s first modern column on relationships. She also became
famous for her column “På stan” [“In the city” or “In town”]. These days, *Dagens Nyheter* still calls one of its weekend pages “På stan”, in honour of Gerd Ribbing’s column.

In media history studies, Gerd Ribbing only appears in a few places but is not given any particular agency. This is probably because, compared to other female journalists at the time, she did not attempt to do “hard” journalism in the same way as, for example, Barbro Alving and has therefore not attracted any particular interest from historians seeking to unearth the histories of prominent female journalists. Nevertheless, she was part of the female wave of journalists who broke into editors’ offices in the 1920s and 1930s, becoming part of the 10% of female journalists who existed at the time. But unlike journalists like Barbro Alving, Maud Adlercrantz and Astrid Ljungström, who somehow threatened the male hegemony and caused much more fuss, Ribbing was one of those journalists who worked in the background in the newspapers of Stockholm, with “soft” journalism as her primary task. Her role as editor of *Dagens Nyheter*’s family pages and her joyful and personal columns are significant in this respect. Over the years, Gerd Ribbing also became something of a cultural personality, although with a bourgeoisie profile. During the 1940s and 1950s, she wrote a number of books on various topics such as codes of conduct, two books on Gustavus III’s wife, Queen Sofia Magdalena, and travel accounts from Spain during the Spanish Civil War.

What makes her story interesting in this context, however, is the fact that regardless of her quite soft journalistic legacy, she is one of the few Swedes to experience life under bombardment and, moreover, like Alving, she had the literary skills to write about it.

Gerd Ribbing was a figure who, in many respects, was at the very centre of the intersection between Swedish journalism of the 1930s, the Spanish Civil War, Stockholm and air raid shelters. In comparison with Wägner and Alving, she also presented a vision of the air raid shelter and aerial warfare life that was significantly different in that she did not reject air raid shelters, but rather saw them as a necessity. During the Spanish Civil War, Gerd Ribbing travelled to Barcelona with her husband, Olof. Ribbing’s husband

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867 Lundgren, Solister i mångfalden, 75–77, 83.
868 Lundgren, 75, 84f.; Jarlbrink, *Det våras för journalisten*, 165.
was a prominent military officer known to the public and, moreover, he was embroiled in Swedish–Spanish political relations during the Civil War. He was the editor of a military journal, Vårt försvar [“Our defence”] and had various international commitments alongside other book projects and education. For our sake, perhaps his most important contribution was his role as a member of a League of Nations committee working to evacuate what was left of the 500 Swedish volunteers from Barcelona towards the end of the Civil War.\textsuperscript{870}

It was on this trip that Ribbing accompanied her husband and it formed the basis of the articles upon which this section is based.\textsuperscript{871} Since Olof had been one of the officers responsible for bringing home the volunteers, and since this became a big event in 1938, his and his wife’s return were also described in Dagens Nyheter as a major event. The event was a homecoming of two cultural personalities known to the public, or at least within media circles, and also marked the end of Sweden’s involvement in the Spanish Civil War.\textsuperscript{872}

After Gerd Ribbing’s return to Sweden from Spain in January 1939, Dagens Nyheter published six major articles from 25–30 January that all received front page coverage.\textsuperscript{873} In these articles she wrote about her experiences in Barcelona.


\textsuperscript{871} Olof’s experiences in Spain resulted in a book called “Bombing Raid against Barcelona” being published as early as 1939. Ribbing was positive about aerial protection and shelters, although, according to Olof, the public shelters built by the Catalonian aerial protection services, junta de defensa passiva, were barely used by the Catalonians themselves. Ribbing, Bombanfall mot Barcelona, 6.; Olof Ribbing, Frihet Och Försvar (Stockholm, 1941); Olof Ribbing, Våra vapen. (Stockholm: Wahlström & Widstrand, 1943); Olof Ribbing, Svensk krigskonst (Stockholm: Riksförb. för Sveriges försvar, 1944).


\textsuperscript{873} See the following articles in Dagens Nyheter ”Befolkning, ej parti, i kamp för Katalonien” 25 January, 1939; ”Olycklig människorjakt av Francos bombflygare” 26 January 1939; ”Barcelona horde Mozart i väntan på bombangrepp”, 27 December, 1939; ”Från vräklig rikedom till krigets armod”, 28 December 1939; ”Hundarna i Barcelona först i skyddsrummen” 29 January, 1939; ”Spanska bikter fritt ur hjärtat.” 30 January, 1939. Gerd Ribbing was also affected by the political stickiness of the Spanish Civil War. Her articles had to wait to be published before she returned home, likely due to them being scrutinized by the Foreign Ministry before publication. Apparently, the Foreign Ministry’s restrictions and censoring also concerned journalists and authors who did not necessarily sympathize with the socialists of Spain. According to historian, Jarl Torbacke, Gerd Ribbing was approached by the Foreign Ministry before travelling to Spain and was told that she was not allowed to write from there at all. Her husband, on the other hand, had no such restrictions and wrote to Sten Dehlgren continuously about his experiences during the months they were there, complaining about the ill-concealed attempts of other international news agencies to cut the actual civilian losses from Franco’s bombardment to around 10% of the actual numbers. Torbacke writes that Olof Ribbing was quite upset – clearly, the world would not see the true picture from such numbers – and offered his letters to Dehlgren as material for DN to use in order to awaken the
and juxtaposed them in relation to the Stockholm to which she had returned, providing a kind of personal journalistic adventure story of life in Spain, rooted in the Swedish context.

The headlines of her articles suggested that she had somehow managed to survive the horrors of a war-torn, culturally-degraded Barcelona: “Horrible hunt for humans by Franco’s bomber pilots.”, “Luxury stores sewed shirts for soldiers”, “Barcelona listened to Mozart while waiting for bombing raids”, “The dogs of Barcelona were the first to enter the air raid shelters.” She also wrote three major articles with the following headlines “As a tourist in wartime Spain” (1 & 2) [“Som turist i krigsspanien”] and “The variety show starts after the bombing raid” [“Efter bombningarna börjar varietén”], which were published in the weekend supplements. Barcelona had adapted to wartime life. Thus, Ribbing’s first article about her experiences would not prove to affirm what both military strategists and politicians suggested. The “knock-out blow” that military men in Sweden (such as Hugo Jungstedt for example) had been eager to highlight during the interwar era appeared to have failed completely. The war was neither un-survivable and a modern apocalypse totally decimating urban life, nor would bombardment break the people’s will to resist, even in the long term. Ribbing explained that Barcelona had fully adapted and instead of nervous panic, the constant raids had only fuelled contempt.

Although the bombing raids had already started in March 1938, the Catalonians still general public to the effects of aerial bombardment. Dehlgren, however, did not raise the matter of Franco’s supposedly inhuman bombings or the necessity of organizing aerial protection in response, and replied to Olof Ribbing that, according to the Foreign Ministry, there would be no room for opinions about Spain. The fact that the restrictions from the Foreign Ministry only concerned Gerd Ribbing did not appear to matter. Dehlgren’s ambivalence and unwillingness to ignore the Foreign Ministry’s recommendations clearly affected how the Ribbing couple’s experiences were communicated to the general public. Jarl Torbacke explained this episode as being the consequence of Dehlgren’s “lack of journalistic instinct” and a willingness to place the company’s reputation above international affairs and problems within the profession. Jarl Torbacke, Dagens Nyheter och demokratins kris. 1937-1946: genom stormar till seger (Stockholm: Bonnier, 1972), 22–23.

874 “Som turist i krigsspanien” Dagens Nyheter’s weekend supplement, 5 March, 1939; also “Klostret pedalbes ruvade på skatterna” Dagens Nyheter’s weekend supplement, 19 March, 1939; “Efter bomberna börjar varietén”, Dagens Nyheter’s weekend supplement, 30 April, 1939.

875 For the British perspective, see chapter 2 “Constructing the Knock-Out Blow”, Holman, The Next War in the Air, 52–53.

fought back. They had managed extremely well, notwithstanding the virtually endless bombing raids and lack of food, and had kept General Franco’s troops at bay much longer than could have been expected of them. On 25 January, 1939, she wrote quite the opposite of what the “experts believed”, that the frequent terror bombings and subsequent alarms boosted the Catalonians will to defend themselves rather than undermined it.⁷⁷⁷ Actually, their stoicism was so profound that in one of the articles from 26 January “Horrible Manhunt by Franco’s bomber pilots” she described how when she arrived in Barcelona, it appeared to her as if the military strategists’ calculations had “completely misfired” [“fullständigt slagit slint”].⁷⁷⁸

Key to coping with aerial warfare, however, was the existence of air raid shelters and other aerial protection technologies close to Ribbing’s quarters. Although the pacifist’s alarmism did not appear to have been confirmed, she still argued that aerial protection measures were necessary in order for her to cope with the pressure. Ribbing had been living in Barcelona city centre, and during her three months there had experienced around 80 air raids. The close proximity of the air raid shelters had also proven to be the key to providing a sort of sense of safety in this environment. Consequently, the Spanish air raid shelters had become part of her everyday life and were the one variable that kept her sane. She also noticed this when she returned home. As she walked through the streets of Stockholm once again, Ribbing claimed that she kept looking for air raid shelter signs that could tell her there was somewhere she could reach within minutes, or even seconds. After returning to Stockholm, a squeaking tram struggling uphill made her heart jump; she wasn’t sure whether or not these sounds had been alarm signals. She saw an aircraft in the distance and her mind tried to establish whether or not it was an Italian bomber.⁷⁷⁹ Beneath these examples, she claimed, were a bundle of “unresolved experiences” from her three months in Barcelona that left her in a continuous state of nervousness.⁷⁸⁰ Her coping mechanism had taken its toll. She had a hard time remembering that Stockholm was not a war zone. In her introduction to the first article on 25 January, she claimed that the first things she noticed upon returning to Stockholm was the abundance of foodstuffs and

⁷⁷⁸ Dagens Nyheter 26 January, 1939 p. 5.
⁷⁷⁹ Ibid.
⁷⁸⁰ Ibid.
paperware in the shop windows, but also that there were no air raid shelters to be seen anywhere in the city. Thus, her experiences of the bombing raids over Barcelona had provided her with a new perspective that caused her to read the cityscape in new ways; and without air raid shelters she regarded it as an incomplete environment:

But I walk around and look for air raid shelters here in the city. Where should I go if there is a surprise bombing raid here in Stockholm? I feel a bit nervous when I search in vain for entrances to underground air raid shelters in Kungsträdgården, at Tegelbacken and on Birger Jarls gatan. After three months in an urban war zone, it is difficult to remember that peace reigns here.  

Although it is a witness account of her feelings about going from one city to another, the above quote also has a demanding undertone. The epiphany she appeared to experience about Stockholm’s lack of air raid shelters inspired her to urge the citizens of Stockholm to consider aerial protection measures. To Ribbing, there appeared to be many similarities between Stockholm and Barcelona that could work as a wake-up call. The major port was, of course, the primary target for the Italian bombers, but other than this the inner parts of the city were very similar. Just like Stockholm, the urban topography of Barcelona comprised narrow streets with buildings several storeys high, mostly occupied by the working class. However, these streets contained the city’s best tailors and shops, which made them popular and therefore also crowded. They also crossed a few large avenues, one of them being the immensely popular “Ramblan”, so crowded that the only possible similarity to Stockholm, Ribbing concluded, was that of Sturegatan just after a football match or Drottninggatan during the annual Christmas market. “If this was Stockholm…”, she stated, imagine “huge piles of rubble,” large sections of balconies and roofs along with stone ornaments and statues covering half of Sturegatan, forcing pedestrians and traffic to find another way around. The typical Swede would try to look up towards the extravagant façade of the Nobel House, but would soon realize that it had gone, “it doesn’t exist”. A bomb “flayed” the building

882 Dagens Nyheter, 26 January, 1939.
at the same time it made the crater in the street. Such comparisons also led to questions. Even if the Catalonians had shown that the war was survivable, Ribbing questioned whether the Swedes had the ability to conjure up the same sort of stoicism. Over time, she argued, some would eventually greet the bombers with a resigned shrug, others would simply collapse on the street from the constant stress. Ribbing presented a fictional narrative to make her point:

The Siren! Damned murderers! Are they here again? A gentleman suddenly blurts out beside our friend, who shrugs in solemn agreement. The phenomenon is becoming common. Cars stop, the street crowd moves towards door entrances and some of them hurry towards one of the city’s underground shelters that were hastily constructed in Berzelli Park, ruthlessly destroying lawns, shrubberies and trees. The anti-aircraft guns begin to rumble. And here come the bombs. So close they must have fallen towards Valhallavägen, a gentleman guesses. Good Lord – the wife and kids! the Stockholmer thinks, and his legs fail him as if he is about to pass.

