To See Above the Valley and Beyond the Forest

Widerøe's Aerial Images and a Social Democratic Design Upon the Landscape (1955-65)

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Oblique Aerial Image of Selbustrand, Selbu. Photographed for Widerøe, 14 September, 1968. From https://urn.nb.no/URN:NBN:no-nb_digifoto_20141204_00063_NB_WF_SBK_190589 Retrived: April 4 2021

Foreword:

Writing this masters thesis has depended on a lot of external help. Seeing as I am, at least to my knowledge, the first to write about this body of images in an academic way at length, I have had to conduct a lot of archive work and to provide a "text" for the images. My supervisor Pasi Väliaho has been a level-headed moderator in helping me understand what is actually useful, interesting, or pertinent of the information I have found. For I wanted to use it all. In addition, I want to thank my mother who has helped me navigate the world of private archives, and of course Reidar Wirum Bye who gave me access to the Fjellanger-Widerøe internal archives. I would like to thank the National Library for the great effort in digitalization and for letting me see the physical images from their archive. I would like to thank all the organizers of the project "Norwegian Photo-History 1945-2011" for their interest in my project and the stipend I was granted. I would also like to thank Thale Sørlie for including me in the *indisier* research group in connection to the Norwegian Photo-History 1945-2011project, and the feedback from Nina Bratland and Stig Storheil. Lastly, I would like to thank my family and girlfriend for all their help and for listening to me talk about oblique aerial images of the Norwegian landscape for what must have been an almost unbearable stretch of time.

Abstract:

During the years following the second world war a particular form of photographic image circulated in Norway. These images were oblique aerial images (*skråfotografi*) taken by the company Widerøe. From hamlet to street, from fjord to forest, the country was seen from a stimulating new vantage point that showed a heterogenous but holistic nation. Allowing the viewer to see above the valley or beyond the forested margins of their farm or community and perceive the nation from a wider perspective. My ambition in this thesis is to show the multiple roles and meanings of different forms of aerial images by finding common ground between the view from the ground and view from above that show aerial images as more than just instruments of modernity. Starting from the vertical image as tool used to register, map, and redesign the Norwegian landscape in order to facilitate the creation of an ordered and rational agricultural landscape and then zooming down to the low oblique view of individual farms, I aim to show the ambiguity of these images in a time of rural transition. Through a case study of the use of aerial images in Naustdal, I explain how the rugged terrain, history and intricate property structure of Norway forced the aerial image down to ground through the need for field analysis, use of local land records and the creation of statistical knowledge. From this surface emerged new demands for depicting the social space of rural communities. I detail in this study how the high-altitude oblique image functioned in the visual stabilization of social space. By showing how the distance of the oblique view allow for patterns of inhabitation to be visible and systematized, I argue that the high-altitude oblique view created a common ground between ruralism and urbanism, that allowed for a unified image of an industrial welfare state to emerge. With a new agricultural landscape and a new way of seeing rural communities, the self-representations of the individual farmer also changed through the low altitude oblique image of individual farms. This thesis conducts a case-study of the use of low altitude oblique views in the community of Selbu to show how the images took part in the implementation of mental and social changes to rural communities in the deployment of an agroeconomic program aimed at the individual farmer. These images both display the new technical role of the farmer as well the shifting status of the landscape as inhabitation. However, this thesis also shows how in oblique images of individual farms the landscape attains a new visibility that refuses the dichotomy between modernity and tradition. I conclude that aerial images cannot be read or seen independently from the ground it represents, and that aerial images, from the vertical view as a tool of modernity, to low oblique views of individual farms, all constitute a unified body of images.

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Introduction

In the summer of 1956, a farm on the shores of the lake Vannsjø in eastern Norway had its brief moment of fame. That summer the farm was photographed from the air by the company Widerøe, and the image of the farm turned out to be the company's 100 000th oblique aerial image. [fig.0.1] In the local newspaper Demokraten this was noted with the image of the farm, and the image caption introduces the core points of this thesis: "Widerøe's Airline has this year passed a milestone, as its 100 000th oblique image was taken. This turned out to be of Engene farm in Råde, owned by Peder Engene. He has received a colorized magnification as a gift from the company. The company informs the newspaper Demokraten that they have photographed practically every farm in the Østfold area, and that there is now a rush of farmers who wish to buy colorized magnifications as Christmas presents for relatives and friends who have moved away. Many farmers have also bought aerial maps of their properties."[1]

The caption mentions four things I would like to point out. The first is the proliferation and systematic photographing by oblique aerial image of farms in the 1950s and 60s. These images were sold to the owners often to hang on their wall. Second the caption mentions the simultaneous proliferation of vertical aerial images, or aerial maps of the single property which signifies the new demands and role of the farmer brought on by the agricultural rationalization of the post-war era. Third, the caption mentions the migration of the rural population brought on by rationalization. Lastly the caption mentions the name of the farm, which was a prominent feature written on oblique images denoting the farm as more than just property, but as a place of inhabitation. When taken together we can start to ascertain the ambiguous role of these photos as images and tools of modernization as well as representing a traditional agrarian identity which we shall examine in this thesis.

The oblique image can be placed within the historical context of rationalization and the rapidly changing agrarian landscape and ways of life. With these changes followed an ambiguity of tradition and innovation, rupture, and continuity that I wish to place these images within. The historian Edvard Bull saw rationalization as the "end of two thousand years of farming tradition".[2] With rationalization the "ancient" settlement patterns, social

1 "Jubileums-Fotografi Fra Råde," *Demokraten* Friday November 16 1956.
2 Edvard Bull, *Norge I Den Rike Verden*, ed. Knut Mykland (Oslo: Cappelen, 1979)., 237-250.

systems, production, and material conditions of Norwegian agrarian life ruptured.[3] However the Norwegian agricultural historian Reidar Almås has called this process for the "the new transformation" (*det nye hamskifte*) thus putting it in direct conversation with the agricultural change of the late 19th century which was often called "the great transformation" (*det store hamskifte*). In both these articulations the Norwegian word hamskifte denotes a changing of a skin or a visible epidermis while the underlying hypodermis shaped by ways of life remains.[4] The question is how can we see the problematization of continuity and rupture in the oblique images, and what role do they play as landscape representations, images, and technical ways of seeing within this transformation? In this thesis I wish to show how the oblique aerial images emerge at a moment of reconfiguration and transition to the cultural and social systems of rurality, in part instantiated vertical aerial images. By focusing on land consolidation, agricultural rationalization, and the introduction of agroeconomics I have sought to examine the surrounding processes wherein aerial images both vertical and oblique are directly part of a rationalizing mechanism or are a corollary of such mechanisms. By showing how vertical images redesigned the surface of the landscape and how oblique images showed that landscape again, but now from a knowable perception I aim to show how the two different formats carry with them different political significance. This thesis is limited to the timespan between the 1955 land law (*jordloven*) to 1965 when the Norwegian labour party lost power for the first time in twenty years to the agrarian Center Party which reduced the scope and ambition of agricultural reform. With this it is also important to note that the ambitions that this thesis details never came truly to fruition.

The Widerøe Oblique Archive

First, the body of images that this thesis basis itself on must be examined. This archive is made up of primarily oblique aerial images taken by Widerøe during the years 1936 to 1968.[5] The vast majority of these images have been archived and digitized by the Norwegian National Library, which now has over 73 000 images.[6] The images that are archived are for the most part negatives, positive sales copies, or sales cards. It is therefore important to note that the images as they were hung on people's walls or printed on postcards could be

3 Ibid., 246.

4 Olav Rovde, "Landbrukshistorie Som Etterkrigshistorisk Forskningsfelt," in *Etterkrigshistorisk Register*, ed. Tore Grønlie (Bergen: LOS-senteret, 1994). 7-8.

5 In 1968 Widerøe sold its photographic department to the Norwegian company Fjellanger creating Fjellanger-Widerøe. During this process, a decision was made to divide and sell the archive to the respective municipalities. In 2008 the National Library together with the Norwegian Photo Network starter a massive salvaging operation that sought to digitalize and consolidate the material within the archives of the National Library as the material was in danger of being irreparably damaged. - Arthur Tennøe, "Widerøes Flyfoto Fra Hele Landet Ut På Nett," *NB21* 2014, no. 1 (2014). 16

6 Ibid., 16.

drastically different from the archived images, for the sales-objects were magnifications taken from the negatives, they were hand tinted and could be retouched.[7] Furthermore oblique images were often used for postcards. Examining a pricelist from 1957, we can see that the company offered not only a vast array of formats with different colouration classes, but also that any image could be ordered as postcards at a low cost even for a small amount of prints.[8] This thesis however seeks to put these images in the context of the vertical aerial images produced by Widerøe which were vital in making agricultural rationalization possible. And it is here important to note that although these images are today in separate archives[9] as well as epistemologically separated their production often coincided, and they served different functions towards the same end.[10]

Perspectival and Cartographic Photos[11]

In this thesis I deal simultaneously with oblique images and vertical aerial images, as my main ambition of this thesis is to show how the two were both mobilized together in the redesign of the Norwegian agricultural landscape. The vertical image allowed for flat cartographic representation that opened up the landscape to new inscriptions, and the oblique image functioned in a perspectival manner, both as perspectival image of topography and settlements but also in the metaphorical sense by modulating the perspective of landscape perception necessary for a new rational landscape to be seen. To examine this an ordered vocabulary is describing the two formats of the aerial image is necessary.

Vertical Aerial Images: A vertical aerial image is an image taken perpendicularly of the surface of the earth at regulated altitude. Vertical images produce images that flatten the relief of the ground and provides consistent scale. With this the vertical aerial image allows for the production of cartographic images. This necessitates a regulated altitude, predetermined flightpath and interval between each image which provides consistent and measurable images. With this the vertical image lends itself to multiple instrumental applications such as

7 Reidar Wirum Bye, "Hovedtrekkene I Historien Om Skråfotografering Fra Fly I Norge," *Kart og Plan* 76, no. 1 (2016). 76.
8Letter from Widerøe Air Company to Thorbjørn Eek Mørtelverk with attached pricelist nr 101, 13 November 1957, Internal Archives Fjellanger-Widerøe, Hoeggvegen 66, Trondheim, Norway. See figure 3.4
9 Vertical aerial images are archived by the Norwegian Mapping and Cadastre Authority.
10 Vertical Aerial images unlike oblique images requires zero cloud cover, therefore oblique images were often taken during the waiting period between vertical image flights. - Kristian Hosar, "Luftfoto-Pionerer Ser Tilbake," in *Norsk Fotohistorisk Årbok 1983/84*, ed. Morten Løber Roger Erlandsen, and Kristian Hosar (Oslo: Universitetsforlaget, 1984). 52
11 These terms come from an interview in the newspaper Moss Avis with the head of Widerøe's photogrammetric department C.C Krüger for the occasion of the 100 000th oblique image. Here he pointed out that: "In addition to *cartographic photography* we also have an extensive *perspectival photographic* operation, from the first trial images taken in 1949 it turned out that there was considerable interest for such images from farmers and property owners. That is probably due to the fact that aerial images can depict the entire farm and its position in the terrain, something that seldomly can be done from the ground." (italics my own) -""Jublieumsgård" Ved Vakre Vansjø," *Moss Avis*, November 17 1956.

photogrammetry where the perspectival construction allows for three dimensional measurements from two dimensional surfaces, stereoscopic analysis where two identical images are combined through a scope to create a three-dimensional image, and photomosaics were multiple images are overlapped creating vast maps.[12] Vertical images like maps need a scale or a legend to be readable if the viewer is unfamiliar with the surface depicted. The flatness of the image is pointed out by James C Scott a significant tool in the history of modernist planning as it fulfills the aspirations of aggregation, planning, order, and synoptic vision need for such endeavours.[13] Something that will become apparent in this thesis. [fig. 0.2]

Oblique Aerial Images: Oblique images are representations of views where the landscape is easy to comprehend and immediate due to the perspectival construction, as they depict an angled view of a specific location seen from an elevated vantage point. In contrast to the flat vertical image the oblique has foreground, background, and spatial recession. However, the relationship between foreground and background is not fixed and can be modulated according to the angle of the camera axis and the vantage point's elevation. This alters the relationship between the vertical plane which shows frontally of building, forests or mountains and the horizontal plane which is the overhanging view. The modular relationship between vertical and horizontal plane creates an image that organizes complexity where the view is immediately knowable, but the finer points, the details are condensed and slowed down all within everyday perception.[14] By changing the angle of the camera in relation to the ground the same details emerge in different ways. It is an image that can change how detail is perceived but not the details themselves. [fig.0.3]

Reform-Technocratic Governmentality and State-Managed Modernity

In 1956, when the image of Engene farm was taken, Norway was in the midst of a comprehensive program of economic, cultural, and political reform enacted all the way from the single farm to the creation of an industrial welfare state. This period which the Norwegian historian Rune Slagstad has called "The Labour Party State" and its "reform-technocratic control-ideology grounded in the national state apparatus". [15] This provides the backdrop for the thesis. Reform technocratic control and management necessitated new ways of seeing and

12 Hosar, 47.
13 James C. Scott, *Seeing Like a State : How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, : Yale University Press, 2020)., 58.
14 Edward R. Tufte, *Envisioning Information* (Chesire, CT: Graphic Press, 1991)., 38.
15 Rune Slagstad, *De Nasjonale Strateger* (Oslo: Pax, 2015)., 223.

registering the nation state, and this new way of seeing proliferated was not only as a tool of governmentality but through oblique views in postcards and farm-images it slipped into everyday perception.

One of the main theoretical approaches for understanding the role of the aerial image in the context of reform technocratic thought and rural change is Michel Foucault's articulation of governmentality. By positioning the aerial image within agricultural rationalization, the question of different forms of political technology, mental changes, and the changes to norms must be approached not as a unified field, but as constituent practices with what Mitchell Dean has called a "intrinsically programmatic character" of governmentality.[16] In essence governmentality denotes a complex or ensemble of different practices within a diverse array of institutions, perceptual modalities, techniques, and approaches that allow for the management of relations and the manipulation of things.[17] The term, things and their relations denote the bonds, investments and relationship between subjects and "things" alike. Things must be seen as a myriad of different phenomena such as "wealth, resources, means of subsistence, and, of course, the territory with its borders, qualities, climate, dryness, fertility."[18] Foucault further elaborates that things also denote the relationships between entrenched ways of acting and thinking in the population.[19] Governmentality is therefore the way these relations are governed, manipulated, established and maintained by different techniques and practices with specific forms of knowledge production. Herein it is important to denote that specific knowledge production means that the end of government is integral to the thing it directs rather than being externally imposed or all encompassing. By this agricultural rationalization although part of a larger mechanism seeks only in effect to achieve the ends internally afforded and conceptualized by such forms of knowledge production.[20] Statistics, aerial images, structural rationalization all act towards

16 Mitchell Dean, *Governmentality : Power and Rule in Modern Society* (Los Angeles: SAGE, 2009). 42-43.
17 Michel Foucault, *Security, Territory, Population: Lectures at the College De France, 1977-78*, ed. Francois Ewald and Alessandro Fontana, trans. Graham Burchell (New York, NY: Picador, 2007)., 108.
18 Ibid., 96.
19 Ibid., 96.
20In the Birth of Biopolitics Foucault provides a relevant example of governmentality and agriculture. Showing how the management of relations acts on the population and the framework of agriculture in order to attain its end, through a vast array of techniques and form of knowledge. How the reduction of the agricultural population, improving technical features, education, changing the legal framework, and the allocation of land together have a plurality of ends and object that all function within the same end which is the management of the agricultural population. -Michel Foucault, *The Birth of Biopolitics: Lectures at the College De France, 1978-1979*, ed. François Ewald and Alessandro Fontana (New York: Palgrave Macmillan, 2011)., 140-141.

ends that together make up a wider governmentality but cannot be reduced or attributed alone to a singular or unified concept of the state.[21]

Theoretical Considerations

In my application of theory governmentality is underlying conceptions. As my use of the landscape theorist J.B Jackson and especially his understanding of the political landscape is read through Foucault's governmentality. Together the two allow a way of seein how territory and space is utilized in the creation and positioning of subjects without being the single object of management.[22] In addition, Jackson's articulations are innately tied to the French school of human geography, and his understanding of habit, adaption and eschewal of direct influence in the inhabited landscape is informed by the works of Paul Vidal de la Blanche, Jean Brunhes and the theoretical framework of Genre de Vie (translated to ways of life).[23] This again informs my reading and use of Raymond Williams and the social definition of culture which is seeing culture as not an ideal or the documentation of a "body of intellectual and imaginative work" but as "a description of a particular way of life".[24] With Williams definition of culture the vast array of explicit and implicit values of a particular way of life is apprehensible through seemingly non-cultural elements such as the organization of production, land distribution, family structure and "the structure of institutions which express or govern social relationships."[25] With this, Williams' conception of culture allows us to circle back to governmentality and Jacksons political landscape yet again, while still seeing the images for the landscapes represented. When coupled with the role of landscapes in the creation of ways of life this theoretical framework allows the landscape itself to be seen as part of cultural system that govern and express the social system. To this end the landscape both expresses and governs, which leads to the fundamental but constructive ambiguity between continuity and innovation, tradition, and rupture that I read in these oblique views as landscape perception.

Contextualization of Research

Researching this thesis I have relied on many different fields, from visual studies to see how vertical aerial images function as operational images in the artist Harun Farocki's visual essay "Images of the World and the Inscription of War" and his seminal text "Reality would

21 Dean, 36.
22 John Brinckerhoff Jackson, *Discovering the Vernacular Landscape* (New Haven, CT: Yale University Press, 2009)., 40.
23 Jean-Marc Besse, "Founding Landscape Studies: John Brinckerhoff Jackson and French Human Geography," [Fonder l'étude des paysages : John Brinckerhoff Jackson face à la géographie humaine française.] 45, no. 3 (2016). 2
24 Raymond Williams, "The Analysis of Culture," in *Cultural Theory and Popular Culture: A Reader*, ed. John Storey (Athens, GA: The University of Georgia Press, 1998)., 48.
25 Ibid., 48.

have to begin" where Farocki points that "there is an interplay between images and text in the writing of history: texts that should make image accessible, and images that should make text imaginable."[26] For me this thesis has contained archive work in the desire to make evident that interplay. To John Durham Peters infrastrucutralism which allowed me to see land distribution in a new light.[27] To human geography and landscape studies where the work of Denis Cosgrove and his book "Vision and Geography" as well as "Social Formation and Symbolic Landscape" have shaped my approach, especially the understanding of landscape asa "unstable unity" in the latter.[28] Furthermore the work Kenneth Olwig and his "Landscape, Nature and the Body Politic" which provides a way of thinking about the legal framework and quality ascribed to landscapes in conjunction with diverse ways of representing that landscape.[29]Lastly my research contains a similar attempt as that of Rebecca Solnit's book "Rivers of Shadows – Eadweard Muybridge and the Technological Wild West", seeing how changes in perception are slip outside and change landscape and geography.[30] Throughout the study of expanded notions of infrastructure, perception and landscape seen together has permeated my choice of topic and my approach to the material in conjunction with agricultural rationalization.

Outline of Chapters

Chapter 1: The first chapter details how the vertical image functioned within agricultural rationalization. Starting with a display at the Norwegian agricultural jubilee exhibition in 1959 I attempt to show how the aerial image was framed as a tool of rectification rather than top-down rationalization, and that the structural rationalization of the Norwegian agricultural landscape which was made possible by the vertical aerial image was framed as part of longer history of land reform. The chapter seeks to explain how the vertical aerial image functioned as a tool of harmonization and consistency in the creation of Norway's first land registry. The emphasis is on the vertical aerial image as an aggregate tool that was paired with statistics, property structures, demographics and field work rather than just the image alone. The chapter

26 Harun Farocki, "Reality Would Have to Begin," in *Documentary* ed. Julian Stallabrass, Documents of Contemporary Art (Cambridge, MA: The MIT Press, 2013)., 158.
27. With this thesis I have try to see what Peters calls "fascination for the basic, the boring, the mundane, and all the mischievous work done behind the scenes. It is a doctrine of environments and small differences, of strait gates and needle's eye, of things not understood that stand under our worlds" -John Durham Peters, *The Marvelous Clouds : Toward a Philosophy of Elemental Media* (Chicago, IL: University of Chicago Press, 2016)., 33.
28 Denis Cosgrove, *Social Formation and Symbolic Landscape* (Madison, WI: University of Wisconsin Press, 1998).69
29 Kenneth Robert Olwig, *Landscape, Nature and the Body Politic : From Britain's Renaissance to America's New World* (Madison, WI: University of Wisconsin Press, 2002)., 36-39.
30 Rebecca Solnit, *River of Shadows : Eadweard Muybridge and the Technological Wild West* (New York: Penguin Books, 2010)., 179-205.

lays the foundation for the two next chapters by showing how the vertical image changed the landscape and its status as a field of intervention.

Chapter 2: In the second chapter I examine how the oblique aerial image served a symbolic purpose towards the same end as the vertical image in chapter one. Detailing the use of high-altitude low angle oblique views of regions and settlements in urban planning and academic geography I show how the oblique functioned in changing and unifying the perspective across the entire nation. Putting this process in the context with a Norwegian labour party poster from 1959, the ambition is to show how rationalization necessitated the creation of a seemingly cohesive cultural system that included urban and rural communities alike. In the chapter the oblique is investigated as a political tool through its capacity to modulate space. Showing how oblique aerial images functioned in French geography to allow ways of life to become objects of knowledge and therefore to be imbricated into a larger cultural system.

Chapter 3: In the last chapter I conduct a microhistory of modernization within a single Norwegian rural community that was part of an agroeconomic research project. Here the oblique and the vertical image are conjoined in the changing social systems of rurality as well as the location of identity. Continuing down the scale I here focus on low altitude, low obliques of individual farms. In the first part of the chapter, I trace the changes to the oblique images as well as in the landscape to mount an argument wherein oblique images are part of the modernization process that sought to change rural mentalities. In the last part of the chapter, I mount a counterargument by examining the oblique images together with a specific type of photobook that catalogued all houses in the area. With this comparison I attempt to show how the oblique images display the process of inhabitation and identity as tied to the vernacular landscape, rather than just the single farmhouse. Thus, showing how the oblique image allows for a residual form of landscape perception at a moment of transition.

CHAPTER 1 – Rectifying the Agricultural Landscape

The history of the Norwegian agricultural landscape and its organization is fragmented, multifaceted and at times illegible. Unlike almost every other country in Europe, Norway did not until the post-war years have comprehensive maps that detailed the agricultural landscape. Rather like the landscape itself the cartographic material was scattered and fragmented. With large-scale agricultural reform starting in the post-war years a program of legibility was initiated in the form of a land-registry. And with such a process James C Scott's argument that "legibility is a condition of manipulation" where identification, aggregation, observation, and registration require organization and management comes to fruition.[31] However, first we need to examine the pre-history of legibility and manipulation in the Norwegian landscape.

From June 11th to the 5th of July, 1959, the Agricultural Jubilee exhibition was hosted in occasion of the 150 year anniversary of the Royal Norwegian Society for Development (*Norges Vel*). The jubilee exhibition was a massive celebration of agricultural modernization that displayed and lauded the technological and rational development of the Norwegian agricultural sector. Ranging from a sizable architecture section that showed new and modern barns, silos, and farmhouses to more classical agricultural exhibition sections that focused on horticulture, animal husbandry and forestry.[32] One of the sections displayed the institutional process of *jordskifte,* which denotes both the process of land reallocation and land consolidation. In short it is the reconfiguration of land through various means of allocating land in order "to improve land holdings and to promote efficient and appropriate use of the real estate."[33] The photographer Lasse Thorseth tasked with documenting the exhibition wrote about the section that "[t]he importance of land consolidation was shown in a dramatic and vivid way with light models, maps and drawings."[34] One of these was a set of two comparative maps that display the same farm in Nordre Bjørkedal in Northwestern Norway before and after land consolidation in 1886. [Fig.1.1][35] In the first map, the property structure is defined by each holding having scattered strips and plots of land distributed across the area. This format of land allotment known as strip farming (*teigblanding*) stems from farm partitions that subdivides each farm into new holdings with distributed strips and parcels of land across

31 Scott, 183.

32 The exhibition was one of the largest exhibitions ever hosted in Norway with over 500.000 visitors. For more Information see "Hovedkatalog: Landbrukets Jubileumsutstilling, Ekeberg 11. Juni - 5. Juli 1959," ed. Per Skaar (Oslo: Bøndenes Forlag, 1959).

33 Michael Jones, "Jordskiftets Rolle I Utforming Av Kulturlandskapet," *Nordisk Häfte* (1988)., 47.

34 See fig.1.1

35 Unfortunately, the vast majority of the photographic material depicting the section is unfindable, but the photographer Lasse Thorseth was tasked with documenting the exhibition and few images available are from his photo album. Can be found at: https://digitaltmuseum.no/021037309720/thorseth-lasse-1928

the area.[36] Next to the first map this is explained as; "The partitioning of farms went very far in this country causing strip farming to emerge. Farms were divided in order to give each inheritor a part of each parcel." And that "each farm was given many small and scattered plots of land."[37]

Strip farming is juxtaposed in the display with the property organization following land consolidation. Here more than 458 strips and plots across five holdings have turned into eleven plots divided across the same number of holdings. Written next to the consolidation map it says, "the divided land must be consolidated to provide the foundation for a rational agriculture." The process of land consolidation stretches back to the introduction of a land law in 1821, and institutionalization through the development a land consolidation agency (*jordskifteverk*) in 1857 during the first wave of modernization in Norwegian agriculture often called the first great transformation or in Norwegian it is called *Det Første Store Hamskifte.* By 1959, the year of the jubilee exhibition, Norwegian agriculture was amid the new great transformation (*Det Nye Hamskifte*).[38] Only four years earlier in 1955, a new land law was signed that was to mobilize the logic of land consolidation towards new political aims and to facilitate new technological and social transformations of the rural landscape both at the surface level and as a social space. According to the geographer Michael Jones the land reallocation process in Norway during the first great transformation was driven by the political and ideological desire for increased liberalization of Norwegian agriculture in the first part of the 19th century.[39] The process was inspired by laissez fair ideas and physiocratic approaches to agriculture where state intervention was seen as a necessary evil in the facilitation of the individualization of agriculture, This was again seen as a precondition for the integration of agriculture into a market economy.[40] The landscape as it is represented in the land reallocation map display at the jubilee exhibition is a landscape that serves a political end, as a manipulatable field of intervention. As the Norwegian geographer Gunnhild Setten has shown, 19th century land consolidation also sought to change a functional and social system that was perceived as a hindrance to economic development and growth in the early

36Andreas Holmsen, "The Old Norwegian Peasant Community: Investigations Undertaken by the Institute for Comparative Research in Human Culture, Oslo," *Scandinavian Economic History Review* 4, no. 1 (1956/01/01 1956). https://doi.org/https://doi.org/10.1080/03585522.1956.10411481., 24-25.

37 See fig 1.1

38 Reidar Almås, *Norsk Jordbruk - Det Nye Hamskifte* (Oslo: Gyldendal, 1977)., 13-14.

39 Furthermore, the introduction of pre-mechanical tools as well as the reduction in workforce due to early industrialization and emigration to the United States necessitated labor conserving land organization. – Jones, 48.

40 Ibid., 48.

industrial era.[41] This was significant as in 1959 the agricultural landscape was once again in the process of reconfiguration and redesign to serve political ends and to change social systems through the vertical aerial image.

Another image from the display in the land reallocation section of the Jubilee Exhibition was an oblique photo of model of a typical Norwegian cluster farm system also known as a *tun* with presumably the caption "The old cluster farms became too dense and irrational."[42] [fig 1.2] With the first wave of land consolidation and reallocation the disappearance of the distributed field system rendered the cluster farm as "a comprehensive and complex agrarian community" obsolete.[43] The Norwegian historian Andreas Holmsen has pointed out that with the first wave of land consolidation and reallocation the words used to signify different agricultural settlements changed.

The term *gård* which is etymologically identical to the English "yard" can denote both a single holding or farm as well as complex of farms or a subdivided farm with individual holdings called *bruk* or *gårdsbruk*.[44] In a *tun* cluster farm like the one shown in the model, the word *gård* "continued to be used for the whole collection of lands and dwellings which was covered by the same original place-name; it was thus a unit of individual, but more or less interdependent farms." These farms are denoted as *bruk* within a larger structure(*gård*)[45] Holmsen makes evident that with 19th century land consolidation the term *gård* changed to denote single dwellings with adjacent land rather than a complex of holdings (*bruk*) within an original but subdivided area. Before the first wave of land consolidation this understanding of the farm as a cohesive unit of farm and field was almost exclusively confined to the fertile flatlands of the south-east and parts of Trønderlag.[46] Furthermore the etymological root of *gård* stems from the word *gjerde* meaning a fence, so the farm is denoted as an envelope that contains multiple holdings or dwellings. By displaying seemingly outdated spatial modalities in tandem with land consolidation maps the exhibition creates a landscape history of external frameworks, as well as cognizing the need for structural rationalization with new technologies

41 Gunhild Setten, "Bonden Og Landskapet" (Norges teknisk-naturvitenskapelige universitet, NTNU, 2002). 73
42 Seeing as the album does not contain captions, but I have found the captions in one of the catalogues from the jubilee exhibition under the section detailing the land consolidation display – Working Committee, "Landbrukets Jubileumsutstilling 1959," (Oslo, Norway1961)., 127-128.
43 Holmsen, 29.
44 Even to this day the Norwegian land registry utilizes these two categories, with gårdsnummer (abbreviated as gnr) denoting the original farm area and bruksnummer (abbreviated as bnr) the holdings within the original area. Farms are numbered according to these two, and as in the example of the land reallocation map from 1886 the farm itself is a unit with five holdings each given a bnr indicating that the farm had been partitioned at least five times.
45 Ibid., 29-30.
46 Ibid., 29.

and increased standards of living. In short, the agricultural landscape and the history of governmental land management are conjoined.

Rectifying the Landscape

One of the last displays in the section detail the modern workings of land consolidation. Given that the pictures from the exhibition are unobtainable, we will have to make do with the captions found in the exhibition catalog. It describes the use of aerial photogrammetric images in the modern process of land consolidation and reallocation; "Aerial photogrammetry is being used by the land consolidation agency (*jordskifteverket*). This reduced the amount of work need in assessing [the plots of land] and rationalizing the mapping process. The photogrammetric section is expanding at a rapid pace."[47] Already in 1952 the department of agriculture sent a circular letter titled "Guidelines for the expansion of older holdings and new cultivation" to the local land boards (*jordstyrene*) signed by the minster of agriculture Rasmus Nordbø. In the letter guiding principle of rationalization is outlined, namely the redesign of the Norwegian agricultural landscape: "One of the biggest problems for Norwegian agriculture is the small size of the holdings, that produce to little productive yield in relation to their regular expenses. In many cases the holdings are too small to provide an adequate economic result for a family, but too large to be secondary holdings."[48] The letter references a report by the Norwegian Institute of Agricultural Economics (NLI) that found that smaller holdings are drastically less efficient both in terms of labour input needed per decare as well as in total labour productivity. This together with the increased need in capital investments due to mechanization, specialization and other technical equipment necessitated that "agricultural policy must aim for a more purposeful economic design of property sizes."[49]

The role of the aerial image in such a redesign of property size was taken up in a a 1948 newspaper article in *Vårt Land* titled "Aerial Mapping will be Revolutionary in Many Areas." Helge Skappel, one of the founders of Widerøe extols the capacity of the vertical aerial image in refashioning the Norwegian landscape: "The entire nation is waiting on land reform. Afforestation in Western Norway has stagnated completely due to the complicated property conditions. With the help of photographic maps, the property structure can be reconfigured along natural borders much faster than today."[50] Although the aerial image as a

47 "Landbrukets Jubileumsutstilling", 128.
48 Circular letter from the Norwegian Ministry of Agriculture to local land boards, June 12 1952, Archive S-4856, Series DA, Box L0530,Folder 0004, Kontorer for jordskiftesaker, National Archives of Norway, Oslo, Norway.
49 Ibid.
50 "Kartlegging Fra Luften Vil På Mange Måter Få Revolusjonerende Betydning ", *Vårt land* December 4 1948.,1.

unified tool of government planning and design was yet in its infancy in Norway, the end of the article mentions plans of so-called economic mapping done through aerial images.[51] In the process of agricultural rationalization this was to become a land-registry that would prepare the surface of the landscape to large scale government management and intervention. And one of the key actors in that process was the company Widerøe. In 1953 Widerøe published "Report in Connection to The Plan for Vertically Photographing the Individual Counties" where it was pointed out that the current utilization of vertical aerial images in Norway were "in part, inconsistent and unsuitable as a basis for a comprehensive overview of the entire country." In the report Widerøe advocates for nationwide coordination and standardization of the aerial images that would allow for use across institutions, government agencies and departments that would allow for the ambitious program of redesigning the agricultural landscape. [52]

Three key documents outlined this process of redesign, the first was the 1946 *production and rationalization committee* headed by Arne Eskeland who would later become head of the Norwegian Institute of Agricultural Economics. The second was the new agricultural land law of 1955 that provided the government with extensive rights to purchase and consolidate agricultural land with the ambition to create farms exceeding 75 decare and that would be incentivized to focus on specialized production schemes and mechanized operations. These farms were to be known as sustainable family farms as the underlying ambition was to create farms that could provide a stable economic situation for an average Norwegian family.[53] Lastly the interpretation and implications of the law were outlined in *Parliamentary Report Nr. 60* (1955). In light of the 1955 land law and parliamentary report, the Norwegian Ministry of Agriculture set down a commission to examine how such a land registry should be implemented and to what effect. Seeing as the cartographic and statistic knowledge of Norwegian agriculture was at best fragmented and piecemeal the committee recommended the creation of a new land registry be based of old land consolidation maps, aerial images, and schematic information from three statistical forms for each agricultural unit.[54]

51 The land registry as it is detailed in this thesis is in many ways a precursor for the much more ambitious program of nationwide economic mapping that started in 1964.
52 Torbjørn Paule, *Den Økonomiske Kartleggingens Historie I Norge Fram Til 1986* (Hønefoss: Statens kartverk, 1997). 19-20
53Reidar Almås, *Frå Bondesamfunn Til Bioindustri*, 4 vols., vol. IV 1920-2000, Norges Landbrukshistorie (Oslo, Norway: Samlaget, 2002).,187.
54 *Innstilling Fra Jordregisterutvalget Oppnevnt Av Landbruksdepartementet I Oktober 1955*, (Oslo: Norwegian Ministry of Agriculture 1956)., 39.

