

The Beginnings of Norway's Airlines

Part 1: 1918 - 1922

Rob J.M. Mulder



A Piece of Nordic Aviation History



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Introduction

The history of the first attempts to form airlines in Norway is interesting right from day one. In this book, I want to present the airlines formed in the period up to 1922 and show the development of civil aviation in Norway from 1910 until 1922 focused on the heavier-than-air craft. Why only until 1922? The reason is simple. So much happened in those four years. More than 20 aircraft were registered and many companies tried to make a living out of flying. In 1922, the economic growth in Norway stopped up and productivity started to decline. The country faced bankruptcy of several banks. As a consequence, the government was not interested in supporting aviation with any major subsidies.

Already in 1912, the first aviation related company was formed, although not with the aspiration to become a national carrier in the present sense of the word «airline». It was formed to organize joyride and demonstration flights.

During the First World War (1914-1918) Norway held a neutral status but was nevertheless widely affected. More than 2,000 Norwegian seamen were killed when their ships were torpedoed by German U-boats or ran on Allied or German sea mines. At the end of the war, new initiatives started to emerge in Norway and small air and air-related companies imported, mainly, German surplus aircraft. Fishing companies in the west of Norway were among the first to purchase aircraft for different duties within fishing. The airline of Tancred Ibsen (later a famous Norwegian film director) was among the most popular airlines, operating no less than four German aircraft. Leif Lier was another highly popular aviator in Norway and operated right up until his tragic death in 1929 numerous aircraft and owned many different smaller airlines. His aviation story started in 1920. Beside these, many others tried to start up or import aircraft.

The major part of the book will be dedicated to the airline Det Norske Luftfartrederi AS (DNL - The Norwegian Aviation Company Ltd) formed on 10 July 1918. The initiators of the airline were the economist Dr. Wilhelm Keilhau and the technical geniuses Naval Cpt Halfdan Gyth Dehli. During the First World War, they wanted to operate an air service between Norway and Great Britain and make sure the mail arrived in a safe way. The end of the war stopped their original plans, but they soon turned DNL financially into a solid company. Negotiations with British, Swedish and Danish authorities and airlines started up to come to an international network of air services. In August 1919, the Norwegian company was one of the founders of the International Air Traffic Association (IATA) and tried to work within that frame work on its own agenda. The political and financial situation in Norway was very sound in the days right after the war, but after 1920 the economic climate changed to the worse and DNL was forced to stop its activities. Between August and October 1920, it operated one air service: Stavanger-Haugesund-Bergen. This book will show the reader the history of DNL and some of the other airlines formed in the golden years up to 1922. A second part will describe the next period up to the end of 1930s.

Just before the First World War, the Army and Navy formed its own air corps. The Norwegian language has changed as well. To start with, it was called Hærens flyvevæsen (Norwegian Army Air Service) and Marinens flyvevæsen (Norwegian Naval Air Service), then 'flyvesen', followed by 'flyvevåpen' and 'flyvåpen'. At the end of the 1930s, the air corps were called 'flyvåpen' and in this book, I have chosen to use that word. In that way, there is a consequent use of words 'Hærens flyvåpen' and 'Marinens flyvåpen'.

In the book, I have used as currency 'kroner'. The rate of exchange in May 1919 for the US Dollar was 3,96 and for the British Pound 18,46. In March 1920, the rate of exchange was for the US Dollar 5,80 and for the British Pound 20,90. If you divide the amount in *kroner* by the given rate of exchange you will get the correct amount in USD or GBP.

One of the most pleasant rewards for me as author comes from the kindness and unselfish help from many individuals. It is always a pleasure to exchange and receive information. For this book living sources are non-existing and thus I had to rely on newspapers, books and fragments of the original papers kept at various archives in Norway and Great Britain. One of the nicest discoveries in that context was the logbook of the Supermarine Channel, N.10. It was a small booklet with provisionally pencil-drawn lines, where the information was filled in. Much more difficult turned out the search for useful photographs as many of them have either been published or are of doubtful quality. Hence a lot of time had to be sacrificed on correcting the photographs. Also, there is a number of colour profiles in this book. For these profiles, I owe a special debt of gratitude to Zygmunt «Zygg» Szeremeta, who produced some excellent profiles and gave the aircraft a colour. In addition, a big thank you to Bjørnar Norås, who made two lovely profiles of the Sopwith Baby and the RAF BE.2e operated on the military air services in 1920. As always, the front cover has been designed and made by Rosie Louise and Terry Moyle of Contour Creative in New Zealand. Their work is just amazing. A special thank you goes to Einar Jungaard and Espen Pettersen of the Lindøya Historical Society (Oslo). They have helped me to find out where the airfield on the island Lindøya was to be situated. They helped with maps and advise and tried to find photographs of the area back in 1919-1920.