Gerd Ribbing also conveyed stories that focused on the internal mechanics of adapting to aerial warfare. Bomb nervousness came in all shapes and sizes. Themes of panic, nervousness and desensitization suggested that although coping was possible it also came at a price. Ribbing stressed the stoicism of the Catalonians. However, the air war affected them, causing unrest and nervous behaviour. As I mentioned above, she claimed that much of her nervous behaviour returning to Stockholm had to do with her unresolved experiences from Barcelona, suggesting that her time there had caused a kind of trauma. In her third article on 27 January, she used a meeting she’d had with a doctor in Barcelona to discuss these topics.

The doctor had told her that many patients he had treated over the last couple of months did not necessarily suffer from malnutrition. In some cases, weight loss and related gastric problems were actually the consequence of the long-term strain of the bombardments. Ribbing claimed she had suffered from such an illness herself. The first bombardments she experienced she had met

with curiosity rather than fear. But as the days passed and the bombardments continued to bear down on them, she noticed that she was having problems with her stomach, headaches, as well as waking up in the middle of the night with her heart pounding. Even if she had been lucky and there had been an air raid shelter in the hotel’s basement to calm her nerves, living under such a constant threat affected her internal workings. Her account of the naivety of the citizens of Stockholm, the panic-stricken behaviour or the de-sensitized shrug, all suggested that there was a psychological loss looming in the background even if the panic to which military intellectuals had referred had proven to be erroneous. Everyone would react differently, and some would suffer more than others.

A visit to the opera in Barcelona served as a good example. During a charity fundraising event at the opera house, Ribbing could not overlook the fact that the building was very close to the port – which was the primary target of the bombers – and she writes of the images of the death of the twentieth century that circulated in her mind during the concert. Another raid, she thought, and the bombs might just penetrate the roof of the opera house, directly striking this unknowing crowd patiently waiting to hear Mozart and Haydn: “Medan stråkarna ljuvligt spelade ut sina lätt lugna och harmoniska 1700-tals drömmar, visste hela publiken att i nästa ögonblick 1900-tals döden kunde vara över dem alla.”885 [“While the violins beautifully conveyed soothing and harmonic eighteenth century dreams, the entire audience knew that in an instant twentieth century death could be upon them”]. Ribbing was not the only person whose mind was elsewhere. In these situations, people would occasionally let their inner collapse show in public and cause commotion. Ribbing described a woman who, during the lengthy applause in honour of the virtuoso violinist on stage, suddenly began screaming from the balcony: “Thank you for doing this! I also have children – and Christ was once a child, too! But these people who bring hell upon the heads of our children every day [“öppnar helvetet över våra barns huvud”], are they Christians?” The woman’s distress appeared to increase and instead of just screaming she began crying. According to Ribbing, the woman was carried out while the audience tried to ignore her as much as possible, applauding the violinist without stopping.

Animals used to human company also found their way into the air raid shelters as a means of handling their fears. These glimpses of co-operation between animals and humans, Ribbing described, also came to symbolize the equality that the aerial warfare forced upon them. During an air raid, Rib-

bing went down to the air raid shelter in the basement of the hotel in which they were staying. On her way down, she noticed a group of boys looking at something under the staircase. In a dark corner, a small black dog lay with its paws close together and with its nose in between. The boys told the story of the dog:

“This little dog is the first to enter during an air raid”, the boys explained. It comes running through the doors of the hotel foyer as soon as it hears the siren. It runs down here, lies still and waits. Once the bombs have fallen and the guns have been silenced, it gets up, runs up the staircase and through the crowd standing in the hallway, and then out onto the streets again.”

This scene, which seems to have been emotionally startling to Ribbing, made her consider her surroundings at the time. Not even animals were free from their masters’ war. In this sense, the air raid shelter also blurred the boundaries between human and animal. For a brief moment, in the hotel’s basement they were equals. The dog was waiting in the air raid shelter, “like me”, together with women, children, the elderly, soldiers and girls and boys, “like a scene from Gorky’s “The Lower Depths””.

7.3. Aerial protection, air raid shelters and the Stockholm press 1937–1940

The period after the start of the Spanish Civil War marked the beginning of a surge in reporting and publicity around aerial protection and air raid shelters. Wägner’s generation of criticism was quite an isolated phenomenon. But when Gerd Ribbing published her six articles in January 1939, the media landscape was very different. The articles by Barbro Alving – and more so by Gerd Ribbing – were published alongside an increasing amount of news, editor’s notes, ads and chronicles that in some ways referred to aerial protection issues. Air raid shelters and aerial protection had now become a commonality in the public sphere. A simple search for the term “luftskydd*” and “skyddsrum*” in

the National Library’s newspaper database reveals a telling curve relating to the increasing intensity of aerial protection discussions in public during the last years of the 1930s:

![Graph 1](image1.png)

**Figure 61**: Graph taken from the National Library’s newspaper database. Search term “luftskydd*”. The search was conducted on 2020-05-15. The asterisk includes a variety of words building on “Luftskydd” as a base, such as luftskyddsövning, luftskyddsrum, luftskyddschef. Each hit represents a reference on a full newspaper page. The graph peaks in 1940 with 5,822 references to aerial protection in all digitized Swedish newspapers from that year. Compare this with the 232 references in 1935. www.tidningar.kb.se.

![Graph 2](image2.png)

**Figure 62**: Graph taken from the National Library’s newspaper database. Search term “skyddsrum*”. The search was conducted on 2020-05-15. Each hit represents a reference on a full newspaper page. The graph peaks in 1940 with 4,518 references to aerial protection in all digitized Swedish newspapers from that year. Compare this with the 167 references in 1935. www.tidningar.kb.se.

From just a handful of references to aerial protection in Swedish newspapers in 1933 and 1934, to 5,800 references to aerial protection and 4,500 mentions of air raid shelters in 1940. The daily newspapers *Dagens Nyheter* and *Svenska* 888 The National Library has digitized a large number of newspapers. However, it is continuously adding more newspapers, as well as refining the search engine, meaning that the numbers shown here are
Dagbladet dominate in numbers, followed by Aftonbladet. These numbers are very crude and could be further elaborated upon using other search terms such as aerial defence and civil defence. Nevertheless, they show a trend of which at least Alving and Ribbing were a part. From being a practically unknown concept during the mid-1920s, aerial protection became a widely discussed topic in society towards the end of the 1930s.

An important feature of this curve is that these numbers not only reveal headline news in Swedish newspapers. Although important, articles such as Alving’s piece on the Russo-Finnish Winter War and Ribbing’s articles about Spain were rare. The majority of references relate to small comments on the founding of a local aerial protection club in Stockholm, exhibitions, news on upcoming courses, film presentations, local politics and funding plans for aerial protection, news on small and large air raid shelter projects, letters to editors from concerned citizens or just plain satire and some short ironic poems. Another recurring category of articles related to aerial protection drills and blackouts in Swedish cities. These news items also tended to appear on the front page of Dagens Nyheter and were framed as major and pivotal events that showed Sweden’s progress, or were at least attempts to keep pace with Europe. Moreover, a large proportion of the references are ads of various kinds flooding the newspapers, selling apartments “with air raid shelters”, equipment or entrepreneurial large-scale construction services. The opportunism of the engineering community led to a surge in various kinds of aerial protection products that needed to be advertised in the newspapers. Thus, occasional headline news from Spain, Finland, and subsequently, Great Britain, of the kind described above, was framed alongside a much larger public interest and sensitivity to aerial protection issues during these years.

Political plans and decisions to build air raid shelter were also events that quite often appeared as front page news, as well as controversies. The so-called Shelter Controversy (“Skyddsrumsfrågan”, see chapter 6) that originally played out in Teknisk Tidskrift was also included in Dagens Nyheter and Svenska Dagbladet. The engineer Axel Ekwall’s plans for hardening Swedish hydropower stations also became an important news piece. Kjell Magnell’s return to Sweden from Spain together with Åke Kretz, and the ceremony held by Torsten Nothin, appeared on the front page. The visit by the German engineer, Hans Schoszberger, encouraged Dagens Nyheter to schedule an interview. Some of these events also reached other parts of the newspapers. From time to time, Dagens Nyheter’s

subject to change. For further information, see www.tidningar.kb.se (accessed 2020-03-20). Search term used in this case was “Luftskydd*”.

369
editor’s note also commented on aerial protection politics. A recurring topic in 1939 was Stockholm municipality’s great air raid shelter plan, which was not only discussed in the daily press, but also in radio broadcasts and through exhibitions and public events. Large-scale projects such as the refurbishment of the Haymarket Square also attracted attention. For example, citizens reflecting on personal experiences of blackouts or drills could submit their stories in the form of a letter to the editor, thereby appearing on the family pages. The family page context was also a key arena for Gerd Ribbing in 1939 and 1940.

It is important to point out that although these news themes relating to air raid shelters and aerial protection were very different in form and scope compared to the texts of Elin Wägner, Barbro Alving and Gerd Ribbing, they still put aerial protection high up on the agenda and the daily newspapers functioned as an all-encompassing platform that could organise and make sense of all the input. Correspondents’ reports from Finland were very different in style and framing compared to news about a decision by Stockholm municipality to fund public air raid shelters. Letters to the editor, satire or small personal reflections on the family pages also consisted of very different types of accounts of air raid shelters. However, side by side, or flanked by ads from companies selling aerial protection equipment, these news items helped keep the topic relevant for the public and can therefore be seen as being part of a larger societal air raid shelter discourse that was communicated and produced in the newspapers. The media sociologist James W. Carey’s idea of a ritual view of communication comes to mind here, in that the air raid shelter and

890 See Svenska Dagbladet, “Stockholm nu väl försett med skyddsrum: Elva i berg insprängda rum färdiga att tas i bruk.” 29 December, 1939; “Offentliga skyddsrum i Stockholm” 16 April 1939; “2800 få rum i skyddsrör.” 1 March, 1940; see also Dagens Nyheter “Lista på 30 skyddsrum, kostnaden 10 miljoner.” 3 November 1938; “Skyddsrumsutrymmena bör nu ställas till disposition.” 3 December 1939; “Skyddsrum i Stockholm för en halv miljon kronor.” 9 September 1939; “50.000 ha tagit del av luftskyddets expo.” 14 August, 1940; “57.000 stockholmare rymmas i offentliga skyddsrummen.” 9 June 1940; See also Sveriges Radio Eko, 4 October, 1939, Stockholm municipality’s official, Yngve Larsson, presented Stockholm’s new air raid shelter plan here.
892 Between 1939 and 1944, Gerd Ribbing particularly focused on aerial protection measures and air raid shelters in Stockholm. She often bitterly reflected on their entry into the urban environment, in that they violated old landmarks of Stockholm, such as Kungsträdgården Humlegärden and Berzelli Park. See, for example, Dagens Nyheter “På stan” 10 January, 1940; 21 January, 1940; 3 February, 1940.

370
aerial protection took part of a general public news “mass.” From being a unknown, ill-conceived concept, air raid shelters and aerial protection measures transitioned into a tangible and publicly known phenomenon in Swedish news, as well as in the urban environment.