Aerial images had up until in 1955 been utilized by scientific agricultural organizations for the examination of soil qualities, prospecting within forestry and peat extraction, road planning and other state infrastructure projects.[55] However, all this material albeit usable in the creation of land registry represented a problem of coordination and oversight by the government, as knowledge was not directly transferable and thus ultimately unproductive.[56] The majority of cartographic material covering Norwegian agricultural came from older land consolidation processes. These maps were drawn by different standards, equipment, and scales at different times.[57] Most of the maps like the one displayed at the agriculture exhibition lacked isopleths and thus were thus rather useless in the rugged terrain that characterizes most of Norway.[58] Secondly as Norway lacked cadastral maps in large scale there was no centralized up to date registry regarding property structure or cartographic standards.[59] The aerial image was to be used as a tool in piecing together and schematize the existing maps, knowledge and information. In addition, recombination together with aerial images allowed for the discernment of new objects of knowledge across desperate fields such as an overarching property structure across an area or the entire region to be seen in combination with soil analysis. The problem according to the committee was not first and foremost the lack of cartographic knowledge per se, but rather the lack of a coordinated effort to harmonize and simplify different forms of specialized knowledge and scales into a uniform and objective system that could have multiple applications.[60] Aerial images thus become a tool of harmonization and consistency that allowed for the translation and mobility of knowledge and information into a schema that is clearly legible and visible. The first paragraph of the law stipulates the connection between cartographic knowledge, statistical knowledge, and rationalization: "This law has as its purpose to facilitate that land areas of this nation with its forests and mountains and everything else in between shall be used in a way that is serves society and the agricultural population."[61] With this the entire landscape was now to be seen as potentially productive land and to be mapped accordingly. This however

55 For more information about aerial mapping in Norway see: Thomas Reinertsen Berg, *Verdensteater Kartenes Historie* (Oslo: Press, 2017)., 238-262.
56 "Instilling" 1955, 25.
57 For innstace Land consolidaiton maps only showing arable land, pasture, other land and forest up until 1948 - Axel Sømme, "Om Bruken Av Jordskiftekart Og Fotogrammetriske Kart," *Norsk geografisk tidsskrift* 13, no. 1-2 (1951). 103
58 Ibid., 100.
59 Axel Sømme, "Kartets Plass I Vår Område-Planlegging," *Norsk tidsskrift for jordskifte og landmåling* 49, no. 23 (1956)., 151.
60 "Instilling" 1955, 29-31.
61 *Lov Om Tilskiping Av Jordbruk*, (18th of March 1955). § 1

necessitated knowledge and information about the potential and capacity of the landscape rather than just registration.

Thus, one of the problems was the lack of consistent knowledge pertaining to the landscape, and here we must examine the role of the vertical image as a way of creating what Bruno Latour has called "optical consistency".[62] For instance, the 19th century land consolidation maps detailed at the start of this chapter were inconsistent as they were made according to different local conditions, with different scales and often lacked isopleths. Thus, the vertical image provided a way of harmonizing the optical consistency of disparate object into a homogonous language. Consistency in this context denotes the way that knowledge or things can be moved without being changed and without modifying the internal properties of the object moved by the use scales, perspective, legends, or other internal mechanism of consistency innate to a specific form of visual representation.[63] In the land registry the photogrammetric construction of aerial images allowed for the superimposition and rectification of consistency upon seemingly inconsistent objects by superimposing three-dimensional data from the photogrammetric image onto two dimensional land consolidation maps. When mobilized in this way we must also keep in mind that for Latour optical consistency allows for the creation of possibilities that seem more salient, more realistic, and better than others due to its persuasive power of translation and mobility upon a unified surface.[64] This was necessary in reconfiguring an established and historical landscape.

Seeing as a landscape contains many layers that needed to be harmonized, rationalization was divided into two subcategories of structural or external rationalization and technical or internal rationalization.[65] External structural rationalization aims at increased productivity through land consolidation and expansion. Internal technical rationalization was done through a set of different programs and institutions such as subsidization of new operational building and technical features, operational planning, and scientific research through institutes such as the Norwegian Institute of Agricultural Economics (NLI).[66] All of which required reliable and applicable knowledge of the land and its use made available by the land registry wherein internal and external are seen in a consistent scale in accordance with one another. Hence the 1946 committee conclusion that a process of registration,

62 Bruno Latour, "Visualisation and Cognition: Drawing Things Together," *Knowledge and Society Studies in the Sociology of Culture Past and Present* 6 (1986)., 7-8.
63 Ibid., 19.
64 Ibid., 6.
65 "Instilling", 1955, 7.
66 Almås, *Frå Bondesamfunn Til Bioindustri*, IV 1920-2000. 193

mapping and evaluation must precede any attempt at long-term rationalization.[67] Within Norwegian agricultural rationalization the role of the vertical image was to be based on the creating of a consistent and synoptic image of the larger structure of the agricultural landscape and the internal workings of each farm within it. Internal and external consistency also denotes the governmentality that underlines it, namely by allowing for a plurality of ends and techniques all within a consistent and condensing visual modality.[68]

The problems that mobilized the creation of a land registry were in the same vein as the problems as those 19th century land consolidation sought to fix. The desire was still to consolidate land into single parcels, but in a different form and towards a different end. Now the concern was not the distribution of subdivided fields, rather the problem at hand was the size and design of agricultural holdings and a shift to larger farms with intensive production necessitated by new technical and economic demands.[69] This ultimately necessitated a rather drastic reduction in the total amount of farms and agricultural units in Norway in order to rectify the landscape following partitions and previous policies.[70] The Norwegian agricultural landscape was characterized by a large amount of rather self-sustaining smallholdings with *extensive*[71] production programs.[72] In addition, the natural topography and soil conditions of Norway had created a fragmented agricultural landscape and the lacked clearly defined and specialized agricultural regions.

In addition, the ambition was not only to rationalize agriculture to increase productivity, but to free labour for rapidly expanding industrial programs. Industrialization was the key priority and primary sectors such as fisheries, agriculture and forestry were to be rationalized to serve this ambition. In 1946 Erik Brofoss, the Minister of Finance addressed the congress of Norway's largest trade union saying "If we are to provide labour for industrial development, there must be a reorganization of our agriculture that makes it utilize relatively less labour power."[73] The problem was the structure of the Norwegian landscape, and the consolidation of land and creation of larger holdings was to be given "the greatest attention"

67 Instilling, 12.
68 Latour, 21.
69 Almås, *Frå Bondesamfunn Til Bioindustri*, IV 1920-2000., 207.
70. During the economically turbulent interwar years agriculture became an employment buffer, and an agricultural law from 1928 was based on this premiss. Mainly through the facilitation of new smallholding and new cultivation. - *Stortingsmelding Nr. 60 (1955) Om Retningslinjer for Utvikling Av Landbruket*, (Oslo 1955).
71 Extensive agricultural operations denote multiple different forms of production simultaneously usually with subsistence farming as the end goal, rather then intensive operation based on market production.
72 Following the agricultural census of 1949, the average size of each agricultural unit was calculated to 48 decare, compared to 89 decare in Sweden and 152 decare in Denmark. - Instilling, 6.
73 Slagstad, 270.

according to the government.[74] Agricultural reform was part of a larger project of the Norwegian labour party's industrial modernization, and although this ostensibly included rural areas as well as agriculture itself, there was little doubt that such a process had direct and long term repercussion for the agricultural sector.[75]

The National Budget and the Centralizing Logic of the Vertical Aerial Image

The land registry and the vertical aerial image took part in the overarching ambitions of the labour party state in the post-war years which in essence sought "To develop and utilize rationally and comprehensively all the nations productive powers in accordance with the production technology that modern science has made available."[76] The emphasis on a scientific and rational approach to the entire nations economy and industrialization's explicit priority was instituted by the creation of a national budget in 1947. The aggregate view of the nations economy in the national budget was to provide a technocratic framework for the large-scale reforms needed in the creation of an industrial welfare state. According to Rune Slagstad the national budget was framed as "an institutionalized expression of a higher political rationality, anchored in scientific rationality that would grant control over the economic mechanism in society."[77] The aggregate approach of the national budget provides a governmental analog to the synoptic view of the vertical aerial image. As Scott has noted "The very idea of a national plan, which would be devised at the capital and would then reorder the periphery after its own image into quasi-military units obeying a single command, was profoundly centralizing. Each unit at the periphery was tied not so much to its neighboring settlement as to the command center in the capital; the lines of communication rather resembled the converging lines used to organize perspective in early Renaissance paintings."[78]

The reordering of the periphery in agricultural rationalization and the macroeconomic grid of the national budget are part of what Slagstad has called the "engineering mentality" of the period which was a pervasive and default way of thinking and approaching society that defines the "reform technocratic" edifice of the industrial welfare state in Norway. The engineering mentality denotes the technocratic system of reforms that sought to design and

74Ibid., 270.
75 During the national convention of the Norwegian Labour Party in 1949, Trygve Brattli described the opposition of an aggressive industrialization policy at the behest of agriculture and rurality as "reactionary romanticism". - Olav Rovde, "1925-1950," in Norske Småbrukaren 1913-1988, ed. Sigvart Tøsse, Olav Rovde, and Sigvart Tøsse (Oslo: Samlaget, 1988)., 147.
76 Slagstad, 260.
77 Ibid., 281.
78 Scott, 254.

systematize a wide array of sectors ranging from agriculture and fisheries to satellite cities, research, and industrialization into the planned and cohesive mechanisms of an industrial welfare state.[79] Taken together, the national budget and the engineering mentality share the approach of the vertical aerial image, in that it was a way to aggregate, manage and create consistency between disparate things through a synoptic approach. The view of the world in the vertical aerial image which flattens the relief and opens the landscape to manipulation, allows for a reordering of the periphery according to the centralizing grid of the national budget and its notional landscape.

Within the context of agricultural rationalization in Norway the national budget's centralizing impetuous was instilled upon the landscape through the agropolitical construct of the *Sustainable Family Farm* as its own notional and centralizing node that was to alter the landscape and to create new vectors drawn across the landscape.[80] The term sustainable family farm, signifies the economic framework as well as the social ambitions of agricultural rationalization and land reform. Sustainable family farms were to be implemented through a government program of right of first refusal that would consolidate land and expand the size and production of existing farms in order to *"provide the owner and their household with a viable economic situation."*[81] As noted by Reidar Almås the term must be seen as an agropolitical construct that gives form to the overarching agroeconomic grid.[82] The construct was also to serve a social purpose by being a "permanent and central part of the rural social system."[83] In addition, the construct was based on a model of what an efficient and rational family farm was to be, namely a specialized dairy farm with new technical features, a silo, and based on new cultivation and full intensive utilization of farmland.[84] With this the sustainable family farm provided a yardstick for the new landscape of rational agriculture. [85]

In effect the land registry, and the legal agricultural framework from the 1955 depended on a form of objective and scientifically grounded aggregate view of the surface of the agricultural landscape that consequently allowed for the stabilization of the social system of rurality. This view of the scientific objectivity and aggregate function of the vertical aerial image was emphasised by Helge Skappel in the 1949 book on Widerøe: "Photographs and

79 Slagstad, 277.
80 The mirroring between a centralized plans and the ideal of the sustainable family farm was made by Edvard Bull – see Bull, 248-249.
81 Ibid., 249.
82 Almås, *Norsk Jordbruk - Det Nye Hamskifte*. 33.
83 Reidar Almås and Brynjulv Gjerdåker, *Norwegian Agricultural History* (Trondheim: Tapir Academic Press, 2004).324
84 Almås, *Frå Bondesamfunn Til Bioindustri*, IV 1920-2000., 223.
85 Bull, 246-247.

maps were to be laid on the tables of scientists and their experiments and investigations were to begin. The creation of a new structure of society was to be planned through the cooperation of sociologist, economists, geographers, agronomist, engineers and architects."[86] Skappel directly addresses the prevailing understanding of the vertical aerial image as objects of knowledge and how their epistemic value was derived from the multiple readings possible across disciplines from the same object. Readings that in effect allowed the aerial image to be seen as a tool harmonization, where Scott's conception of "lines of communication" could be managed in accordance with the centralizing framework of a technocratic state. To this end the objectivity of the vertical aerial image lies in the capacity to manage, administrate, and aggregate different relations and readings in accordance with an overarching goal. The objectivity therefore arises not so much as form of scientific objectivity directly from the image's capacity to efface the human presence, but rather as a way of guaranteeing a shared surface across different disciplines.[87]

Statistical Images

The need for consistency was also evident in how the parliamentary report which stipulated that: "The land registry will be organized through a card index and each farm will have their own index card." The archive was then to be copied and distributed to a wide array of different institutions.[88] The relationship between archival functionality, statistical knowledge and aerial images as aggregate objects of knowledge is emphasized by the way each aerial image was archived together with statistical data pertaining to each property. Three forms were utilized in the collection of data necessary for the land registry. At the top of each form together with the property and cadastral number, name, other personalia and relevant information was a section reserved for the picture number, which corresponded to the vertical aerial image of the property.[89] The first, form A dealt with the individual holding or farm, the first six rubrics detailed information about the current land utilization such as total cultivated area, productive forests, and total area. The next seven rubrics detailed the future capabilities of the area, such as cultivable land, area for afforestation, and future productive forest. In addition, the topography of the farm and the abuttal of fields was detailed. Lastly the form asked more general questions such as if the farm had road access and electricity.[90] The second, form B pertained to larger fields or areas further away from the farm that necessitated more

86 Viggo Widerøe and Helge Skappel, *Pionertid* (Oslo: Gyldendal, 1946)., 85.
87 Latour, 19.
88 St.meld 60, 40.
89 Instilling, 44.
90 Ibid., 117.

data. This form was only necessary for those with more than 30 decare of cultivable land. The form was to contained information such as height above mean sea level, future possible capacity for afforestation, cultivation, and grazing, as well as if the field can be used for potatoes or grain. In addition, the form detailed information about infrastructure such as the distance to closes dairy plant, distance to closes rail station or harbour, distance from farm and distance to road.[91] Form C detailed large areas suitable for afforestation and detailed information about inclination, time span for afforestation, height above mean sea level and tree types and was limited only to a few areas.[92]

The inclusion of picture number on each form shows the interrelation between the epistemic function of the vertical aerial image and statistical knowledge. Gunnar Balle, one of the agronomists who took part in the first preliminary study on the creation of a land registry in Norway, argued that statistical knowledge served as data that could be directly transferred to the vertical aerial image, and that stereoscopic interpretation of the aerial image allowed for direct transfer from form to image and then to large scale maps.[93] [fig. 1.3] Furthermore the creation of an archive allowed for organization and retrieval of information utilizing a punch card system, thus not only would all farms be organized according to their cadastral and property number, but also tabulations of properties according to their productive potential, size, distance to closes port, etc.[94] In the recommendation form the land registry committee the creation of an archive allowed a form of mobility of the information between institutions but also a recombination of the information and knowledge in new ways. As Scott has pointed out any form of official registration such as cadastral maps and in our case land registries are powerful judicial systems that gives categories the force of law.[95] In the case of post-war rationalization these categories are a prescribed value upon the pre-existing object in relation to the overarching governmental goal, be that of rationalization, taxation, or extraction.

The parliamentary report also included recommendations, suggestions and examinations from different agricultural institutions and societies, upon the social and geographic implications of the long-term structural rationalization. [96] One of the recommendations came from the Akershus County Agricultural Society in 1952 which

91 Ibid., 118.
92 Ibid., 119.
93 gunnar Balle, "Oprettelse Av Jordregister Et Forsøksarbeid " *Norsk tidsskrift for jordskifte og landmåling* 49, no. 23 (1956)., 254.
94 Instilling, 89-91.
95 Scott, 3.
96 St.meld 60, attachment 1, 1.

examined the possibilities of strucutral rationalization of 124 smaller agricultural units (between 20-100 decare). The units were then subdivided into four circuits (A, B, C, D) to be representative of the county at large. For each circuit, the agricultural society created two sets of plans. One based around the continuation of operation as it was, and one based upon the merging and consolidation of units, erection of new technical buildings and rationalized operations.[97] As the experiment was based around smaller units, the questions posed were centered on the conditions and operations of each unit individually and then as a part of a larger structure or circuit. The examination emphasized the need to discern internal and external property structures, but also to conduct demographic and social analysis. In the former the structural rationalization must examine the structure across all units as part of a complex structure rather than just independent parcels. [98] Structural rationalization also necessitated intimate knowledge about the economic and demographic situation of each holding, seeing as family structure, economic situation and motivation were vital factors in the decision to sell land that would be consolidated in order to make larger farms.[99] Thus by discerning these internal and external features of the circuits, the Agricultural Society recommended, based on the pre-established structure of the landscape and its demographics, that in circuit A 31 farms were to be consolidated into 16 farms above 70 decare. [fig.1.4][100] Manipulation and reconfiguration necessitated a clear understanding of the structure and area of the agricultural landscape as well as detailed demographic, social and productive information about each unit.[101]

The problem posed by the complexity of internal and external property structures was further developed in a 1956 article in the Norwegian Journal of Land Reallocation and Surveying by Sverre Øvstedal. He detailed how the aerial image was a key tool in the discernment of property structures as well as gauging the future capacity and potential of an area.[102] The problem was how property structures contained both the organization, tessellation, and distribution of cultivated or productive land and their internal and external

97 Ibid., 35.
98 Ibid., 36-7.
99 For instance, in the newly created unit E, made up of four consolidated farms, one of the farmers in a consolidated unit found his farm to be both too large and too small, thus tying him to the land without much economic viability or security. Another of the subunits that would make up unit E, was an old man who doubted his son would want to continue operating the farm, thus if they were willing to sell their farm which could be consolidated into a larger more productive unit that was to be simplified and rationalized as a dairy farm. – ibid., 42.
100 Ibid.,40.
101 Ibid., 39.
102 Sverre Øvstedal, "Ytre Jordbruksrasjonalisering I Eit Område," *Norsk tidsskrift for jordskifte og landmåling* 48, no. 23 (1956)., 12.

structure of each farm relation to each other. Rationalization had to engage with the established landscape wherein internal property structures might be at odds with structural rationalization through land consolidation. Internally the structure is defined by the relations between different plots of productive land, technical buildings and features needed to utilize the land. Technical features are often not exclusive to the single property and thus part of larger property structure as well, herein the structure of property is defined by collective elements such as irrigation ditches, roads, and other features that abuttal and shape the property. The overarching structure is made up of a complex of different properties and is more extensive than just the boundaries between enclosed parcels and their marginal zones. A structure is defined also by the internal and external relation across parcels of for instance technical and operational features to different cultivated areas. External rationalization is therefore the coordination and rationalization of a property structure to fully utilize these features in the most productive way across the entire area.[103] This capacity to discern both the internal and the external property structure in relation to one another was based on the vertical aerial image that allowed structural rationalization to take road placement, forestry, proximity, and other factors into consideration when discerning the macro property structures and its future potential.[104] [fig. 1.5]To this end the capacity of the aerial image for Øvstedal is a synoptic view of the property structure where ditches, abuttals, roads and utilities can be planned in order to be "stable or timeless".[105]

A land registry at multiple scales was therefore a necessary condition for the implementation of agricultural rationalization.[106] In addition a land registry was a prerequisite for rationalization of not only the productive elements of agriculture, but the creation of a new rural social system had to make legible both the internal and external property structure as well the social and economic conditions across the Norwegian agricultural landscape. The parliamentary report states that a registry was to be made from area mapping as well as statistical and schematic information to supplement and be utilized within the mapping project, as the key concern for the registry was not clearly described property boundaries and parcels, but knowledge and information that can inform economic analysis and decisions at

103 Ibid., 23,1 1956, 3-8.
104 Ibid., 59.
105 Ibid., 5.
106Although the previous agricultural law of 1928 stipulated that a registry of all arable land must be made, it never properly materialized, and it was created with a different end in mind. The registry intended in the 1928 law was the charting and measuring of larger areas of potential arable land for Bureising, thus the ambition was to establish a new landscape rather than to reconfigure the established one. It is also interesting to denote that the first map based of aerial images from 1936 in Hjelme Herred was for this purpose. Instilling 1956, 4.

multiple scales.[107] Rather than just mapping and registering the current state of arable and agricultural land in Norway, the land registry also had to register under-utilized and non-utilized land that could potentially be rationalized and implemented into the new agricultural structure. Therefore, wildlands and abandoned outfields was to be mapped and registered in accordance with their potential productive value in relation to already existing productive land.[108]

Ground Truthing the Aerial Image

The question of structural rationalization had to start with a process of legibility and discernment, as in what is the structure and how visible and open to manipulation is it? The 1956 recommendation from land registry committee details how aerial images operate in two different ways as objects of knowledge, the first is through the standard practice of *interpretation*, and the second is through an *inventory* of the content of the image.[109] [fig.1.6] These processes are interdependent, as the necessity of an inventory is derived from an interpretation of the image. In the latter the aerial image becomes a visual analog to the schematic form, as an image of schematic knowledge that needs to be filled inn with the correct and productive information as make possible an interpretation or analysis in relation a larger overarching structure. Interpretation of the aerial image is a productive action based on ascertaining the content thus producing what is conspicuously visible in the landscape. In short interpretation renders visible what are viable objects, features and phenomena that need to be inventoried in order to fill inn the landscape.[110] Inventorying an image is what the Canadian geographer Matt Dyce has described as a process of "ground-truthing" of the image.[111] The term ground truthing denotes in one way that aerial survey images did not interact with an open surface, rather the surface had to be prepared before photographing with the creation of triangulation points, control points and survey markers.[112] To this end ground-truthing described the mechanical objectivity imbued into the survey image by calculable angles that allowed for a mathematical space that was measurable to be depicted in photogrammetric images. As such, ground-truthing is in one sense rooted in the mechanical objectivity described by Daston and Galison, wherein the capacity cameras and their mechanical depictions is seen as a guarantor of objectivity by effacing human idiosyncrasies

107 Ibid., 16-17.
108 Ibid., 25.
109 Ibid., 27.
110 Ibid., 29.
111 Matt Dyce, "Canada between the Photograph and the Map: Aerial Photography, Geographical Vision and the State," *Journal of Historical Geography* 39 (2013). https://doi.org/https://doi.org/10.1016/j.jhg.2012.07.002. 77
112 Ibid., 77.

or subjectivity in the collection of data, as well as the discernment of objects through the perspectival construction of the photogrammetric image. Thus, the process of discrimination necessary for objectivity is in large deferred to the mechanical apparatus.[113] Dyce also notes that the interpretation and production of aerial survey images is part of the way that object and subject emerge simultaneously in techno-scientific modernity, that creation and interpretation of knowledge made available by new technologies was coupled together.[114] This lamination of subject and object is another hallmark of mechanical objectivity wherein the observe desires "to see as if his inner eye of reasoned sight were deliberately blinded."[115]However, when we speak of ground-truthing in the Norwegian context it also denotes the meeting point between the mechanical objectivity of the photogrammetric aerial image as format of map making, wherein the "visible world emerges on the page without intervention" and 19th century land consolidation maps which need to be rectified and recombined through the objective technology of the aerial image.[116] Thus ground-truthing is a way to correlate and translate objects into the correct scale necessary for synoptic interpretation.

In 1955 the Institute for Property Design and Land Consolidation at the Norwegian College of Agriculture (*Institutt for Jordskifte og Eienddomutforming*) financed by the Norwegian Agricultural Research Council started a research project in Naustdal in Sunnfjord, western Norway studying how to develop a land registry and economic maps. Here ground-truthing as the key to consistency was to be developed at a large scale. Systematic ground-truthing was necessary as the ambition was to utilize pre-existing aerial images, land consolidation maps, fieldwork, and photogrammetric aerial images which were to be rectified and recombined through the vertical aerial image and fieldwork.[117] Thus in Naustdal we can identify how the process of legibility was not only based on the landscape and its content, but also earlier techniques of mapping. In addition, it makes evident how the land registry was more than just survey images, but a process of superimposing consistency. The selection of Naustdal for the project was due to its representatively difficult west coast topography, the available cartographic material being predominantly in two different scales (1:2000 and 1:4000), and that the area was 2/3 covered by previous aerial images.[118] The natural variation

113Lorraine Daston and Peter Galison, *Objectivity* (New York, NY: Zone Books, 2008)., 260.
114 Dyce, 71
115 Daston and Galison,, 140.
116 Ibid., 143.
117 "Fremstilling Av Økonomisk Oversiktskart Og Oppretting Av Jordregister." edited by K.J Moen: Institute for Property Design and Land Consolidation, Norwegian College of Agriculture 1959. Archive S-4856, Series DA, Box L0530, Folder 0001, Kontorer for jordskiftesaker, National Archives of Norway, Oslo, Norway., 7-8.
118 Ibid.

in types of land and their elevation also posed necessary challenges. With ¾ of the valley being above 300 meters and including large mountains areas utilized in transhumance grazing. In addition, Naustdal was going through a process of cultivating new land and afforestation, which was one of the processes that the land registry and economic mapping would facilitate. The lack of industry and full employment[119] outside agriculture combined with the natural topography and fertile soil made Naustdal an excellent synthesis of different problems and variables that such a registry and its application would need to take into consideration as to produce the aggregate knowledge necessary for rationalization.[120]

The project, which ran from 1955 till 1959, had as its end the registration of information and creation of cartographic knowledge that can be applied in technical and economic analysis within different fields and institutions.[121] The desire was the creation of large-scale economic maps as well as a land registry that could be utilized in both agricultural rationalization and other forms of planning and modernization. The original interpretation and inventory of aerial images that was to lay the foundation for the registry was therefore supposed to open up the landscape to new interventions and new readings from different fields of expertise.[122] In short, the material was to be read and verified in a way that made it an objective field of knowledge open to diverse forms of readings in cartographic form. What the aerial image made possible was the suturing and supplementation of existing maps and aerial images with varying degrees of detail into a cohesive whole.

The land registry utilized three forms of existing material in Naustdal; land consolidation and reallotment maps for 46 units, from between 1864 till 1956, where only seven of the maps were incorporated into the land triangulation network. In addition, the area was covered by large scale topographic maps in 1:50000 as well as a copy of photogrammetric map in 1:40000, aerial images from two different flights in 1:35000 and 1:40000 from 1947 and 1952 done for the Norwegian Geographical Authority. All of which needed to be combined and harmonized. It was therefore necessary to commission a new set of aerial images taken at a lower altitude with a more appropriate scale (1:16000) for the areas under 300 meters elevation. These were then implemented into the already existing triangulation network for the eastern section of the valley. In the western section new large-

119 In Naustdal combined holdings, wherein capital is accumulated outside the farm was pervasive, with the majority of farmers accumulating capital through inshore herring fishing in the winter. This was one of the production paradigms that rationalization sought to do away with. – ibid., 10.
120 Ibid., 10.
121 Ibid., 8.
122 Ibid.,45.

scale images were needed in order to create new control points for the small-scale aerial images. This allowed the inclusion and rectification of reallotment maps into the coordinate system of the aerial images.[123] For units with maps not included in the coordinate system, three to four markers were found and identified on the aerial images. However, the most important aspect of the project was the incorporation of units without or with lacking reallotment or consolidation maps, here rather extensive field work was necessary to mark out and take inventory of the areas and inscribed on magnified aerial images.[124] This process marks another format of ground-truthing of the aerial image, where the image lays out a schematic conception wherein natural boundaries, marginal zones, etc. are all visible, but need to be verified and plotted into the image through an inventory of the surface.

To signalize boundaries between different properties, the process of mapping had a direct physical connection to the landscape, due to the rather complicated property structures, the topographic variation, and the lack of proper cadastral maps. This necessitated extensive preliminary field work to prepare the surface of the property. This process of demarcating the properties was dependent upon the cooperation of the local population and the single farmer and their knowledge of their property.[125] Through the help of the leader of the local land boards the project recruited contact persons for each hamlet as well as took out ads in the two local newspapers. From each hamlet the owners met up and were informed about the details of the project as well as the importance of proper mapping of boundaries and its benefits for them. As the shape and tessellation of the properties was shaped as much by years of reallotment, extensive use as well as topographic features, thus the internal property structure was less legible and more intertwined from the air.[126]

The researchers and farmers used different form of markings for the intersection of boundaries such as fertilizer bags, chalking the area around a property marker and signaling trees the surface was prepared for the photo flights and the property structure became visible from above. [fig.1.7] For the markings to be visible in aerial images they had to be adapted as to be discernable in the landscape and large enough to be visible in relation to one another. Furthermore, it was vital that there was a sharp contrast angle between signal and terrain to make it possible to draw lines between each signal on the image. For the most part the markings made possible the drawing in of property boundaries by interpretation alone and

123 Ibid., 15-17.
124 Ibid., 17-19.
125 Ibid., 41-42.
126 Ibid., 44-45.

double check by stereoscopic analysis. In the cases where there was doubt about the possible interpretation a field analysis was necessary. In one hamlet with three to five units the researcher trained two of the inhabitants to use a stereoscopic device and to draw the boundaries themselves on magnified contact copies of the 1:16000 aerial images.[127] The researcher then went to other units in the hamlet and together with the local knowledge of one of the two inhabitants made the process of drawing boundaries faster and more acceptable to the other owners.[128] This was especially important as the difference in established boundaries might differ from neighbour to neighbour due to earlier process of reallotment or consolidation and their cartographic veracity.[129] With this we can see how the vertical aerial image together with field analysis made the internal and external property structure merge with the measurable geometry of the aerial image.

It was also necessary to conduct an inventory of land usage and classification, this was done through photo interpretation, field inventory, stereoscopic analysis. The majority of land inventory was done through photo interpretation by the researcher and field inventory facilitated by magnified contact copies used in the field by the farmer and researcher together. Whereas mapping detailed topography, location, land structure and infrastructure of the agricultural landscape, land classification and inventory delt with the actual gathering of information to fill in the map.[130] [The underlying logic here is therefore also the possible rationalization and expansion of productive units across the existing structure. By categorizing unproductive land such as mires and land that could be reutilized such as natural meadows or areas for afforestation, the land registry was intent on facilitating a program of landscape change that we will return to in chapter three.

Aerial Images and State-Managed Modernity

To put the use of the aerial images into context we need to examine the American influence on Norwegian planning. In a 1954 publication from the series "Technical Guidance during the Marshall Plan", called "Aerial Photogrammetric usage in American Agriculture" written by two Norwegian agronomists after a field trip to the United States to examine the usage and applicability in Norway. The report emphasized the potential of the technique in small scale forestry and farm management. [131] As noted by Almås, with these exchange programs

127 Ibid., 23.
128 Ibid., 25.
129 Ibid., 25-26.
130 Ibid., 38-39.
131 Arne Haider, *Luftfotogrammetri I Landbruket I U.S.A*, ed. M. S. Clason (Oslo: Utvalget for faglig hjelp i landbruket, Norges Vel, 1954)., 20-21.

agronomists were introduced to "the streamlined and integrated agricultural systems that impressed many of the Norwegians".[132] One of the key applications lauded in the 1954 publication was the use in forestry in tandem with agriculture. Here magnified contact copies of woodlands and forests can be used in planning work and selection of area as well as to plan transport, plotting roads as well as prospecting and evaluation. Aerial images of small woodlands negate the necessity of an expensive mapping process and thus allows for increased production and a solid economic foundation for the agricultural sector. For instance, the density and boundaries of the woodlands which are easily visible during photo interpretation would rationalize the forestry operation and reduce the need for fieldwork.[133] Another key area emphasized by the authors was the aerial image as tool within soil analysis and conservation. Detailing the application of vertical aerial images in the work of the Soil Conservation Service, a New Deal agency created to avoid erosion, floods, and other consequences of poor soil management. The agency, which relied on the cooperation of volunteering farmers in Soil Conservation Districts to gather and register information for a centralized registry, utilized aerial images drawn over with different contours demarking soil fields of a property.[134] These were then classified according to capability, type, and degradation. A thorough analysis of the property was conducted on the basis of its soil capability, its topography, precipitation, erosion, and other factors to discern the productive potential and ultimate capability of the entire unit. The analysis was distributed to the farmer in form of a 1:8000 aerial image with a colored transparent overlay marked with the different eight different soil classifications and their location in the image, as well as a pamphlet with scientific agricultural guidance for the single unit as well as technical recommendations and possibilities proposed by the service.[135]

The American influence on the application of aerial images in Norwegian agriculture was not limited to the exchange programs of the Marshall Program but was also part of larger history of the ways in which the "state-managed modernity" of the New Deal era functioned as a template for the Norwegian industrial welfare state before and after the war.[136] In a similar way the agricultural law of 1955 with its ambitious redesign of the pattern of agrarian life was to a certain degree founded on the technological possibilities offered by the vertical aerial image, as was the agricultural programs of the New Deal era. The author Jason Weems

132 Almås, *Frå Bondesamfunn Til Bioindustri*, IV 1920-2000., 193.
133 Haider, 56-57.
134 Ibid., 54-55.
135 Ibid., 52-53.
136 Slagstad, 267.

in his seminal book on aerial photography and the geography of midwestern American describes how the Agricultural Adjustment Act of 1933 depended on the technological capabilities of the aerial image, not only as a synoptic and totalizing vision, but as an intermediary between state perception and the grounded perception of the fiercely independent American farmer.[137] The 1933 law was focused on production regulation which necessitated an augmentation of the farmers' operational programs, crop locations and allotments. The aerial image became "instrumental in implementing and regulating allotment programs."[138] Seeing as the goal was to limit overproduction, the aerial image became a tool that allowed government planners and agricultural agents to help the individual farmer determine what crops were to be planted where.