Furthermore, I should not forget two nestors of Norwegian aviation history: Bjørn Hafsten and Kay Hagby. They supplied many nice photographs and additional information on some of the early mail flights. Also, I thank Nils Mathisrud how was so kind to make the drawings of the airport of Lindøya. All contributions are highly appreciated by me. Finally, I would like to thank the Norwegian Technical Museum by Arne Langleite and Relsen Larsen for their help with many of the photographs.

A special "tak" goes to Günter Endres, who were so kind to edit the text of this book. I also started a cooperation with Maggie Nelson with regard to the maps in my books, and in this book, she has produced the first ones. Her eye for detail is needed to raise the quality of the book. Furthermore, I would like to thank those who have contributed with information and photographs: Det Kongelige Hoff, Alvin Grady (†), Arild L. Thorensen, Arnstein Koch-Engelbrechtsen, Ernst Knutson, Kåre Aasebø, Kay Hagby, Knut Erik Hagen, Kim Brantenberg, Nils Mathisrud, Knut Arvang, Ole Bjørn Sælensminde, Rolf Bakken, Walter Husebø, Thor P. Broen, Olve Dybvig, Odd Arnestad, Hubert Boillot, Philip Jarret, Colin Owers, Stein Gulli (†), Svensk Flyghistorisk Förening, The Aviation Historian, Guttorm Fjeldstad, Alex Helgeland Leversen, Günther Ott and Per-Øivind Skarphol. I also thank all those, who have helped with small details and who have unintentionally been forgotten.

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The Beginning of Aviation



Transport in Norway at the beginning of the 1920s was minimal at best. This could well be explained by a population that was scattered widely across the country. In a way, it looked like that the perfect solution to many of the transport problems the country faced, was aviation. The problem was that Norway mainly consisted of mountain ranges with peaks up to 2,500 metres in height. In 1918, 75 % of the large, 324,000km² country was virtually desert, i.e. without trees. Valleys were scarcely habited and forests covered a further 21 %. Finally, 3 % was agricultural area and 1 % was in use as grassland. Most of the population of 2,690,000 (8 persons per km²!) lived along the coast and depended on fishing and naval related activities. No less than 39 % of the population found its work in forestry and fishery, 15 % in trade, 26 % in the mining and industry and finally 30 % in other professions. Most of the important cities are located along the coast: the capital Christiania (since 1925 called Oslo), the Hanseatic city of Bergen, Trondheim, the former capital of the country and Stavanger, one of the main centres of fishing. Along the coast most of the transport took place by steamers, while some railway connections existed inland. The two most important railway lines ran from Christiania to Trondheim and from Christiania to Bergen, but compared with the size of the country the 3,100km long network was not too impressive. The general belief was that aviation could well change all this.

The aviation history in Norway is quite interesting. The first known aeronautical event in Norway took place in 1870, when the French non-dirigible balloon *La ville d'Orléans* (City of Orleans) landed on the Lifjell mountain in the province of Telemark on 25 November after a 14-hour voyage from Paris. The city was at that time besieged

In October 1910, the Norsk Luftseiladsforening organized an air meeting in Christiania with one participant: baron Carl Cederström from Sweden in his Blériot Cl. The baron can be seen here in front of his aircraft. (NTM)

by the Germans, who had completely surrounded the city and broken off all communication between Paris and the rest of the world. Thanks to the activities of the postmaster general of Paris, Mr. Rampont, a postal service was established from Paris by means of balloons, and in the interval between 23 September 1870 and 1 January 1871 no less than 64 ascents by balloon were performed, and at least 3 million letters were carried in this way from Paris over the German lines. The balloon *La ville d'Orléans* was piloted by engineer Rollier and carried one passenger and a number of letters. The intrepid aeronauts were rescued and shortly thereafter arrived in Christiania. The basket is presently on exhibition at the Norsk Teknisk Museum (Norwegian Technical Museum) in Oslo.

In 1879, the Norwegian Ole Hegre (from Skjeldstadmarka in Stjørdal) was a passenger in a Montgolfier hot-air balloon during the World Exhibition in Paris. He thus became the first registered Norwegian to have flown. At the end of the 19th century the hot-air balloon was the most used apparatus to fly with. A citizen from Bergen, the 'aeronaut' Francesco Alexandro Cetti (pseudonym for Frants Forsberg, a well-known actor, mind reader, journalist, painter and musician) made a solo flight from Bergen in a homemade balloon. He departed from the Ulriken mountain. It took until 1910 until the first heavier-than-air craft would take off from Norwegian soil. A claim put forward by the Norwegian citizen Oliver Andre Rostø, living in the

USA, who supposedly had flown solo in Paris in a Curtiss Pusher on 15 November 1909, was proven to be incorrect. More information can be found later.