It should also be pointed out that the press discourse on air raid shelters also reflected a real and practical change in the urban environment. It was no coincidence that the daily newspapers were filled with ads from private companies selling products that were approved by Luftskyddsinspektionen, LI. Everything from groundwork, landfill and tunnelling to paper sheets for covering windows, timber beams, shovels, gas masks, toilets, medical equipment, doors and such like, was sold by a range of companies, suggesting an adaptable and thriving business, profiting from public the demand for aerial protection solutions. In 1939 in the daily newspaper Svenska Dagbladet’s annual book, the editors concluded that blackout paper had become one of the essential items for any household (“Mörkläggningspapper hör numera till livets nödtorft.”) Some construction firms also marketed themselves as shelter engineers and consultants that could provide a complete shelter package for an estate. The private ads at the back of the newspapers selling apartments and houses suddenly all

894 Svenska Dagbladets årsbok (1939), p. 98.
Figure 64: Advertisement page in Dagens Nyheter 18 March, 1940. These kinds of advertisements were common between 1939 and 1942. The headline says: “For those who can do it”.
had “air raid shelter” included in the text. Having a shelter in a building you were moving into had suddenly become a prerequisite and a means of selling your apartment.
Gerd Ribbing’s small chronicles in the family pages are a testament to this transformation. From here, she wrote a series of small reflections on how the urban environment of Stockholm had adapted to aerial warfare. Places that she had argued needed air raid shelters during her homecoming in January 1939 she now saw being transformed. In autumn 1939 and spring 1940, Ribbing reflected on how Humlegården, Kungsträdgården and Berzelli Park, landmarks in Stockholm, were being dug up and transformed into small concrete fortresses for civilian protection. All over the city she saw lorries standing around with materials for producing makeshift air raid shelters in basements, and the ancient Haymarket Square in Stockholm city centre became an excavation site in preparation for Stockholm’s first large-scale air raid shelter.\textsuperscript{895} The bustling activity and the dynamite explosions even made her question whether Stockholm might be being bombed after all.\textsuperscript{896} Another example is the framing of the air raid shelter at Blanchégatan in Stockholm. The air raid shelter here was allegedly the first proper “Magnellian” shelter and was presented in the LSF’s magazine, in \textit{Teknisk Tidskrift}, as well as in newspapers as being Stockholm’s first.\textsuperscript{897} The LI’s air raid shelter engineer, Torsten Gustafsson, presented this air raid shelter on national radio in 1938 and it was exhibited at propaganda events in Stockholm – and the real estate owner was generally presented as an upstanding citizen.\textsuperscript{898}

Behind all this was also the state, Stockholm municipality and the ongoing jurisdictional changes, inflamed by the progress of the war in Finland, as well as on the continent. After the outbreak of war, air raid shelter sales and construction appear to have gone into full spin and from 8 March, 1940, all real estate owners were obliged to build air raid shelters, making permanent the already ongoing trend. In the midst of all this was the LI, functioning like a spider in a web, coordinating orders from the government and the Stockholm Governor’s Office with the private companies by approving of their designs and products and, lastly, controlling the individual citizen by conducting inspections and imposing requirements that forced them to invest in more or better shelter products. The LSF’s propaganda efforts also provided traction

\textsuperscript{895} See the column “På Stan” in Dagens Nyheter, 3 February, 1940; see also 10 January, 1940.
\textsuperscript{896} See the column “På Stan” in Dagens Nyheter, 3 July, 1940.
\textsuperscript{898} Sveriges Radio, Henrik Dyfverman “Intervju med ingenjör Torsten Gustafsson, Blanchegatan 16, Stockholm”, 8 October, 1938.
for aerial protection. After only one year of existence, the LSF, with support from the LI, managed to produce a vast media system of propaganda, through which the message of volunteer engagement and conformity to the demands of aerial warfare was funnelled. These propaganda activities and drills were often reported in the newspapers. The political representatives of Sweden also took these opportunities to show their absolute loyalty to and participation in the common good, sometimes by posing in an air raid shelter door.

899 Bennesved and Norén, “Urban Catastrophe and Sheltered Salvation.”
Figure 67: “Voluntary aerial protection must grow into a people’s movement if state intervention is to be avoided”. Prime Minister, Per Albin Hansson, is being quoted here and is depicted stepping out of an air raid shelter door in Stockholm in October 1940. Dagens Nyheter 14 October, 1940. Knowing his heritage as an anti-militarist, pacifist and proponent of disarmament, he must have despised this kind of media attention.

Figure 68: Prince Carl standing at the entrance to the Red Cross’ newly built air raid shelter. According to the text below he is standing in front of a specially-designed gas-sealed door. The headline says: “Where the threads of mercy are tied at an all the more hurried pace”. Dagens Nyheter 15 November, 1939.
However, few of these air raid shelters appear to have been of the type that the fortifications officers had wanted and discussed. The “normal type” of shelter that Kjell Magnell and his cohorts promoted in their texts was more a vision of the future and not necessarily a realistic option to be achieved for everyone in the coming months. Rather, the media image of them should be interpreted as an attempt to engender courage in a country that expected to be occupied at any minute. The symbolic existence of air raid shelters was more important than their actual functionality. Most shelters that were furnished in private estates in 1939 and spring 1940 also appear to have been of a makeshift nature. For example, a basement could be cleaned out, an emergency exit could be added in a wall, some sandbags could be placed outside, an air lock could be fashioned out of wooden planks and draped cloth, tape could cover cracks in the walls and a hand pumped air-filtering device could be placed in the middle of the room. A few benches and some equipment – and the air raid shelter was complete.

This form of makeshift shelter was the most common type in Stockholm’s inner city and a project which, with the blessing of the owner, was big enough for a few handymen to complete. This was the kind of shelter that would dominate the Second World War era’s surge in shelter construction, and many booklets and guides from the LSF’s propaganda machine describe its ad-hoc and makeshift nature. The so-called “pipe” shelters had a similar design. Many parks in Stockholm city centre were adapted into shelter zones with buried concrete pipes covered in soil. Like the smaller private makeshift shelters, the construction works surrounding the pipe shelters were used as symbolic events, displaying the fortitude of the state and its ongoing preparations. In this setting, the air raid shelter and the plans became symbols of an urban environment being readied for war.

900 For one of the most important aerial protection booklets from this era, see Hemskyddet: (det enskilda luftskyddet): handledningen (Stockholm, 1939).
Figure 69: Simple blueprint as presented in the booklet Hemskyddet, published in 1939 by the LSF. The Swedish population was saturated with designs like this in order to spur private initiatives. (Hemskyddet, p.137.)

Figure 70: Air raid shelter at Köpmannagatan, Stockholm, likely from 1939 or 1940. Photo by Lennart af Petersens. Public domain. https://commons.wikimedia.org.
Figure 71: Two handymen install wooden supports in the basement of an apartment building in Stockholm. Frame from the propaganda film Stockholms civila beredskap krigsvintern 1939–1940 (Stockholm’s museum, 1942), 07:07. https://stockholmskallan.stockholm.se.

Figure 72: Concrete pipes being laid in the ground were intended to serve as public air raid shelters of the kind seen earlier in Spain and Finland. Frame from the propaganda film Stockholms civila beredskap krigsvintern 1939–1940 (Stockholm’s museum, 1942), 11:01. https://stockholmskallan.stockholm.se.
Figure 73: Concrete pipes, probably in Humlegården, Stockholm city centre. Frame from the propaganda film Stockholms civila beredskap krigsvintern 1939–1940 (Stockholm’s museum, 1942), 11:46. https://stockholmskallan.stockholm.se.

Figure 74: Showing the extent of preparations was an important feature of wartime propaganda. Here, the number and distribution of air raid shelters are shown in a map of Stockholm. The different symbols portray various kinds of air raid shelters. Squares signify “bombproof” shelters, circles “public air raid shelters” and triangles “shrapnel shelters”. Frame from the propaganda film Stockholms civila beredskap krigsvintern 1939–1940 (Stockholm’s museum, 1942), 11:53. https://stockholmskallan.stockholm.se.
7.4. Summary

During the 1930s, the topic of aerial protection and air raid shelters in particular experienced a transformation in its public existence. From being either heralded by military intellectuals or despised by radical pacifists, the air raid shelter slowly gained traction in the public sphere and was subject to a variety of interpretations and mediations during the late 1930s. This chapter has provided some details on three particular modes of thinking about air raid shelters during this period, exemplified by the journalists, Elin Wägner, Barbro Alving and Gerd Ribbing. Moreover, it has provided some details on the importance of the Spanish Civil War as a catalytic event in the European setting, as well as some notes on the shifting media landscape of aerial protection up until the dawn of the 1940s.

Beginning with the gas scare of the late 1920s and the disarmament debates in Geneva, the first prominent frame of reference for the public debate concerning aerial protection and air raid shelters was that of the pacifists and their pro-defence opponents. Although the writings of Elin Wägner and her colleagues did not appear to significantly affect the course of events during the mid-1930s, their discursive volume was high, and should be considered to be an important context regarding the Social-Democratic Worker’s Party’s handling of aerial protection issues at this time. The SAP’s unwillingness to accept aerial protection and volunteer movements, as well as an inclination to frame aerial protection as a technical matter, can partly be derived from its need to distance itself from the pacifist critique. As early as the late 1920s, military authors had tried to discuss aerial protection as a necessary evil and a prophylaxis, and Kjell Magnell’s argument – that the new volunteer movement emerging in 1937 was to be treated as a humanitarian organization – can also be viewed in the light of the pacifist-inspired criticism of the women’s movement.

After the start of the Spanish Civil War in 1936, however, the earlier debate on aerial protection took a different turn. War correspondents in Spain in particular changed the nature of the debate. From being a politically controversial technology that was framed as evidence of the continuous militarization of society, the Spanish Civil War and subsequent international events marked the start of a new interpretation in which air raid shelters became a new arena for war correspondents. In this new way of depicting war, civilians and particularly women, the elderly and children came to the fore. The writings of Barbro Alving exemplified this trend here. Although Barbro Alving shared many of Wägner’s ideals, she presented an air raid shelter that was very different from how they had been discussed since the late 1920s. Through a particular
journalistic style, described here as the “flying” journalist, Alving presented the air raid shelter that functioned as a place from which the war experiences of civilians were forged.

However, Barbro Alving never ceased to criticize the perils and the plummeting moral standards created by total warfare. Nevertheless, faced with the reality of aerial warfare she came to respect air raid shelters and the necessity of having them, perhaps not always in Spain, but definitely in Finland. Wägner is also said to have claimed that Alving had been lost in that sense. Her experiences in Spain and Finland had made her accept aerial protection. It is, however, difficult to know exactly how she reasoned since the press discourse of these years was subject to censorship. Perhaps Alving was more critical than her articles reveal? Nevertheless, they provide an example of the dramatic change that took place in the public conversation on aerial protection and air raid shelters during these last years of the 1930s.

A third way of presenting and discussing air raid shelters came from another political direction and was also created by the impact of the Spanish Civil War. Gerd Ribbing’s interpretation of the Spanish plight and the need for aerial protection and air raid shelters was very different from other contemporary voices in that she represented a bourgeois and liberal interpretation. Some aspects she shared with Barbro Alving, in that the air raid shelters were frequently used as scenes of narration, and she clearly recounted the stress and nervousness of troubled life in a bombed city. But while both Wägner and Alving tended to use its symbolic value as evidence of an oncoming militarization of civil society, Ribbing was more demanding and positive in her tone. For her, the experience of living under bombardment was to be treated as a wake-up call for the Swedish people. In this sense, Ribbing’s articles can be read as a positive support for aerial protection measures, arguing that they were necessary in order to stay healthy and sane during a potential future attack against Sweden.