Although very different in scope and application one key similarity is important to note between the Norwegian agricultural reforms and those of the New Deal Era. Weems notes that the agrarian reforms of New Deal era sought to "reform an established landscape whose disintegration, somewhat ironically, was the unintended consequences of earlier beliefs and practices" but the same holds true for the technocratic approach to the Norwegian agricultural landscape. The established landscape of Norwegian agriculture was however very different from the open, geometrized and ultimately unified Jeffersonian landscape of the Midwest. In part the rugged and variegated topography of Norway produced a plethora of different agricultural landscapes with their own relationships to land organization, production schemes, and cultural as well as social formations. Secondly this landscape was shaped over the course of history through inhabitation and location specific negotiations with the natural environment. In short, the value of and status of local approaches to agriculture varies due to a vast number of factors making the agricultural landscape less legible and thus less open to manipulation. The scope of manipulation depends on the capacity to make the object or field legible and to organize in a manner that allows them to be "identified, observed, recorded, counted, aggregated and monitored."[139]

Consistency and Contesting Views

One of the key advocates for the conceptual framework of the New Deals state-managed modernity and a more extensive use of aerial images in the planning of Norwegian rurality was the geographer Axel Sømme. Sømme together with Knut Getz Wold he played a key role

137 Jason Weems, *Barnstorming the Prairies : How Aerial Vision Shaped the Midwest* (Minneapolis, MN: University of Minnesota Press, 2016)., 71-73.
138 Weems, 71.
139 Scott, 183.

in the attempt to make comprehensive New Deal area planning like the Tennessee Valley Authority a model for Norwegian modernization in the post-war years.[140] Although Sømme's dream of a Norwegian TVA area plan in Northern Norway never materialized, he became a key proponent of the aerial image as a tool for modernization and state-management. Sømme, together with Ole Colbjørnsen, authored in 1933, the first year the Norwegian labour party came to power, a comprehensive three-year plan oriented towards the industrialization of Norway. The three-year plan detailed a planned and state managed development of Norwegian industrial production with an emphasis on new technology that would create a "research-based industry" propelled forward by a state-run technical-industrial institute.[141] New technology would allow Norway to utilize and realize the immense natural resource at our disposal that had been neglected in part by the lack of research, technological investment, and proper planning.[142] In the three-year plan Colbjørnsen and Sømme saw the process of planning as a comprehensive one that necessitates seeing things synoptically.[143] As pointed out by Slagstad this three-year plan was the foundational document for the nascent labour-party-state and serve as the spring board for the ambitious programs in the post-war era.[144]

In a 1957 article titled "The Maps Utilization in our Area Planning" by Sømme, he argued for comprehensive area planning on a smaller scale. Up until then planning and analysis had in been based on economic planning based on statistical analysis rather than area planning.[145] For Sømme the key concern was the ways that phenomena studied on maps provided a coherent totality, and with population growth in rural centers and towns a more comprehensive vision was needed.[146] [fig. 1.8] Utilizing the example of Kvam in western Norway Sømme shows how the lack of coordination and synoptic vision by local governments create counterproductive and short-sighted plans, where expanding industry and semi-urban areas come at the cost of agricultural land.[147] Ultimately the argument for Sømme is that comprehensive mapping through the aerial image is a state responsibility rather than a local one. Sømme goes on to say that "there is nothing as expensive as being poor" and that the cost of mapping together with the adverse effect of poor plans in its absence create local

140 Øyvind Thomassen, "Herlege Tider: Norsk Fysisk Planlegging Ca. 1930-1965" (Norges Teknisk-Naturvitenskapelige Universitet, 1997)., 214-215.
141 Ole Colbjørnsen and Axel Sømme, *En Norsk 3-Årsplan- Veien Frem Til En Socialistisk Planøkonomi I Norge* (Oslo: Norske arbeiderpartis forlag, 1933)., 14.
142 Ibid., 34.
143 Ibid., 17.
144 Slagstad, 192.
145 Sømme, "Kartets Plass I Vår Område-Planlegging." , 143.
146 Ibid., 146.
147 Ibid., 162.

inequalities.[148] This is not only a question of schematic readings of the landscape as resources, but for Sømme it is also a question of making nascent rural industrial towns attractive places to live and work through the capacity of the aerial image to produce plans for areas in a way that integrates social, cultural and economic concerns.[149] Towards the end of the article Sømme writes "More things are to follow if planning authorities and elected representatives in boards and councils really learn to think spatially by constantly sitting over maps and large scale vertical photographs. Allowing the imagination to run free and good ideas to emerge more easily."[150] Ultimately, what Sømme gets at here is the vertical aerial image as a way of cognizing different landscapes unto a single harmonious surface, as a synthesis of different and contesting views upon the landscape. Here we must return to Latour and the notion of visualization and simplification as a way to attempt to harmonize and settle conflicts by turning to the things open to diagrammatic representation, in our case that being property structures, land allocation or soil qualities.[151] Furthermore, this incessant desire to defer to visualization as a condenser of complexity is yet another form of operation where action is derived from the image thus deferring future possibilities onto the image itself.[152] Things and thus action is derived from the demands of the visualization namely by providing mental mobility within a consistent visual field where "good ideas emerge more easily."[153]

The need for a land registry came from a process of rationalization that sought not only to alter that landscape, but the social systems of the landscape as well. In the rugged terrain and entrenched patterns of inhabitation in Norway the vertical aerial image allowed for a common ground where the information necessary could be gathered, synthesized, and applied to the landscape. By showing how the land registry utilized a myriad of different techniques, materials and approaches I have attempted to show that the vertical aerial image had a very tangible engagement with the physical landscape as well as with the agricultural history of the nation through the use of old land consolidation maps. And that the underlying idea of agricultural rationalization which in essence sought to rectify and recombine the landscape was mirrored in the vertical aerial image and the land registry which shough to create consistency and scale both in the cartographic sense, but also in the internal and external structure of the landscape in a unified scale that was both economic as well as social.

148 Ibid., 150.
149 Ibid., 164.
150 Ibid., 175.
151 Latour, 15.
152 Ibid., 16-17.
153 Ibid., 20.

CHAPTER 2 –Oblique Views of Streets and Hamlets

During the technocratic reforms of post-war Norway, the vertical and the oblique aerial image served different functions oriented towards the same end. This end can in many ways be encapsulated by a 1959 election poster for the Norwegian Labour party with slogan "Vekst og Velstand, I Gate og Grend", translatable to "Growth and Prosperity in Street and Hamlet". A slogan that denotes the ambition to create a prosperous and unified social, cultural and economic system of the nation that comprised ruralism and urbanism alike.[154] [fig.2.1]As we saw in the first chapter and as we also shall see in this chapter the vertical image was mobilized to stabilize social systems and to render legible social space. In the first chapter the key locus of social stability was the agropolitical construct of the sustainable family farm. This process was more pronounced, but nonetheless analogous in the new forms of urban development that appeared in the postwar years. In this chapter I will focus on high altitude oblique aerial image that show entire settlements and communities and how they were called upon not to organize space, but rather to manipulate space to show the coherence of a social democratic cultural system that included rurality and urbanity. By analyzing the use of the oblique images in academic agricultural geography and the conjunction of oblique and vertical image in social democratic urban planning, my ambition is not only to show how these images served a political purpose, but also to call attention to how the modular perspective of the oblique took part in the metaphorical change of perspective during the period.

The 1959 election poster provides a good entrance to understanding the social and cultural system of the post-war social democratic state. The poster was designed by Sverre Ørn-Evensen and is a photomontage of two different oblique images with a pasted inn blue sky with a small white cloud drawn in on the right hand and a black banner underneath. With red and white letters, the poster says "Vekst og Velstand, I Gate og Grend".[155]. On the right-hand side an oblique aerial image of Lambertseter, a satellite city outside Oslo designed according to the social democratic precepts, stands as an image of new rational urbanism which was to provide organized community formation, unifying institutions and condense common interests.[156] On the left-hand side, an oblique terrestrial image of meandering

154 The term Grend denotes a rural form lane or area with a collection of houses, farms and cottages that are separated by outfields and forest from other groupings in the landscape.
155 The term *Vekst og Velstand* (growth and prosperity) became cemented as the overarching theme of the Norwegian social democratic project in part through the book titled "Vekst og Velstand – Norwegian political history 1945-1965" authored by seven historians who detailed the twenty years the labour party was at power in Norway. - Trond Bergh et al., *Vekst Og Velstand* (Oslo: Universitetsforlaget, 1987).
156 Slagstad, 302.

agricultural land divided by forested irrigation ditches and hayracks contrasts the regulated and planned urban space of Lambertseter. The agricultural image comes across as a montage of multiple images stitched together based on the positioning of the hayracks in opposite directions and the perpendicular line of trees from in the center of the second field. What the agricultural image seems to profess is a landscape of lines and boundaries that suffuse the agricultural land into a cohesive whole that is in no way antithetical the societal structure of the urban image, rather the two together create the foundation of the social democratic state. Furthermore, the fact that it seems to be a montage of cut, transferred, and pieced together images to create a continuous agricultural landscape, speaks of the ongoing process of structural rationalization where the landscape was recombined and rectified in the creation of a stable social system in the sustainable family farm.

The landscape of the sustainable family farm and the landscape of urbanism are conjoined under the same blue sky. The feet of the capital, "A" denoting Arbeiderpartiet towering toward the blue sky has its foundation in both the urban and the rural. The heavy-handed symbolism makes evident the extensiveness of not only increasing prosperity and economic growth in both country and city, but of the process of modernization as interdependent and all encompassing. The relationship between country and city had been formalized through the political ambition of economic equality between agriculture and other growth industries. This was known as Jamstelling and was mobilized as justification for long term structural rationalization in agriculture, but also had regional political dimension by securing industrial jobs in rural areas to alleviate depopulation.[157] The formalized economic relationship between country and city, industry and agriculture were therefore not an acknowledgement of the country as a necessary counter to urbanism and industry, rather it was one of the many tools in the creation of a stable and industrialist cultural system in street and hamlet alike.[158]

A Stable Cultural System

As we saw in the first chapter the ambition to create sustainable family farms were in large an ambition for legibility and stability of the agricultural landscape. And as we shall see in this chapter the development of new urban communities shares the same governmental desire for stability, cohesiveness, and legibility. The weight on urban and rural in the slogan "growth and prosperity in street and hamlet" together with the illustrations of stable and organized

157 Trond Bergh, "Norsk Økonomisk Politikk 1945-65," in *Vekst Og Velstand, Norsk Politisk Historie 1945-1965* (Oslo: Universitetsforlaget, 1987)., 27
158 Rovde, "Landbrukshistorie Som Etterkrigshistorisk Forskningsfelt." , 10.

urban and rural social space conveys a message that each citizen should *know their nation* and see past their single community and ascertain the totality of the social democratic project. This cultural system is a product of the overarching governmentality of the period, herein explicitly different physical organizations of social space and their ways of life in hamlet and street are organized and managed according to the ambition of growth and prosperity. The ambition is that rural and urban, industrial, and agricultural, become part of the same coherent and knowable cultural system. It is this ambition that high altitude oblique views take part in disseminating, a holistic vision of city and country together under the auspice of the industrial welfare state as a cultural system.

By terming this as a cultural system based on the relationship between country and city, I will now turn to Raymond Williams as he has shown how the dichotomy of rural and urban functioned as part of a cultural system that bifurcated nature and culture.[159] Thus, a cultural system is a system wherein certain processes are determined in accordance with a dominant culture as a yardstick that exerts pressure on other cultural processes. Allowing them to be imbricated into the system as historical pre-cursors, archaic or quixotic elements or to be reconfigured to be perceived as integral parts of the system.[160] One of Williams discernments of a cultural system is the cost of "knowable communities" that hinge on different forms of perception, visibility, and subject object relations in the city and country, respectively.[161] For Williams a knowable community rested on communication and the capacity to disseminate and explain the connections and relations between individuals, norms, values, and different economic, political, and social structures in a transparent manner. Whereas in the community of the city, the myriad of different social, cultural, and economic relations is opaque and hard to discern or organize.[162] These visual terms and the understanding of subject-object position in cultural systems is pertinent in our understanding of the way the oblique aerial perspective manages and organizes the visibility of social and cultural systems. To this end Williams sees perspective, proximity, scale, and visibility as the key to knowable communities rather than size alone.[163] This allows us to see how the

159 Williams articulates this dichotomy on the first page of The Country and the City: "On the country has gathered the ideal of a natural way of life: of peace, innocence, and simple virtue. On the city has gathered the idea of an achieved center: of learning, communication, light. Powerful hostile associations have also developed: on the city as a place of noise, worldliness, and ambition; on the country as a place of backwardness, ignorance and limitation." - Raymond Williams, *The Country and the City* (London: Vintage 2016)., 1.
160 *Marxism and Literature* (Oxford: Oxford University Press, 1977)., 121-122.
161 *The Country and the City*., 165-166.
162 Ibid., 165.
163 Ibid., 165.

modulation of space, scale, and visibility in the oblique view function in the creation of a cultural system. In short phenomena that transmit and render visible "the organization of production, the structure of the family, the structure of institutions which express or govern social relationships, the characteristic forms through which members of the society communicate."[164] Thus cultural systems can be read as the implementation deliberate or not of constraints upon other cultural processes.[165]

By framing growth and prosperity as a nation-wide program that included and equated rational agriculture with industrial urbanism the poster provides us a way to see how the oblique aerial images take part in the creation of a cultural system where agricultural rationalization and urbanism are framed as a unified and linear process. In short organizing cultural processes into what Raymond Williams has called an epochal analysis, where a cultures system positions and frames other cultural processes as steps in the emergence of the cultural system itself. Rather than being active residual cultural conduits of a social history and social system that are divergent or separated from those of the cultural system they are incorporated as steps in the emergence of a cultural system, like the industrial welfare state.[166]

My argument is therefore the that high oblique aerial image of regions and settlements were mobilized in the academic discipline of human geography and urban planning as visualizing a cultural system of social democracy. As we shall see the oblique perspective which modulates the opacity and proximity of the landscape as field of subject-object relations allowed for the proliferation of *political landscapes*. This leads to the crux of my argument, that the deployment of the oblique perspective is part of an attempt to create a stable, unified, and cohesive cultural system out of the Norwegian landscape through the system of the sustainable family farm that we detailed in chapter one and social democratic urban planning where the oblique functions as a symbolic stabilization of space.

The Visibility of the Social Democratic Community

First however we must examine in closer detail the way that oblique perspective function in the manipulation of space and the visibility of internal coherence or incoherence in the landscape. As Fredric Poussin has shown in his study of the oblique aerial view in post-war French urban planning, one of the many purposes of the oblique aerial view was the capacity to show the coherence or incoherence of urban planning that had to negotiate the placement of

164 Williams, "The Analysis of Culture.", 48.
165 *Marxism and Literature*., 125.
166 Ibid., 122-123.

ancient or historical buildings. [167] Although this is not relevant in the context of Norwegian urban planning or agriculture, the argument that the oblique aerial view shows the structure or logic of a settlement and the relation between contemporary human initiative and historical or natural phenomena and seemingly given structures is relevant for us. Poussin's argument here is that the oblique aerial view lends itself to perceptive calculations impossible from the ground in utilizing light and modulating space in a way that can render the structures of settlements in relation to these features visible.[168]

The oblique angle creates a modular intersection between vertical and horizontal planes based on height and angle of the camera axis. The discernment of objects and address of subject positions in the oblique are a product of the manipulatable relation between these two planes. With a regulated perspective and scale the oblique as an axonometric depiction of space.[169] Here the oblique is a tool of measure and calculable angles that instills a form of intuitive remote sensing form a quasi-synthetic vantage point wherein the image can be simultaneously a concrete view of the world as well as operate as a geometrized plan in perceivable, intuitive, equalizing, and livable space. As Sonja Dumpleman has noted the axonometric gives the impression of a free-floating vantage point even in a fixed image like the image of the model of a cluster farm in chapter 1.[170] As we shall see in this chapter, the oblique aerial image lends itself to accentuating, ascertaining, and modulating the visibility of certain features on the ground in a less schematic way as well. Without a fixed principal point of orientation together with the modular intersection of vertical and horizontal planes, the oblique aerial perspective can alter the representation and reading of the surface of the landscape and its mass or content. Thus, when we examine oblique aerial images terms such as opacity, visibility and transparency must be seen not as pre-given but rather as part of the process of picture making and open to manipulation. To this end the oblique is like any other landscape representation, but with a movable and loose frame which makes visibility and space modular.

In effect the relative position of the camera in relation to the ground surface creates different images that convey different meanings and guide different readings in supplanting and organizing other forms of perceptive calculation. For instance, in a high oblique without a

167 Frédéric Pousin, "Aerial Views and the Grand Ensambles," in *Seeing from Above : The Aerial View in Visual Cultural*, ed. Mark Dorrian and Frédéric Pousin (London: I.B Tauris, 2019)., 251.
168 Ibid., 251.
169 Ibid., 265.
170Sonja Dümpelmann, *Flights of Imagination : Aviation, Landscape, Design* (Charlottesville: University of Virginia Press, 2014)., 139.

horizon or visible vanishing point, space is folded onto itself with the background curving upwards emphasizing the verticality of the image at the cost of spatial recession. [fig.2.2] In contrast a high oblique perspective with a visible vanishing point space is folded out and topography is flattened thus accentuate the recession of horizontal space at the cost of verticality. [fig.2.3] Furthermore, the opacity or transparency of what is pictured depends on environmental factors such as the relative position of the sun to the camera, the topography, and the weather. A low sun will further highlight the vertical features of the landscape through long shadows which for delineate topography, buildings, and other vertical features in the landscape. Whereas a high sun can be utilized to highlight the planimetric aspect of the surface without the disturbances of shadows. In most images the vantage point of the oblique is faced in same direction of the sun which highlights the frontality of the features, whether they are buildings, mountains, or forests. In the oblique view the opacity and transparency depend on these intersecting layers that give material expression to certain elements at the cost of others.

In the first chapter the vertical aerial image and the land registry with is prescriptive perceptions creates what Scott has called a "thinness" deriving from the "abstract sketchiness, its lack of detail" often found in cadastral maps.[171] The oblique aerial image with its planar intersection, which accentuates and emphasizes the variegation, curvature, boundaries, and vectors, modulates the visibility of detail in the image according to the variation of its angle, lends it self to representing and organizing the "thickness" of a landscape in a legible manner.[172] The oblique perspective details the landscape as complex and interrelated system of natural, historical, and cultural forces. Thus, the landscape and one's place within it becomes discernable in relation to a larger structures or systems, be that a single street or hamlet or larger community formations.

Political and Inhabited Landscapes

The utilization of the oblique view and its modular visibility in the imbrication of community formations as part of a larger cultural system necessitates an understanding of the landscape as a field of conflicting visibility that positions and organizes subject object relations. J.B Jackson described the landscape as a visible field that depends on the organization and categorization of what is conspicuously visible. Perceiving a landscape is a process of

171 Scott, 44.

172 The term thickness is utilized by Scott in relation to cities, but the same holds true for the agricultural landscape as well. To this end thickness is the palimpsest like landscape that is only legible at certain scales and at certain moments and is not imbued with an a priori legible framework like a planned settlement, city, or park. Ibid., 256.

exclusion in that regard, as not all the "content" of a landscape can ever be visible simultaneously thus certain features, phenomena and fixtures are relegated to become background.[173] Visibility is the key process in the way landscape fosters identity, belonging and tradition, as well as position the individual within the vast and complex network that continuously constitutes the visibility of the landscape.[174] To this end Jackson argues that landscapes are visible manifestations of a community, and although they might be designed, considered and implemented, they are always oriented towards a community.[175] In Jacksons understanding of the landscape two key models of visibility coexist, one is the visibility of the *political landscape*, which seeks to fix a certain identity spatially and to crystalize social relations.[176] The second is an *inhabited landscape,* which is grounded outside the agency and temporality of humanity as it is at that moment and is never fixed spatially nor temporally and much less visible.[177] Jacksons articulation provides us with a tangible way of understanding William's emphasis on perspective in the perception of opacity and transparency. A political landscape depends on opacity, it is the willful mobilization of an opaque layer that gives political meaning and category to landscape and its community and seeks to create or position subjects according to its visibility.[178] The inhabited landscape is transparent in that its object-subject relations are produced through reciprocal adaption grounded in the temporal exteriority as preceding and succeeding the subject.[179]

A political landscape declares the landscape as a created human environment, as a form of political relation, one that proclaims the independence of the human as unique and a priori to the landscape. To this end the political landscape is a design that is relegates the inherent thickness of the landscapes culture, topography, and culture towards a specific end. Such a landscape is tethered to a notion of seemingly politically productive relations. The concept of the political landscape is ultimately a process of bracketing, of deploying a perception, in the construction of centralized roads, land reforms, drawing of a boundary or the planning of a wooden church on a hamlet, or other features in a way that canalize and relegate the relations between inhabitant, design, and topography. For Jackson, the ideal political landscape is founded on immobility, which fix phenomena in a specific way towards a desired end. Immobility is as much based around sedentarization of the landscape into a

173 Jackson.32.
174 Ibid., 35.
175 Ibid., 12.
176 Ibid., 13-14, 42.
177 Ibid., 43-44.
178 Ibid., 42.
179 Ibid., 40.

defined domain, as well as the spatio-temporal status of a landscape as being an affect of its conscious design. Herein the landscape becomes seemingly immobile in that it functions to fix a visual paradigm of political roles and thus the possible relations and positions that it can produce and evoke.[180]

The inhabited landscape is mobile in that it is never fixed, and it gains it appreciative importance by its own insularity and incommensurability to fixed frameworks and external relations of the political landscape. Temporally the landscape is both something that precedes and succeeds the inhabitant, its relations are inherently in flux, and any fixation is temporary as the relations between culture, topography and design are contingent, interlaced, and transitory.[181] Inhabitation therefore makes evident the reciprocal and mobile relationship between seemingly immobile features, natural or political, that have to be negotiated, and the incapacity to fix and determine its meaning within the landscape without addressing these immobile features. A political landscape is the countervailing attempt to fix the mobile, to draw up a boundary along a river, to orchestrate the landscape in terms of permanent sightlines through the creation of declaiming vectors, or the reorganization of land as to increase productivity and rationality. Boundaries are analogous to an overlay or a skin in this regard, not as physical features alone such as roads and land tessellation, but also through constructed social mechanism that mark center and periphery, belonging and exclusion.

For Jackson, these two categories are *ideal* landscapes rather than classifications of landscapes and they are never bifurcated into two distinct categories, rather the two interpolate and coexist albeit through different forms of visuality and proximity. No landscape serves only one purpose or is "exclusively devoted to the fostering of only one identity."[182] Rather they are a way of thinking about the landscape as a visible field, and one that is highly pertinent for our discussion of the oblique aerial image and its capacity to fix and situate the landscape in a specific way. As the political landscape is the visible organization and definition of space in way that serves to remind us of our roles, obligations and creates a civic awareness of membership. The political landscape in its most abstract or ideal form depends on an epidermis usually though a diverse form of inviolable, permanent, and unmistakable boundaries that enmesh the landscape as a spatial composition.[183] Ultimately, the political boundary, and insofar as politically visible landscape is a tangible category, that functions to

180 Ibid., 49-50.
181 Ibid., 51.
182 Ibid., 12.
183 Ibid.

"stabilize social relationships" and "reinforce status rather than serve a function."[184] This stabilization lends it self therefore to the relationship between subject and object that Williams described, wherein the position of the subject is based on "what is desired and what needs to be known".[185] Within the political landscape the position of the subject is arrested. Thus, the political boundary itself is not a tight-fitting epidermis, but rather "loose fitting envelope" which gives corporeal and visible identity to the object that it enmeshes and envelops as well as positions and orients the subject.[186]

Picturing Political Landscapes

The political landscape as an ideal is a community where subject positions and relations are conspicuously visible and become knowable and this will be our primary framework for this chapter. The oblique aerial image can be mobilized much in the same way, in the attempt to control and fix the visual paradigm of landscape its evocation and creation of subject positions. First, I will examine through the context of the New Deal era how such political landscapes appear through the oblique perspective's capacity to accentuate the features of the landscape that mark it as a political space. Then I will move on to the context of the oblique perspective in French post-war urban planning. These will together provide a historical situation of the oblique perspective in state managed modernity. This allows us to see traces of the same mobilization in the Norwegian context, albeit not as focused nor as overt.

In his book Barnstorming the Prairies Jason Weems has shown how the oblique perspective was mobilized as an overt political tool during the New Deal era in the midwestern American landscape. The logic of the oblique aerial perspective that is a conjunction between image and plan, as a way of folding out space by low angles and high altitude whilst maintaining perspectival coherence served the overarching end of reforming and repatterning rural culture in state managed modernity. Exemplified by Weems through the photographers John Vachon and Arthur Rothsteins work for Farms Security Administration (FSA) that combined terrestrial photography and oblique aerial images to accentuate the underlying geometric structure of the flat and monotonous Midwestern American landscape of Grundy County, Iowa.[187] Although the project contained a combination of aerial oblique's and terrestrial images, Weems argues that the terrestrial images incessant focus on the planned and managed objects create "aerial-minded images" that "facilitated the promulgation

184 Ibid., 15, 33.
185 Williams, *The Country and the City*., 165.
186 Jackson, 33.
187 Weems. 97-101.

of a unified and clean vision of modern rural life at a time when on the ground, things remained messier and less certain."[188] Herein the landscape becomes synonymous with its legibility for a form of state-perception, which as shown by Scott is a landscape of visual order rather than experienced or working order.[189] For Scott this necessitates the use of perspectives and scales that humans very seldom replicate where the objects are "judged for the sculptural properties and visual order".[190] In Weems reading of the oblique aerial images from the New Deal, they function to create an ordered and highly human landscape that renders visible the regularity and interconnectedness of the landscape in a way that serves to remind the viewer of the underlying planning and organization of the state managed landscape.[191] In his analysis of the oblique images the landscape as the loose fitting envelope of the political landscape comes to fruition; "the landscape takes on geometric form as straight fence lines demarcate the rectangular boundaries of fields while highways cut geometric vectors across the land. Farms dot the landscape at regular intervals, stitching the scene with a quilted pattern of homesteads that unfurls continuously, the image insinuates, into and beyond the haze horizon."[192] [fig.2.4]

By accentuating certain manageable vectors as the primary points of orientation, the oblique aerial image creates a way of evaluating the social content of landscape according to the geometric and planned visual forms. Herein the logic of how the state knows and organizes space becomes the dominant form of visibility. However, the key argument is how the oblique image does this not by manipulating the surface of landscape into visual orderliness, as for instance the consistency of a survey image does, but by manipulating space through the capacity of the oblique to position itself according to a surface. This effaces the traces of idiosyncratic or stochastic inhabitation leaving the geometrized structure of landscape conspicuously visible.[193] What is however missing from these images is what Scott has called the "profound logic" of a working order obscured yet signified by perceived "surface disarray".[194] For Weems, the mobilization of the oblique aerial image and landscape vision towards the deindividualization of agriculture during the New Deal era contains a political irony; that these images of the ultimately inhabited landscape deprive the inhabitants

188 Ibid., 112.
189 Scott, 133.
190 Scott, 58.
191 Weems, 100.
192 Ibid., 105.
193 Ibid., 109-110.
194 Scott, 275.

of their agency, political identity, determination, and autonomy.[195] Weems reading identifies how the mobilization of the oblique view as a political landscape in an agrarian setting must negotiate an established landscape and attempt to construe the process of inhabitation within a larger network of environmental, governmental, and individual influences by accentuating visual order over working order.[196]

In the context of state planned modernist urbanism this relationship is spatially and territorially managed in a much more direct way. Poussin has shown how the oblique was called upon by a form of state-managed modernity, not to document, but to "render visible and transmit its architectural, urban and territorial values."[197] The visibility of spatial and territorial values and their management are the key objects in the oblique's capacity to create political landscapes and as a form of perceptive calculation in agrarian and urban ways of life alike. In urbanism this was attain by utilizing the oblique perspective as axonometric images devoid of a horizon that creates an overhanging perspective. Such a perspective serves a cognitive function of showing interrelation between building plans and surrounding landscape at a regulated distance.[198] At the same time low obliques with a horizon showed "the insertion of functional urbanism and modern architecture into a non-urban landscape, one shaped by humans, but nevertheless composed of cultivated fields and stretches of forest."[199] [fig.2.5] The political landscape here appears in the conjunction between axonometric depictions of space which profess to the organization internally of planned urban settlements, and the low obliques capacity to immediately contextualize and situate that internal planning by representing a broad view from a oblique angle.

Reading the oblique as a political landscape requires us to examine how the oblique organizes perception. For the statistician and information scientist Edward Tufte the oblique aerial image incorporates both micro and macro readings in the same design, and that oblique views create a form of data display that function through layering information and organizing complexity while still maintaining a high density of details: "Panorama, vista, and prospect deliver to viewers the freedom of choice that derives from an overview, a capacity to compare and sort through detail. And that micro-information, like smaller texture in landscape perception, provides a credible refuge where the pace of visualization is condensed, slowed,

195 Weems, 108.
196 Ibid., 110.
197 Poussin, 259.
198 Ibid., 265.
199 Ibid., 261.

and personalized. These visual experiences are universal, rooted in human information-processing capacities and in the abundance and intricacy of everyday perceptions."[200] What Tufte gets at here is the knowable immediacy of the oblique view as a macro dataset where the details, the micro-reading is based on a perception that although organized by the dataset is not construed by it. For Tufte the oblique derives its capacity from: "organizing complexity through multiple and (often) hierarchical layers of contextual reading."[201] In the oblique the intersection between horizontal and vertical, between micro logic and macro structure are all interrelated and seemingly organized according to everyday perception. With this we can see how the political landscape emerges through an organized and hierarchical complexity instantiated by everyday perception in oblique views of farmland or urban settlements. Essentially imposing the same macro structure but maintaining the characteristic details within with the macro structure of planning being the conspicuously visible "layer". Thus, in the oblique image we are able to position ourselves immediately within a larger structure, to this end we can see the plan of a city block, or the layout of a farm. Further reading is then related to this structure and complexity becomes organized by this successive reading of an immediate dataset. Herein we can identify the crux of the political landscape within the oblique view, namely the capacity to both represent and position the subject and object, but also to allow for the complex "micro-information" that denotes inhabitation to emerge within the modulated visual envelope of the oblique perspective. The oblique perspective can be a deliberate way of framing space and hierarchical layering of complexity.[202]

The Immediacy of the Oblique Image

In both Weems and Poussins examples the oblique view is immediate and knowable at a glance but with salient details organized by the perspective. Allowing for the reconfiguration of spatial values in an established agrarian landscape by manipulating those features or structures that provide evidence of the established cultural system and its spatial and territorial values that inhabitation can be identified within. In urban planning the reorganization is not of an established landscape, but rather of pre-existing spatial values in the meeting of a brand-new environment by positioning them in comparison, thus immediately seeing the

200 Tufte, 38.
201 Ibid., 38.
202Here it might be salient to return to Jackson, for he writes: "In actuality that traditional inhabited landscape achieved a coherent form only after generation of unrest and confusion. Almost by definition an inhabited landscape is the product of incessant adaption and conflict: adaption to what is often a new and bewildering natural environment, conflict between groups of people with very dissimilar views as to how to make that adaption. The political landscape, artificial though it might be, is the realization of a coherent design inspired by philosophy or religion, and it has a distinct purpose in views." - Jackson, 43.

interpolation of established spatial values and nascent organized social space.[203] The conjunction of immediacy and distance in the oblique perspective is key within this capacity to create political landscapes, namely the production of a macro structure that guides everyday perception.

Political landscapes are based on the capacity to accentuate the visibility of the landscape towards the desired subject position. In this reading of the landscape the oblique aerial image comes to fruition, by being a self-contained image with a principal point of orientation that accentuates certain features in the landscape and guides the reading of the landscape as a political, or at least organized space. The underlying disposition of the image is that of any technical image, the conjunction or intersection between the production of theoretical knowledge and the direct relation of the mechanical image to the external world.[204] Yet in the oblique aerial image the production of theoretical knowledge is rooted in the cognizing of subjects and objects within a landscape rather than the lamination of subject and object in the vertical image.[205] Spatial and territorial values are organized and cognized through the structure and visibility of the landscape, thus the possible subject positions within it become externally and remotely apprehensible.

To this end the vertical image is part of mechanical objectivities requirement of "learning to see, twice over" in that the perceptive calculation comes not from immediacy, but from trained judgment[206] Whereas the oblique is similar to the much older concept of a coup d'oeil, described by Caren Kaplan as a intuitive form of "active mode of viewing" that renders visible the actual landscape at a glance with all its interrelation, dependency and influence as knowable and immediate in their appearance.[207] The oblique perspective functions to turn territorial abstractions into geographical knowledge and to create a relationship between disparate parts to a cohesive and holistic whole.[208] Caplan's emphasis on intuition and "sense-making" possible in a coup d'oeil is therefore the "correct" positioning of the subject in relation to the external world in a way that facilitates and guides the immediate emergence of knowledge based on a glimpse or view.[209] The positioning of the

203 Poussin, 273.
204 Marie-Claire Robic, "From the Sky to the Ground: The Aerial View and the Ideal of the Vue Raisonnée in Geography During the 1920s," in *Seeing from Above : The Aerial View in Visual Cultural*, ed. Mark Dorrian and Frédéric Pousin (London: I.B Tauris, 2019)., 171.
205 Daston and Galison , 140.
206 Ibid., 184.
207 Caren Kaplan, *Aerial Aftermaths: Wartime from Above* (Durham: Duke University Press, 2017)., 101.
208 Kaplan., 59.
209 Kaplan., 42.

subject in the oblique creates an image that is immediately knowable in contrast to the flattened vertical image which depends on trained judgment and contextualization. The key here is the ways in which an oblique aerial image is a rescaling or reconfiguration of visibility in order to facilitate a certain reading or interpretation of that landscape at a comprehensive scale.