Norsk Luftseiladsforening

In every country there is a need for a person to stand up and take the initiative to organize aviation in his or her native country. In Norway, this was no different. One name has to be mentioned. Dr. Rolf Thommessen was born in Christiania in 1879 and became a Norwegian journalist, editor for the newspaper *Tidens Tegn* and was a MP for the province of Akershus. On 5 May 1909, during a meeting at the masonic lodge in Christiania, the Norsk Luftseiladsforening (literally translated as Norwegian Air Ship Association, the forerunner of the Norsk Aero Club, now called the Norsk Luftsportforbund) was formed. The aim of the association was to promote the development of ballooning in scientific, defensive, technical and sporting service. The foundation is generally regarded as the start of Norwegian aviation. Professor Henrik Mohn was elected as chairman and the following year the gas balloon *Norge* (Norway) was bought. On 20 February 1910, it made its first flight from Kontraskjæret in Christiania. In 1912, the association purchased with money raised a Henry Farman named *Ganger Rolf* in France for the *Hærens flyvåpen* (Norwegian Army Air Service). It organized the visits and demonstration flights of Cederström in 1910 and 1911, Dahlbeck in 1912 and Chevilliard in 1913. It was also active in the formation of the Det Norske Luftfartrederi in 1918. In the 1920s, it sponsored the flight of the two Dornier Wal flying-boats N.24 and N.25 to the Arctic and was also involved in the flight with the Italian airship *Norge* (N.1) across the North Pole in 1926. Unfortunately, their darkest hour was the air meeting from 4-6 March 1921, where the Swedish pilot Gustav von Segebaden was killed.

In September 1909, the Norwegian army Cpt Einar Sem-Jacobsen was on behalf of the Norwegian government in Berlin (Germany) and was the first Norwegian of military rank to make a flight as a passenger in the Wright Military Flyer. Sem-Jacobsen would for many years play an important role in the *Hærens flyvåpen*.

The first aircraft imported to Norway arrived on 26 November. Wilhelm Henie (father of famous figure ice skater and Hollywood star Sonja Henie) imported a Voisin

biplane and exhibited it at Kontraskjæret, a field near the Akershus Fortress in Christiania. The Danish-American pilot Thomsen had been engaged to fly the Voisin, wanting to take off from the ice of Frognerkilen (part of the Christiania Fjord). For 1 *kroner*, the visitor was given an explanation of the aircraft by Thomsen. Henie was also behind the idea to organize an air meeting during the annual Holmenkollen Ski Jump Days in March 1910, where 4-5 aircraft (including his own) would participate. Unfortunately, on 4 December, a violent snow storm, destroyed the Voisin and the scheduled flight could not take place.

In March 1910, at the corner of Munkedamsveien and Stortingsgata in Christiania, the Norwegian engineer Einar Lillo-Gran exhibited the first constructed and built aircraft in Norway. He built his aircraft at the J. Johnsen's Mekaniske Verksted (a mechanical workshop), had a wing span of 10m, an empty weight of 180kg and was powered by a 30hp water-cooled Darracq engine. The construction had been financed by Gunnerius Pettersen and the aircraft was constructed of welded steel and cloth. It made some small jumps at Ringerike, just outside Christiania, but did not impress. He moved the aircraft to Bergen for display there and returned to Ringerike for new short jumps, but

The Norwegian engineer Einar Lillo-Gran constructed and designed and built this own aircraft. It only managed to make some small jumps and never properly flew in the Norwegian skies. (Norsk Teknisk Museum-NTM)



The first aircraft on display in Norway was this Voisin biplane. In November 1909, Wilhelm Henie bought the aircraft in France and put it on display in Christiania. It was shortly afterwards destroyed in a snowstorm. (Norsk Teknisk Museum)

The Early Airlines



During the First World War, Norway had a high economic activity where consumers paid high prices for their goods and only few earned good money. This period continued for a short while after the war, but at the beginning of the 1920s the banking crises started and several large banks collapsed. This led to social unrest and economic problems. The country lacked a strong government, mainly due to the fact that most of them were minority cabinets. Between 1918 and 1939 there were no less than 12 different governments. A steady course was impossible to sail. Prices started to drop and production reduced leading to unemployment. The Norwegian Crown (krone) was weak and was swinging up and down as well. During the war, the economy was still in full swing and an ambitious gentleman saw his chance to start the country's first large scale aircraft factory.

AS Norsk Aeroplanfabrik (1918-1929)

On 4 June, about one month after the start of the 'Skandinaviske Flyvemaskin- og Luftmotorutstilling' (Scandinavian Aeroplane- and Air Engine Exhibition) in Christiania the first private aircraft factory was formed: The AS Norsk Aeroplanfabrik (the Norwegian Aircraft Factory Ltd), situated at Tønsberg. The share capital was 500,000 kroner divided into 500 shares. The board of directors consisted of factory-owner Halvor Schou, ship owner Thorvald Halvorsen, Tryggve Wettre, director S Kloumann and Christian Hellesen himself. The objective was to build seaplanes for civil and military use.