This can also be put in relation to the overarching objective of this dissertation. What we see here can be interpreted as a press context of air raid shelter discourse that made an important contribution to the socio-cultural discourse around air raid shelters. While the previous generation of debates provided no support for political engagement, the new stories emerging from Spain from 1936 to 1938 had the opposite effect. It is, of course, impossible to say anything about how Barbro Alving and Gerd Ribbing’s articles were received. However, what we can say is that their ideas about air raid shelters complement other forms of contemporary discourse. Elin Wägner and the Women’s Movement
for Peace had their own way of discussing (and rejecting) the air raid shelter. Right-wing politicians and military intellectuals were inclined to romanticize their ability and role. While Barbro Alving presented the harsh reality of aerial warfare, Gerd Ribbing offered a moderate vision of the air raid shelter’s importance. She made a convincing case with her experiences and demanded action and adaptation but did not romanticize and was open about its effects. Thus, for Dagens Nyheter’s readers, Alving’s and Ribbing’s stories broadened the cultural spectrum of possible interpretations and enabled a middle ground perspective on the use of aerial protection measures. What they offered was a novel interpretation of air raid shelters as the thing that made the horrors and depressing future of air war manageable and liveable.

This also happened at a critical moment when air raid shelters, for the most part, were still more of an idea than something practical. Between 1936 and 1938, there were few fine examples of air raid shelters. Thus, the inflow of ideas on what these structures meant and how they could be interpreted was all the more important. As such, the writings of Ribbing and Alving from Spain set the stage for how Swedish citizens could interpret the coming air raid shelters. A continuation of this type of air raid shelter press discourse can also be seen in Barbro Alving’s articles from the Russo-Finnish Winter War that followed during the winter of 1939. In a similar fashion to the Spanish Civil War, the Finnish way of coping with Russian bombings was a further confirmation of this middle ground interpretation that air raid shelters were a useful model for protection, although saturated in the uncertainties and ambiguities of the age of total war. They were, after all, better than nothing.

Again, turning to the theoretical foundations of this dissertation, this can be treated as further contemporary niches which, in various ways, underpinned and supported a political push towards aerial protection technologies. While the military experts, social-democratic and liberal politicians and the engineering community pushed towards the necessity of reshaping the urban environment in order to provide protection from the vertical dimension, the public became saturated with stories, both positive and negative, that made way for the acceptance of and compromise regarding the resulting aerial protection programmes. These stories would not always acquire some catalytic function in the sense that they directly affected the course of politics. Nevertheless, they likely helped, first by putting aerial protection high on the agenda, but also showing that these technical measures could be interpreted in more ways than had been the case thus far. Previously reluctant politicians and citizens found an easier time accepting the implementation of aerial protection organizations.
and air raid shelters as these news stories appeared in Swedish newspapers and radio broadcasts. The air raid shelters now became a central feature and an important scene from which the realities of war were mediated towards the audience at home. Being confronted by stories of “real” air wars in places not that dissimilar from Sweden – as opposed to theoretical assumptions from both the left and right – made the need for aerial protection and air raid shelters like Magnell’s all the more reasonable. When the Air raid shelter statute of 1940 was ratified, air raid shelters and aerial protection became part of the media conversation and simultaneously became a naturalized part of the urban environment.
8. Discussion and concluding remarks

As this study shows, the answer to the question of how Sweden became a Sheltered Society can be found in the complex process of introducing new technologies, in which many different societal trends and contexts are a part. The air raid shelter’s path from the emergence of a vertical dimension in warfare, to ratification in the Swedish parliament, was not a straight line and cannot be derived from some single actor or circumstance. The aerial protection organization presented in the Beskow commission’s report was a carefully orchestrated compromise between a set of actors from the military, political and engineering community, intended to appear acceptable to the left, liberal and right-wing politicians in parliament. The turn towards a civilian organizational model was a means of satisfying critics in the public sphere, as well as leading social democrats, who shunned all forms of militarism. Equally, the enrolment of the engineering profession and the framing of aerial protection as a technical problem was an attempt to cover the political problems that aerial protection policies brought to the fore. The design philosophy called “Construction-Technical Aerial Protection” was also a way of presenting protective considerations as something that were in line with progressive, reformist housing policies, as well as an economically-efficient approach. Simultaneously, stories from wars abroad entered the media landscape, which suddenly created a new sense of urgency, feeding public support. From 1936 to 1940, the air raid shelter philosophy of fortifications officer, Kjell Magnell, managed to overcome all these problems and emerge on the other side as the only reasonable choice. When presented in the proposition for an aerial protection bill by Minister of Interior Affairs, Gustav Möller in 1937, Magnell’s construction-technical method of aerial protection met no resistance, and the present-day common basement air raid shelter became the way ahead for the government bodies and statutes to follow.

Magnell’s contribution to Swedish civil defence history, however, is not a history of radical innovations. Magnell’s model for air raid shelters was the result of an accumulation of developments in Europe and elsewhere, and what he proposed had been circulating in the military-intellectual environment.
since the late 1920s. Thus, the success of Magnell’s ideas lies not in innovative thinking but rather his method of aligning and presenting them in ways that pleased both military colleagues and politicians. On the horizontal plane, he was aided by a series of parallel developments in Sweden and elsewhere. The associations and networks he moved within should also be considered as being an important part of these developments. But there were also new military doctrines, new bomber aircraft, the rise of social-democratic welfare politics and modernist ideals, as well as a series of international events on which journalists reported, and which highlighted the necessity of accepting air raid shelters, providing a window of opportunity for the cultural adoption of the air raid shelter. In other words, a great many things happened simultaneously, helping to promote Magnell’s vision of a structurally reinforced basement shelter. Although none of these things were decisive enough to stand as a cause in their own right, collectively they mattered greatly in some way.

8.1. From idea to materiality after 1936

Against this background, very little suggests that the Beskow commission and its report, as well as the aerial protection government bill that followed in early 1937, should be interpreted as the start of the history of Swedish civil defence. As some of the previous authors have argued, it was a start, but only in the jurisdictional sense. The Beskow commission’s report was a compilation of previous debates and the political troubles that haunted politicians throughout the 1930s. A more plausible explanation is that the idea of aerial protection for civilians, which would later become civil defence, was deeply rooted in the politics and culture of the interwar era. Thus, the Beskow commission’s report should be treated as the big breakthrough of these discussions and debates that had been ongoing for a decade.

To a certain extent it can also be understood as being the end of something. It was the line of a process that started with the First World War. Seeing the Beskow commission’s report as a watershed from some distance, the events of 1937 represent a shift from idea development, theoretical models and thinking ahead, to a focus on materializing aerial protection in the shape of things and materials that could be used.

While the concept of aerial protection was already well developed during the mid-1930s, it is also true that aerial protection in Sweden was still only a bureaucratic phenomenon until the years immediately before the outbreak of war in Europe. Alvar Schilén also claims that the aerial protection organization was a “paper tiger” during the first
the beginnings of a propaganda machine, jurisdiction and a newly started government body housing theoretical expertise, an archetype air raid shelter model; these all existed in 1937. But the materiality of aerial protection, including alarm equipment, gas masks, actual air raid shelters, observation towers, fire-fighting equipment, medical equipment, gas sanitation stations, vehicles, evacuation stations, as well as practical experience of utilizing them, were non-existent. Very few air raid shelters were built before 1938, if any at all. Moreover, the public surge of interest had not yet fully begun, which meant that even if there had been something to work with there would have been no personnel to grab hold of it. Local aerial protection clubs were beginning to be established around the country. These grew quickly in numbers, but the 667,000 members that the LSF boasted in 1945 were nowhere to be seen in the years immediately before the outbreak of war in Europe. As an armed conflict in Europe appeared to draw closer, the initial lack of resources, material and interest from the public sphere also became a problem for Luftskyddsinspektionen, LI, and the newly established volunteer organization.

This process can be interpreted from a large technological system theory perspective. The only great obstacle left to overcome, the “reverse salient”, which was left to solve in 1939, before aerial protection and an air raid shelter system could be finally launched, was the incumbent government’s political willingness to fund and enforce it. This meant that the focus of politicians in the years after the summer of 1937 was not aimed towards intellectual debate on the nature and guiding philosophies of aerial protection. That part of the development ended with the Beskow commission’s report. Instead, while the earlier period had been a period of idea development, reaching its climax with the Beskow commission of 1936, the political work around aerial protection, and specifically the material sides of it from 1937 to 1940, was all about finding lawful ways of enforcing aerial protection initiatives, overcoming the previous decade of political reluctance, and ultimately materializing the interwar ideas into artefacts and usable structures; in other words, transforming ideas into materiality. This had to take place at the level of municipalities, industries, government bodies, real estate owners, down to the single individual. Moreover, it needed to take place without surrendering to authoritarianism or, for that matter, emptying the state funds, two things that had been at the heart of the militarization debate of the interwar era.

The fact that the age of progressive thinking of aerial protection ended between 1936 and 1937 can also be seen in the air raid shelter policies that

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years. See the chapter “Civilförsvaret”, in Wangel, Sveriges militära beredskap 1939-1945, 403.
were to follow. When the jurisdictional problems surrounding air raid shelters were solved in February 1940, symbolically enough, the government also returned to Magnell’s ideas from 1936. Significantly, in the argumentative texts in the proposition for the Air raid shelter statute, it is the Spanish Civil War that provided evidence of the need for political change, not the more recent outbreak of war in Poland and Finland. It was the previous decade that provided material for policy-making during the early 1940s. What was needed was not under debate. By this time, the usefulness of air raid shelters had been settled. What was being debated was how to enforce their construction on a national level. This, I would argue, is the historical significance of the Beskow commission’s report, not as the start of aerial protection or civil defence but as the start of its institutional and material history, which is not the same as its intellectual and cultural history.

In looking at the history of the air raid shelter from this direction it also becomes easier to understand the temporal and different contributions made by the professional groups and sub-fields that divide the empirical chapters of this dissertation. The outline of this dissertation is both thematic and chronological in that different problems and different professional groups encountered aerial protection and air raid shelters throughout the 1920s and 1930s. For example, it was only during the late 1930s that the engineering community and journalists started seriously debating aerial protection policies, compared to the military and political sphere, in which debates had been ongoing since the First World War. In the case of the engineering community, this suggests that its interest had much to do with adapting to the situation rather than being part of idea development, something that also explains why it was fortifications officers such as Jungstedt, Fevrell and Magnell who seemed to be responsible for the pioneering work during the 1920s and 1930s, not the engineering community. Judging from the journal Teknisk Tidskrift, the interest in aerial protection in the late 1930s was much about testing equipment and developing new and improved support technologies or claiming their superiority in leadership and management. There was very little about the overall aerial protection philosophy and whether or not it was a good idea. Although their work was highly supportive towards the military and the politicians’ ideas, their involvement came late.

The Shelter Controversy of 1940 is also interesting in this respect. On the one hand it can be interpreted as evidence of the need to focus less on idea development and more on production in the years after 1937. The LI did not
want to start a discussion on the correctness of air raid shelter design during wartime. On the other hand, the dispute was between actors who were all from the engineering community to begin with, meaning that when the engineering profession had been enrolled by the LI after 1937, it began acting as gatekeepers of the state’s cause. Judging from the responses of the LI’s chief engineers, Torsten Gustafsson and Ragnar Schlyter, during the Shelter Controversy, every attempt to criticize the inspectorates’ work was countered by arguments relating to patriotism and loyalty to the state.

A similar strain can be seen within the architect community, although it never surfaced in the press in the same way as the Shelter Controversy. In the journal *Byggmästaren*, architects discussed what aerial protection as the “lodestar” for urban planning now meant. This was a matter of adapting to the situation and being useful, rather than taking the lead in the development.

There are also dots to connect in the journalists’ sphere. Similar to the engineering community, media interest in aerial protection started between 1935 and 1936, reaching its climax in 1940, meaning that journalists began to engage in aerial protection politics as the idea development phase reached its conclusion. Only when aerial protection measures began to manifest themselves materially in the form of propaganda events, street drills and air raid shelter projects in city centres, did journalists begin to discuss what they were seeing. This was also aided by changes on the landscape level with events such as the Italian-Abyssinian War and the Spanish Civil War, of which the press mediation was characterized by proclaiming the use of aerial forces and the inherent perils for the civil population.