For Caplan, the coup d'oeil is tied into the way that intuitive knowledge production is tied to immediacy in reading and analyzing the landscape, one that is shared with the oblique aerial perspective. The oblique is similar to Caplan's articulation of the coup d'oeil: "sensing of the panoramic vista from great heights brought the "naturalist-geographical gaze," or coup d'oeil, into the arts and sciences in ways that cannot be reduced to an abstract and disembodied practice of mathematics."[210] To further unpack this idea of a naturalist gaze that is not reducible to transparent depictions of space as a canvas of mathematical vectors, we need to examine the oblique aerial image within the discipline of human geography and its focus on the cultural aspect of the agricultural landscape. Here the oblique is not a tool of scientific perceptive calculations alone, but when coupled with cartographic and statistical knowledge the oblique allows human settlements and spatial organizations to be situated and seen in interrelation with the natural environment. Thus, allowing territorial and spatial values to be systematized and cognized on a macro-scale without be reduced to flat mathematical abstractions of vertical images, maps, or statistics.

Axel Sømme and the Systematization of Agricultural Settlements

Although the oblique is an immediate image that it shows a knowable and livable space albeit from an elevated and ultimately fictional angle the perspective necessitates being supplanted or compared with other images, documents, schematics, and representations to attain a scientific utility.[211] To show this in the Norwegian context I will here examine the utilization of oblique aerial images by the geographer Axel Sømme and his systematization of Norwegian agriculture. We recall from the last chapter that Sømme was an adamant supporter of area and regional planning utilizing vertical aerial images. His attention to regions, their ways of life and the social systems was expressed in his two-volume magnum opus The Geography of Norwegian Agriculture published in 1949 and 1954. In his work Sømme utilized both a regional and a systematic approach to the cultural and economic geography of the Norwegian agriculture as well as large array of aerial and terrestrial photography. The

210 Kaplan, 59.
211 Poussin, 251.

book was illustrated with 24 high oblique aerial images of diverse forms of spatial and territorial organization in agricultural communities.[fig.2.6] To understand how Sømme utilized these images and to investigate the use of oblique aerial images in the spatial discernment of ways of life and their cultural processes we must first examine the geographic conceptualization of ways of life by the French geographer Paul Vidal de la Blanche that influence Sømme and its conjunction with the aerial image in the visualization and production geographic knowledge.

As a professor of economic geography at the Norwegian School of Economics Sømme focused on cultural geography and the interrelation between cultural formations and economic formations on a regional scale. He was educated in France and completed his doctoral thesis under the supervision of Albert Demangeon. In the thesis Sømme approached geography as both a regional discipline and as a systematic discipline where the region was seen as a unique way of studying structural forces in a systematic way, something he would continue to do throughout his carrier.[212] His stay in France also introduced him to the theories of Paul Vidal de la Blanche as well as allowed him to meet key geographers like Jean Brunhes and Pierre Deffontaines who, as we shall see, advocated for the use of photography in addition to cartography in the pursuit of geographic knowledge.[213] In a 1950 Sømme wrote an article for the Norwegian Journal of Geography where he elucidated on his views of geography as an academic discipline and its position in relation to other subjects. Here Sømme clearly defines himself as indebted to the French school of human geography and the possibilism of Vidal's concept of the *Genre de Vie* (ways of life).[214] Sømme describes his use of French geographic theory as motived firstly as a reaction to the German understanding of the natural world as essentially a deterministic force espoused by the *antropogeografi* of Friedrich Ratzel. Secondly by maintaining the same paradigmatic assertion of a terrestrial unity and its effect through visual phenomena.[215] In addition, Genre de vie as an approach allowed geography to become a politically applicable way of seeing and studying a holistic but heterogeneous

212 The dissertation was divided in to two parts, the first was an economic geographic exposition of the area derived from official statistics and sources, whereas the second was a social-geographic examination of agriculture in an industrialising region and the implication of work force migrations on demographics and settlement structures. - Jens Christian Hansen, *Geografi I Bergen*, ed. Jens Christian Hansen (Bergen: Universitetet i Bergen, Institutt for geografi, 2012)., 34-35.
213 Ibid., 69.
214 Axel Sømme, "Geografien Og Dens Stilling Mellom De Øvrige Universitets- Og Høyskolefag," *Norsk geografisk tidsskrift* 12 (1950)., 67-68.
215 Ibid., 62.

landscape centered on human agency that could be applied in regional, cultural and economic analysis.[216]

The Genre de Vie is an theoretical understanding of patterns of inhabitation as a complex of ecological, social, technical, and cultural patterns, formations, modalities, and values in a specific region that shape the landscape as an organized and human space.[217] Jeanne Haffner has pointed out the role photography and especially the aerial image had in making possible this approach to the landscape as well as a way to create positive knowledge and to bridge geography with more established empirical sciences such as ecology. Ways of life as object of inquiry founds itself on an interdisciplinary approach to "the study of the ground" as Vidal described it.[218] The approach of Vidal is therefore the ways in which human products, be they objects, buildings or land tessellation can be considered geographically and ecologically as valid objects of knowledge when viewed holistically and as interrelated. The empirical method of the Genre de Vie was based on the succession of phenomena rather than their description, this provided a capacious framework that could consider the inherent fluidity, variety, and adaption of both the region as an object of study as well as the natural world. Seeing adaption as a reciprocal process that was mediated in successive linkages over time and across nature and culture.[219] To this end the object of study was the mediations and associations utilized to structure an environment in different ways which again structure the communities as social spaces over time.[220]

The Genre de Vie is part of larger turn within early 20th century French geographical methodology towards the visual, both in the delineation of objects as well as a approach to geographic phenomena.[221] As Denis Cosgrove has pointed out, Vidal's approach to the landscape and its animation through daily life as not only visual, but as a "pictorial synthesis" that stresses the description of direct experience and "emphasises form and pattern as they appear to the eye."[222] The French geographer Marie-Claire Robic has shown how aerial image, which carried with it an a priori legitimacy and transparency allowed for expansive notions of observation and experience, and played a key role in the epistemological project of geography

216 Hansen, 71
217 Vincent Berdoulay, "Possibilism," in *International Encyclopedia of Human Geography (Second Edition)*, ed. Audrey Kobayashi (Oxford: Elsevier, 2020). 274
218Jeanne Haffner, *The View from above the Science of Social Space* (Cambridge, MA: MIT Press, 2013). 40-41
219 Berdoulay, 272.
220 Ibid., 273.
221 Robic, 168.
222 Cosgrove, 29.

in this period.[223] Her argument is that this framework manifested itself in the oscillation between inherent distrust of visual sensory information and the concrete tendencies of descriptive geography that came together in the creation of composite visualizations of figural representations and abstractions. [224] By creating visual devices that combined photography with diagrams, maps and text based on direct observation. Robic argues that in its early inception the aerial image "it seemed that the direct and nearly all-encompassing view of the terrestrial surface – the basis upon which the 'modern' geographers attempted to establish their scientific expertise – could be realised."[225]

By extolling the capacity of the aerial image to make the terrestrial surface a valid object of scientific expertise, the discipline of geography turned towards what Robic has called a *paysageification* (landscapeificaiton).[226] For the visual power of the aerial image, especially when supplanted by other documents, allowed the study or science of landscapes to become a conceptual framework, wherein earlier terms and conceptualization such as "aspect", "characteristics of place" or "physiognomy" were divested from the terrestrial surface as object of inquiry.[227] The geographer Jean Brunhes, who Axel Sømme met in Paris was one of the key proponents of the study of the terrestrial surface as the start and end of all geographical knowledge. A position that Sømme was sceptical of and that influenced use of images in tandem with maps and statistics: "Such landscape studies attach themselves to external morphological characteristics that might not be that important in the long run."[228] For Brunhes the aerial image gained its scientific power through the capacity confer abstract models upon the images that render visible the phenomena of human habitation and interaction with the terrestrial surface in stable fashion. The aerial image paradoxically makes evident that the intimate and minute evidence created by human proximity to the environment could only be observed in their full significance through the ultimately fictional and distanced observation point of the aerial image.[229]

The fictional vantage point of the aerial image in the production of geographic knowledge through revealing phenomena from a distance was however not a straightforward transparent process. One of the key advocates for the utilization of the oblique and its

223 Robic, 163-164.
224 Ibid., 164.
225 Ibid., 165.
226 Ibid., 185.
227 Ibid., 180.
228 Hansen, 69.
229 Robic, 171.

manipulation of space in the production of regional geographic knowledge was André Cholley. Harbouring a reserved position towards the belief in the transparent instrumentality of the aerial image as a recording of the real, and in general a sceptical concern towards overinvesting the visual. Cholley rather saw the instrumentality of oblique aerial images in the materiality of interactions that produced it that could be adapted to the specificities of the landscape.[230] The instrumentality of the aerial image and especially the relative position of the oblique image thus arises from the way that lighting, seasonality, location and contrasts between light and shadow are mobilized to render visible the phenomena or object chosen by the geographer.[231] The landscape view of the oblique aerial image Cholley argued pronounced the materiality of these interactions, which allowed the image to reveal the landscape as a ground surface, rather than as the flattened surface of the vertical image.[232]

A quote by Cholley in Robic's article makes evident this processual underpinning of the oblique aerial image: "The angle of the shot and the 'point of view' must adapt to each landscape. And the best is that which allows for maximum expressiveness in the translation of the salient characteristics of the region." Cholley also highlights the modular aspect of the oblique image: "As regards details, any technician of aerial photography knows very well that his depiction depends upon the contrasts between shadows and fully lit areas."[233]It is interesting to denote that Cholley, who in similarity to Sømme saw the region rather than the landscape as central in the production of geographic knowledge, both used aerial images in a similar way and saw maps as the keystone of geographic knowledge production. As maps according to Cholley "clips the wings of imagination and favours the rational description of the region."[234] Coupling the aerial image together with cartography and other observational approaches provided a framework to situate human action in relation to other forms of knowledge such as, soil sciences, geomorphology, hydrology and other natural sciences.[235] Aerial images provided a way to recombine and give visible form to the confluence of influences, thus allowing for the comparison of regions across different areas that was still ultimately based on natural topography.[236]

230 Ibid., 169.
231 Ibid., 181.
232 Ibid., 181.
233 Ibid., 181.
234 Ibid., 181.
235 Haffner, 40-41.
236 Ibid., 40.

According to Vincent Berdoulay, the authority of the Genre de Vie to explain specific regional phenomena is based on the enchainment of phenomena within physical geography and natural topography, identifying the successive linkages that shaped the region and its landscape, which "dissociate the idea of law from that of causal explanation, that is, necessity from causality".[237] Namely that phenomena are explained by their sequence rather than through a universal law derived from physical geography alone. Berdoulay goes on to say that the Genre de Vie makes evident ways in which human phenomena are mediations as well as associations dependent upon technical knowledge, culture, and natural topography.[238] The Genre de vie provides an academic framework wherein different ways of life become directly knowable and discernable. Pairing the Genre de Vie together with photographic images in short it provided the necessary framework of visibility necessary to elucidate and thus imbricate ways of life into a larger cultural system. In a 1950 article, Sømme describes his own interpretation of the Genre de Vie as a complex of technical means and behavioural traits that shape and negotiate the landscape over time.[239] The key questions are therefore the ways in which topography creates possibilities rather than limitations, and the expression of those possibilities in different ways in regional settings are not pre-given, but rather expressions of agency and autonomy. Sømme argues that one must study the diffusion of expressions in the landscape as well as the pathways and circulations of different negotiations of the landscape instead of just describing them to understand their construction.[240]

Oblique Views and Ways of Life

The oblique aerial image with the materiality of intersections and the capacity to modulate the visibility of certain phenomena gives features that seem to be transparent from the ground a form of opacity. This opacity is critical in the creation of geographical knowledge and the desire to synthesize information that makes ways of life a valid object of knowledge. In the introduction to The Geography of Norwegian Agriculture Sømme makes it clear that the aim of this volume is a regional synthesis through the study of concrete regions, an examination of the areas utilized in agricultural statistics and the different forms settlements, structures, and sizes of agricultural units.[241] Sømme's systematization of Norwegian agriculture and his use of 24 high oblique aerial images of different settlement structures is rooted in a desire to render

237 Berdoulay, 272.
238 Ibid., 273.
239Sømme, "Geografien Og Dens Stilling Mellom De Øvrige Universitets- Og Høyskolefag.", 68.
240 Ibid., 68.
241 Axel Sømme, *Jordbrukets Geografi I Norge*, 2 vols., vol. A. Tekstbind, Publications of the Norwegian University School of Economics and Business Administration. Geographical Series (Bergen: J. W. Eides Forlag, 1954)., 9-11.

visible the interrelations between the physical and natural conditions of landscape and the human mediations and constructs that shape the landscape. For Sømme the study of agricultural geography is motivated by a political aim:

> The revolt of colonial peoples has convinced me that Norway, like other western European countries must fully utilize their agricultural land. The large agricultural areas overseas that have previously provided us with food, feed for our livestock and resources for our industry are now required by those countries themselves to keep hunger at bay, at least as long as the population grows faster than food production. Our own trade policy and the need for food security also influences the need for higher food production. At the same time, the requirement of economic equality (jamstelling) between rural and urban as well as across regions has attained an urgency like never before. Social considerations like these permeate the current economic ambitions.[242]

Herein geography as synthesis is also a very applicable way of mobilizing vision towards a political reading of the landscape, that description and synthesis must yield applicable cultural, economic, and political knowledge.[243] It is here important to go back to Sømme's role in chapter 1 as well as his position as a key figure in the creation of the first national economic plan in 1933 which called for large scale rationalization of agriculture through mechanization, technical research and structural rationalization.[244] Furthermore the cover of the three year plan was adorned with now immortalized slogan "Hele folket i Arbeid- By og Land, Hand i Hand" (The Entire Nation Working – Town and Country, Hand in Hand) Therefore, when Sømme dedicates an entire chapter to the typology of farms and communities richly illustrated with oblique aerial images of communities and terrestrial images of farms it is important to keep in mind that his systematization is at least in part shaped by his political position. That Sømme's project although it systematizes the complexity in ways of life and community formation also reduces the complexity on a macro scale through the distance of the oblique aerial image. The political motivation as we saw in chapter 1 where Sømme advocated for the use of vertical aerial images to supplant statistical and economic regional planning must inform our reading of the political ambitions of a regional approach to ways of life and agricultural communities.

In the concluding chapter Sømme makes it clear that this book is part of a larger mechanism of social democratic agricultural reform. Although the book predates the land law

242 Ibid., 9.
243 Hansen, 44.
244 As mentioned in chapter 1, this plan never came to fruition as the labour party did not get into a position of power until 1935 and the with the backing of the agrarian Center Party, this dampened the ambition and deployment of Sømme and Colbjørnsen's 3 year plan.

of 1955, it also takes part in the preliminary discussion in the development of a land registry and nationwide economic maps. Sømme writes: "The damage from farm partition and the possibility of remediation can only be studied on maps." He continues "In my opinion there is no agricultural issue that approximately will mean as much in increasing the viability of the individual farm as much as the creation of economic maps." For Sømme the systematic study of agricultural regions take part in this discourse of rationalization. He concludes "Without such maps the redevelopment (*saneringen*) of agriculture cannot be properly started. We have little cultivable land, and many conflicting interests."[245] Here Sømme's understanding of the vertical aerial maps as a harmonizer or condenser of different interests is notable and similar to his argument in the previous chapter. Furthermore, when we analyze his use of the oblique it must be kept in mind that Sømme saw the map as the key document of geographic knowledge that was to be supplanted by the oblique view of social space. Lastly, this is evident in the way that some of the maps in the book directly reference the photos.[246] In addition the comparative pairs of oblique images are paired according to their respective schematic agricultural regions. This can be read as an attempt to showcase the lack of detail and knowledge in the creation of macro-scale agricultural regions which ultimately would hinder the redevelopment of the agricultural sector. For, as Haffener has pointed out, the Genre de Vie was also emerged as political tool to discern the "real" structure of regions in opposition to the centralizing and seemingly arbitrary regions developed by the French state during the early 20th century.[247]

To this end the oblique images shows diversity and detail that the maps cannot show in the interrelation between topography, natural geography, and human settlements. In the introduction to the typology chapter Sømme emphasises both the diversity and isolation of agricultural settlements based on natural conditions, but also their relative density and organization in the few viable agricultural areas: "The farming communities in Norway are more continuous than one would image for a country with only three percent cultivable land. In large one must say there is a high density of farms, along the coast where farms lie on the sliver of land along the shore, and in the valleys where they lie perched on the slopes, preferably on the sunny side."[248] However for Sømme the key point is that these relatively dense communities are isolated from one another: "In the forest communities the buildings

245 Sømme, *Jordbrukets Geografi I Norge*, A. Tekstbind., 350.
246 Ibid., 134-135. (See fig 9.6 & 9.9 and photo.7)
247 Haffner, 39.
248 Sømme, *Jordbrukets Geografi I Norge*, A. Tekstbind., 333.

disappear in a sea of forest" and "In mountain settlements the dense structure of buildings can be isolated from other communities by vast stretches of desolate mountain terrain and the forest in the valley"[249] To this end the landscape and topography are culturally and socially laden mediations. This landscape necessitates a new way of seeing: "Farms and arable land as far as the eye can see is nowhere to be found in our country. Even in the most farmed area one will always see forest-covered hills or the ocean on the horizon.", this is then followed by the sentence "Foto 1-24 show how farms are located in the landscape"[250]

It is here very important to note that these images were not commissioned by Sømme, rather they were images purchased from Widerøe as illustrations.[251] In addition, large format high obliques like these images were usually produced for postcards with a regional emphasis. Thus, Sømme's use of these images also show the value of these images alone as vectors of regional expressions of seemingly unique spatial and territorial organization and ways of life. From the coastal farms of Nordland to the forested riverplains of Hedmark, Sømme utilizes the aerial image as a visual idiom that makes evident the general principles in which the ways of life mediate and construct their environment. By showing individual towns, hamlets or farms encased by nature, through the denial of a clear continuous line of sight and the incapacity to see the human landscape as a wider totality the landscape as the ultimate and ever-present framing of inhabitation. The comparative pairs of 24 images are based on the interrelation between human culture and landscape, the inescapable conditions of the landscape often too vast to see from the ground are rendered visible through the oblique aerial image. Showing how superficially similar landscape elements have been negotiated in different ways and the fundamentally different conditions of each separate example makes possible a general image of the Norwegian agricultural landscape.

The most striking comparison of the twelve comparisons is between number five and six. [fig.2.7] In the first image a river plain in the valley Østerdalen is shown through an oblique aerial image. Here a large farm housing a forestry school is seen in the forefront on the riverbank, its wide fields hugging the contours of the river and curving around the bend.[252] In middle of one of the fields a moraine surrounded by trees is seen. On the left hand railroad tracks cut through the forest, and between the tracks and the river a large continuous field of smaller geometric land parcels stretch as far as the eye can see between the hills on the left

249 Ibid., 333.
250 Ibid., 335.
251 Ibid., 346.
252 Ibid., 334.

and the river on the right. These fields were created during by interwar years by an ambitious program of "internal colonization" to alleviate unemployment and limit migration.[253] The image is asymmetric and shows the different soil conditions on each side of the river as well as the effect of the railroad upon human activity and its articulation and negotiation of the landscape. In the top left of the image a few curves and bends of the river are visible behind the framing hills. The aerial view here renders possible the way in which the physical landscape can be extrapolated in its effect upon the human landscape and the social and cultural system within. Thus, it is possible to see the interrelation between the physical landscape and topography with human activity and culture as comparatively valid. The river valley of Østerdalen and its landscape is compared on the same page with an image of a narrow mountain valley in Leveld, Hallingdal. Viewed from a high oblique vantage point we see the final curve of the valley as it flattens out towards the high mountain Hardanger plateau. Due to the orientation of the valley on a north south axis and its geological form, all the farms are located in a belt on the eastern side hugging the slopes of the valley towards the river.[254] This is due to the perpetual shadow on the steeper western side of the valley and the abundance of sunlight on the eastern side. The curve of the valley stretches across almost the entire image towards the mountains behind, creating a horseshoe. Our point of view is matched by the end of the valley allowing us to see above it as a visual boundary.

Sømme's utilization of the oblique is comparative and supplanting in the synthesis between these two different cultural processes shaped by similar landscapes. In addition, the high oblique aerial perspective renders visible the larger landscape as invisible for those embedded in it. In the image from Hallingdal the perspective accentuates the curvature and gradient of the hills and slopes that make up the valley as well as the curve of the valley itself. This allows us to see the entirety of the valley as a visual barrier wherein the two transversal points of the valley across the steep hill in the middle are visible, the aerial view both negates as well as emphasizes the visual boundaries of the landscape. In a comparative framework the oblique view renders visible the landscape as ultimately a set of comparative and variable elements that are negotiated in different ways according to local conditions and cultures in three-dimensional space. These processes create an overarching process of identification and classification of rural communities and their ways of life. Yet this is also part of a process

253 This process was known as Bureising in large organized by the company "Ny Jord" (New Earth) and provides an interesting context for the oblique aerial images as a body of images. See: Randen, O. (2002). Brøyte seg rydning : bureisingstid og bureisarliv. Boksmia:Oslo

254 Ibid., 335.

wherein the oblique aerial image is mobilized on the macro scale with the distance necessary to organize complexity by accentuating the seemingly embedded structure of a community.

By rendering visible the seemingly transparent phenomena, features and structures of rural agrarian communities, the oblique view allows the underlying social system to be ascertained as cultural and social constructions and associations that can be managed and studied, rather than as transparently pre-given or natural organizations of social space. Ultimately the oblique aerial perspective makes possible a synthesis of how the social space of rural societies is fundamentally founded upon the negotiation of comparable barriers in different ways. By emphasising the overarching view of a larger set of negotiations in a comparable framework, the agricultural landscape is seen through a synoptic vision as a set of physical, cultural, and visual conditions that determine spatial organisation and social systems. Paradoxically this both confers these communities with agency, autonomy and initiative while still showing their way of life and cultural processes as part of a cultural and social system that is constructed rather than given and can be observed. When viewed at a distance, rural settlements and communities appear as a spatial and social systems like any other.

In the afterword of the book Sømme highlights the necessity and need for an aggregate vision of the agricultural landscape in ascertaining these influences: "Now the world has become one, even small remote settlements are under continuous change. Geographic description often becomes a snapshot, and the study of the forces at work are more interesting than the results they create."[255] It is the visibility of these forces and the aggregate principles which can be derived from their visibility that the oblique aerial image as a utility in a creating a unified cultural system can be identified. In the ambition for prosperity and growth, rural and urban were to be intertwined, and Sømme's work goes a long way in trying to explain the cultural discernment of rurality as a way of life that can be redeveloped and seen synoptically. By comparing different rural communities and showing how they have constructed different social and cultural systems from similar features and conditions such as soil quality, topography, and natural boundaries the oblique makes evident the confluence of these influences and their adaption in the creation ways of life. Here Sømme's utilization of the oblique image shows how ways of life are not transparent, given, or immanent rather ways of life emerge through adaption and organization of space. A space that was to be organized

255 Ibid., 366.

by agricultural reform. Thus, spatial and territorial values are extrapolated from a diverse array of isolated and discrete examples through the oblique perspective and maps in a way that allows for a general cultural system to emerge. To this end these images together profess a form of spatial and social coherence by seeing above and beyond the isolated settlement in a sea of forest or separated by vast barren mountain plateaus.

Urban Community Formation and Aerial Visions

I have attempted to show how Sømme's utilization of oblique aerial images show the desire to systematize rural community formation and that by systematizing and comparing them he is taking part in the creation of a larger cultural system of Norwegian agriculture, one that was to be stabilized and rationalized through structural rationalization and the agropolitical construct of the sustainable family farm. We must now briefly turn back to the first page of this chapter and to the left-hand picture of Lambertseter in the growth and prosperity poster and examine how the oblique was mobilized in an analogous form in social democratic urban planning.

We can start by looking at an oblique aerial image of Lambertseter, the same urban settlement as in the poster just from a different perspective. [fig.2.8] This high oblique view with a horizon shows the settlement perched on a hill oriented towards the receding and opaque background of Oslo. In this image Poussin's articulation of the high oblique aerial perspective's capacity to "render visible and transmit its architectural, urban and territorial values" comes to fruition.[256] The principal point of orientation is centered on the satellite city to create a symmetrical impression that folds out the diagrammatic and schematic underpinning of planned social space, showing a circulatory framework of roads that create a cohesive settlement. The angles of buildings render visible the roads and pathways even where they are obfuscated by the buildings themselves. The circulatory network and the white buildings in contrast with the incorporation of dark forests that provide green space creates a natural and seemingly pre-given cohesion to the satellite city as social space. Showing how space is created by appropriate and naturally designed units or circuits into an overarching circulatory structure. On the surface this oblique image shows what Poussin has identified as the three fundamentals of planned urban settlements to be interrelated and visible, namely green space, circulation, and amenities which become visible by the intuitive folding out space in a low oblique.[257]

256 Poussin, 259.
257 Ibid., 265.

However, to see the social and cultural function of this image we need to examine the plans behind Lambertseter and the political, cultural, and social ideals that informed them. This will also show the similarity between rural redevelopment and urban development as a cohesive cultural system. The project was headed by Frode Rinnan and was part of Oslo's chief city planner Erik Rolfsen's larger planning ambitions.[258] Both Rolfsen and Rinnan are described by Rune Slagstad as examples of the technocratic engineering mentality that permeated all levels of the Norwegian labour party state in the post-war era and that we examined in conjunction to agricultural rationalization. By terming Rolfsen and Rinnan, "engineer-architects", Slagstad describes a "rational dream of constructing, reconstructing society from zero."[259] The planning and constructions of satellite cities like Lambertseter and Teisen, both projects headed by Rinnan and parts of Rolfsens plan for Oslo, encapsulated the functional and social horizon of the engineer-architect ideology which was transmitted and represented in oblique images of the settlements as illustrations in planning documents and as postcards.[260]

Lambertseter was the first social democratic urban settlement of the post-war period. Located on forested hill in the east end of Oslo. In a 1950 publication that explained this new approach to social space the aerial image is utilized to great effect. One of the first pages of the publication is illustrated with a vertical image that shows the rather messy and dense forested area with an outline for the new zoning plan. [261] [fig.2.09] This is then juxtaposed with a diagrammatic plan for the settlement as social space. Such a conception of space is obviously indebted to the overarching logic of the vertical aerial image, wherein space is flattened and homogenized as to be subjugated to an overarching rational design. [fig.2.10] The diagrammatic representation of social space that Erik Rolfsen developed depicts the principles and approaches to planning a city as a totality and the relation between boroughs as spatially coherent units. As such, the question is how to create so-called circuits according to vectors such as demographics, topography, and infrastructure.[262] This was done through a step-by-step "schematic for social and technical service" which detailed the placement of collective institutions such as

258 . Rolfsen, who was an active social democrat and earlier member of the radical architectural group; Progressive Architects Group Oslo Norway (PAGON) as well as co-founded Socialistiske Arkitekters Forening (The Association of Socialist Architects) which was a branch of the radical socialist group Mot Dag where Axel Sømme was a founding member.
259 Slagstad. 353.
260 I have attempted to find actual post-card of Lambertseter with little success, but we can recall that all images could be printed on post-cards. And a lot of institutions have cataloged their oblique images from Widerøe as postcards as well.
261 "Lambertseter En Forstad Til Oslo Med 10000 Innbyggere," ed. Frode Rinnan (Oslo: I kommisjon: Cappelen, 1950)., 10-11.
262 Ibid., 8.

playgrounds, schools, hospitals, and community centers that were to be placed according to the size and circulation of people.[263] As pointed out by Slagstad, these served a double function, both as local services, but also as didactic and forming institutions that were to facilitate the creation of "an elevated form of society" and cement the ideal of collective priority.[264] For Rinnan the diagrammatic approach to social space was a systematic approach that "in all simplicity bases itself on ordering the urban community into appropriate units and to group the population into fitting proportions around collective features."[265] The diagrams are supplemented by a table detailing different parts of the urban fabric and their relation to the population of a unit or circuit at the specified scale. thus, expressing the simplicity of this system.[266] In the oblique image of Lambertseter the perspective renders visible the urban, architectural, and spatial values was thought to realize a new form of social collectivity through institutionalized community formation in social democratic urban planning by showing this schematic circuit construction in tandem with the established landscape. This was a highly scientific endeavor based on expertise and schematic knowledge that produced a systematic approach to urban planning oriented towards the same end as the sustainable family farm, namely a legible, unified, and stable social system with in the larger cultural system of the industrial welfare state. We can therefore identify the same spatial reorganization, with notions of external and internal harmonization as we saw in agricultural rationalization.

In the oblique aerial image of Lambertseter that we examined earlier the schematic ideal of social space is manifested spatially, with each unit being part of a functional and cohesive whole. What emerges is the relationship between managed and diagrammatic space and the surrounding environment which create what Rolfsen called a "frame around human inhabitation" where "terrain, vegetation and landscape are valuable elements of urban planning that should dictate the degree of utilization rather than be subjugated."[267] In the oblique we are positioned by the point of orientation in such a way that these values and concerns are disseminated and rendered visible.

To fully see this idea of the analog between the oblique view as a framing device and the framing of inhabitation by planning we need to look at a 1961 planning document authored by the Oslo-planning office headed by Rolfsen. In the document two different

263 Slagstad, 355.
264 Ibid., 355.
265 Ibid., 355.
266 Lambertseter, 9.
267 *Boligområder Prinsipielle Retningslinjer for Lokalisering Og Utbygging* (Oslo: Regionplankomitéen for Oslo-området, 1961)., 19.

models of planned housing projects with the same density and land utilization are compared with oblique photos. These two models show different way of attaining the same amount of area utilization but with very different social ramifications of planning, one is a highly schematic superimposed plan, and the other is built as a "frame around inhabitation".[268][fig.2.11] Ultimately these two models provide a way of showing how the oblique view renders the social function of space visible, as a supplanting of the vertical view by showing circulation and circuits internally in relation to the overarching external structure. Oblique representations therefore function as to impart a different relationship between the viewer and the object, wherein the viewer is detached whilst still seeing a "total, or comprehensive, impression of the building or garden".[269] For Dümpelmann the axonometric and by proxy the oblique vantage point mobilizes a different political message. By contrasting the oblique vantage point of a model or an axonometric drawing with the cartesian birds-eye-view of a plan, the oblique perspective renders the abstract and geometric patterns legible as well as situates them in relation to each other. Whereas the birds-eye-view as we have seen is a process of discrimination, that prefigures the internal relations and hierarchies of what is represented.[270]

On the following pages, the publication contains six oblique aerial images of different types of urban areas in Oslo together with cartographic plans depicting the building pattern and urban structure. Underneath the schematic plans, the degree of area use and population density is noted, thus conjoining the oblique feel of the terrain to abstract schematic knowledge. [fig 2.12] These images allow for a simultaneous reading of the urban landscape through not only the comparative pairs of the oblique and the map, but also the coexistence of different ways in which the landscape can be seen as constituted of a set of boundaries, constraints, and phenomena. These features are rendered visible and enforced by the oblique, thus creating an understanding of a landscape as a constructed framing device operating simultaneously at multiple scales within the urban fabric.

Rolfsen's articulation of urban planning as a "frame around human inhabitation" makes evident the ultimately similarity in how oblique images depicted space in hamlet and street alike which both were in a process of redesign facilitated by the vertical image and cartography. The concept of circuits and schematic social space speaks to the same considerations as those that

268 Ibid., 19.
269 Dupleman, 139.
270 Ibid., 139.

underlined the agropolitical desire for sustainable family farms, producing stable and legible spatial and territorial values that were rendered visible and transmitted by the oblique format. The framing of growth and prosperity across urban and rural necessitated a common ground in which to discern ways of life.

In rurality the oblique view allowed for the negation of visual boundaries and the accentuation of what Cholley called "translation of salient characteristics of the region."[271] With this the oblique allowed for the extrapolation of the political and communal aspects of a thick landscape in a way that highlighted the common ground of all settlements. In urbanism the oblique perspective allowed for the simultaneity of readings that Tufte proclaimed in the oblique, the macro visibility of planned space, and the condensed details of inhabitation rooted in everyday perception, namely one's place within an organized and political landscape.

But the notion of oblique views as political tools of nation building, cohesion and systematization was not exclusive to large social spaces. In 1961 the Norwegian regional and agrarian newspaper Nationen published an article on Widerøe's photographic activity titled "A 100 000 Splendid Farms located in a White Building at Fornebu". The article opens with a rather mundane description of a small two-story house that "contains the *entire country* within it's walls" (italics my own).[272] But the nation here was not constituted by the shared structures of communities and settlements, but also to be found through the oblique view in the single farm. And it is these small low oblique views that we now will move onto for they too took part in the process of growth and prosperity, but as images of the cultural system displayed in its micro-instantiations in the individual farm and its vernacular landscape.

CHAPTER 3 – PILOT VIEWS OF A PILOT COMMUNITY

In this chapter I will first examine how oblique aerial images functioned as overt tools of modernization, as both a way of refashioning the mentality of the rural population and in engineering the landscape. Then I will examine how these images are also necessitated by the disorder and loss of function imposed by modernization upon the inhabited landscape as a social system. Here the oblique image functions as a way to retain the visibility of inhabitation as the formative presence in the vernacular landscape.

In the end of the first part of Roy Jacobsen's social democratic bildungsroman *Seierherrene* an airplane crashes like a "modern Jacobs's ladder" into a marsh close to a small

271 Robic, 181.
272 idar Kristoffersen, "100.000 Fagre Bondegårder I Hvitmalt Bygg På Fornebu," *Nationen* October 14 1961., 9.

fishing village in Northern Norway. The pilot miraculously survives like a "modern angel". For the perplexed onlookers unsure of whether they are witnessing "a passage from the bible or an undeniable example of the wonders of technology and progress" they now "summarize their lives and allow themselves to retrieve the small hopes buried deep within and to get them confirmed."[273] Only after a small boy finds a camera case in the wreckage of the cockpit does the "angel" of modernity awaken, smiling as he finds his camera and the two rolls of film undamaged by the crash. When asked who he is, the pilot retrieves two stiff canvas tubes from the wreckage and decides to show rather than tell. First, the pilot unrolls an oblique image of a small farm on a neighboring island nestled underneath the Seven Sisters, a local mountain range, with the name of the farm written in golden cursive letters. The second tube contains a large map drawn in with the islands property structure displaying the boundaries around each building and unit, and each plot is marked with its corresponding numeration in the cadastral system as well as a capital letter.

Never letting an opportunity pass him by the pilot starts marking out what he had managed to photograph before crashing, stating that "People all over the country want aerial images of their house or farm", to which one of the onlookers respond "Aerial images? No way in hell." However, one of the onlookers wants to look at the image of the farm by the Seven Sisters again, since: "the mountains seem so flat". To which the pilot laughingly responds, "That shouldn't surprise you, it is an aerial image after all". [274] One of the onlookers who had seen that plane from his porch asks if he'll be visible in the photo, to which the pilot responds "That's for sure… if you stood there while [I] photographed, for this camera is the very best, capturing every detail down to the single blade of grass."[275] Johan, one of the protagonists of the first part of the book decides reticently to buy a photograph after "discovering that his farm has gotten a small blue cross next to its well-known property and cadastral number marked by the letter T".[276] The fact is that Johan's family farm had not been his property for quite a while, just until right before when his application to take back the farm after it had been foreclosed, as no one wanted to buy it, was approved. Johan immediately thinks about how his unkept property will be visible in the image. Coming home to his farm, "he tells his wife of the airplane and photo he purchased, an aerial photo of the farm, for now it is his and no one can take it from him."[277] In the start of the second part of

273 Roy Jacobsen, *Seierherrene* (Oslo: Cappelen, 1993). 259.
274 Ibid., 262.
275 Ibid., 262.
276 Ibid., 265.
277 Ibid., 267.

the book the photo finds itself hanging on a wall in Årvoll, a new housing development on the outskirts of Oslo built and planned according to social democratic ideals outlined in chapter two.[278] Jacobsen's utilization of the aerial image encapsulates the ambiguity of these images during a process of modernization and change in not only the visible landscapes of rural areas, but in the social systems, values, notions of belonging, obligations and the visibility of populations all across Norway in the post-war era.

The changing taxonomies of the aerial image in Selbu

Jacobsen's example is from the Helgeland region in Northern Norway, which has a unique and interesting history of modernization, shifting social systems and landscape change in relation to aerial images which is structurally similar to Selbu which I have chosen as an example.[279]The choice of conducting a study of these images in the inland agricultural community of Selbu in Southern Trønderlag comes from it being an interesting example of state planning by being a Pilot Community for the Norwegian Institute of Agricultural Economics, it's shifting social systems and landscape change all coincide in a legible fashion and the area has a rich body of 1028 oblique images taken by Widerøe found in the archives of the national library spanning the years 1950 till 1968. I will here attempt to show how these images vary from year to year in order to give a visual framework to the story of modernization that follows. Seeing that the first images are from 1950, with only 81 images that are either high altitude low angle overviews of the region, or high-altitude high angle images of large farms and other public buildings like the manse, church, and school, that were produced as postcards. The centralized and geometrized images of single farms and buildings all showcase the regions typical vernacular architecture [fig.3.1]. The high oblique aerial image provides an overview of the internal organization of buildings within the farm through the overhanging perspective. The vernacular architecture of the region is characterized by a square structure made by an angled barn with two other structures is called a *trøndertun* (a Trønder yard). These small self-contained and isolated farms seem in the oblique aerial images like islands in the undulating landscape. This farm structure creates clearly defined area between the buildings with a strict adherence to internal scale. [fig.3.2] As noted by Rolf Krogstad from the Farmers Construction Office in Trondheim this farm structure "has a clear and apprehensible form – both seen from the inside and the outside – where the enclosed

278 Ibid., 302.

279 A history that warrants its own investigation, however the shifts that I detail in this chapter are similar to some of the changes in Norther Norway at the time with a shift a way from combined agriculture, internal rationalization and specialized production schemas.

buildings create a intimate and nestled farmyard with the glimpses of the outside world between the buildings – the terrain, views, neighbouring farms, and to traffic, work and other activities outside (the farmyard)"[280] To this end the organization and axial orientation of the vernacular farm structure in the *trøndertun* is also a direct and conscious engagement with the surrounding landscape. Not only through the views and orientation of buildings, but also as Krogstad notes "It provides character to this part of the country – an identity and as such becomes a dear and familiar feature both for those who inhabit the farm and those seeing it from the outside."[281]The overviews and the images of vernacular architecture compliment one another in this regard, in displaying and transmitting regional characteristics at a glance.

In 1958 we can identify several shifts in the oblique aerial image and in the landscape in general. I argue that the shift is most visible in the way that principal point of orientation shifts from vernacular architecture to vernacular landscape within the images of individual farms and holdings due to the low altitude and low angle. Now the meandering and undulating landscape becomes accentuated. [fig.3.3] With 423 images taken in total in 1958 it is the year with the largest body of images. Secondly the introduction of hand coloration further points to these images being single commodities sold to each farm or holding.[282] In addition the images contain movable crop-frames wherein each holding can be cut-out from a larger base negative image that allows the owner of the farm to choose the most flattering frame for their property. This process of magnification is significant in two ways. First, in that it allows the vernacular landscape to become more than just a documentation of the property. For as seen in the passage from Seierherrene in the start of this chapter, miniaturization allowed for a graspable and immediate image of the landscape that is mobile and immutable, where the picture allows for a form of ownership twice over. The second is that it creates a form of miniaturization of the single landscape as cohesive and self-contained space that is isolated from the landscape.[283] Miniaturization through magnification carries with it a specific form of order and isolation, that lends itself to what Scott has called a "controlled micro-order" where details are focused and enhanced, and the object is isolated from external disturbing influences.[284]

280 Rolf Krogstad, "Nye Bolighus Inn I Gammelt Miljø," in *Trønderlåna - Trøndertunet*, ed. K. Aas and Eli Kjær (Oslo: Landbruksforlaget, 1982)., 77.
281 Ibid., 77.
282 Hosar,. 52-53.
283 Weems, 86-88.
284 Scott, 4.

An oblique aerial image of Mogård farm taken in 1958 which I examined in the national library contains both the instructions for the hand coloration as well as a magnification-frame. Within the frame the landscape and dwelling are personal objects with significant meaning that can be rectified, manipulated, and embellished. [Fig.3.4] The image is posted on carton and each house is marked by a number written in ballpoint pen, the number corresponds to instructions on the back detailing the colour of each structure. The introduction of oblique aerial images as intimate and sympathetic pictures of the single holding created for consumption and sale also impacts the way that the vernacular landscape emerges in these images. The low altitude and low angle give form and scale to the topographic characteristics of the agricultural landscape, accentuating the irregularity and undulation of hills, creek valleys, forests, and paths. Marginal zones, forested rows and irrigation channels and ditches all become conspicuously visible as constituting the vernacular landscape. The angle and scale of the images allows for the natural environment, topography, and human phenomena such as fences, ditches, roads, and tessellation to be folded together into a self-contained landscape. Forests vertically denote the horizon of the human landscape and gives form to the visual envelope of the inhabited and vernacular landscape. The accentuation of topography makes it possible to see the paths and roads as interactions between habit, use and topography.[285]

By 1961, the oblique aerial images reflect the changes to the agricultural landscape in a process of modernization and rationalization that we examined in the first chapter.[286] Ostensibly an ordered landscape has emerged, one based on rationality and mechanization that allows for less labour intensive and higher yield production. To fully see this however need look at a high oblique image from 1968 of Selbustrand, the same area was also photographed in 1950 thus it provides a good comparison to see the intensive agricultural landscape. [fig.3.5&3.6] In the image from September 1968 large even fields are distributed across the landscape with the only boundaries being tree-lined irrigation ditches and marginal zone between each farm's allotments. The distribution of fields and the roads that connect them show that these fields have been augmented for mechanized operations. Forests are either clear-felled to give way for new cultivation, or the forest is increasingly dense and cordoned off from the rest of the landscape for forestry. In short there is a clear structure both

285 Scott gives an excellent example of how different roads networks coexists and serve different purposes, but also how vernacular circulatory systems provides a salient reminder of the bracketed perception of centralized planning. – Scott, 74-75.

286 In 1960 colour film was introduced. It is interesting to note that this also lead to a brief drop in popularity of the images. – Hosar, 54.

of outfields and infield, but also between each farm and their land which have become larger and better organized circuits like we saw in the first chapter. [fig.1.4] Contrasted with an oblique image from 1950 of the same area but from the almost exact vantage point, we can identify the six farms in the center of the 1968 image. In this image the tessellation and number of fields are emphasized by fences, power lines and hedgerows and other forms of embedded boundaries that show field distribution. In addition, the forest intermingles with the farmland as an integral part of the landscape.

The creation of visual order obscures the massive changes and disorder that modernization brought with it to the social systems manifested in the rural landscape and their functionality. This came in tandem with the creation of an ordered visual landscape based on new constraints in the form of demands for technological and mechanical operation.[287] Agricultural modernization and rationality is as noted by Scott dependent upon the creation of visual order, as a processes that carries with them their own visual aesthetic regime with a specific form of visual codification of proper practice, based on the visual order provided by intensified operations, standardization and the flow of energy upon the landscape as a legible surface such as in the 1968 image of Selbustrand. For Scott disorder, local practices, subsistence agriculture, self-sufficiency and other forms of illegible practices produce landscapes that fail "the visual test of scientific agriculture".[288] Specialization and simplification together with new technological and mechanical operations necessitated an augmented landscape that not only was more rational in the direct sense, but also more legible for the state and more open to manipulation and planning. The landscape geographer and photographer Oscar Puschmann describes the landscape change as follows:

> "Most farmer took straight away working towards intensifying and augmenting their fields to remove the obstacles of mechanization. With the blessing of central authorities and backed up by tailor-made subsidy schemes, untold numbers of creeks were culverted, farm ponds filled in, field islets and rock formations blown up, stone fences and clearing cairns were used as filling or piled together. Field margins were removed, tree-lined avenues and old orchards logged, old grazing fields were harrowed and cleared of stone, stream valleys and ravines flattened. Farm roads and community roads were straightened, and untold numbers of forestry roads established to ease felling and afforestation, while old, inclined hayfields and grazing fields in old infields were planted with spruce."[289]

287 Kjell Haarstad, "Legg Om Eller Legg Ned. Trøndersk Jordbruksstruktur I Etterkrigstiden," in *Bondesamfunn I Oppløsning?*, ed. Dagfinn Slettan (Lesja, Innlandet: A. Kjelland. Bøker og bokproduksjon, 1989)., 27-28.
288 Scott, 273.,
289 Oskar Puschmann, Wenche E. Dramstad, and Ragnhild Hoel, *Tilbakeblikk Norsk Landskap I Endring* (Oslo: Tun, 2006). ,43.

In tandem with this visible landscape change, modernization and rationalization brought with them wide reaching changes to the social systems of rural communities, the status of rurality and regional identity, mentality, and the patterns and rhythms of daily life, all features that animate and give meaning to the landscape.

Selbu – Pilot views of a Pilot Community

Selbu offers an interesting case study to conduct a micro-history of the aerial image in the post-war era and its ambiguous role as fulcrum between modernity and tradition. The aerial image can be seen as a miniaturization of the landscape, as a pictorial format of cultural condensation that renders visible the logic of the landscape in new and stimulating ways. Weems has identified this double movement between new vantage points and established objects in the aerial image as a double role of "object of affection and as instrument of modernization."[290] In Selbu this is especially pronounced as the community was selected in 1958 as a pilot community by NLI that would research "analysis and planning on the community level".[291] Four communities were selected by NLI as pilot community projects in the years 1953 till 1963.[292] All these communities were selected due to specific conditions that could grant specific but representative knowledge by being examples of different agricultural communities in Norway. Selbu was together with Leiranger was selected due to the pervasiveness of combined agriculture, with forestry in Selbu and fisheries in Leiranger.[293] Together these communities were to serve as representational examples for the entire nation. As pointed out by Almås, NLI and the "impartiality and objectivity" of agroeconomics were vital in the imbrication of agriculture into the social democratic planning and governmental project on the micro-scale of the individual farm and farmer.[294] If we recall from chapter one rationalization was divided into external or structural rationalization through land consolidation and the creation of circuits. What we will detail here is the technical and internal rationalization of single farms through agroeconomics, economic thinking and planning. And in these the vertical and oblique image played a role, serving different

290 Weems, 89.
291 Dagfinn and Gunnar Fredriksen Gangås, "Prøvebygda Selbu: Analyse Og Planlegging På Bygdeplanet," ed. Arne Eskeland (Oslo: Norges landbruksøkonomiske institutt, 1962)., 1.
292 The program was funded by the Marshall programs' Foreign Operations Administration and the Benton Moody foundation. - Agnar Hegrenes and Håkon Romarheim, "Norsk Institutt for Landbruksøkonomisk Forsking, Glimt Fra Historia," in *Femti År I Landbrukets Og Samfunnets Tjeneste 1947/48-1997/98*, ed. Anton Haglerød and Håkon Romarheim (Oslo: Norsk Institutt for Landbruksøkonomisk Forskning, 1998)., 73-74.
293 Arne Eskeland, "Prøvebygdsvirksomheten I Norge " in *Beretning Om Nordiske Jordbruksforskeres Forenings Tolvte Kongres, Helsingfors 1963* (Oslo: Nordsik Jordbrugsforskning, 1964)., 801.
294 Almås, *Frå Bondesamfunn Til Bioindustri*, IV 1920-2000., 152.

functions to the same end in a similar way as described in the last two chapters just on a smaller scale.

The pilot community project is an analog in its miniaturization to the oblique aerial image itself. Here magnifications is deployed in state planning and management to achieve its desire for a comprehensive and totalizing vision of its object.[295] Scott notes that miniaturization within the context of state perception is a way to create small self-contained units reducing the amount of variables, increasing control where "high-modernist aspirations might more nearly be realized."[296] Ultimately, miniaturization allows for the "constriction of focus" and the concentration of resources allow for the creation of what Scott calls "microenvironments of modernist order" that supplant the ambitions and goals of large-scale governmental reforms and the desire for control and management.[297] The logic of miniaturization in the context of government reforms also creates a visual aesthetic that creates a graspable and manageable visual example of what is possible in the future.[298] The double function between the oblique aerial image as a pictorial miniaturization of a region, area or single holding is here paired with the government program of miniaturization of a rural society in order to reform and refashion both its material and natural conditions as well as the prevailing mentality visually manifested in that landscape.

The community of Ramnes in Vestfold was one of the first pilot community projects, and here the research agronomist Harald Giæver utilized vertical aerial images to great effect. The area was photographed by air in 1954 in 1:15000 scale by commission for the research project. By utilizing a smaller scale, the images were easily applied on a micro level of the individual farm. Herein the aerial image allowed for the simple creation of detailed maps of each unit and its potential capability in both agriculture and forestry. [299] With it agroeconomic planning was visualized and put into action by creating maps of individual properties and their different conditions, such as drainage basins, fertilization, and soil qualities, as well as crop rotations, watering and artificial feralization. Therefore, the farmer could keep track of changes in yield as well as track changes over longer periods of time to simplify and rationalize production.[300] The aerial image became a technique to disseminate an

295 Scott. 256.
296 Ibid., 257.
297 Ibid., 258.
298 Ibid., 258.
299Harald Giæver, "Prøvebygda Ramnes: Erfaringer Med Driftsøkonomisk Rådgivningstjeneste," ed. Arne Eskeland (Oslo: Norges landbruksøkonomiske institutt, 1959)., 52.
300 Ibid., 54.

understanding of possibilities and capabilities of local agriculture for the individual farmer, as well as a tool for analysis and calculation. Giæver describes how he taught farmers to use lightboxes to draw maps on tracing paper from aerial images, therefore allowing for readily available maps to different purposes as well as the emphasis on selected features from the aerial image that could be recombined with other information such as soil quality, drainage basins and crop rotations.[301]

NLI and the pilot community projects sought to disseminate agroeconomics and planning at the level of the single farmer. In a 50th anniversary booklet from NLI it is stated that one of the key ambitions was to achieve "economic thinking" by the farmers.[302] Aerial image here allowed for a clear understanding of each farmers capabilities and productive potential, as well as becoming objects that the farmers would utilize in cooperating with one another. In a 1956 textbook on Nordic agricultural economics, the Danish professor K. Skovgaard described NLI's approach as: "The basic vantage point of nascent Norwegian operational economics is moving in a synthetic direction." Meaning that according to Skovgaard; "the starting point is the individual problem with alternative budget plans as the essential tool" which then "emphasizes the natural conditions and other physical means of production."[303] To this end the approach of Norwegian agroeconomic planning was the desire to create a cohesive whole, wherein multiple approaches are viable and applicable to the same individual problem. This was done through multiple avenues, the most important was the implementation of agroeconomic planning of the single farm by government advisors whoo helped each farmer augment and rationalize their operations.[304] This entailed for instance radical simplification of operations, market integration such as the buying of compound feed from secondary revenue, planning of crop rotation and distribution, the creation of new technical features such as new more efficient barns, silos and investments in other labor-saving technology, and planning of field distribution and organization to facilitate mechanization.[305]

An oblique aerial image of Innbygda, Selbu taken in 1950 used in the analysis section of the concluding report published by NLI provides us an approach to the pilot project and

301 Ibid., 55.
302 Hegrenes and Romarheim., 82.
303 Finn Reisegg, "Utvikling I Faget Landbruksøkonomi," in *Femti År I Landbrukets Og Samfunnets Tjeneste 1947/48-1997/98*, ed. Anton Haglerød and Håkon Romarheim (Oslo: Norsk Institutt for Landbruksøkonomisk Forskning, 1998). 47
304 Gangås, 67-68.
305 ibid., 30-32.

what it perceived as its main obstacle in the implementation of such plans.[306] [fig.3.7]. The view together with the low sun creates an image of an irregular and undulating agrarian landscape of small and uncoordinated units distributed across the valley. The shadow accentuates and pronounce the way the landscape is seemingly divided into an arbitrary quilt of farms and holdings divided by ditches, field margins, tree lined irrigation channels, a vast array of different crops and field distributions, delineating the enveloping landscape around each holding and their relative insularity. The contrast between light and dark due to the low sun also highlights the paths that cross and define the landscape as a distributed network created by use and topography. Pronouncing the boundaries of the landscape and their relationship to topography the image creates a landscape that albeit picturesque is seemingly in disarray and unorganized, at least from the vantage point of agroeconomic planning. The angle of the sun creates a contrast between the wide main road that bends along the river and runs straight across the fields on the right and the vernacular road system of the distributed smallholdings to the left. The fields of the lower valley contrast the dark and encroaching low mountain forest that surrounds and gives form to the farmland. As the eye moves towards the end of the valley, the shadows become less pronounced, and the flat light makes the larger farms with better-organized uniform and planar fields stand in contrast to the entangled space of smallholdings. The caption underneath the image makes the problem evident; "Selbu has many smallholdings."[307] The landscape becomes here both an image of rural society, as well as a surface of different boundaries, vectors, nodes, and systems in need of measurement and management in order to fit within an overarching logic or premise of the pilot community.

The Selbu pilot community project sought to research the effects the community level based on extensive analysis of agricultural operations, in order to gauge the future possibilities of area.[308] The analysis of current conditions and future possibilities therefore provided the knowledge for the proper implementation of plans on a macro level.[309]Before the start of the project, 203 farms were analyzed by NLI, totaling 47% of the arable land in the community; all these farms were above a certain size and for the remaining 280 farms in the area, the pilot project utilized the much less detailed agricultural census from 1949.[310]

306 Ibid., 12.
307 Ibid., 12.
308 Ibid., 43-46.
309 Ibid., 83-84.
310 Making evident the prevailing tendency, as noted by Scott, of state-perception to render visible only the objects that it deems necessary and valuable to manipulate. – Scott, 263., Gangås, 47.

The analysis made possible the implementation of agroeconomic planning and organization on the micro level where the three key goals were to a) expand the size of farms, b) internal rationalization that increased efficiency through better utilization, simplification and intensive operations and c) the analysis of future fiscal opportunities in the agricultural sector following these implements.[311] Agroeconomics provides a framework for the planning and organization of the farm to solve problems such as crop rotation, allotment, animal husbandry, forestry, land and labor usage, property structure and size in the ambition to create sustainable family farms. The shift from extensive labor-demanding farming to specialized intensive farming based on mechanization was framed as ultimately questions of proper economic planning and organization.[312] Through a large array of avenues, the pilot community sought to disseminate an agroeconomic framework as the foundational approach to farming. Ranging from local discussion groups to community fairs, the ambition was to make evident that the pilot project was based on agroeconomics to develop the entire community, rather than just increase agricultural production.[313]

Mental changes and Economic Thinking

As such, the ongoing process from 1957 until 1960 is not only about the implementation of top-down governmental schemata or structural rationalization, rather the project sought to develop the farmer as a rational economic and productive actor. Arne Eskeland, the head of NLI, explained at the Nordic Congress of Agricultural Scientist in 1963 that:

> The pilot communities' most important effect is probably mental, in the change of mentality that it can incur. The awareness that someone understands the real problems of the farmer, and that something tangible is being done to solve them – and a pervasive belief that it works – all this seems to make possible the effect of transforming conventional rural communities into a more dynamic production centered community.[314]

Seeing as the pilot communities were case studies in a systematic advisory service based on analysis of capacities, possibilities as well as the new technical role of the farmer, the project had to approach problems from a "comprehensive vantage point". Such a comprehensive view of problems entails an aggregate view of rurality rooted in agroeconomics. Eskeland described it as "The task is to see all the resources of a property at once. By starting from a

311 Gangås, 89-90.
312 Ibid., 81.
313 Throughout the pilot project the head agronomist published over 60 newspaper articles with titles such as: "Farm size and operational planning", "Structural rationalization", "Egg production and profit", etc. In addition, multiple community fairs were hosted throughout the period with titles such as "planning: indoors and outdoors" where domestic technology such as deep freezing was display, as well as lectures on simplification of agricultural production. . - Ibid., 78-82.
314 Eskeland., 803.

clearly defined economic ambition, we were to conduct an overall assessment of natural capacity, inventory, workforce, and operational management. It would be beneficial if the owner clearly perceived such a *comprehensive view*."[315]

Eskeland points out that during the Ramnes Pilot Community mental changes were one of the key catalysts in agricultural rationalization of the individual farm. Exemplified in how Giæver conducted a series of non-agricultural statistical research projects detailing spending on consumer goods, amenities, quality of life, etc. in the community. The underlying notion was that a viable and sustainable farm economy was not an end in itself for most farmers, rather the desire was increased independence, higher standard of living and a secure economic foundation for their children. The statistical analysis asked what form of consumer goods and amenities indicated a high standard of living across units of all sizes. Dividing the answers according to size of their farm, the analysis made evident that larger farms and units had higher requirements for consumer goods. All the units that lacked two or more of the categories (A comfortable farmhouse, modern kitchen, bathroom, washing machine, refrigerator, and car) were asked to write down the order in which they would acquire such goods and amenities. The conclusion of the analysis was the farmers had rational wishes in relation to consumer trends and goods, and that the majority of farmers would for instance install a modern kitchen before getting a car.[316] As such the internal workings of the sustainable family farm and the mental disposition of the farmer were objects of knowledge and state-management.

One of the main aims of such a comprehensive view in Selbu was to gauge the future possibilities of the agricultural sector through the synthetic perception of agroeconomics. This form of synthetic perception reduced each farm into a simple metric based on the ambition of the sustainable family farm. In the section "grouping of farms according to economic sustainability" all farms in Selbu are tabulated into two categories, sustainable or not, with three subcategories based on size.[317] This calculation, which deemed 118 of 474 farms above a certain size as independent, was synthetized by transferring the same properties from the original dataset of 203 farms analyzed before the project to the agricultural census of 1959. This same synthetic approach was then applied to tabulate the total amount of farms that could potentially become independent and economically sustainable through full utilization of

315My own italics - Ibid., 800.
316 Giæver. 61-64.
317 Gangås, 30-33.

the farms local resources.[318] By including only farms above 20 decare in size, this process sought only to provide a schematic to those farms that fit the description imposed by the economic grid, together with the simplifying assumptions of yield and profit the approach becomes what Scott has called a "statistical fiction" of agroeconomic assumptions.[319]

Such a statistical fiction was put into life in the three model plans produced during the project that were created to fit the average farm based on size.[320] Sadly these model plans are nowhere to be found, but Eskeland provides a few examples of model plans and addresses the internal structure of the agricultural landscape in a book called *Agricultural Economics: Planning and Organization in Agriculture*. The book was written as an informative and accessible introduction to the concept with small tasks to do at home and was published by *Bøndenes Forlag* (The farmers publishing house).[321] The internal farm structure which includes the orientation of fields, the placing of roads, irrigation and technical buildings were now to be observed, planned, and rationalized according to agroeconomics. [fig.3.8]

To this end the implementation of farm planning was done through new requirements for loans, credit and grants that stipulated that each farm had to have an operational plan. In a 1956 letter from the Norwegian Ministry of Agriculture these guidelines were disseminated to state-run banks such as Smallholder and Homesteader Bank (*Småbruk- og Bustadbank*) stating that: "a prerequisite for benefit loans must be that the farm can provide rational utilization of the family's labor force and a proper livelihood for a family. In collaboration with the farmer, the municipal agronomist - possibly the county agroeconomic agronomist, must prepare an operating plan, and everyone who receives support must commit to following the plan for a reasonable number of years ahead."[322] These loans were primarily directed at farmers who needed loans for new technical features or to expand their property to become sustainable family farms.[323] In the creation of these plans the farmer often utilized vertical aerial images that were overlaid with tracing paper, where plans like the examples used by Eskeland were drawn upon the farm structure. In loan applications to the Smallholder and Homesteader Bank from 1961 that I have found in the Norwegian national archive the new

318 Ibid., 34.
319 Scott, 296.
320 Gangås, 84.
321Arne Eskeland and Finn Reisegg, *Landbruksøkonomi Planlegging Og Organisering I Landbruket*, vol. (Oslo: Bøndenes forlag, 1961)., 153-154.
322Letter from the Norwegian ministry of agriculture detailing guidelines for law nr.55 (1956) to the Ministry of Local Government and Labor, 5 March, 1956. - in Herborg Kvåle, Ole E. Lydersen, and Nikolai Løhren, *Statens Landbruksbank 25 År* (Oslo: Statens Landbruksbank, 1990).. 60.
323 Almås, *Frå Bondesamfunn Til Bioindustri*, IV 1920-2000., 219.

property design is drawn in from aerial images detailing the old and new field distribution as well as a simple soil classification of already cultivated or cultivatable.[324] [fig.3.9] Thus, showing the assumptive overwriting of the landscape according to the constraints of an external agroeconomic grid.

What is interesting with this application is the similarity between the process of translation between the larger vertical image and the individual farm which is like the magnification frame in the oblique images. Here both iterations of the vertical image together produce a way of seeing intervenable space. As we saw in the end of the first chapter, the technical construction of the oblique perspective necessitates a map to become a calculable space. And although this a highly technical task, when the farm is planimetrically depicted through the vertical image and represented from an oblique view space becomes manageable and mobile. With this we can see how the two create optical consistency that allows the farmer to move between the two different iterations without distorting either. For as Latour notes this "translation without corruption" depends on a two-way relationship that allows for the determination of absence and presence together allows for pre-configuration.[325] In the oblique view of the single farm coupled with the planimetric vertical image the notional inscriptions become mobile into the larger landscape of the farm due to the scaling of the two images together in a two-way relationship.[326] In the vertical image we are given an appropriate scale, a legend of how to see and manipulate space which then finds tangible expression in the oblique image when correlated to that scale. Together the vertical and oblique form a novel way of seeing the farm and its terrain, which makes the simplifying assumptions of agroeconomics mobile and easier to envision in the actual landscape.

The underlying simplifying assumption of the sustainable family farm was the ability to provide annual employment to 1.5 people per farm. This again was calculated to mean that a farm without forestry had to have over 100 decare of arable land with each decare earning 1.5 krone.[327] This was the guiding premise for the pilot community, but with notional plans and tabulations it also functioned to "systematically operate to nudge reality toward the grid of its observation."[328] Herein the double view of the farm can be found in the new demand to see each decare in accordance not to production, yield or subsistence, but rather as income.

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324 Loan Applications to the Smallholder and Homesteader Bank from Bjugn, Norway, March 8 1961, Archive PA-0702, Series HC, Box L00020, Folder 0003, Det Norske Jord- og Myrselskap, National Archives of Norway, Oslo, Norway.
325 Latour, 8.
326 Ibid., 9.
327Gangås, 30-31.
328 Scott, 300.

And it is in this imposition of correlation between three different formats of Latour's immutable mobiles that Eskeland's mental changes might come to fruition by seeing multiple recombined surfaces as a single surface.[329]

Views of a Sustainable Family Farm

The mechanism of implementing model plans of individual farms display the change in mentality that underpins Eskeland's conception of a "dynamic production centered community", namely the way notional plans based on agroeconomic assumptions were implemented by vertical images, became tangible and real through the elevated views of the landscape in oblique images. In the oblique aerial images from Selbu we can by 1961 see the emergence of the social democratic agricultural landscape fashioned by the technocratic engineer mentality and the external framework of agroeconomics. For Almås the early 1960s marks a period when the landscape became marked by "symbolic expressions of progress, reason and victory for the social democratic order."[330] Large interconnected fields, uniform in color due to irrigation and fertilization together with roads and power lines create an overlaying structure of the entire landscape that the single farm is constitutive of, new silos and barns profess the new technical role of the farmer.[331] What appears is the way that this mentality shifts the landscape into a space of practical action based on a form of instrumentality. Echoing the slogan of the Labor party in 1959, Eskeland claimed: "*Prosperity and economic growth* is in the first order a question of knowledge and organization"[332] Eskeland continues to say "The technical details are building blocks, the functional form is the monumental edifice and practical action is the working, vibrant life of a healthy unit/farm… The crucial factor in the practical implementation of a plan in action itself."[333] The measurement and analysis of practical action depends on the farmer's capacity to perceive the property and landscape through the aggregate conjunction of economic and technical factors which again becomes the guiding principle for action.

However, with this new landscape, one form of visibility displaced another one, the practical and planned landscape becomes conspicuously visible. For J.B Jackson this shift, from the moral-ethical perception of landscape to the vision of the engineer entailed a change in environmental values and perception. The new vision of the engineer saw the landscape

329 Latour, 19-20.
330 Almås, *Frå Bondesamfunn Til Bioindustri*, IV 1920-2000., 218.
331 Ibid., 218.
332 My own italics. Eskeland, 805.
333 Ibid., 805.

mainly in terms of the production, conservation and use of energy. In a similar vein to Slagstad the concern here is not literal engineering, but rather as a form of "temper and thought" that imposes a form of instrumentality that confers itself upon other forms of landscape perception and appreciation.[334] For Jackson the deference of landscape into a field of energy flows comes with a loss of visibility; "there were no longer any agrarian routines and duties to teach citizenship and piety; without attachment to some piece of land, men lost one kind of visibility."[335] In the oblique aerial images form 1961 onwards this loss of visibility becomes evident through the relative nakedness of each farm against the uniform background. Gone are the identifying buffers of the inhabited landscape, the tree lined streams, the stone fences, even the forest as the absolute horizon of daily life is subsumed by agroeconomic assumption, finally the consolidation of land and the process of rationalization has created few larger holdings, visually isolated but interconnected through the impersonal and centralizing external frameworks of mechanized fields, new roads, and power grids.

In the intersection between the verticality of the forested hills and planimetric and horizontal space the status of the forest is reflected in the oblique images as a form of picture making. The low oblique angle together with the magnification by cut framing display some of these shifts towards the forest as a mediation between natural and human environment and as a space of exteriority in relation to the landscape.[336] In an image of Gulseth farm in 1950 the farm is shown from a high angle, centered on the farmyard. The dark forest at the top of the image creates a stark contrast between the wild and threating forest and the organized and bright landscape of fields and roads that are centered on the farm. [fig.3.10] In an oblique of the same farm taken in 1963 the low angled image shows the verticality of the forested hill as a backdrop and as constitutive of the human landscape that gives inextricable meaning to the flat and horizontal plan of the agricultural landscape. [fig.3.11] Within the cut frame the forest curves around in the top right corner revealing a continuous sliver of farmland on the right edge of the frame. The placement of the frame divides the image into two equal parts of forest and farmland with two roads that enter the frame from the lower right and seem to follow the forest and delineate it. The forest seems thus to almost protrude into the human the landscape rather than the human landscape being a clearing within or perched on the margin of the forest as a realm of exteriority that gives meaning to the farm as a self-contained interiority. What the oblique aerial images depict is the shift from the forest as a given horizon of the

334 Jackson, 61.
335 Ibid., 62.
336 Ibid., 47-48.

vernacular landscape to an immobile vertical space organized according to the scale of the human made landscape and logic. It is in short, the inclusion of the forest into the economic grid, the daily habits, and the material foundation of the agricultural sector in Selbu as a stable and uniform component included in the wider landscape.