This is a big difference between the press debate on gas and aerial warfare against civilians from the late 1920s and the debate from the late 1930s. At the same time that radical pacifism was still being openly debated, and Hugo Jungstedt complained about the public “peace apostles”, the military establishment was still in the process of deciding on what aerial protection measures were needed. The decisive nature of aerial warfare was still only hypothetical and theoretical, and there was no clear public conception of what was meant by an aerial protection organization. There were no comparable wars in Europe in which aircraft were being used, and therefore no mediated narrative to hook onto. Criticism from authors such as Elin Wägner and Karl-Axel Bratt could therefore strike more easily at the core of the idea, with evidence of attempts to militarize everyday life and motivate another disastrous debacle, but simultaneously had little public sentiments with which to align. Thus, the theoretical claims by concerned pacifists at this point had a different standing
in the public debate when there were no wars or events that could act as evidence of the perils involved.

During the late 1930s, however, the military establishment had agreed on an air defence strategy, the social-democratic party had abandoned its pacifist legacy, a government body for aerial protection had been formed, and the mediation and general press coverage of the Spanish Civil War forcefully put an end to that previous era of theoretical claims and aspirations. Every attempt to criticize the necessity of aerial protection measures during the late 1930s could be countered by images and stories from the Spanish Civil War alongside news from European politics such as the Munich Crisis of September 1938. Not even the Liberals succeeded in producing any sort of serious criticism or deviating attitude towards the mainstream conception of aerial protection during the late 1930s. As a sign of the new zeitgeist, the otherwise liberal newspaper Dagens Nyheter refrained from criticizing the otherwise authoritarian laws and regulations and was rather concerned about the lack of initiative from the state.902

This situation reflects a societal process, reinforcing trends on the horizontal plane that are difficult to fully capture. With Geels’ MLP model in mind, the news and media coverage and the engineering and architectural communities acted as supporting factors that either paved the way for widespread political consensus or by lending themselves to leadership or expertise, making the process of materializing niches such as aerial protection technologies, through large-scale state budgets, a lot easier. Society itself was trembling in fear. In this way, it could be argued that the final reverse salient had been overcome.

The ratification of the Air raid shelter statute of 1940 forcefully exemplifies this. The reservations and reluctance that a decade of investigative reports had voiced about these kinds of air raid shelter policies were swept away in the post-Beskow years of 1937 to 1940. Economic, resource and workforce considerations, the militarization of civilians and urban environments during peacetime, and the temporal problems that Magnell and others had discussed with air raid shelters, that their implementation would take decades, were bypassed in the contemporary context by a series of coinciding trends. It is through this statute, therefore, that the final “reverse salient” was bridged and Sweden’s path towards a Sheltered Society began.

902 See, for example, Dagens Nyheter, "Hotet från luften" 8 October, 1938; Dagens Nyheter, “Skydd på pappret” 16 August, 1939; also Dagens Nyheter "Luftskydd på allvar", 27 April, 1940.
8.2. Sheltered Society and the Cold War

Extending the idea of a break in aerial protection politics from idea to materialization into the Second World War and the Cold War poses something of a challenge. As the Swedish military historian, Willhelm Agrell, has argued, Swedish post-war civil defence suffered from a so-called technological lag for a long time, and as this dissertation suggests, even before, or just at the beginning of the Second World War, Swedish aerial protection politics were not interested in developing the intellectual content of the aerial protection concept, rather, they wanted to make it productive. Thus, the question arises as to whether there is a connection between this supposed lag and the authorities’ willingness to materialize aerial protection measures during the late 1930s. Inevitably, this question concerns the development of air raid shelters during the Cold War era. What role did the Second World War really play in shaping post-war civil defence, other than just forcing its materialization, and to what extent did the atomic bomb and the Cold War years alter ideas about civil defence planning?

The answer to this question lies in understanding how the aerial protection jurisdiction ratified by the Swedish government in 1940 was able to resolve the material deficits of the aerial protection organization. When the Swedish government ratified the Air raid shelter statute of 1940, real estate owners were required to produce a basic air raid shelter in their buildings. All new building projects had to consider aerial protection in their designs. The law was restricted to cities and other urban environments that the government deemed necessary, but effectively applied to every major urban centre in Sweden at the time. This is the moment when the air raid shelter “system” was given its momentum and began to work and spread itself into the urban fabric as a consequence of laws and regulations. To counteract the fact that it would be impossible to provide Grade A air raid shelters in already existing buildings, the law also included a formulation that created a split between two different types of air raid shelter. Thus, the law worked in two ways. On the one hand it forced real estate owners to re-configure their basements into temporary air raid shelters that could at least support the collapse of the building above and the protection from bomb shrapnel. The requirement to adapt existing basements into air raid shelters was also restricted to periods of “luftskyddstillstånd”, a form of state of emergency, or martial law. On the other hand, the law ensured that all new construction projects would include aerial protection measures. It required air raid shelters to be included in every building intended to house 25 people or more at any point during the day.
After 1945, when the state of emergency had been officially withdrawn, the only part of the Air raid shelter statute to remain in effect related to the construction regulations, while the basement adaptation method was scrapped. This partially explains why air raid shelters from the Second World War only remain in the form of memories and photographs, while the post-war normal type of integrated air raid shelter lingers *en masse* in today’s urban environments. The building sector had also taken a nosedive with a loss in productivity of 71% from 1940 to 1943, making it difficult to produce Magnell’s integrated air raid shelters. Consequently, a high proportion of air raid shelters built in Swedish urban environments during the Second World War was mainly of the temporary shrapnel shelter kind. These were easier to produce for the public at short notice and required fewer human resources and materials. However, in the jurisdictional sense, these were connected to martial law, and were therefore lifted as the war ended.

Although the Air raid shelter statute was modified several times during the twentieth century, this law still remains in effect today. The statute, which was regarded as being only temporary under the current circumstances, was incorporated into the new Civil Defence Law of 1944 (SFS 1944:536), which gave birth to the Kungl. Civilförsvarsstyrelsen, CFS [“Royal Civil Defence Administration”]. With this transition it would become a permanent law, regulating and controlling Swedish air raid shelters (see, for example, the SFS 1944:536; 1960:74; 1994:1720; 2006:544). However, the laws surrounding air raid shelters have changed since this time although the idea remains that the state regulates the funding, inspection and controls the production of air raid shelters in times of crisis. Air raid shelter production still continues as a result of these laws, but with no funding since 2002. Since the state is supposed to partially reimburse all air raid shelter projects in Sweden, a contractor can refrain from building air raid shelters if the state cannot subsidize it. To activate the Swedish air raid shelter programme, the state only needs to put funds into the relevant account.

Also, it took until 1994 before a real estate owner was finally allowed to remove or alter an existing air raid shelter without razing the entire building and starting anew (which usually meant that a new shelter would have to be built if a building was going to be erected in the same location). Moreover, the overall design philosophy has only nominally changed since the 1930s and 1940s. What has changed over the years is who decides what urban environment

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903 Kungl. Civilförsvarsstyrelsen was formed in 1944 through the fusing of LI and Statens utrymningskommission, SUK. For the most part this was only an organizational restructuring.

904 Mail correspondence with a representative of MSB, Björn Ekengren, in February 2015.
needs air raid shelters, when they are supposed to be built and the kind of supporting systems that surround them. Air-filtering devices have also developed – norms for doors and the thickness of walls, the maximum number of people, peacetime use – such things have varied, but the overall idea and use of air raid shelters in urban environments is the same as it was when Kjell Magnell formulated his ideas in 1936. The air raid shelter of today has actually existed in a jurisdictional sense since 1940 and the guiding principles are the same as they were back then. Ideas about warfare and the political landscapes have changed, but the aerial-resilient design philosophy has remained.

The importance of this situation becomes clear when considering the construction statistics of the post-war decades. A wide gap is visible between the origin of the idea of air raid shelters and the period of their materialization. Out of 72,280 air raid shelters built in the twentieth century, 48,870 were constructed between 1950 and 1974 at an average of 2,035 per year. This highlights the technological gap in civil defence planning in the post-war years identified by Agrell. If the CFS tried to adapt to the Cold War environment of the mid- and late 1950s with new evacuation procedures and massive population shelters, this did not change the fact that air raid shelters guided by older principles were simultaneously being built on a huge scale. Around 65% of all Magnell-style air raid shelters from the 1930s were constructed during the most prolific “nuclear” period of civil defence. In other words, the tangible materiality of Swedish civil defence comprises products of the Cold War, but the idea and concepts out of which they were born are a product of the interwar era. The kind of air raid shelter philosophy introduced by Magnell, and which was heavily influenced by interwar thinking, has remained and has created a situation in which air raid shelters have been built to offer protection against scenarios originating in the 1930s. If a malicious interpretation were to be made

905 These figures are based on the Air raid shelter index of 2014 and might have changed since this time. Also note that 72,280 does not represent the number of existing shelters. Many of these have been removed. As of 2020, it has been estimated that around 64,000 shelters are functional in one way or another. The argument has been derived from an analysis of shelter types. Each type is associated with a period. It is therefore possible to see from the index when specific shelters were built.
906 Compare this to the 2,862 air raid shelters from the period 1938–1945, with an average of 408 shelters being built per year. Consider also the fact that most of the air raid shelters that were assembled in Sweden before 1945 were of a temporary kind and no longer exist. Due to the split in classification between permanent built-in air raid shelters and the temporary shrapnel shelters, their legacy primarily remains in the shape of photographic materials in museums. This can also explain why such a small number of the oldest air raid shelters can be seen in the air raid shelter index. Of the 2,862 air raid shelters stemming from the interwar and Second World War period, 2,758 of them have been dismantled or have in other ways been destroyed, leaving around 100 still in existence.
of this development, it could be said that, in 2020, Sweden is probably the only country in the world that is so well equipped to survive massive waves of German Ju 88s, Heinkel 111s or Soviet Tu-2s. This is also why I have insisted on calling them air raid shelters and not gas shelters, bomb shelters, nuclear shelters or fallout shelters, which are common names for similar shelters but relate to other eras of urban threats. In this way, the turn towards materializing aerial protection in the post-war years had significant effects on civil defence planning during the Cold War era.

Although it might be easy to ridicule the proposed “lag” and the lack of tact of the civil defence authorities during the 1950s and 1960s, what history has demonstrated is that just because Magnell’s ideas were old, they weren’t necessarily wrong in the long term. As I discussed in the introduction, if we lessen the focus on the nuclear civil defence era and instead consider a longer time frame, air raid shelters were only an outdated technology for a limited time during the twentieth century when the military establishment planned for MAD doctrine-induced nuclear exchanges on European soil. When Swedish military planners turned back towards conventional warfare in the early 1970s, and deemed initial nuclear strikes above Sweden implausible, civil defence doctrines returned to ideas emanating from the 1930s. Stated differently, as soon as the nuclear threat had been lifted, the original air raid shelter model proved useful again. Consequently, after the 1970s, the “normal type” of integrated air raid shelter introduced by Kjell Magnell experienced a renaissance that has been carried over into the new millennium.

The circle has now also been closed. What the government’s defence planning commissions are now suggesting is the re-instatement of a kind of air-mindedness in construction. When assessing the future needs for civil defence, the authors of the Motståndskraft report from 2015 concluded that Sweden needs around 2,500 new air raid shelters in the coming decade. According to the report, the deficit has emerged because air raid shelters have not been incorporated into construction designs as they previously were. Thus, what the

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907 This argument can be further problematized by the fact that much of the growing criticism during the mid- and late 1950s against civil defence emerged because Swedish civil defence at the time still operated in the same way as it had during the Second World War. Thus, the inertia of the Swedish civil defence organization was not only a problem relating to air raid shelters. It concerned the organization as a whole. Consider also the proposition by the Swedish historian, Wilhelm Agrell, that the civil defence organization suffered from an institutional lag during the immediate post-war decades and had problems readjusting to the post-war years. A full reconfiguration of the Swedish civil defence organization was only finalized in 1960 after a series of parliamentary investigative reports and political debates.
Swedish parliament and the Swedish Civil Contingencies Agency, MSB, now claims about air raid shelters is not that they are outdated or out of pace with the current state of weapons development, but rather that the kind of urban resilience philosophy that Magnell introduced no longer applies.\textsuperscript{908}

Only by considering nuclear Cold War civil defence as the epitome of civil defence history, is it possible to interpret the normal type air raid shelter of the 1950s and 1960s as being an outdated and inadequate technological measure. When considering the air raid shelter’s entire lifespan up until the millennium shift, the nuclear context becomes a less significant period, confined to the mid-1950s up until the early 1970s. This shows that the nuclear-induced strategies introduced during the mid-1950s did not profoundly alter interwar thinking. Rather, the nuclear strategies were placed on top as another layer. The historian of technology Svante Lindkvist’s notion of technological landscapes comes to mind.\textsuperscript{909} When challenged, air raid shelters, functioning as the material foundation of civil defence, were complemented by other strategies. New systems were placed on top of an existing technological landscape, which could be removed when the tide turned again in the early 1970s. Thus, for a time, during the most frightening age, the air raid shelter of the 1930s was hopelessly inadequate, in the same way that the horse was made obsolete by the car. Eventually, however, the twentieth century would prove the nuclear planners wrong, and the Magnellian shelter ideal has now returned.