Herein Scott has shown how the advent of scientific forestry was a process of perceptual exclusion, the creation of commensurable and simplified assumptions of the forest as a productive space based on economic potential.[337] Such an organization of nature into a highly focused and instrumental field based on an external economic grid refashions the value, status, and appreciation of the forest. Scott contends that such a perceptual modality, one wherein not only the forest is seen as a space of economic vectors, such as in Selbu, but also in the management and organization of nature to maintain its economic yield and to further its legibility, manipulation, and utilization for concrete externally derived ends[338]. The human-made forest is therefore a process of radical simplification that creates a forest based on a notional economic grid that is also more apprehensible and assessable by the same grid. To this end the imposition of notional frameworks produce a distinct aesthetic quality to the forest, albeit Scott writes about early scientific forestry, that basis itself on the visual orderliness of the forest as mathematical and regulated space.[339] The vertical aerial image played a key role in incurring this change to the vernacular forest and its representation in the oblique aerial images. Seeing as the pilot community necessitated the full utilization of the forest resources in the ambition of the sustainable family farm the vertical aerial image was here also deployed on the level of the single farm. In a 1962 newspaper article titled "Don't do Forestry at Random" from Fædrelandsvennen the utilization of vertical aerial images in small scale forestry planning is detailed. The article says: "Forestry is more than just an economic support and an investment. It is a business and should be run like one. And like anything in business it needs a plan if it is to succeed."[340] One of the images in the article shows a young man looking through a stereoscope with the caption "Through the mirror stereoscope aerial maps come into their own. Thomas Flaa gets a closer look at the properties in his home community." [fig.3.12]

In the image from Fædrelandsvennen we can see how forest as an integral but fundamentally external part of the landscape disintegrates into a what Jackson called a

337 Scott. 14-15.
338 Ibid., 18.
339 Ibid.
340 "Driv Ikke Skogbruk På Slump," *Fædrelandsvennen* 2 april 1962. 8.

"multitude of scientifically organized special purpose forests".[341] With this the function of the forest in the inhabited landscape withered away, and as such the role of the forest as a *march*, stemming from the German word *mark* which denotes the forest as simultaneously a border and as a forest. The forest as march was often marked by a marginal zone of thinner forest created through grazing and resource collection.[342] In Norwegian the term mark is utilized not only to denote a border area, but also the two distinct types of land, namely outfields (*utmark)* and in-fields (*innmark*).[343] The in-fields were fenced off as permanent features whereas outfields were highly mobile spatial fields that served multiple purposes but ultimately only gained its visibility in relation to the infields from which it derived its purpose and visibility. The multipurpose outfield is replaced by a static conception of the forest as an economic resource based on yield. The introduction of artificial fertilizer, compound feed, and pesticides changed the energy flows of the landscape which in essence negated the understanding of the outfields as a distinct space separate from but necessary for infields in the composition of the landscape.[344] Thus, the interrelation between the two is one based on the mobility of the outfields in accordance with the infields.[345] Secondly the outfields as a multipurpose space were in addition defined by the different needs within the community, thus the outfields were visually diverse as patches of forest might be utilized for grazing, firewood and building materials in short proximity of one another, as well as certain spatial fluidity as these needs would shift over time.[346]

The forest as margin, as visual envelope still maintains, but the forest has been consolidated in both the judicial sense and the visual sense. In the image from Gulseth the forest is circumscribed and included into the human landscape, the infields dominate and give character to the forest. Whereas in a low oblique of Hårstadmo from 1962 the internal framing of the image cuts the forest into a neat and uniform geometric presence that mirrors the structures of the fields in front. [fig.3.13] Lines of stooks (sheaves of grain or hay bundled together) dot the field in the front which seem to echo the incised forest margin that directly opposes it. The angle of the sun creates a uniform black shadow on the forest floor which

341 Jackson, 48.
342 Ibid.,47
343 -This distinction goes back to the early iron age when the outfields were utilized for grazing and feed production for livestock which the fertilized the in-fields which were utilized for food production for livestock. - Puschmann, Dramstad, and Hoel., 39.
344 Peter Emil Kaland, "Kulturlandskapets Historie," *Naturen* 132, no. 4 (2008). https://doi.org/10.18261/ISSN1504-3118-2008-04-02., 163.
345 Ibid., 161.
346 Hans Sevatdal, *Eigedomshistorie, Hovudliner I Norsk Eigedomshistorie Frå 1600-Talet Fram Mot Nåtida*, ed. Per Kåre Sky and Erling Berge (Oslo: Universitetsforlaget, 2017)., 367.

occludes the disorder and emphasizes the forest as a uniform field of canopies in the same height. If we examine the larger image from which the image is cut, we can see the willful exclusion of the logging fields outside the frame. Furthermore, the ordered visual character of the forest is emphasized by the intersection of forest at the foot of the hill in the background. The margin between these two forests provides another geometric structure based on the uniformity height and placement of the trees which mirrors the visual logic of in-fields.

Formidable Portions of the Real World

Ostensibly we can simply read these obliques images as a form of pictorial corollary to the optical consistency of the small format aerial map. All mobilized within the logic of the agroeconomic grid, rationalization, and mechanization in the creation of ordered landscape. However, in these images there is an alternative presence, one of everyday perception that defies the dichotomy between tradition and modernity, between innovation and continuity.[347] We must here return to Tufte's argument from chapter two, namely the layering of complex information rooted in the micro-macro discernment of everyday perception.[348] What is at stake in these images is the status and observation of the vernacular landscape as a site of adaption and habit that is adjusted to new demands and constraints.[349] My argument here is this: The oblique aerial image of single farms allow the vernacular landscape shaped by inhabitation to retain a form of visibility shaped by adaption, habit and use and the social functions that underpin those processes creating a modern vernacular image. It is in the consubstantiality of material, cultural and economic concerns that we here can identify the vernacular landscape of inhabitation as something that cuts through the dichotomy of tradition and modernity, between continuity and innovation.[350] Furthermore these images contain a form of politically charged residuality that must be seen as more than just static and sentimental images of a vanishing way of life.[351] As Raymond William wrote "A working country is hardly ever a landscape. The very idea of landscape implies separation and observation."[352]For Williams, any analysis of landscape must relate to the common historical foundation of land and society, such as conflicting mentalities and the contradictions occluded by representation that instill a static and sentimental reading of the landscape. And it is with this that the everyday

347 Gwendolyn Wright, "On Modern Vernaculars and J. B. Jackson," *Geographical Review* 88, no. 4 (1998/10/01 1998). https://doi.org/10.1111/j.1931-0846.1998.tb00121.x., 477.
348 Tufte, 38.
349 Wright, 479-480.
350 Ibid., 476
351 Williams, *The Country and the City*., 172.
352 Ibid.,172.

perception of the oblique perspective comes to fruition, namely as a way of observing without separating or reifying the landscape.

Landscape histories and attitudes are according to Williams all too often a "celebration of its achievement is characteristically part of an elegy for a lost *way of life*."[353] It is the adaptability and habits together with social systems that are expressed in the vernacular landscape and rendered visible in the low oblique vies. The images represent the ever recurrent and reciprocal relation between inhabitation as cultural process and the natural environment as possibility and constraint. Ultimately what we are dealing with in these images is what Williams understood as the active residual elements of cultural system. Residual elements as alternatives and oppositions derive their visibility from the negative presence in a cultural system. In the incapacity of cultural systems to express or substantiate the values, perceptions, meanings, and experiences that are lived and practiced based on the residual that we can discern it as a process.[354] It is with the concept of the residual that the vernacular landscape and its representation in low oblique images derive a political potency, namely in the refusal of the dichotomy between modernity and tradition. And it is within these low oblique images that the vernacular landscape of inhabitation is put in a direct relationship with modernity rather than being perceived as innocent of history and unconcerned with politics.[355] To this end in Wrights reading of Jackson and his vernacular we must see these images as defying the cultural system imposed: "The supposed opposition between modern and vernacular keeps us from seeing an intriguing dependence, which in turn supports authoritarian control. As long as the vernacular remains distant in time and place it actually serves modernists as justification of their own visions."[356] As such the visibility of the vernacular "inevitably forces politics into the aesthetic realm" by highlighting and calling attention to "tangible evidence of legal rights, social norms, economic conditions: the material conditions of owners, builders, residents – all of those who are left out."[357]

To gauge what is left out we must examine the visual deficiencies of the agroeconomic grid, for it is exactly the values, perceptions, and meanings outside the perimeters of ¨government planning that becomes visible through low oblique images of individual farms, the residual as an active presence, rather than as the passive observation of a lost way of life.

353 Ibid., 172.
354 Williams, *Marxism and Literature*., 125.
355 Wright, 474.
356 Ibid., 476.
357 Ibid., 478.

Images that represent what Scott calls the "parts of the landscape occluded by actual scientific practice" that "constitute a formidable portion of the real world."[358] For Scott agroeconomics and its capacity to nudge reality towards its grid has to be seen in context with three visual deficiencies that all the while provides a form of alternative visibility to the vernacular landscape in the low oblique images. Agroeconomics necessitates a reduction of variables within a static experimental field. This together with the careful selection of objects that are open to causal reasoning creates a plethora of blind spots in the synthetic perception of agroeconomics. The perceptual grid and its blind spots are also guided by an amalgamation of aesthetic and political ends. Scott writes: "The forms of agriculture that conformed to their modernist aesthetic and their politico-administrative interests also happened to fit securely within the perimeter of their professional scientific vocation."[359] Although the vernacular landscape of inhabitation is not fully occluded by these blind spots, the formative processes such as habit, use and adaption are construed, relegated, or ossified. Whereas in the oblique view the process of observation is completely laminated to inhabitation, and it is only through this form of everyday observation that meaning can arise in a significant way.

According to Scott agroeconomics also has "weak peripheral vision". With this the perceived objectivity, universality, and institutional neutrality of agroeconomics derive from a bracketing of considerations beyond its perimeters such as social, cultural, and environmental factors unincluded in the scientific paradigm. To this end the propensity of agroeconomics to narrow its visual field upon the "microeconomics of the farm as firm" while ignoring the "extra-experimental variables", which entails everything not directly apprehensible as agroeconomic phenomena such as the enchainment between material and economic conditions within a social system. [360] Finally, the limited time frame of agroeconomic approaches and planning is founded on a necessary "shortsightedness". Research designs that seek to investigate farm-economics and efficiency exclude long-run results, by focusing on the short-run profit and calculable yield such endeavors overwrite the slower process of agriculture. Those created through inhabitation, adaptation, and use in relation to the natural environment over long periods of time which make up formidable portions of the real world. Thus, external timeframes also work at odds with the embedded logic of farms with their own analytical time units. To this end natural units of time such as a generational cycle on a family

358 Scott. 294.
359 Ibid., 291.
360 Ibid., 292.

farm are replaced by necessary observational timeframes of a scientific approach.[361] For Scott "the blind spots, the periphery and the long view – also constitute a formidable portion of the real world.[362]" It is exactly in these three visual fields that we can begin to approach the vernacular landscape of inhabitation and the retention of visibility in the oblique image of the single farm. I will here attempt to trace these three in the correspondence to the vernacular landscape of inhabitation. Namely the formative presence of habit occluded by agroeconomic blind spots, the power of the periphery in the social functionality of labor, and the long view process and temporality of adaption that are represented in the oblique views as images of a modern vernacular.

A Modern Vernacular

To examine this modern vernacular, we need to look at a antecedent of the oblique images in the from of a specific book series that circulated in Norwegian rurality.[363] This book series called "Norges Bebyggelse" (*Norwegian houses and buildings*)[364] that I argue functioned in a similar way to the vertical image as supplanting document to the oblique images of the individual farm. In my archive work I have also found that this book was utilized as a guide for the aerial photographs in taking the images.[365][fig.3.14] Thus the coupling of the two formats is evident in the production of Widerøe's oblique images. *Norges Bebyggelse* catalogued and detailed the inhabitation of Norway down to the single farm or house. The series contained fourteen books divided into two volumes detailing the pattern of inhabitation from Nordland to Agder. The books were divided according to regions or communities within the county with a general introduction to the area, its history, economy, population, climate, topography, and infrastructure written by a local. The first page of each volume contains a blank family tree. Photographs of every single farm or house in the area is organized in a gridded structure according to their cadastral unit number and property unit number with nine to ten houses per page. [fig.3.15] The images were accompanied by information about the owner and inhabitants such as date of birth, occupation, how long the property has been in the family, changes in ownership, if they held any special positions and where they were from

361 Ibid., 293-294.
362 Ibid., 294.
363 There are multiple types of these books, I have chosen to examine this one due to its showing of all houses regardless of size, wealth, and status. In contrast the book "Norwegian Farms" (Norske Gårdsbygg) focused on larger more prosperous farms in the agricultural regions of eastern and southern Norway.
364 The term "bebyggelse" denotes more than just buildings and houses, but rather a vernacular process of inhabitation over time. Furthermore, the term implies a cohesiveness or system that has evolved rather than just single dwellings.
365 The images where I found this are from Bjugn, another area in Trønderlag. In Selbu the book is not mentioned in relation to the images. See fig. 3.15.

originally if they had moved to the area.[366] In the book series detailed information about each property such as total area, amount of arable land, when the buildings were built, number of rooms, what large machines and tools are on the farm, number of employees, type and number of animals, and the property value are all noted down.[367] The personalia of around 120 000 people were gathered in the years 1953-54 through personal interviews and with corresponding photography of each house.[368]

The photographic body of images is interesting when coupled with oblique images of farms, seeing as they provide a form of information that is rooted in inhabitation rather than production directly. The composition and organization of the images and information in the book creates an almost typological system out of the community wherein the specificity of inhabitation is derived from the average. Most images are taken from a low angle positioned towards the intersection between the farmhouse and the barn creating a repetitive and systematic catalogue of images and corresponding information that derives its reading from a larger totality. In the oblique view the reading is guided by the correspondence between farm and terrain, namely the visual inscriptions of inhabitation. First however we can start by examining how the landscape as an unacknowledged presence in the images and texts that detail the single farm.[369] And it is with this antecede we can see how, with the massive changes to the landscape brough on by rationalization, the notion of identity and belonging necessitates representation in the larger landscape as well.

Adaption, habit, and inhabitation

In the low oblique views the conjunction of horizontal and vertical planes, together with the organizing complexity between macro and micro provides a way of reading the interaction and adaption of inhabited landscape with the constraints of the natural environment and topography that is impossible in the terrestrial photography utilized in *Norges Bebyggelse*. In no image is this process of adaption more evident than in an oblique image of Berg. [fig.3.16] Here the farm is nestled on a steep hill with perpendicular fields. With the oblique view the location of this farm and the adaptions to topography and environment is rendered visible

366 These books were anecdotally known as "the gossip book" (Sladreboka) as they contained personal information that allowed the readers to compare and to draw conclusions about other inhabitants.

367 See fig 3.15 *Nordlige Seksjon Herredsbindet for Sør-Trønderlag Østre Del*. vol. 2, Norges Bebyggelse (Oslo: Norsk faglitteratur, 1956).

368 *Nordlige Seksjon Herredsbindet for Sør-Trønderlag Østre Del*. vol. 1, Norges Bebyggelse (Oslo: Norsk faglitteratur, 1956). 1

369 The captions for each farm details information such as number and type of animals, total area, which is then classified as productive forest, cultivable land, circulatory land, land for transhumance, etc. However the lineage of the farm is also noted for instance Vestre Stamnes farm "has been uninterrupted in the family for as long as public records show."- *Nordlige Seksjon Herredsbindet for Sør-Trønderlag Østre Del*., 711.

from a floating vantage point that shows both the steep inclines as a fundamental constraint but also the process of adaption to those constraints. If we contrast this with the image of Berg from *Norges Bebyggelse* we can see how identity now hinges on an expansive representation of inhabitation in the landscape, rather than just the farmhouse itself. [fig.3.17] As such with agroeconomics new demands for representing the landscape as a space of inhabitation emerged. We must here return to the temporality of the inhabited landscape and the understanding of adaption as something more than a technical question, but rather a social and cultural one. In the inhabited landscape this process in reciprocal, namely that the landscape is temporally grounded outside the single inhabitant as it precedes and succeeds them.[370] To this end adaption is a process that has a completely different analytical timeframe that is nonetheless visible and manifested in the landscape as it appears together with the formative constraints that necessitated adaption.[371] When we examine the image of Berg, we can see that this is not an insular or centripetal process of the single farm at given moment in time, rather it is the coextension of social and natural adaption over time. And it is in the oblique view this becomes visible, for here we can see the human structure of the landscape in roads, fields, and fences, but we can also see how the meandering lines are clearly adapted to the specific constraints of the landscape, to community through the functions of fences and roads and the pervasive changes brought on by modernity across the landscape. In an oblique image of Solheim a new road signifies how these changes are not antithetical to the inhabited landscape, but rather as coextensive. [fig.3.18] In the image a wide new road creates a clear margin in the left-hand side, where forest as visual horizon is replaced by road.[372] Within the envelope of inhabitation, a small straight road ends at the farmhouse. Namely the concomitance of old and new, of new margins and horizons that ultimately serve the same purpose in the demarcation of the inhabited landscape as a dense forested horizon. Modernity and tradition are condensed in the oblique images, but none are given visual primacy; roads, fields, telephone posts, fences and topography create a complex of different details that all denote the adaption of the landscape to social, economic, and material constraints within the everyday observation.

It is when we view the oblique images together with this book that we can discern the visibility of Jackson's inhabited landscape, that we are granted a form of entrance. This form

370 Jackson, 40.
371 Ibid., 51.
372 Jackson writes on the disintegration of the forest into multitudes of scientific categories that: "we will be back once more to the medieval woodland margin; only it will be the margin of the highway." -Ibid., 48.

of landscape can be seen as an alluvial field that is shaped through use, daily life and personal sympathetic appreciation of the landscape, this creates multiple layers of inscription and meaning that are recurrent and immanent but lacking a conspicuously visible surface or marker that denote its status or meaning for the outsider.[373] In Jacksons understanding the elusive and recurrent visibility of space in the inhabited landscape appears mainly as a form of negative presence within a political landscape such as the simplified landscape of agroeconomics. The inhabited landscape appears only when we identify the political landscapes' lack to address or confer space a private and emotional meaning that is temporally grounded outside ourselves, and that makes evident the role that spatial composition plays within a community, region, or even single farm outside the framework of political relations.[374] Namely the way that the landscape is a space of significant action that vacillates between creating a landscape and creating the subject of the inhabitant.[375]

The low oblique renders visible the way that the human phenomena of the landscape, even those that serve overt political functions such as centralized road networks and fences, derive their meaning from the spatial fluidity of inhabitation that shapes the landscape as the hypodermis that underlines the visible surface. Therefore, the question of visibility in these landscapes rest upon the uniqueness of inhabitation as what Jackson called a "law unto itself", which is actually the habits and customs accumulated through the slow adaption to the peculiarity and specific conditions of place. Through these customs and habits the inhabited landscape gains its character and visibility, which provides the necessary insularity that allows for "the inhabited landscape sees itself as the center of the world, an oasis of order in the surrounding chaos, inhabited by the People."[376] In addition these habits, specific adaptions, and customs "exclude the outsider more effectively than any boundary."[377] And when we look at these images we are excluded in the most direct sense, for we can only speculate on their meaning. But it is exactly in the recalcitrance of these images that the inhabited landscape becomes visible for it excludes us more efficiently than any barrier.

We must here briefly look back to the Vidalian ways of life, for as pointed out by Berdoulay ways of life are based on neo-Lamarckism where evolution is enacted through the transmission of habit and adaption, rather than natural selection.[378] Thus human initiative is in

373 Ibid., 53.
374 Ibid., 39.
375 Ibid., 43.
376 Ibid., 54.
377 Ibid., 54.
378 Berdoulay, 238.

a reciprocal relationship to the natural environment that both shape one another and are transmitted, inherited, and adapted in a very similar way to the inhabited landscape as a modern vernacular. Ultimately it is in the reciprocal relationship of human initiative that we find the oblique images such as the one of Berg as images of inhabitation. And in the low oblique view we can see the common ground on which this relationship plays out. For adaption requires observation, but the timeframe of observation that are rendered visible in these images is an analytical unit of time that both precedes and succeeds the single subject and provides a counter point to the productivist timeframes of agroeconomics superimposed upon the landscape by planning and the vertical image. The oblique image on the other hand can be read as images that show the undeniability of the slower processes of adaption, not as antithetical to modernity and innovation, but as a underlying layer shaped by habit and adaption.[379]

The Social Functions of the Periphery

In the oblique images from Selbu a vast majority contain hayracks and stooks. These were often included, seeing as oblique aerial images were predominantly taken in the summer due to the lighting conditions, lack of clouds and the aesthetic desire to show a lush and bountiful landscape. This also led to the inclusion of the stooks and hayracks as visual reminders of the toil, labor, and communality of the agricultural way of life in the process of haymaking. Haymaking was four-to-five-week period of intense communal labor with gendered and age dependent task during the summer. Subdivided into two separate harvests, it can be characterized as not only an intense period of activity and activation of the landscape, but it also produces a distinct visuality through the long hayracks that line and follow the fields and the stooks that that dot the landscape. In the oblique images these stooks and hayracks seem to protrude into the frame thus linking the landscape and farm together. [fig.3.19] In the oblique aerial images hayracks and stooks seem to provide an organizing presence based on labor and inhabitation that is temporally recurrent and transitory. Furthermore, hayracks and stooks pronounce the landscape as a field of production together with the geometric framework that accentuates the landscape as it curves and undulates. Within these images the hayracks and stooks become permanent fixtures of the inhabited landscape, and the social and communal process of harvest is given pictorial form and visibility that is rational, planned and very much

379 Wright, 447.

alive.[380] If we here examine *Norges Bebyggelse* we can see that in a vast number of farms it is noted whether they employed extra help during the harvest.[381] This again provides an interesting example of the increased demand and need for visibility of the vernacular landscape. For as we shall see the harvest as a significant form of activity within the social systems of rurality changed. Thus, the social function of the harvest was no longer a given, necessitating its visibility as a marker of inhabitation.

The changing social significance of the harvest was studied by the local historian Ellen Brunvoll. In her study she recorded the changes to the agricultural way of life in Selbu in post-war years. Through oral accounts she sheds light on the changing vectors of rurality and the ambiguous and at times contradictory relationship between modernization and traditional ways of life.[382] One of her main focus points was the social function of the harvest (*onnearbeid*).[383] Mechanization not only changed the visual character of the landscape, but also the landscape as a social system and as a constructed association.[384] The introduction of the forage harvester which allowed for the direct transfer of cut grass from the fields to a silo became the "symbol of haymaking's demise as communal labor".[385] Leading in part to her statement that: "It can so far be concluded that in Selbu from the 1960s familial labor organization collapses, and that labor organized according to age and gender starts to become a reality."[386] As such in these images the introduction of mechanization is not only rendered visible through the new forms of land organization and the ordered landscape, but also the residual visual phenomena of the social function of labor, which was occluded by the weak-peripheral vision of agroeconomic planning.

It is significant how these images show the seemingly outmoded simultaneously with the reconfigured landscape. As such when we examine oblique images, we can see a refusal of a binary opposition between modernity and tradition wherein tradition is wholesale displaced by innovation. Hayracks and stooks frame the surface of the inhabited landscape as

380 Liana Vardi has shown how representation of the harvest carries a significant political message. But also the incapacity to full depict the complex social functions of the harvest in images. - Liana Vardi, "Imagining the Harvest in Early Modern Europe," *The American Historical Review* 101, no. 5 (1996). https://doi.org/10.2307/2170176., 1359
381Throughout it is noted if the farm uses hired help during the harvest, but in some cases it also notes if the farmer rents machinery for the harvest such as Grøtte farm on page 700 in *Nordlige Seksjon Herredsbindet for Sør-Trønderlag Østre Del*.
382 Ellen Brunvoll, "Arbeidsdeling I Jordbruksfamilien I Selbu I Etterkrigstida," in *Bondesamfunn I Oppløsning?*, ed. Dagfinn Slettan (Lesja, Innlandet: A. Kjelland. Bøker og bokproduksjon, 1989)., 70.
383 . The Norwegian word onnearbeid is defined as; A) Too hurry, haste or busy, B) Dedication, eagerness, endurance in the context of work, C) *A particularly busy time of the year with large amounts of systematic labour consisting of many people with predefined routines and traditions.* - Dybdahl, Audun: onn in Store norske leksikon på snl.no. Retrieved May 30.
384 Brunvoll, 70.
385 Ibid., 71.
386 Ibid., 72.

a visual phenomenon, but also as the visibility of labor with a significant social value and purpose. In an oblique from 1961, a small farm is perched on a hill. [fig.3.20] Due to the oblique angle the Selbu Lake behind is folded upwards into a uniform and flat background bordered by the tress the follow the crest of the hill. Three hayracks line the field in front of one of the farm buildings, creating an axial structure and a form of directionality in relation to the farmhouse and the landscape outside the frame. The second house of the farm is secluded behind a small patch of woodland that provides a tight fitting and intimate visual envelope which is then accentuated by the surrounding fields. This together with the hayracks creates a very tangible image of the inhabited landscape as operating as "law-unto itself".[387] Hayracks provide a conspicuously visible geometric form and structure to the immediate landscape, herein the material and social interactions productive capacity is ultimately manifested as a regulated and considered relationship to the landscape. It is in the visibility of this considered relationship that politics is forced into the aesthetic realm by the oblique image, for as we see in this image the hayracks are a tangible manifestation of the communal aspects of labor overlooked in rationalization. Functions that encode the vernacular landscape of inhabitation as a space of social function, material conditions and economic demands based on needs, use and habit.[388] And with this the question of observation that the oblique views display is based on everyday perception rooted in inhabitation as direct engagement with the vernacular landscape rathe than the analytical timeframes of modernization.

Thus, we must see these images as occupying an ambiguous role in the interdependency between modernity and tradition. The landscape of the tractor, combine forage and silo is demarked by hayracks that display the social function of the pre-mechanized landscape. Centralized road networks and vernacular ones are presented simultaneously. Topography becomes a necessary criterion of inhabitation due to its obsolescence as constraint. We must here turn to Brunvoll's study, where she concludes with asking her informants about their own relationship to the process of modernization. One of her key findings was an ambiguous and at times contradictory perception of modernization and tradition, and that oscillated between "nostalgia and reality".[389] The sizes of farms were one of the key differentiators. On larger farms there was more optimism about modernization with less an emphasis on the withering away of social and communal functions of labor, but modernization had brought with it an increase in stress and time-pressure. One of the

387 Jackson, 54.
388 Wright, 476.
389 Brunvoll, 79.

informants described it as “In the past there were more people doing it. Now there is only one brain that conducts it all. I must remember to turn on this and turn off that.”[390]

Furthermore, larger farms reported an increase in psychological toil on the farmer due to the individualization of responsibility and the new demands and requirements of larger operations. Physical stress and toil were replaced on the larger farms with psychological stress due to increased economic and technical demands. Whereas on smaller farms the reduction of physical labor was almost always viewed as liberating but was accompanied by the longing for social and communal functions of farm labor, thus smallholders had a tendency towards nostalgia to the “good old days” of agrarian life.[391] This, according to Brunvoll, can be seen as a product of the total reduction in smallholdings and family farms in the area and the withering away of communal and social bonds of neighbors and the social functionality of informal and ad hoc labor organization.[392]

Thus, when we think of the vernacular landscape as a place wherein politics is forced into the aesthetic realm as Wright argued, we must identity these parts of the oblique images as well. Ownership is supplanted by roots, not in the farm building but in the visible traces of adaption, habit, and social functionality in the landscape. And the inaccessibility of more than just superficial identification of these features in the landscape provides a paradoxical way of retaining a form of control and visibility by grounding the landscape outside the gaze of the outsider.[393] To this end we can conclude by looking at an image of Lunde. [fig.3.21] Here a small house sits exposed and is suspended in a vast landscape of fields. The lack of horizon isolates the house. The magnification frame further isolates the house by the creation of visual boundaries around the inhabited landscape as a “law onto itself”, for there is breathtakingly little to really be said about this image other than it is recalcitrant image that seems to reject our demand for a general meaning. For in this image modernity could be read as just another constraint that agrarian ways of life had to adapt to and with that adaption a loss of visibility was incurred, but ultimately the loss was inconsequential. For roots, tradition and adaption are not as tangible processes as we imagined, and it is maybe this that we can read from these images. That their recalcitrance is a celebration of the indifference of the vernacular landscape to the process that attempt to reduce it, construe it or change it. J.B Jackson wrote “We are prone to exaggerate the consequences of this alienation and loss of visibility. It is hard for us

390 Ibid., 79.
391 Ibid., 80.
392 Ibid., 81.
393 Jackson, 53.

to admit that most human qualities, like hydroponic vegetables, manage to flourish even when they have no roots in the soil."[394] With this we can see how oblique views of the vernacular landscape show that maybe mental changes, loss visibility and new constraints have little to no impact on the vernacular landscape? Inhabitation will always be the unchanging hypodermis in the process of a skin change (*hamskifte*). We can end with a quote by the Norwegian historian Trygve Bull who once said:

> The old agrarian society is probably collapsing here like everywhere else. But this is not happening *as* fast as many thinks. And *mentally* we will continue to be what we have been since time immemorial: a people of tenacious, and free speaking, but deeply traditional smallholders. Whatever radical way of thinking, be it "European", "Atlantic" or "internationalist" will have to adapt to this fact. Or it will crash its head against the wall. This is one of the most important facts our thousand-year history has thought us.[395]

Concluding Remarks

So to the question of whether we can see the problematization of continuity and rupture in the oblique images, and what role they played as landscape representations, images, and technical ways of seeing as a skin change or as a fundamental rupture with two thousand years of agrarian tradition?

On the one hand we have seen how all these images together take part in a modernizing synthesis imbued by the governmentality of the industrial welfare state, seeking to create stable and legible social systems and manipulate the frameworks of inhabitation. By starting from the vertical image as part of national process of registration and mapping in the land registry and zooming down to the low oblique views of individual farms in a single community I have attempted to show how aerial images must be viewed comprehensively by zooming in on the landscape from the aggregating vertical image down to the single farm. I have attempted to show how agricultural rationalization can be read through these images, but also the interdependence of macro and micro readings. For the landscape of the low obliques is the one that the land registry was designed to change. Communities like the one in Selbu were photographed from high altitudes and their ways of life became objects of knowledge that could be systematized and manipulated but maintain their characteristics. Throughout this thesis the aerial image interacts with itself in other formats. Reorganizing and redesigning the landscape and depicting the redesigned landscape in new ways form new vantage points. By placing the vertical and the oblique aerial image together I have attempted to see how the

394 Ibid., 63.
395 Bull. Trygve Bull, "Norsk Demokratisk Konservatisme " in *Ærlig Talt* (Oslo: Cappelen, 1974)., 23.

vertical image was more than just a cartographic image and the oblique was more than just perspectival image. Rather the two provide a common ground where agricultural reform can be seen in a new light. As Harun Farocki argued that "there is an interplay between images and text in the writing of history: texts that should make image accessible, and images that should make text imaginable".[396] Agricultural rationalization allows us as a text to access these images in a new way, and the images allow us to see agricultural rationalization as more than just the end of two thousand years of tradition or a skin change. However, the oblique view also makes the vertical image more imaginable in its redesign of the landscape and the vertical image allow us to access the oblique image as more than just single images of farms, settlements, or regions at a specific moment in time.

However, there is throughout all versions of the aerial image, from low oblique of the single farm to the vertical aerial image, a fundamental but ultimately constructive ambiguity between text and image, between modernity and tradition, between innovation and continuity. And it is with the term constructive ambiguity that I would like to end this thesis. For constructive ambiguity denotes something that is represented, framed, or articulated in a way where multiple readings, resolutions, concessions, and conclusions are possible by design. The rhetoric of agricultural change in Norway shows this constructive ambiguity, from the changing of the outer layer of skin in the term *hamskifte* to the sustainable family farm as a way of framing rationalization as built on the traditional format of a smallholder family. To the slogan *growth and prosperity in street and hamlet* where effacing of regional differences was framed as a process of equality. Even in the creation of a history of landscape change during the 1959 agricultural exhibition, there is a constructively ambiguous relationship between rupture and continuation which is mirrored in the use of old land consolidation maps and ground truthing in the creation of a technocratic utility. This constructive ambiguity has been established in the aerial image as an overt tool of modernization and a way to ground modernization in the vernacular landscape and its irreducible history.

On the one hand this constructive ambiguity can be read in the deferral to the image itself as a rectifying tool in the land registry, where modernization and rationalization was framed as the necessary continuation of a 19th century process that could become completed by new ways of seeing. In the second chapter of this thesis this constructive ambiguity functioned in two separate ways that nonetheless informs our reading of the low oblique in the

[396] Farocki, 158.

third chapter. As a capacious tool the oblique view provides a simultaneity of two perspective in the spatial sense and the metaphorical sense. Here we saw how regional difference were flattened, dissected, and systematized by examining the inscription of proximity in patterns of inhabitation through the distanced and fictional vantage point of the oblique view. In the third chapter this constructive ambiguity takes on the form of seemingly emblematic images of modernity that emerges at a moment when the vertical image is superimposed on the vernacular landscape through new demands, roles and constraints in part stemming from the vertical aerial image. For as we have seen this image refute the status as images of modernity alone, they defer modernity by showing those formidable portions of the vernacular landscape that are irreducible, but only through the distanced and fictional vantage point of an oblique view. In conclusion these images produce a deliberate and considered constructive ambiguity between rupture and continuity, between innovation and inhabitation.

We must now jump to 2021. For these low oblique images are still alive to this day and that provides a final place to reflect upon them and the processes they took part in and what they mean today. On the third of June Vidar Nedrebø, the county leader for the agrarian Center Party in Rogaland, took part in the radio news magazine *Dagsnytt 18*. The topic of discussion was the potential of a new red-green coalition with the Socialist Left Party, The Labour Party and the Center party. On the livestream from Nedrebø's living room a low oblique image of presumably his farm hangs proudly center frame on the wall behind him. [fig 4.1] With this we can see how these images of the vernacular landscape are much more than just farm-portraits, they are a display of a space of inhabitation that is nonetheless politically charged. They transmit a meaning far beyond themselves as singular objects, they can be seen as a series of different forms of specificity and irreducibility that together provides a general visibility to the Norwegian agrarian landscape beyond observation and separation. We cannot know if the inclusion of the image was deliberate by Nedrebø, but its presence is a clear marker of belonging, of history and of an agrarian way of life as a tenacious mentality that has adapted again and again to new constraints and a vernacular landscape that is alive to this day.