Thus, the fact that the CFS of the 1970s could re-invent the normal type of air-raid shelter when the idea of full-scale nuclear attack no longer existed hinged on air raid shelters being an already well-established technology, institutionalized through compulsory education, regulations and bureaucracy since the early 1940s. In the early 1970s, air raid shelters had amassed in such a way that they became a national resource, an existing infrastructure, to develop and build upon, rather than something new to introduce.\textsuperscript{910} This can be can be seen as an example of how technological systems can suffer from so-called path dependency. This is an important point in understanding the growth of the system in the post-war years. Thus, the threat of war did not produce the

\textsuperscript{908} Motståndskraft: Inriktningen av totalförsvaret och utformningen av det civila försvaret 2021–2025, 149–150.

\textsuperscript{909} See the first chapter in Lindqvist, Changes in the Technological Landscape. David Edgerton makes a similar argument in his book The Shock of the Old.

\textsuperscript{910} See, for example, Skyddsrum: betänkande, Statens offentliga utredningar 1972:50 (Stockholm: Allmänna förl., 1972), 9–11 In this SOU, it was clearly stated that future investments in air raid shelters had to complement the previously existing system and without regard to other forms of civil defence measures.
huge numbers of air raid shelters that we live with today, *per se*. It was not fortifications officers who proposed more air raid shelters in the post-war era. It is likely that they supported such a proposal but did not necessarily control it. The materiality and mass of concrete hinged on other factors. As air raid shelters were technologized and, placed in a “Construction-Technical Aerial Protection” context, their practical implementation increasingly depended on the economic forces in the building sector. When the air raid shelter system was established it was difficult to turn the ship around even if new threats were on the horizon, particularly as other factors controlled the steering mechanism.

The most important of these is the Swedish government’s housing policies during the Cold War era.

The 1950s are usually known as the “record years” in Swedish economic history. When the Swedish economy surged in the 1950s, the enormous tax revenue that was generated as a result enabled an extensive political housing programme that re-shaped the majority of Swedish cities. This reform programme had its origin in the previously mentioned *Bostadsociala utredningen*, led by Minister of Social Affairs, Gustav Möller. But since the war came in between, the programme could not be launched until the 1950s.

The climax to this housing programme was reached in the 1960s. Between 1966 and 1976, the Social-Democratic Worker’s Party launched the so-called *Miljonprogrammet*, [“The million programme”]. During this decade, the state subsidized the construction of a million new dwellings in an effort to put an end to the lack of housing in Swedish urban centres. With this programme the idea of a *People’s Home*, introduced during the 1930s, finally materialized. The state also gave better terms for projects that comprised 1,000 apartments or more, which meant that contractors were inclined to produce large, multi-storey apartment complexes, often densely packed in attractive satellite communities around Sweden’s largest cities.

Since the Air raid shelter statute from 1940 had survived the immediate post war period, by law, every apartment complex built during these years would have to include an air raid shelter.\(^{911}\) Thus, the government’s housing

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\(^{911}\) This was exactly what Kjell Magnell had wanted. Moreover, the launching of this programme, which might seem like a huge undertaking, was actually just a nominal increase of what had transpired in the building sector in the previous decades. Since the late 1940s and throughout the 1950s, Swedish building companies produced tens of thousands of dwellings each year, meaning the “million programme” should only be treated as the climax of the Swedish urban transformation in the post-war decades. For more on the economic history of this era, see Kurt Almqvist, Kay Glans and Wilhelm Agrell, *Den svenska framgångsagan?* (Stockholm: Fischer & Co., 2001); For more details on the housing policies, see Thomas Hall, *Rekordåren: en epok i svenskt bostadsbyggande*
 programme, developed during the interwar era and finalized during the early Cold War era, in combination with the way in which the air raid shelter laws were shaped, explains why an average of 2,035 air raid shelters per year were produced in Sweden during the period 1950–1974 and only 408 (of which the majority of shelters appear to have been only temporary, by the way) were produced during the war years. Very little of this was directly related to the global political conflicts of the Cold War era or the Second World War. Instead, we can refer to the aligning spin-off effects at the landscape level that unwittingly supported the production of air raid shelters.

This is how we should interpret the role of the Second World War and its relation to the rapid expansion of air raid shelter technology during the second half of the twentieth century, as well as the connection between interwar ideas and the Cold War era. The consequence of Magnell’s idea of a “Construction-Technical Aerial Protection” was that it made air raid shelter production dependent on economic and housing policies to a much greater extent than war. War as a political event only resulted in short-term effects, producing temporary structures that were easily dismantled when the war was over. Thus, the institutionalization that occurred at the end of the 1930s, and which had bound the air raid shelter to state functions other than temporary preparedness, had no long-term effect until the outbreak of the Second World War. Stated differently, the greatest impact of the Second World War on the kind of air raid shelters that were built during the Cold War was to temporarily stagger productivity in the building sector, slowing the pace of urban renewal.

This is an example of how the phenomenon of technological momentum conceptualized by Hughes and Geels’ MLP can be joined together to explain how a technological thing can be introduced and spread systematically. This is without necessarily adhering to single actors, but also the difficulties involved in changing the direction of technological systems after their successful

(Karlskrona: Boverket, 1999); Olof Eriksson, Byggbeställare i brytningstid: bostadssektorn och statligt byggande under miljonprogramperioden (Stockholm: Statens råd för byggnadsforskning, 1994); See particularly Gräbacke and Jörnmark in Lundin, Stenlås and Gribbe, Science for Welfare and Warfare; and Hall and Vidén, “The Million Homes Programme.”

912 As Hans Dahlberg and others have noted, the number of air raid shelters built during the Second World War was probably a lot higher than the index suggests, nearing 8,000–10,000. However, as Alvar Schilén has claimed, most of these were ad-hoc constructions, usually converted basements and not really the kind of air raid shelter that would subsequently be used. Hans Dahlberg, I Sverige under 2:a världskriget (Stockholm: Bonnier fakta, 1983), 106.; See Schilén’s chapter “Civilförsvaret” in Wangel, Sveriges militära beredskap 1939-1945, 405–406.
implementation. Hughes’ concept complements the MLP in a way that clarifies the connection between institutionalization in the socio-technical regime and further expansion. After the air raid shelter became institutionalized, progress was slow since the building sector more or less came to a halt during the war years. However, as the economy picked up pace in the post-war decades, the air raid shelters followed suit because of the implemented laws and regulations. And once again, after 1940, the forces that made production change direction were factors other than the global political conflict. Considerations about the air raid shelter’s suitability against new nuclear bombs, missiles and so on were continuously made, but the application of air raid shelter laws only changed nominally as a result. 913 Throughout the second half of the twentieth century, not enough political force was applied to completely stop production.

This process of urban development can be visualized by following the emergence of air raid shelters around Stockholm during the twentieth century. In the first map (see figure x), published in Dagens Nyheter in spring 1940, we see the many air raid shelters produced over these initial years, densely packed in Stockholm city centre. During the Cold War era, most of the previous air raid shelters are gone according to the index, and instead, large collections of air raid shelters appear in satellite cities and the suburbs of Stockholm while the city centre sees only a nominal increase (see figure x-x [Kartbilder]). Instead, city centres were complemented by nuclear bomb-proof shelters intended to house an average of 5,700 people each. 914 During the Cold War era this trend was amplified, up until the mid-1970s. During the mid-1970s the military establishment changed its doctrines and excluded an enemy nuclear attack from its plans, with Civilförsvarsstyrelsen following suit. Since an imagined future war was now considered to be a conventional type of war again, the previous exemption for urban centres was lifted. Consequently, from the 1970s onwards, air raid shelters began to reappear in Stockholm’s inner city, in the same manner as had been the case during the interwar era and the Second World War. As this visualization shows, even though the technological context and military doctrines changed direction, the overall production of air raid shelters followed a logic that was partially disconnected from the military

913 For example, from 1956 until the mid-1970s, the city centres of Sweden’s 14 largest cities were excluded from mandatory air raid shelter construction, although their construction continued in the suburbs and in smaller cities regardless, meaning that these exceptions and restrictions only had a marginal effect on the overall production. Skyddsrum, 57; See also Sjölin, I skuggan av kriget, 94–96. See also Riksrevisionen, Hinder för ett effektivare resursutnyttjande, 2001:9 (Riksrevisionsverket, Stockholm, 2001) 82.
914 Sjölin, I skuggan av kriget, 96.
establishment and its doctrines. Yet again, here is a period in which both the economy, foreign policy, culture and weapons development aligned in new ways. Only then did the production of air raid shelters completely cease.

When Sweden was hit by the banking crisis in the mid-1990s, in which the building sector suffered greatly, it appears that the construction of air raid shelters started to diminish rapidly. Between 1974 and 1992, the air raid shelter index contains 21,019 entries, meaning an average of 1,167 per year were built during these years. However, the period from 1992 to 2003, during which the Swedish banking crisis raged, contains only 2,115 entries, with an average of 192 per year, suggesting that the great decline was directly connected to Sweden’s economic situation, and not due to any strategic consideration or risk assessments. Only after the Swedish military had openly admitted that the era of Cold War defence doctrines was over and the “invasion-defence” (“invasionsförsvar”) doctrine was scrapped in 2001, did the government decide to withdraw funds from the air raid shelter financing account of the civil defence authorities. As of 2020, no new raid shelters have been built in Sweden since 2002.

The relationship between the building sector and shelter production has also been discussed by Mats Lindberg, Anna-Lena Lövkvist and Petter Wulff, Handlingsvägar för befolkningsskyddet (Totalförsvarets forskningsinstitut: Stockholm, 2001). p. 29, 33-34. See also Björn Ekengren’s discussion from 2000 on the relationship between the construction sector and air-raid shelter production. Ekengren similarly argued that the possibilities of maintaining cheap production hinged on the state, since components could not be acquired without state subsidized mass production. This is a good example of the systemic characteristics of air-raid shelter production. Björn Ekengren, Konsekvenser av minskat skyddsrumbyggnande (Räddningsverket: Karlstad 2000). 14-15, 10-11.

In a report from FOI, the authors Lindmark, Löfkvist and Wulff have also suggested that the production of air-raid shelters was connected to the building sector. See Handlingsvägar för befolkningsskyddet (2001) 33-34. The authors built on analysis from Riksrevisionen, see Hinder för ett effektivare resursutnyttjande (2001) 114-115, 121-122.

According to representatives of MSB, the only shelters that have been built are so-called “replacementshelters” ["Ersättningsskyddsrum"]. These are new shelters, replacing an old one if the above building is torn down and rebuilt. MSB, Email to author, 27 May 2020.
OFFENTLIGA SKYDDSРUM
i Stockholm

Karta upprättad av luftskyddsbyran.
Adressförteckning m. m. Se sid. nio spalt fyra.

▲ betecknar splitterskydd
● betecknar egentliga skyddsrum.

Spara denna D.N.-karta!
Figure 76: Map reproduced in Dagens Nyheter in spring 1940. The dots indicate completed air raid shelters. The map was also accompanied by a list of addresses that evacuees could use for reference. Most of these air raid shelters were likely only the temporary kind and were subsequently dismantled after the Second World War. Dagens Nyheter 16 April, 1940.
Figure 77: Air raid shelter type A6 and S3 built between 1938 and 1945 (deep red). Data taken from the national Air raid shelter registry. As is obvious from the first image, there is a great discrepancy between the extent of air raid shelter building in the city centre during the Second World War and what remains of them. Courtesey of Myndigheten för samhällskydd och beredskap & Lantmäteriet.
Figure 78: Air raid shelter type S3, built from 1945 to 1950 (red). Air raid shelter production took off in the immediate post-war years.

Courtesy of Myndigheten för samhällskydd och beredskap & Lantmäteriet.
Figure 79: Air raid shelter type ASKR, built between 1950 and 1961 (orange). The huge output of air raid shelters continues in the suburbs and satellite cities. The inner city of Stockholm is excluded but is nevertheless complemented by large-scale population shelters (see the yellow circles).
Figure 80: Air raid shelter type NSKR, built between 1961 and 1974 (light-orange). The huge output of air raid shelters continues in the suburbs and satellite cities.
Figure 81: Air raid shelter type TB74 and TB78, built between 1974 and 1992 (yellow-green). During the mid-1970s, the inner city exemption was lifted and the inner city is once again filled with new air raid shelters. The background to this is the military establishment’s change in doctrine from nuclear warfare to conventional warfare.
Figure 82: Air raid shelter type SR, built between 1992 and 2003 (light yellow). Production stagnated drastically during the 1990s. This is how Stockholm looked in 2014. Very little has changed since then.
8.3. Concluding remarks

All that remains is the legacy and relevance of the work at hand. How does this matter to how we think today about the air raid shelter and Sweden’s Cold War history? During the mid-twentieth century, when the Swedish air raid shelter system began to grow at a considerable pace, it gave something back to politics in its material form. The government body that handled civil defence in the post-war decades, Civilförsvarsstyrelsen, CFS, continued to cultivate an interpretation of the air raid shelter as a “neutral” and “passive” form of technology during the Cold War era, which happened to neatly fit the foreign political position taken by the Swedish government. The official line of Swedish foreign policy during the Cold War era was that Sweden remained neutral, and later “alliance-free”, according to the small state model.918

Since any sign of armament might question a neutral political stance and since a neutral and alliance-free country needs to have quite an extensive military defensive apparatus to remain credible, the Swedish air raid shelter system would eventually play a significant role in Swedish Cold War politics, in that it provided security through a form of passive-defensive armament.919 Instead of building atomic bombs, Sweden built so many air raid and nuclear shelters that the effects of an attack against Swedish cities were regarded as being nullified. Moreover, the idea of a prophylactic form of civil defence, which had been voiced as early as the late 1920s by Hugo Jungstedt and Emil Fevrell, for example, was also established as an official doctrine during the Cold War years and was very compatible with the passive-defensive doctrine. Not only would Swedish air raid shelters and nuclear shelters nullify the effects of a belligerent’s nuclear bombs, they were also considered to be so effective that they would make a belligerent question the whole enterprise altogether. The Swedish passive-defensive doctrine, in which the protection of civilians through shelters was the foundational stone, was regarded as a peace-keeping strategy. In this way, air raid shelters became just as much a tool for foreign policies to build on as they were a viable protective space for citizens. Building air raid shelters, in other words, became the means of keeping the peace.

As suggested by this dissertation, this almost Orwellian mode of thinking

918 For more on official Swedish foreign policy during the Cold War, see BjereId, Johansson and Molin, Sveriges säkerhet och världens fred; Robert Dalsjö, Life-Line Lost: The Rise and Fall of “Neutral” Sweden’s Secret Reserve Option of Wartime Help from the West, History-Modern-Scandinavia (Stockholm: Santérus Academic Press Sweden, 2006).

919 For a discussion on Swedish Cold War foreign policy, see BjereId, Johansson and Molin, Sveriges säkerhet och världens fred, 34–38.
had already been introduced during the 1920s, but was forcefully established after 1954 in response to the introduction of the hydrogen bomb, and continued to shape Swedish politics and civil defence until the mid-1970s. In 1968, when the civil defence official and military officer, Björn Klinge, wrote a chapter on Swedish civil defence for an international book project, he took this position to its extreme. Klinge claimed that the reason why Sweden had managed to stay out of the Second World War was the deterrent Swedish aerial protection organization.

This position can be questioned, to say the least. The common interpretation is rather that Sweden remained untouched because of a combination of unflattering appeasement politics, considerable concessions to Nazi-German demands, as well as sheer luck. However, amongst the civil defence officials of the 1960s, the idea that civil defence was a peace-keeping activity appears to have been one of the pillars upon which their whole operation rested, at least outwardly. Moreover, this mode of thinking was not an isolated intellectual strain in the northern hemisphere. Switzerland constructed its Cold War civil defence organization based on a similar logic, and eventually surpassed Sweden in both the scale and intensity of its civil defence organization and air raid shelter programme.

The protective potential of fallout shelters also sparked unease amongst both Soviet and US military strategists during the Cold War era, giving credence to the standpoint of Swedish civil defence officials. In other words, the idea and fear of the so-called “Mineshaft Gap”, popularized by the film Dr. Strangelove, was real, and therefore made the air raid shelter a central piece in the overall defence doctrines of the Cold War era. Ironically, this was exactly the kind of logic that Elin Wägner tried to argue for during the mid-1930s and for which she was rebuked. But in the Cold War context it was globally heralded as being one of the pillars of the Mutually Assured Destruction doctrine.

It should also be noted that this situation should not be considered as evidence of Cold War politics shaping air raid shelter technology, because it

920 See Agrell’s work on this; Wilhelm Agrell, Alliansfrihet och atombomb: kontinuitet och förändring i den svenska försvarsdoktrinen från 1945 till 1982 (Stockholm: Liber förlag, 1983); Agrell, Ett samhällsskydd för alla väder?
924 See, for example, Geist, “Was There a Real ‘Mineshaft Gap?’”
is not. The case is rather the opposite. The official passive-defensive position taken by the Swedish government during the Cold War, which was played out to the fullest by Civilförsvarstyrelsen, was only made possible due to the already established air raid shelter system originating in the 1930s. The thousands of air raid shelters that had been produced became an important resource for the overall civil defence scheme during the hydrogen bomb scare of the mid-1950s. Only with them complementing the outskirts of Swedish urban environments would the large-scale nuclear shelters produced in city centres during the 1950s remain functional.

Consider Geels’ model again and how the air raid shelter moved up from the meso level to the macro level in the post-war era. Thus, what we see during the Cold War era is a feedback loop. In the same way as the bunker had become a key part of warfare planning during the First World War, the air raid shelter system, now institutionalized in Sweden, as well as in other countries in the post-war era, became part of the global socio-technical landscape and therefore something that everyone had to consider when planning for both defence and attack. For instance, would it be rational to drop expensive hydrogen bombs on cities in which the citizens had either been fully evacuated or were completely safe in underground shelters? Although such ideas remain untested in real wars to this day, considerations in line with this prophylactic logic shaped the belligerents of the Cold War, including the Swedish military.925

A protective resource or a political tool, notwithstanding, in all seriousness there are also numerous other things that could be said about air raid shelters if they are to be regarded as a cultural artefact or phenomenon. The feedback loop from the socio-technical landscape not only shaped politics and security considerations. As David Pike has claimed, the European cultural “bunkerization” of the twentieth century continues to affect us.926 The legacy of the air raid shelter is just as much a cultural phenomenon, spawned from the spaces produced by the air raid shelter. In this sense, the Swedish air raid shelter programme has created a cultural infrastructure just as much as a security infrastructure. Since air raid shelters have never been used in their official sense, it could be argued that the legacy of the cultural infrastructure is even more important than the other infrastructure.927 The numerous ways in which different kinds of shelters and bunkers appear in popular culture is a testament to this.

In the Swedish case we might even consider whether building basements

925 See, for example, Geist and the Swedish context in Agrell, Alliansfrihet och atombomber.
926 See Pike, “Cold War Reduction.”
927 For a discussion on the cultural impact of Swedish Cold War bunkers and fortifications, see Andreas
became a common practice because of the demand for air raid shelters, and not the other way around. As the author Henrik Andersson stated in a government report from 1981 on urban planning, the use of basements in buildings before the First World War was usually restricted to firewood storage and therefore not that large or deep. The typical modern basement of the present day was rather the result of a triad of trends: the use of concrete, a general demand for garages, and air raid shelter jurisdiction in the decades after the First World War. This was just speculation on Andersson’s part, but it says something about how decisive the choice to go underground might have been during this era and that air raid shelters emerged not only out of political necessity, but also through a combination of technological developments, economics and modern culture. Today, their main function appears to be the storage of consumer goods of our time.

The cultural approach to air raid shelters is also the position taken by many contemporary scholars who are interested in civil defence and shelters of various kinds. Historians, anthropologists and sociologists such as Silvia Berger Ziauddin, Joseph Masco and Joe Deville, and many others, have used bunkers, air raid shelters, fallout shelters and other kinds of underground facilities as a means of unearthing the culture of the age in which they were produced. Such perspectives have also been explored in Sweden in, for example, media historian Marie Cronqvist’s analysis of civil defence films. Media scholar Fredrik Norén and I have also presented a similar history in the article “Urban Catastrophe and Sheltered Salvation.” For some, like cultural geographers in the UK such as Luke Bennett and Bradley Garrett, the bunkers and shelters have been a route into contemporary culture. They have tried to study urban exploration culture, in which underground bunkers and shelters are key locations, and have seen how the materiality of these derelict underground spaces is still used, although now in a cultural sense.

Linderoth (red.), Kriget som aldrig kom: 12 forskare om kalla kriget (Karlskrona: Marinmuseum, 2011).
930 Cronqvist, “Vi går under jorden.”
931 Bennesved and Norén, “Urban Catastrophe and Sheltered Salvation.”
932 See, for example, Bennett, “Bunkerology – a Case Study in the Theory and Practice of Urban Exploration”; Bennett, “Who Goes There?”; Galviz, Dobraszczyk and Garrett, Global Undergrounds;
phenomena can be seen in Sweden. However, it should be noted that within Swedish popular-and subculture, the underground trope is as dominant as ever, and can be seen and explored in films, books, games, television shows, blogs, urban exploration and so on. In none of these situations is the representation of air raid shelters intended to portray them in accordance with their official history. Instead, they are used as stages or as symbols of something else, or as entry points into the exploration of some other cultural or historical phenomenon. They manifest as cultural infrastructure, open to interpretation, inviting whoever steps into them to make their own interpretation of what they mean and how they should be used.

A political legacy on the one hand, and a cultural phenomenon on the other. These two perspectives on the Swedish air raid shelter system also exemplify how I think a history of air raid shelters should proceed. The history of the Cold War era in Sweden has been thoroughly studied from a military and political perspective, but the civil defence apparatus has been completely ignored. This is the case even though the Swedish civil defence organization was one the largest in the world and, moreover, even though it shares this history with another neutral and alliance-free country, namely, Switzerland. Without doubt we can talk of something like a Swedish and Swiss Sonderweg in relation to civil defence, which obviously must have played a major role in the foreign political positions taken by both countries during the Cold War era.

This recommendation for further research can also be deepened when considering the fact that both Swedish and Swiss civil defence officials appear to have co-operated with the NATO countries by using the supposedly “passive” and “neutral” nature of civil defence as cover. The archives show evidence of co-operation between Sweden and Denmark, as well as between Sweden and the USA, and of research results being sent from one national defence research centre to another, as well as defence researchers accompanying civil defence officials abroad and then writing classified reports about their visits. Civilförsvarstyrelsen’s scope and development was never tied to the national framework, but rather constantly developed in accordance with international trends and knowledge transfer between countries, which ultimately depended on the history of the organizations that handled civil defence.