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Letter from Widerøe Air Company to Thorbjørn Eek Mørtelverk with attached pricelist nr 101, 13 November 1957, Internal Archives Fjellanger-Widerøe, Hoeggvegen 66, Trondheim, Norway.

Figures:

Jubileums-fotografi fra Råde

Widerøe's Flyselskap har i år passert en milepel i sin luftfotograferings-virksomhet, idet skråfotografi nr. 100 000 ble tatt. Dette viste seg å være Engene gård i Råde, som eies av Peder Engene. Han har nå fått en fargelagt forstørrelse som gave fra selskapet.

Selskapet forteller til Demokraten at man nå praktisk talt har fotografert hver eneste gård i Østfold, og det er nå et rent rush fra gårdbrukere, som vil ha fargelagte forstørrelser som julegave til sine slektninger og kjente som er flyttet ut. Mange gårdbrukere har også kjøpt luftfotograferte kart av sine eiendommer.

Figure 0. 1 Newspaper notice from "Jubileums-Fotografi Fra Råde." Demokraten Friday November 16 1956, 1.

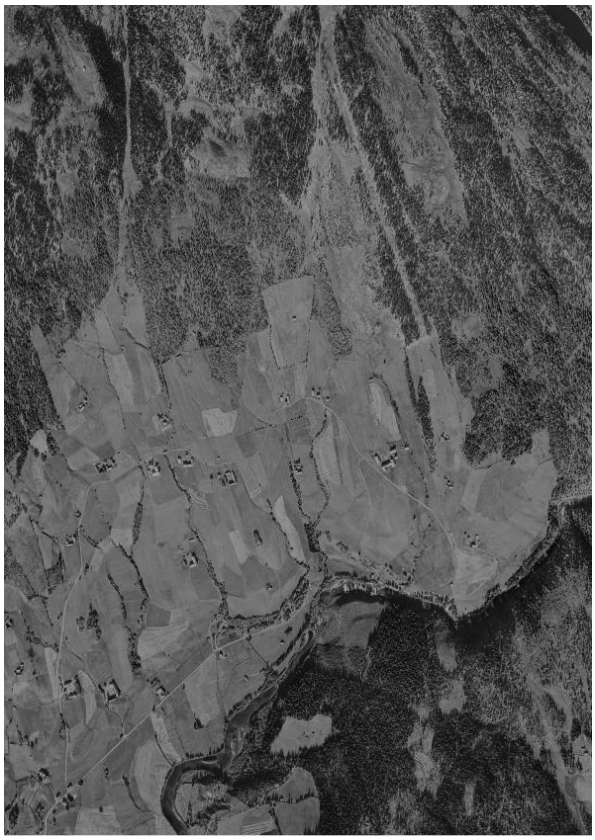

Figure 0.2 Aerial Image in scale 1:0000 of Innbygda, Selbu . From WF-1229, September 20, 1961. From: https://www.norgeibilder.no/?x=305865&y=7021779&level=12&utm=33&projects=2610,633&layers=&plannedOmlop=0&plannedGeovekst=0 Retrieved March 15 2021. Flightpath and metadata available at https://metadata.kartverket.no/metadata/Flybildearkiv/index.jsp?Send=Vis&fylke=16&komm=1664&f=1900&t=2010&dnr=WF-1229

Figure 0.3. *Oblique Aerial image from Innbygda, Selbu. Photographed by Vilhelm Skappel for Widerøe, 7 July 1950. From https://urn.nb.no/URN:NBN:no-nb_digifoto_20160412_00308_NB_WF_SBK_023334 Retrieved March 15*

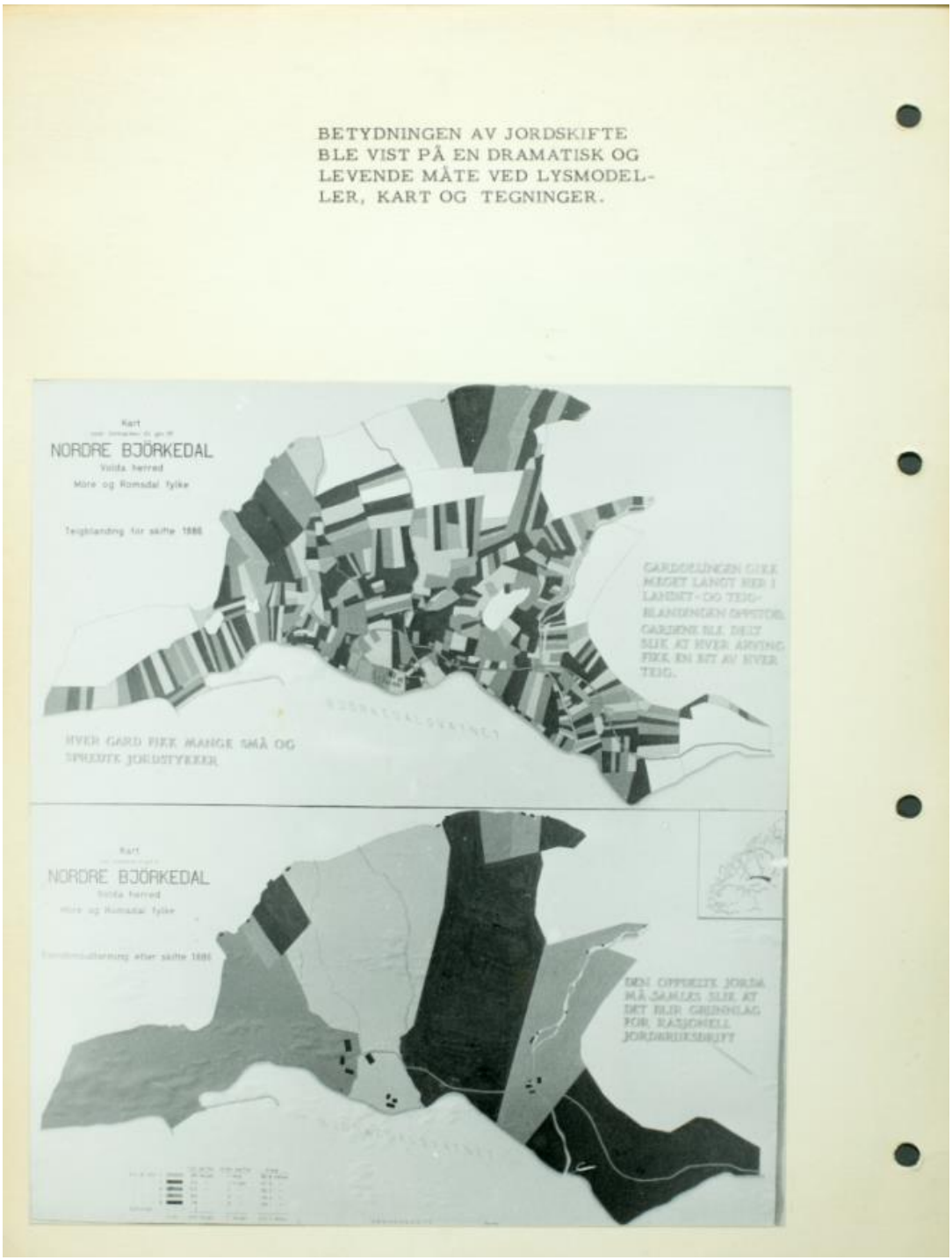

Figure 1. 1. Kart over betydningen av jordskifte på landbrukets jubileumsutstilling i 1959. Photograph by Lasse Thorseth, 1959 - From https://digitaltmuseum.no/021018754767/kart-over-betydningen-av-jordskifte-pa-landbrukets-jubileumsutstilling - Retrieved March 3, 21

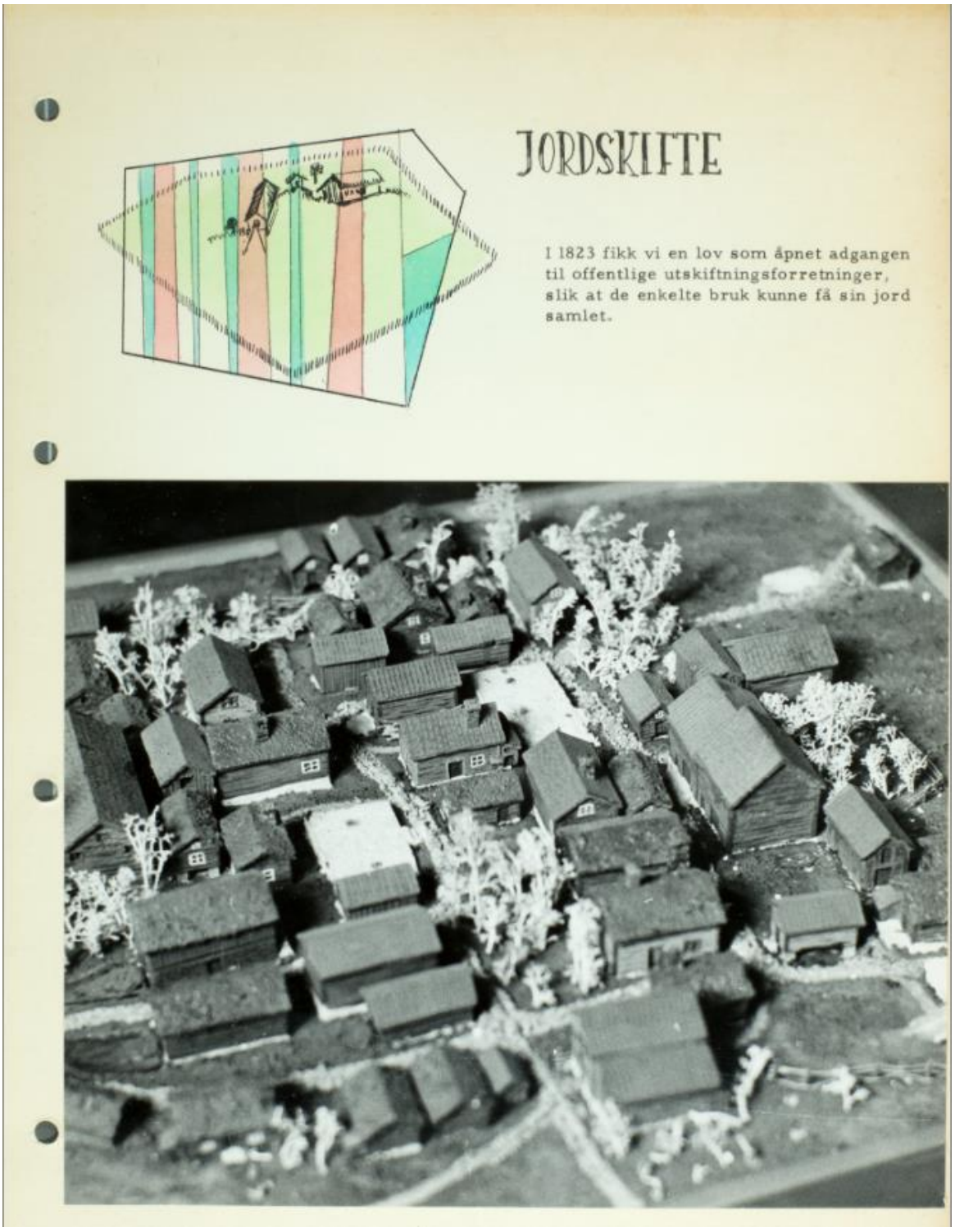

Figure 1. 2 En modell av en rekke hus og gårder på landbrukets jubileumsutstilling Photographed by Lasse Thorseth, 1959 - From: https://digitaltmuseum.no/021018754768/en-modell-av-en-rekke-hus-og-garder-pa-landbrukets-jubileumsutstilling/media?slide=0 – Retrieved March 3, 2021

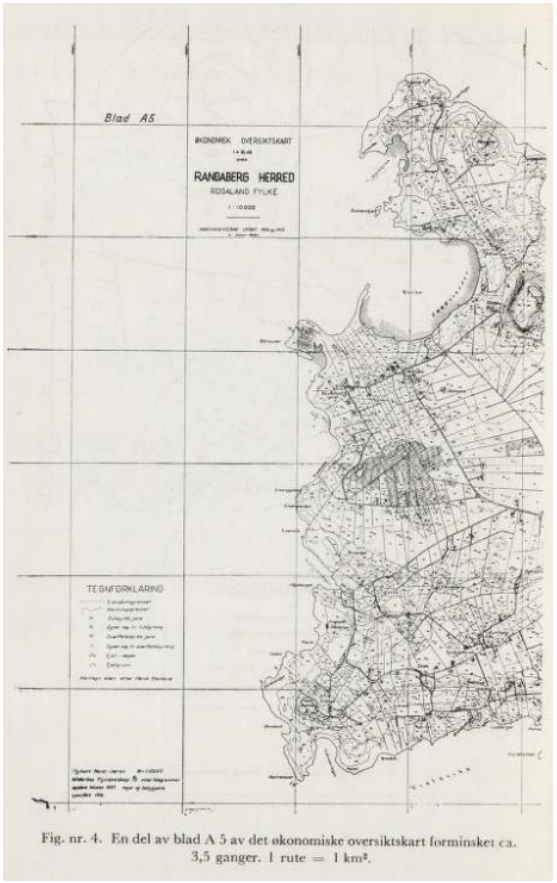

Fig. nr. 4. En del av blad A 5 av det økonomiske oversiktskart forminsket ca. 3,5 ganger. 1 rute = 1 km².

Figure 1. 3 Economic map made from photogrammetric aerial images - Balle, gunnar. "Oprettelse Av Jordregister Et Forsøksarbeid ". Norsk tidsskrift for jordskifte og landmåling 49, no. 23 (1956) 256

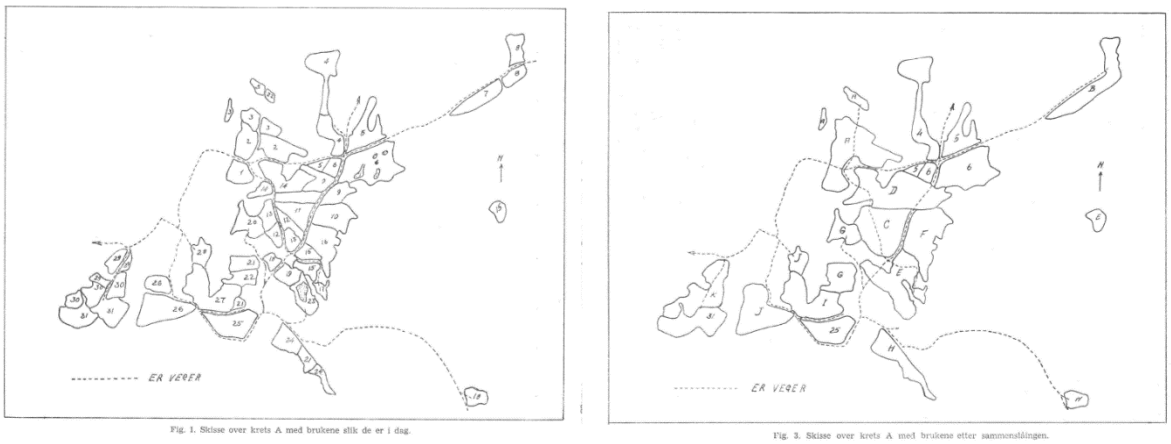

Fig. 1. Skisse over krets A med brukene slik de er i dag.

Fig. 3. Skisse over krets A med brukene etter sammenslåingen.

Figure 1. 4 Before and after structural rationalization of Circuit A - Recommendation from the Akershus Agricultural Society in Stortingsmelding Nr. 60 (1955) Om Retningslinjer for Utvikling Av Landbruket. Oslo, 1955. 37 and 41

Figure 1. 5 Property structure drawn over aerial image from Ås, Akershus - Øvstedal, Sverre. "Ytre Jordbruksrasjonalisering I Eit Område." Norsk tidsskrift for jordskifte og landmåling 48, no. 23 (1956). 59.

Figure 1. 6 Marianne Skappel, plotting vertical aerial images, presumably from around 1965. Fjellanger-Widerøe Internal Archives, Trondheim, Norway

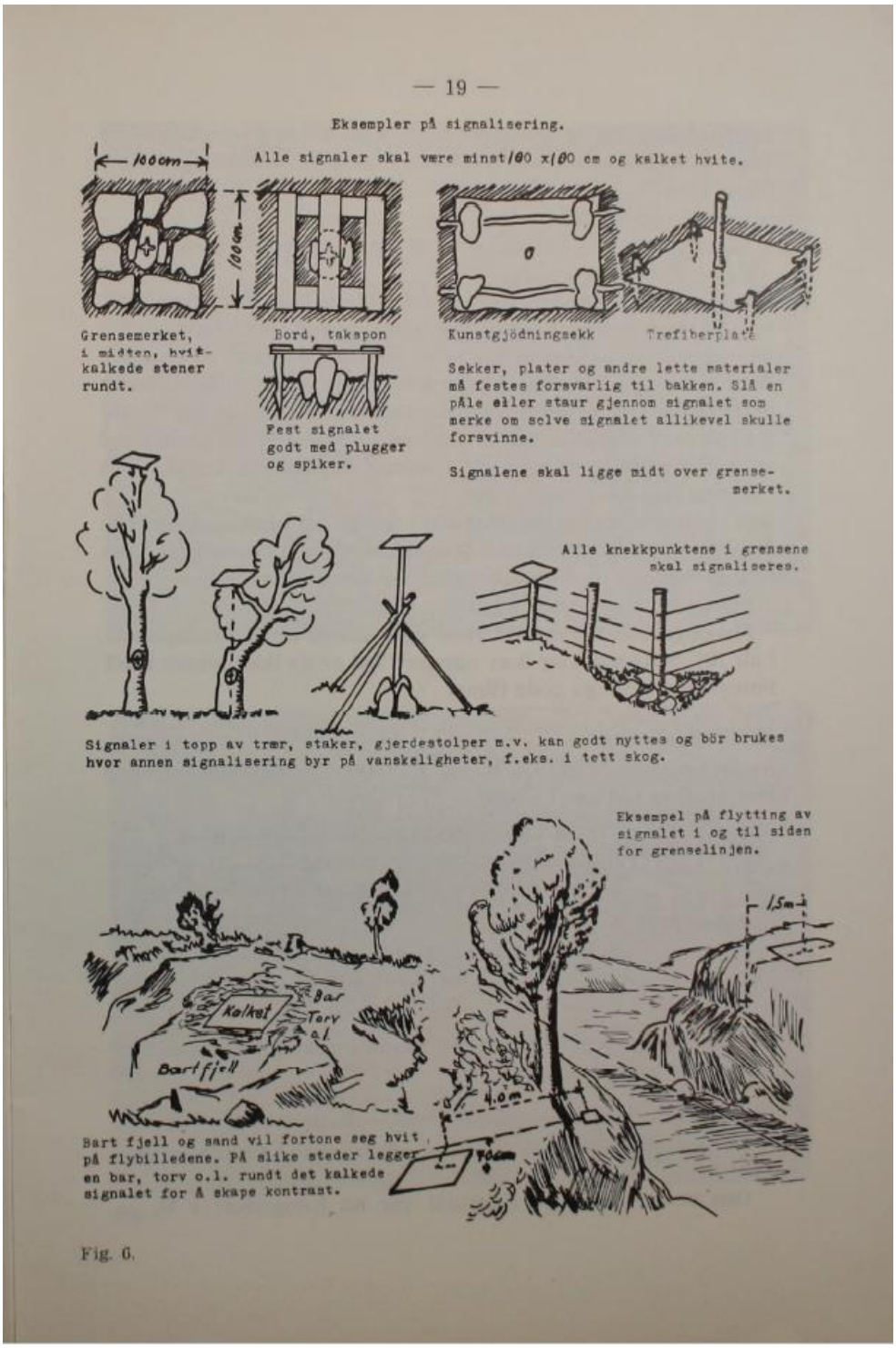

Figure 1. 7 Examples of property signals for aerial images - from"Fremstilling Av Økonomisk Oversiktskart Og Oppretting Av Jordregister." edited by K.J Moen: Institute for Property Design and Land Consolidation, Norwegian College of Agriculture 1959. Archive S-4856, Series DA, Box L0530, Folder 0001, Kontorer for jordskiftesaker, National Archives of Norway, Oslo, Norway. 16

Figure 1. 8 Aerial images tracking the growth of Ski, Akershus between 1939 - 1956 from: Sømme, Axel. "Kartets Plass I Vår Område-Planlegging." Norsk tidsskrift for jordskifte og landmåling 49, no. 23 (1956). 154-155

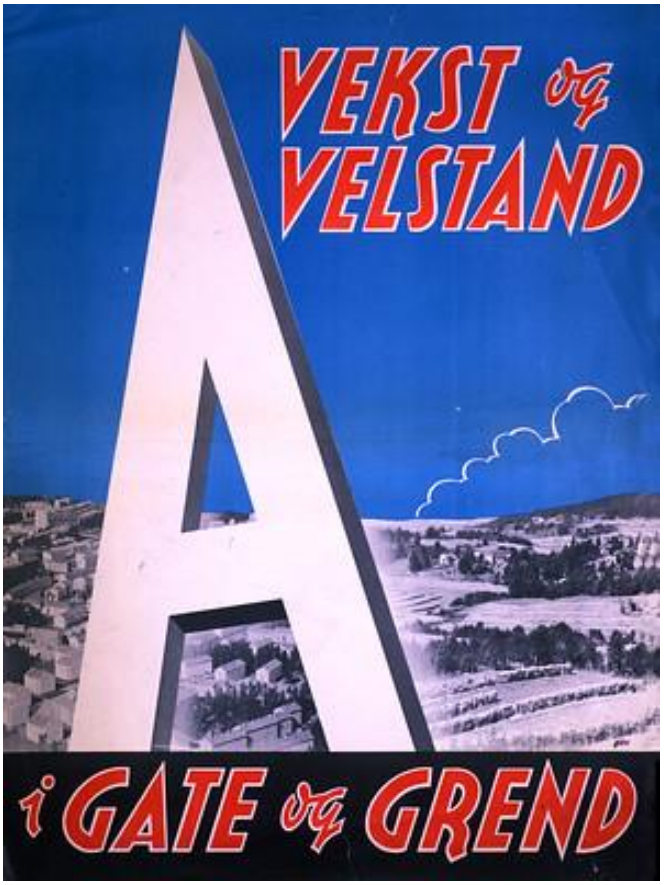

Figure 2. 1 Poster for the Norwegian Labour Party, 1959. Designed by Sverre Ørn-Evensen - From: https://www.flickr.com/photos/arbeiderpartiet/3290227642 Retrieved February 2 2021

Figure 2. 2. Oblique Aerial image from *Ibestad, Troms*. Photographed by Vilhelm Skappel for Widerøe, July 5 1956 - From: https://urn.nb.no/URN:NBN:no-nb_digifoto_20160607_00019_NB_WF_ISK_096804 - Retrieved November 14, 2020

Figure 2. 3 Oblique Aerial image from *Sola, Rogaland*. Photographed by Rolf Ingelsrud for Widerøe, 27 May 1954 - From https://urn.nb.no/URN:NBN:no-nb_digifoto_20171213_00047_NB_WF_SOLK_067096 Retrieved November 14, 2020

Figure 2. 4 Arthur Rothstein*, Air View, Farmland. Grundy County Iowa,* 1940. From - https://www.loc.gov/resource/fsa.8b19425/ May 18 2021 Retrieved 12 February 2021 (Also in Weems, Jason. Barnstorming the Prairies : How Aerial Vision Shaped the Midwest. Minneapolis, MN: University of Minnesota Press, 2016. 106)

Figure 2. 5 Ito Josué, *Firminy*. Charles Delfante archives. From: Pousin, Frédéric. "Aerial Views and the Grand Ensambles." Chap. 14 In Seeing from Above : The Aerial View in Visual Cultural, edited by Mark Dorrian and Frédéric Pousin, 249-76. London: I.B Tauris, 2019. 262

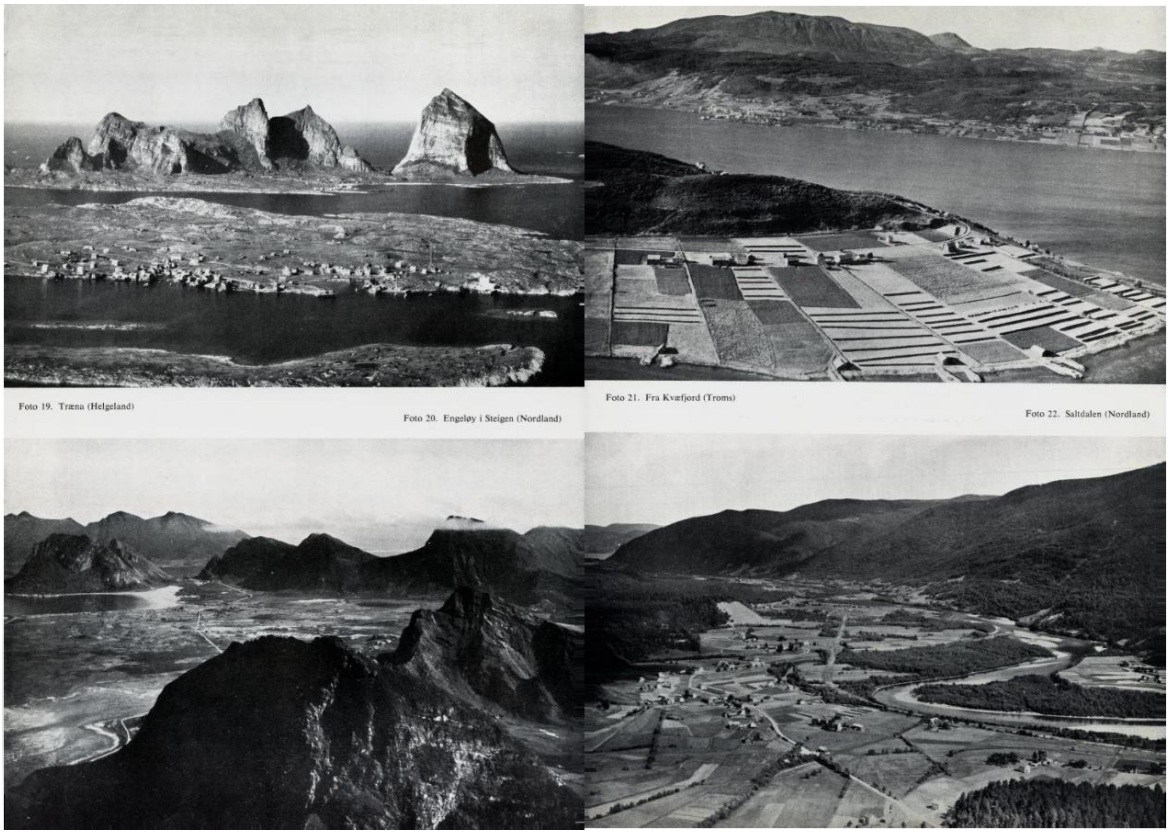

Figure 2. 6 Photos nr.19-22 from "Jordbrukets Geografi" showing four different settlements. Left from top: Træna (Helgeland), Engeløy (Steigen, Nordland) Right from top: Kvæfjord (Troms), Saltdalen (Nordland) Original images from Widerøe. From: Sømme, Axel. Jordbrukets Geografi I Norge. Publications of the Norwegian University School of Economics and Business Administration. Geographical Series. 2 vols. Vol. A. Tekstbind, Bergen: J. W. Eides Forlag, 1954. 346-347

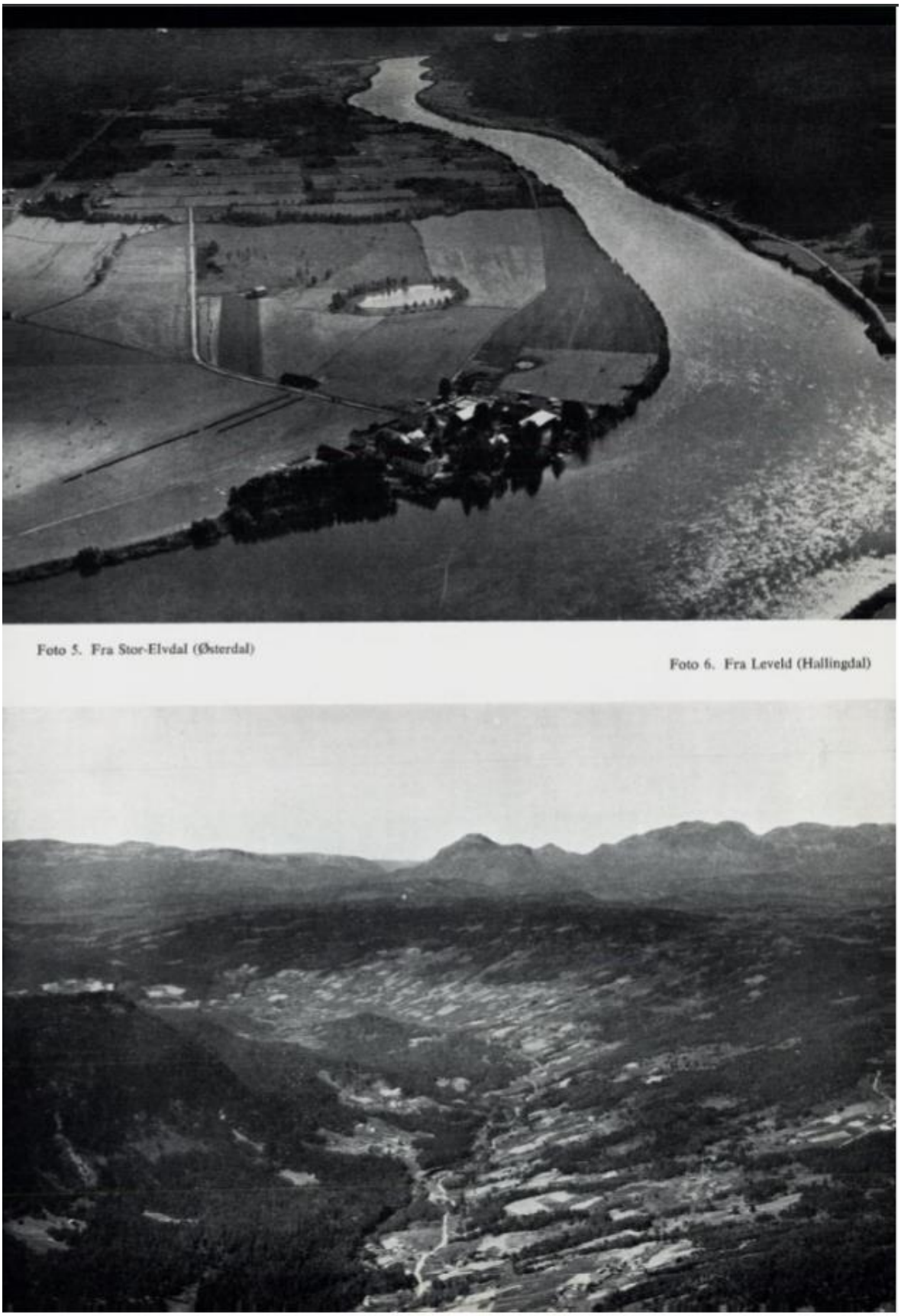

Foto 5. Fra Stor-Elvdal (Østerdal)

Foto 6. Fra Leveld (Hallingdal)

Figure 2. 7. Photos nr.5-6 from "Jordbrukets Geografi" Top: Stor-Elvdal (Østerdalen) Bottom: Leveld (Hallingdal) Original images from Widerøe- From: Sømme, Axel. Jordbrukets Geografi I Norge. Publications of the Norwegian University School of Economics and Business Administration. Geographical Series. 2 vols. Vol. A. Tekstbind, Bergen: J. W. Eides Forlag, 1954 339

Figure 2. 8.Oblique Aerial Image of *Lambertseter, Oslo*. Photographed by Edmund Jaquet for Widerøe. 1961. From - https://digitaltmuseum.no/011012617134/lambertseter Retrieved 24 February 2021

Figure 2. 9 Oblique aerial image of area for Lambertseter satellite city. From: "Lambertseter En Forstad Til Oslo Med 10000 Innbyggere." edited by Frode Rinnan, ill., fig., kart. 48 s., 1 fold. pl. 4°. Oslo: I kommisjon: Cappelen, 1950. 6.