A cultural and media history of civil defence needs to consider these things for they matter greatly for the way in which propaganda strategies, popular culture and the materiality of civil defence have developed during the twentieth century. The most decisive decisions that were taken during the Swedish

air raid shelters’ history were largely based on estimates of the range of a German Heinkel He 111 bomber from 1939 carrying a payload of 10,000 kilos of bombs. Without this time frame and without considerations being made during the early stages of its development, the current options and plans of civil defence organizations would have looked entirely different, and perhaps the culture around them would also have looked different. In the same way that we understand why the individually focused prepper culture was born in the USA, why the Moscow underground metro system was built as a huge collective mega shelter, and why Swiss people appear to be storing wine and cheese in their air raid shelters, we must also consider longer time frames, technology, culture and geography when studying civil defence.

I believe that the history of the Swedish air raid shelter, forcefully proves this point. It shows how decisions informed by social, cultural, geographical and economic factors, as well as political events, shape both the development and implementation of technologies. It also shows how difficult it is to single out any one of these factors and proclaim them as being decisive as to why a technology ends up the way it does. It also shows the many unintended effects of an implemented technological system, in both the realist sense, as well as in the cultural sense. Finally, above all, the history of the Swedish air raid shelter shows that the study of even the most dull and uninspiring material artefacts of the twentieth century can provide us with profound insights about the society in which we live.
Sammanfattning på svenska

Den här avhandlingen i idéhistoria öppnar med att fråga hur det kom sig att Sverige blev ett utpräglat skyddsrumsland? Sverige är ett av få länder i världen som investerat stora mängder skattemedel för att finansiera byggandet av skyddsrum. Fortfarande idag finns en enorm skyddsrumsinfrastruktur med ca 65 000 aktiva skyddsrum som täcker mer eller mindre hela landet, och vars platser beräknas kunna skydda ungefär 70 procent av Sveriges ca tio miljoner invånare. För att svara på denna fråga undersöker avhandlingen ett antal utvecklingslinjer under mellankrigstiden, med fokus på utvecklingen av ett civilt luftskydd fram till 1940. Trots att det mesta skyddsrummen producerades under kalla kriget, fram till 1990-talet, så argumenterar denna avhandling för att det var under mellankrigstiden som den avgörande idéutvecklingen ägde rum. Som stöd för detta åberopas tidigare historievetenskaplig forskning från bland annat av professorn i underrättelseanalyser Wilhelm Agrell, mediehistorikern Marie Cronqvist, samt medieveteranen Fredrik Norén och författaren själv Peter Bennesved, vars studier alla pekar på det intima släktskapet mellan andra världskriget och Kalla krigets civilförsvarsutveckling.


Avhandlingen har strukturerats utifrån materialen och består av fem olika empiriska kapitel.


I det tredje empiriska kapitlet undersöks omständigheterna och resultaten av Civila luftskyddsutredningen från 1936, också benämnt som ”Beskows utredning” i avhandlingen. Här syns hur de tidigare etablerade nätverken, som varit i vardande perioden före 1936, satte ramarna för undersökningen. Speciellt intressant med Beskows utredning är utredningsmedlemmarnas förmåga att strömlinjeformata skyddsrumsidéerna med den rådande politiken för att tvätta bort all samhörighet med dess militära arv. Det är nu det ”civila” prefixet introduceras i svensk lagstiftning. I Beskows utredning skalades samtidiga militära element bort från försvaret av den civila befolkningen. Det som tidigare beskrevs som ett militärt luftförsvar av ”hemorten”, omformulerades istället till ett ”civilt” luftskydd. Det nya civila luftskyddet beskrevs också i form av en teknisk angelägenhet för att på så sätt undvika en politisering av


I kapitlet om ingenjörskåren ingår också arkitekterna. Denna grupp engagerade sig i luftskyddsfrågan på samma sett som sina kollegor i STF, men hade en annan funktion. Eftersom den byggnadstekniska delen av luftskyddsfrågan allt mer tycktes utvecklas till en fråga om stadsplanering mot slutet av 1930-talet, tog de modernistiskt lagda arkitekterna till sig luftskyddproblematiken och sökte inkorporera luftskyddstanken i de övergripande arkitektoniska principer som gällde under denna tid. Emedan civilingenjörerna engagerade sig i ledarskapsfrågor, Industriskyydd och teknisk utveckling av luftskyddsmateriel och
skyddsrum, sökte alltså arkitekterna snarare passa in luftskyddstänkandet i den övergripande stadsplanering och byggnadstekniken. Därmed fungerade de som en viktig länk mellan de militära kraven på skydd mot civilbefolkningen och den socialdemokratiska reformpolitiken som sedan 1930-talets början var i nära samarbete med modernistiska arkitekter.

Överlag kan man säga att skyddsrummen blev en viktig projektionsyta för civilingenjörer och arkitekter att samlas kring, av patriotiska, idealistiska, och i många fall, opportunistiska skäl.


med de första luftskyddslagarna 1937 förändras det politiska läget i Sverige och ett antal viktiga trender båddar för att skyddsrum ska bli det främsta medlet för befolknings skydd. Ingenjörernas engagemang och höga förtroende i sin samtid skapade stöd för skyddsrum och luftskydd, samtidigt som nyhets-reportage från Spanien, Tyskland och Finland tycktes understryka behovet av snabba reformer. I termer av MLP-teorin, kan man alltså säga att rörelsen från etablerad idé till etablerat system var avhängigt ett antal sammanfallande trender. Förändringar på samtliga nivåer, landskapsnivå, socioteknisk regim-nivå och lokal niche-nivå, understödde de politiska reformer som krävdes för att skyddsrumssystemet skulle uppnå momentum, som Thomas Hughes menar krävs för att ett system ska bli självgående.


Trots att skyddsrummen materialiserades under Kalla kriget i stor utsträckning, var deras funktion och skyddsvärde grundat i mellankrigstidens idéer.

Sources and Literature

Unpublished materials

National Archives, Stockholm Sweden
Kungl. Byggnadsstyrelsen (Arninge)
Administrativa enheten A-Säk, F, angående byggnadstekniskt luftskydd, skyddsrum.
Luftskyddsinspektionen (Arninge)
Protokoll, ink. och utg. skrivelser, nådiga brev, nådiga brev skyddsrum, handlingar angående luftskyddets organisation i olika länder, kortregister skyddsrum, underdåniga skrivelser.
Luftförsvarsutredningen 1928 (Marieberg)
Samtliga serier
Luftskyddsutredningen 1939 (Marieberg)
Samtliga serier

Royal War Archives, Stockholm Sweden
Kungl. Civilförsvarsstyrelsen
Protokoll, skrivelser, korrespondens, handl. ang. information och studieresor m.m., pressöversikter.
Kungl. Civilförsvarsstyrelsens hemliga arkiv
Handlingar rörande skyddsrum, handlingar rörande konferenser
Sveriges Civilförsvarsförbund (Riksluftskyddsförbundet).
Skrivelser, protokoll, historik.
Föreningen för Stockholms fasta försvar
Skrivelser, protokoll, Arbetsutskottet för luftskydd
KjellMagnell’s archives
Samtliga volymer
Hugo Jungstedt’s archives
Samtliga volymer
Eric Virgin’s archives
Rörande civilskydd, volym 4.
Axel Bredberg’s archives
Rörande utredningar, volym 30.

Lund University Library Archives, Lund, Sweden
Torsten Nothin’s archives
Torsten Nothins Brevsamling
Published materials

Journals and newspapers

Betong
Brandskydd: Svenska Brandskyddsföreningens tidsskrift
Byggmästaren
Cement och betong
Dagens Nyheter.
Flyglarm
Idun
Kungl. Krigsvetenskapsakademiens handlingar och tidsskrift
Meddelanden från Stockholms fasta försvar
Ny militär tidsskrift
Teknisk Tidsskrift
Tiden: månadsskrift för socialistisk kritik och politik
Tidevarvet
Tidsskrift för Sveriges Civilförvar
Tidsskrift i fortifikation
Svenska Dagbladet
Svensk Papperstidning
Svenska Röda korsets tidsskrift för frivillig sjukvård och socialhygienisk verksamhet
Vårt förvar

Commissions of inquiry

Utredning rörande Sveriges försvavspolitiska läge samt behov av förvarskraften. Statens officiella utredningar 1930:12 (Stockholm, 1930).

Pamphlets, books and other printed materials

Bengtsson, Bengt Folke. Vad var och en måste veta om bombanfall. Rikslufťöhrsforbundet (Stockholm, 1941).

———. Krig, fred och förvar: några inlägg i en diskussion (Stockholm: Tiden, 1928).

Bratt, Karl Axel, and Åke Kretz. Luftkrig över Sverige?: befolknings skyddande mot bombanfall (Stockholm: Militaria, 1938).


Hanslian, Rudolf, and Fredrik Bergendoff. Der chemische Krieg: Gasangriff, Gasabwehr und Raucherzeugung (E. S. Mittler & Sohn, 1925).

———. Gaskrig och gasskydd (Stockholm: Norstedt, 1923).

Hemskyddet: (det enskilda luftskyddet): handledningen (Stockholm, 1939).

Holm, Stig, ed. Krig eller kultur (Stockholm: Tiden, 1929).


———. Historisk översigt åter Sveriges befästningsväsende under tidsperioden 1523–1899 (Stockholm: Norstedt, 1899).

———. Krigsväsendets tekniska utveckling under det nittonde århundradet (Stockholm: Norstedt, 1921).


———. Frontvartdag (Göteborg: Bokförmedlingen, 1942).


När fienden kommer genom luften ... Några synpunkter på det nutida luft- och gaskriget. (Stockholm, 1928).


———. Sicksack i Spanien (Stockholm: Bonnier, 1950).
—. Frihet och Försvar (Stockholm, 1941).
—. Svensk krigskonst (Stockholm: Riksförb. för Sveriges försvar, 1944).
—. Våra vapen. (Stockholm: Wahlström & Widstrand, 1943).

What Would Be the Character of a New War?: Enquiry Organised by the Inter-Parliamentary Union (London, 1931).

Secondary literature
Bell, David Avrom. The First Total War: Napoleon’s Europe and the Birth of Modern Warfare as We Know It (New York: Houghton Mifflin Company, 2008).


———. The Age of Total War, 1860-1945 (Lanham: Rowman & Littlefield, 2010).


Bosma, Koos. Shelter City: Protecting Citizens against Air Raids (Amsterdam: Amsterdam University Press, 2012).


———. *Sverige och spanska inbördeskriget* (Lund: Historiska media, 1999).


Förster, Stig., and Roger Chickering, eds. Great War, Total War: Combat and Mobilization on the Western Front, 1914-1918 (Washington, D.C.: German Historical Institute, 2006).


Gilmour, John, and Jill Stephenson, eds. Hitler’s Scandinavian Legacy: The Consequences of the German Invasion for the Scandinavian Countries, Then and Now (London: Bloomsbury Academic, 2013).


Grant, Matthew, and Benjamin (professor Of Modern German History) Ziemann, eds. *Understanding the Imaginary War – Culture, Thought and Nuclear Conflict, 1945–90* (Manchester University Press, 2016).

Grayzel, Susan R. *At Home and under Fire: Air Raids and Culture in Britain from the Great War to the Blitz* (New York: Cambridge University Press, 2012).


433


Jacobs, Robert A. *The Dragon’s Tail: Americans Face the Atomic Age* (Amherst, Mass.: University of Massachusetts Press, 2010).


———. The Radiant City: Elements of a Doctrine of Urbanism to Be Used as the Basis of Our Machine-Age Civilization (London: Faber and Faber, 1967).


Linderoth, Andreas (red.). Kriget som aldrig kom: 12 forskare om kalla kriget (Karlskrona: Marinmuseum, 2011).


———. *Svensk överklass och högerextremism under 1900-talet* (Stockholm: Federativ, 2000).


Sundin, Bosse, and Boel Berner, eds. *I teknikens backspegel: antologi i teknikhistoria* (Stockholm: Carlsson, 1987).


Torrie, Julia S. “*For Their Own Good*”: Civilian Evacuations in Germany and France, 1939–1945 (Bergahn Books, 2010).