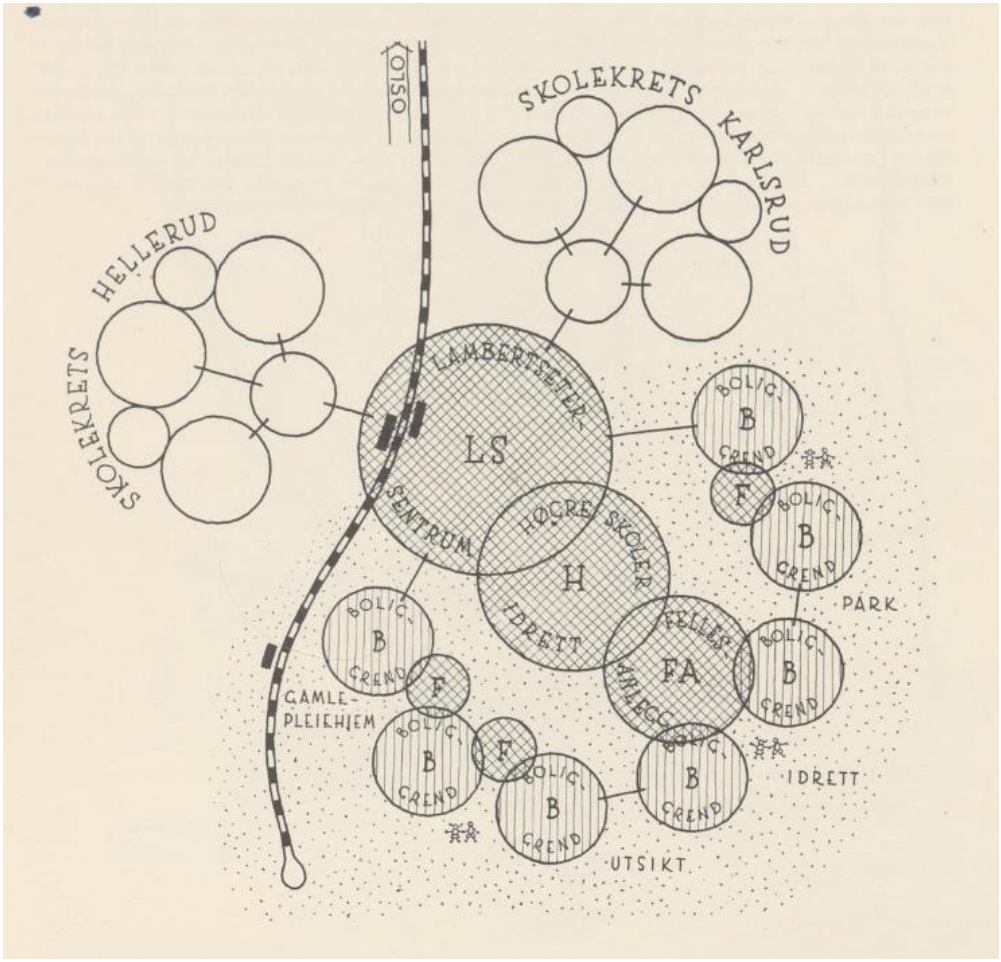

Figure 2. 10. "Schematic Picture" developed by Erik Rolfsen for Lambertseter. From: "Lambertseter En Forstad Til Oslo Med 10000 Innbyggere." edited by Frode Rinnan, ill., fig., kart. 48 s., 1 fold. pl. 4°. Oslo: I kommisjon: Cappelen, 1950. 9

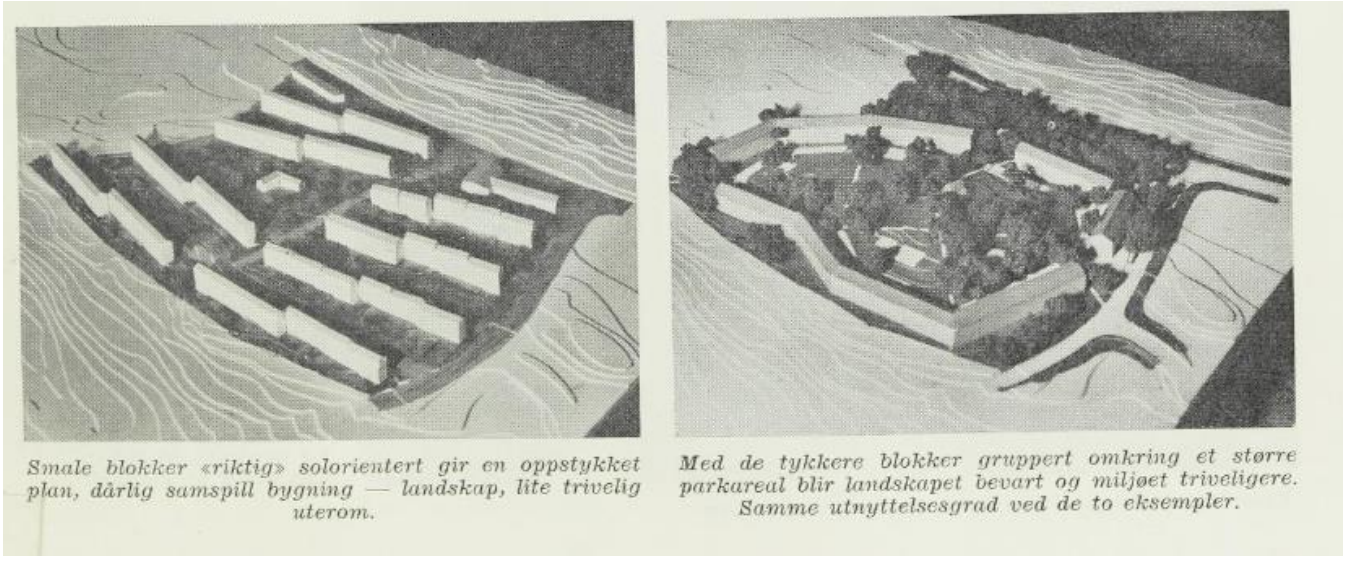

Figure 2. 11 Two Models both showing the same area utilizaiton according to different approches to planning. From Boligområder Prinsipielle Retningslinjer for Lokalisering Og Utbygging Oslo: Regionplankomitéen for Oslo-området, 1961. 19

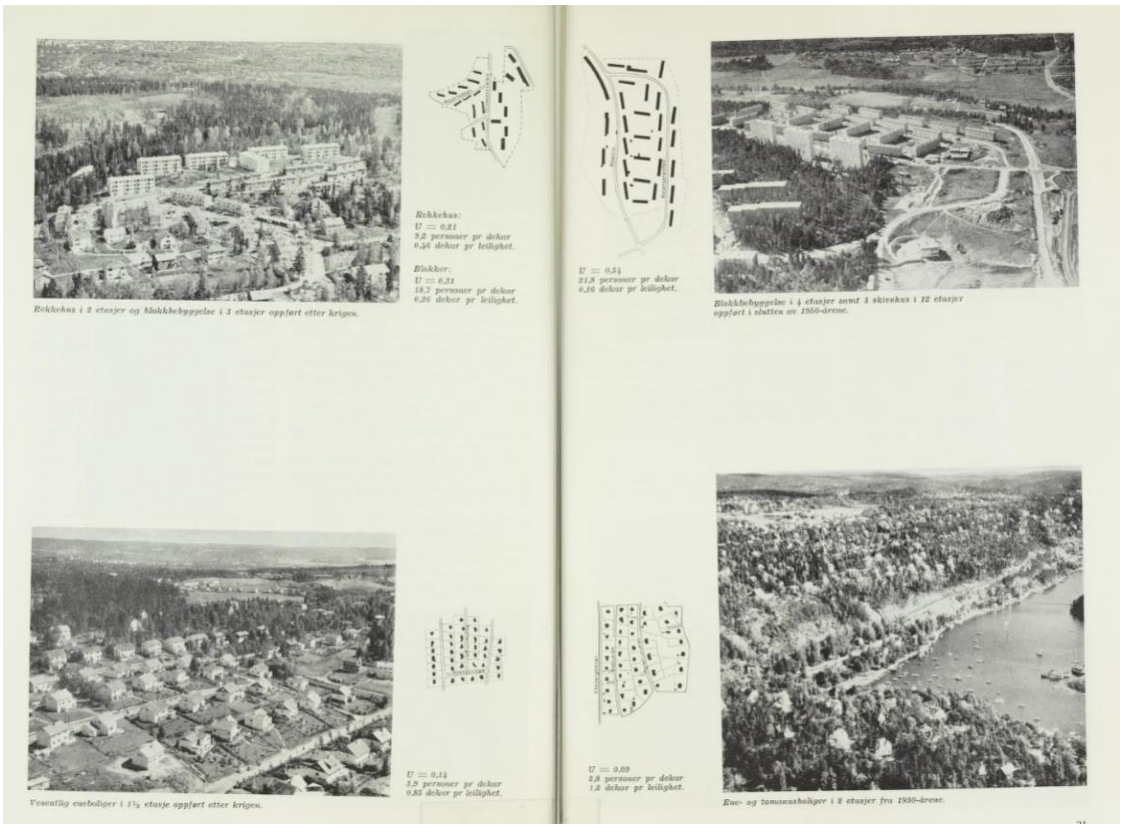

Figure 2. 12 Oblique Aerial Views supplanted by maps to show different area utilizaiton and density in urban enviroments. Photos from Widerøe. From: Boligområder Prinsipielle Retningslinjer for Lokalisering Og Utbygging Oslo: Regionplankomitéen for Oslo-området, 1961. 20-21

Figure 3. 1. Oblique Aerial Image of *Langli, Innbygda*, Selbu. Photographed by Vilhelm Skappel for Widerøe, July 7 1950. From: https://urn.nb.no/URN:NBN:no-nb_digifoto_20160412_00312_NB_WF_SBK_023344 Retrieved: April 20 2021

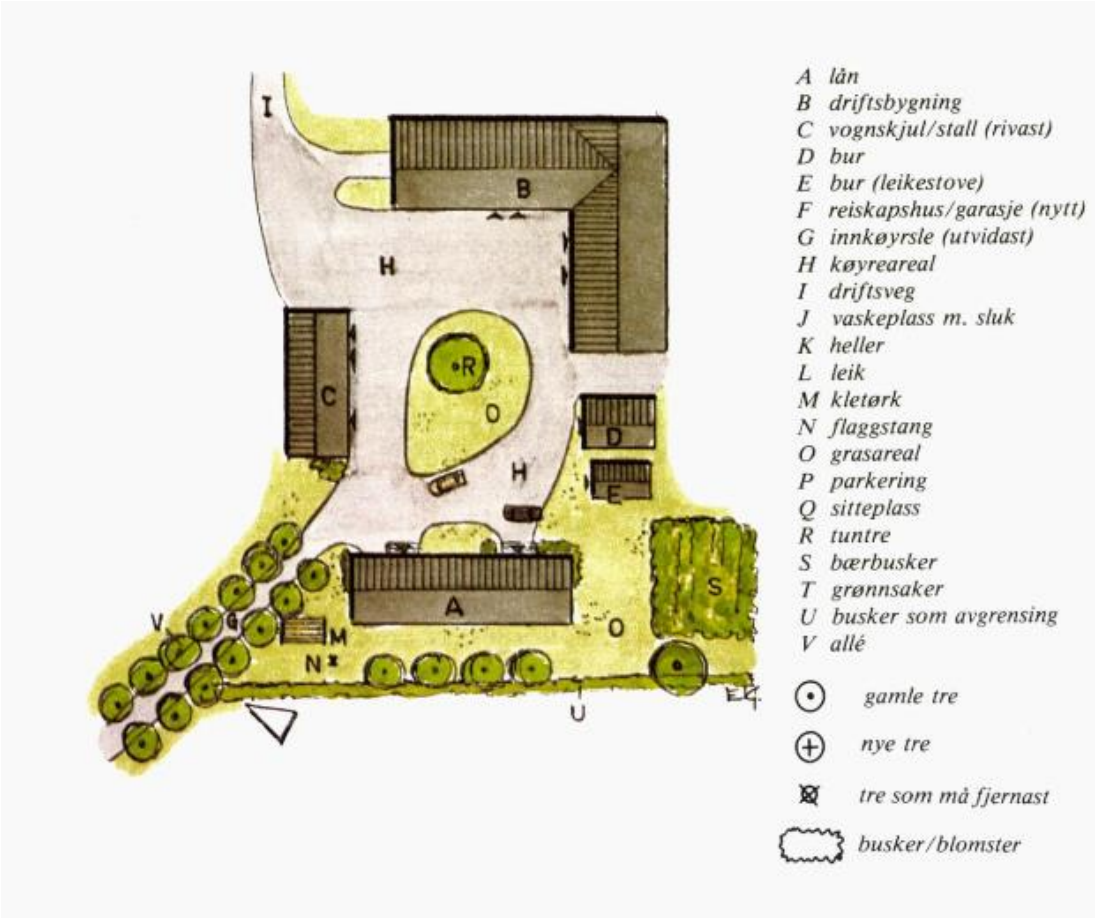

Figure 3. 2 Plan of a Trøndertun, drawn by Eli Kjære. From:Kjær, Eli. "Garden - Tunet - Miljøet." In Trønderlåna - Trøndertunet, edited by K. Aas and Eli Kjær, 30-45: Landbruksforlaget, 1982. 36

Figure 3. 3 Oblique Aerial Image of *Langhaugen, Selbu*. Photographer by S. Langset for Widerøe, 15 June 1958. From: https://urn.nb.no/URN:NBN:no-nb_digifoto_20160408_00278_NB_WF_SBK_117303 - Retrived: 3 March 2021

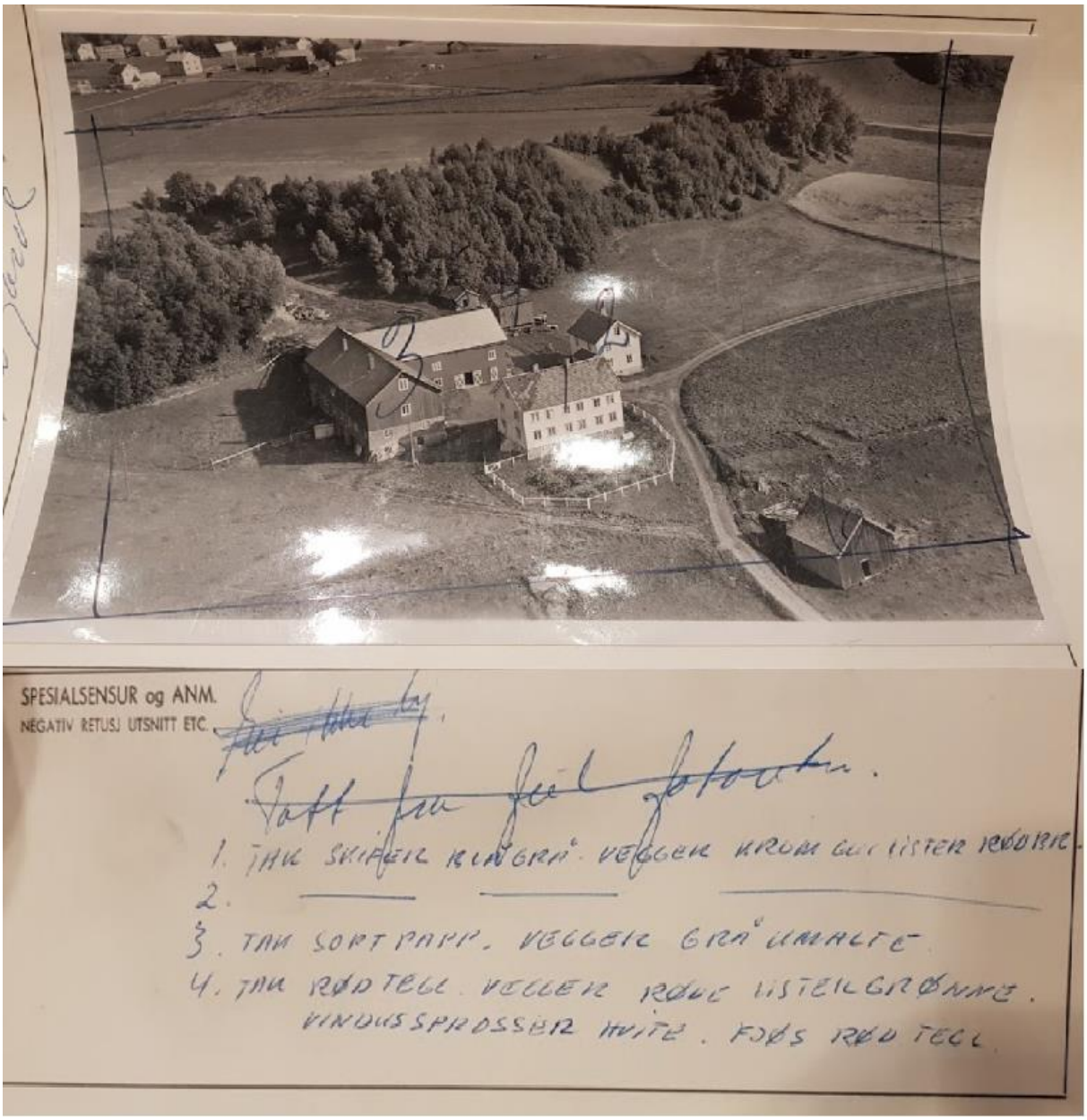

Figure 3. 4 Front and back of imageboard for *Mogård, Selbu*. Original photo by J. Kruse for Widerøe, 27 August 1958. Photos my own from National Library Archives, Oslo, Norway. Negative digitalized at: https://urn.nb.no/URN:NBN:no-nb_digifoto_20160412_00158_NB_WF_SBK

Figure 3. 5. Oblique Aerial Image of *Selbustrand, Selbu*. Photographed for Widerøe, 14 September, 1968. From https://urn.nb.no/URN:NBN:no-nb_digifoto_20141204_00063_NB_WF_SBK_190589 Retrived: 4 April 2021

***Figure* 3. 6** Oblique Aerial Image of *Selbustrad, Selbu*. Photographed Vilhelm Skappel for Widerøe, 7 July, 1950. From:https://urn.nb.no/URN:NBN:no-nb_digifoto_20160412_00320_NB_WF_SBK_023360 Retrived 13 May 2021

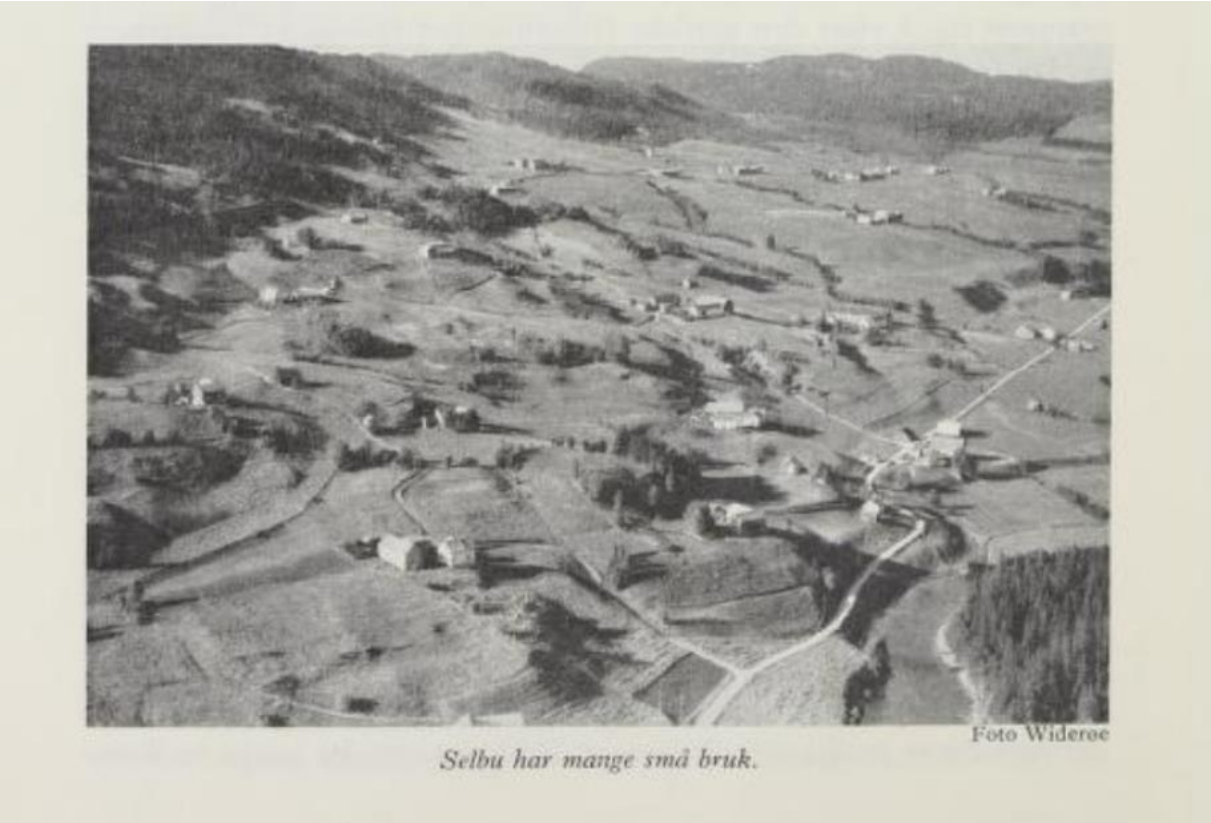

Figure 3. 7 Oblique Aerial Image of *Inngygda, Selbu*. Illustration in Gangås, Dagfinn and Gunnar Fredriksen. "*Prøvebygda Selbu: Analyse Og Planlegging På Bygdeplanet."* edited by Arne Eskeland, 90 s. ill. Oslo: Norges landbruksøkonomiske institutt, 1962. 12 – Photographed by Vilhelm Skappel for Widerøe, July 7, 1958, Image also found at: https://urn.nb.no/URN:NBN:no-nb_digifoto_20160412_00308_NB_WF_SBK_023334 (also see fig.0.2. and 0.3.)

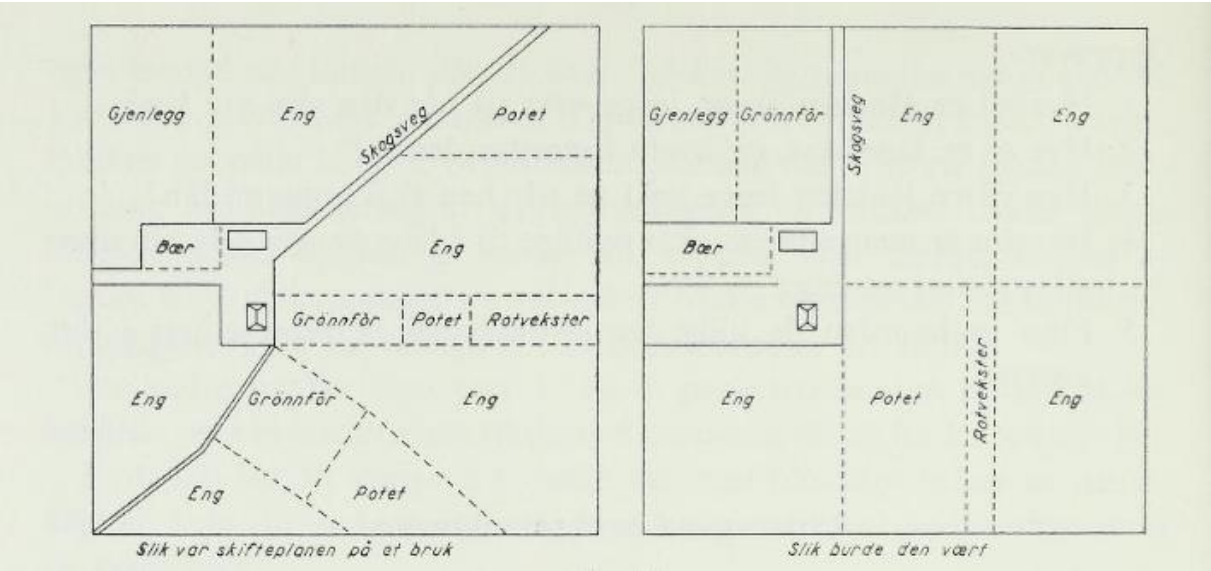

Figure 3. 8 Example of changes to farm property design. From Eskeland, Arne, and Finn Reisegg. Landbruksøkonomi Planlegging Og Organisering I Landbruket. Vol. , Oslo: Bøndenes forlag, 1961. 154

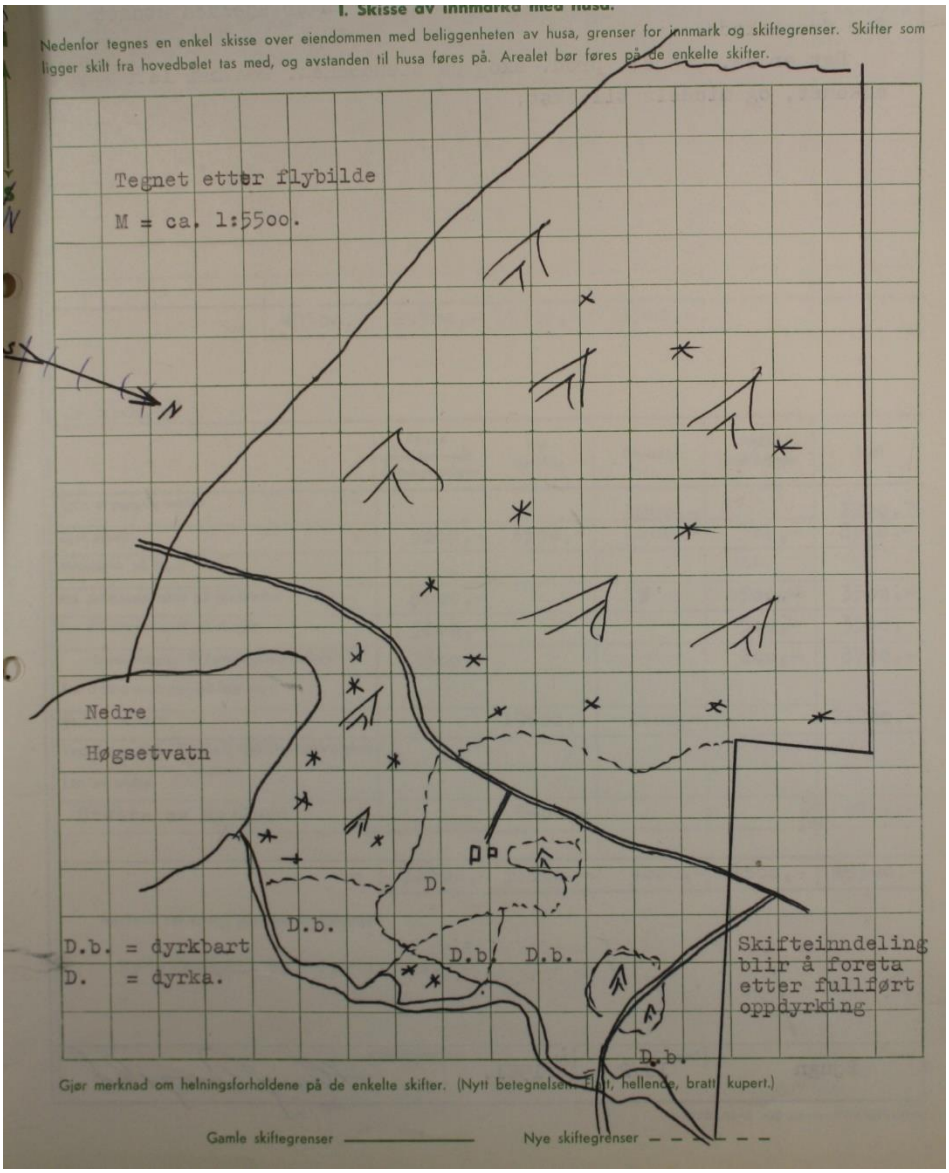

Figure 3. 9 Plan for changes to property design drawn in from aerial image in loan application to Norwegian Smallholder and Homesteader Bank, 8 March, 1961. From: Loan Applications to the Smallholder and Homesteader Bank from Bjugn, Norway, March 8 1961, Archive PA-0702, Series HC, Box L00020, Folder 0003, Det Norske Jord- og Myrselskap, National Archives of Norway, Oslo, Norway.(Photo my own)

Figure 3. 10. Oblique Aerial Image of *Gullset, Selbu*. Photographed by Vilhelm Skappel for Widerøe, July 7, 1950. From:https://urn.nb.no/URN: NBN:no-nb_digifoto_20160412_00271_NB_WF_SBK_023131 Retrieved 4 April 2021

Figure 3. 11 Oblique Aerial Image of *Gullset, Selbu*. Photographed for Widerøe, July 1, 1963. From: https://urn.nb.no/URN:NBN:no-nb_digifoto_20141203_00068_NB_WF_SBK_111218 Retrived: 4 April 2021

Gjennom speilsteroskopet kjem flykartet til sin rett. Tomas Flaa kikker nærare på eigedomar i heimbygda si.

Figure 3. 12 "Thomas Flaa gets a closer look at properties in his home community" Photo from: "Driv Ikke Skogbruk På Slump." Fædrelandsvennen 2 april 1962.1

Figure 3. 13. Oblique Aerial Image of *Hårstadmo, Selbu*. Photographed for Widerøe, 27 September, 1962. From: https://urn.nb.no/URN:NBN:no-nb_digifoto_20141203_00030_NB_WF_SBK_099022 Retrieved February 24, 2021

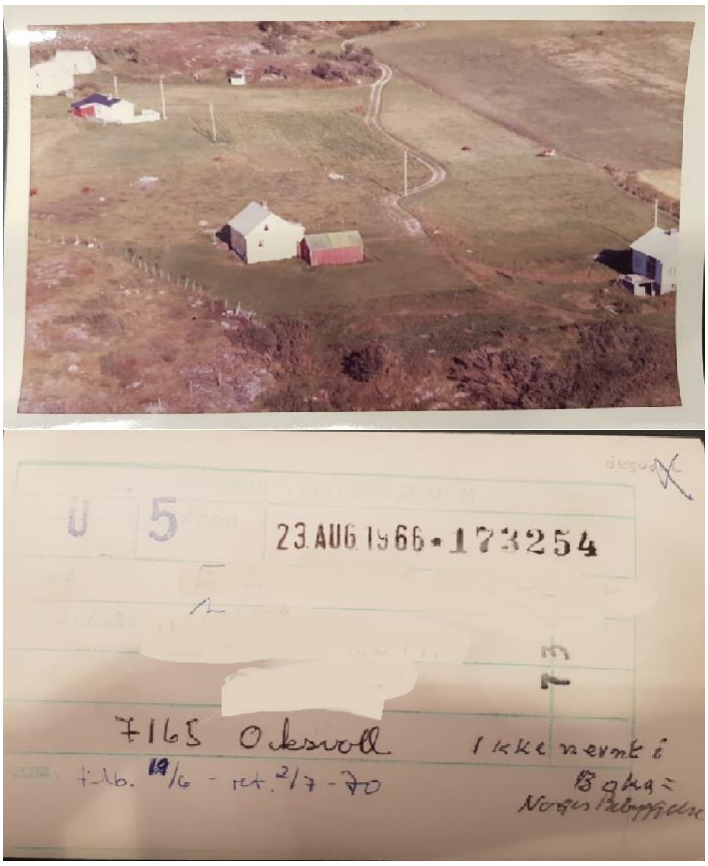

Figure 3. 14. In the lower right it says "Not mentioned in the book Norges Bebyggelse". Front and back of sales card for oblique aerial image of *Oksvoll, Bjugn*. Photographed 24 August, 1966. Photos my own from archives of National Library of Norway, Oslo. (Censored to hide personal information about owner)


NORGES BEBYGGELSE

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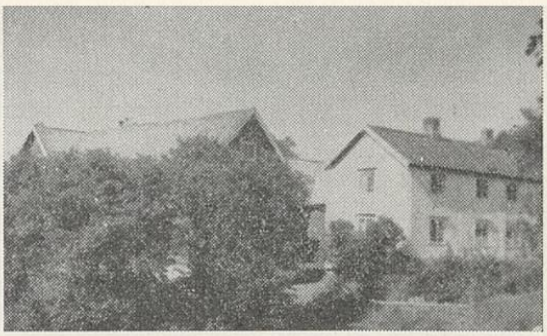
Figure 3. 15 Two Pages of Selbu section from Nordlige Seksjon Herredsbindet for Sør-Trønderlag Østre Del, ed.^eds. Edited by Haakon M. Fiskaa and Haakon Falck Myckland Vol. 2, Norges Bebyggelse. Oslo: Norsk faglitteratur, 1956. 758-759

Figure 3. 16 Oblique Aerial Image of *Berg, Selbu.* Photographed for Widerøe 27 Septermber, 1962. From: https://urn.nb.no/URN:NBN:no-nb_digifoto_20141202_00154_NB_WF_SBK_098978. Retrieved 4 April, 2021

Berge, gnr. 76, bnr. 1, like ved veien Tydal —Trondheim, ca. 700 m fra Nea. Postadr. Selbu p. å. Areal ca. 90 da dyrket og 50 da udyrket mark, 14—1500 da prod. skog. Hovedbygn. oppf. av tømm. ca. 1900 (tilflyttet) i 2 etsj., 80 m², 7 rom, kjøk., kjeller. Fjøs og stall flyttet og oppf. 1900 av bindv., på-



bygd 1921, låve oppf. s. å. Dessuten stabbur, sommerstue, seter. I slektens eie i 5 slektsledd, til nåv. eier 1912. Besetn. 8 kuer, 3 kalver, 2 hester, 1 gris, 7 sauer, 1 lam, 4 geiter. Leier arb.-hjelp i onnene. — Eier gårdbr. *Sivert Berge*, f. 14/1—90 i Selbu, foreldre Kari og Hallvard B., 1913 g. m. Gurine Sæther, f. 20/9—89 smst., foreldre Brynhild og John S. Barn Hallvard, f. 8/5—18, Kristine, f. 22/12—22, John, f. 24/1—24, Brynhild f. 16/1—30.

Figure 3. 17 *Berge Farm* in Nordlige Seksjon Herredsbindet for Sør-Trønderlag Østre Del, ed.^eds. Edited by Haakon M. Fiskaa and Haakon Falck Myckland Vol. 2, Norges Bebyggelse. Oslo: Norsk faglitteratur, 1956. 757

Figure 3. 18. Oblique Aerial Image of *Solheim, Selbu*. Photographed for Widerøe, 20 September, 1961. From: https://urn.nb.no/URN: NBN:no-nb_digifoto_20141126_00028_NB_WF_SBK_061081 Retrieved April 4, 2021

Figure 3. 19. Oblique Aerial Image of *Evjen, Selbu*. Photographed for Widerøe, 27 September, 1962. From:https://urn.nb.no/URN:NBN:no-nb_digifoto_20141202_00149_NB_WF_SBK_098971 Retrived April 4, 2021

Figure 3. 20 Oblique Aerial Image from *Selbu*. Photographed for Widerøe, 20 September, 1961. From: https://urn.nb.no/URN:NBN:no-nb_digifoto_20141202_00021_NB_WF_SBK_061347 Retrieved 1 February, 2021

Figure 3. 21 Oblique Aerial Image of *Lunde, Selbu*. Photographed for Widerøe, 20 September, 1961. From: https://urn.nb.no/URN:NBN:no-nb_digifoto_20141201_00112_NB_WF_SBK_061302 Retrived 4 April, 2021

Figure 4. 1 Screenshot from *Dagsnytt 18*, 3 June, 2021. 03:22. From: https://tv.nrk.no/serie/dagsnytt-atten-tv/202106/NNFA56060321/avspiller Retrived June 3, 2021