We can easily say that it was also the last major aircraft factory in Norway not considering the state-owned

The Travemünde F4L, N.2 was the first aircraft registered in Norway. It belonged to the United Sardine Factories near Bergen. From left to right: USF's owner and managing director Josef Emanuel Danielsen, the German pilot Friedrich Christiansen and the company's lawyer Bjarne Egge. (Norsk Teknisk Museum)

aircraft factories. Managing director and initiator was engineer Christian August Selmer Hellesen. His mother was the daughter of the Norwegian Prime Minister Christian Selmer, while his father was the son of barrister-at-law at the Supreme Court Thorvald Hellesen. He had Norwegian flying certificate no. 19 (1916) and was sent to England for

The factory hall of Norsk Aeroplanfabrik in Ørsnes, Tønsberg. (Facsimile from historical magazine 'Havørøy')



additional training. Upon return he became a control officer at the Hærens flyvemaskinfabrikk, where he worked for about a year. His factory had the objective of building seaplanes for civil and military use and calculated with a working staff of 50-70 men and a production of 30-40 seaplanes per year. He took some of the personnel from the Hærens flyvemaskinfabrikk with him to his new factory.

The AS Norsk Aeroplanfabrik started to search for a suitable site to erect its factory. It looked at the slots near Borre (where AS Nordisk Luftkraft owned a plot), Flekkefjord (Fjeldsaa Filtfabrik), Tønsberg (plot of the Tønsberg Skofabrik, a local shoe manufacturer), Fredrikstad and Åsgårdstrand, but in September 1918 an area was found that included a huge hall. Hellesen made contact with the solicitor Nedrum and soon a contract was signed. Later that year, AS Norsk Aeroplanfabrik transferred the agreed 198,000 kroner (overpaid, as the owner in 1913 had paid only 13,000 kroner!). It thus became the owner of the area at Ørsnes. Some construction had to be done at this former mechanical workshop. In November 1918, the building of three wooden halls started and Christian Hellesen also erected his own house on the premises. Norsk Aeroplanfabrik had only one of the wooden halls constructed and built a railroad track to the shores of the fjord to hoist the seaplanes and flying-boats on a trolley back and forth.

Hellesen saw great potential in the plans of the newly founded Det Norske Luftfartrederi that scheduled to start up numerous air services in Norway. Dr. Wilhelm Keilhau was the man behind Norway's first national airline. He started to develop the idea in January 1918, and his plan was to open air routes between Norwegian and foreign cities. These routes had to be flown by seaplanes and flying-boats, as they seemed to serve the cause best.

In order to get some income AS Norsk Aeroplanfabrik started up repairs on cars and engines and storage of leisure boats. Hellesen presented also the first drawings of the aircraft to be constructed at factory. AS Norsk Aeroplanfabrik even offered a special hangar on floats for the storage of the aircraft. Hellesen hoped to receive an order for several aircraft from DNL since they were looking for suitable aircraft and had a lot of money to spend. The airline asked for an offer for delivery of the F.B.12 suitable for carrying 14 passengers and two pilots. Delivery was scheduled for September 1919. The price per aircraft was set at 110,000 kroner. Unfortunately, the production of this aircraft did not start up, as DNL regarded the aircraft too big and too expensive. Also, numerous surplus aircraft were available in Great Britain.

Two from the drawing board

The AS Norsk Aeroplanfabrik planned to produce and offer a number of different flying-boats for the Norwegian market.

Flyvebaat (Flying-boat) Type F.B.2

This was the first design of the AS Norsk Aeroplanfabrik. The single-engine biplane of almost equal span had wings of wood with fabric covering, and a hull that was of plywood. It would carry a pilot and an observer. The normal power plant was a 150hp air-cooled engine mounted between the wings behind the open cockpits. The engine was to have a two-bladed wooden airscrew with a radiator in front of the engine. It had a braced tail plane and balanced elevators. A larger version (the Flyvebaat type F.B.4) was

also presented, offering four seats and an engine with 200 to 300 horsepower. The four-seater was more suited for joyrides and charter work. It was even regarded as a family aircraft and its price should equal the price of an automobile. The engines were to have a four-bladed wooden propeller with a radiator in front of the engine. English engines were to be used. A special feature was that the wings could be folded along the fuselage for easy storage. In April 1919, Norsk Aeroplanfabrik announced that three famous Norwegians had ordered each of their aircraft. The production of these aircraft would start in May 1919 with the delivery of the first F.B.2 or F.B.4 in June that year. None were produced. The technical figures of the F.B.2:

Wing span (upper wing)	14.77 m
Wing span (lower wing)	11.15 m
Wing width (upper wing)	1.90 m
Wing width (lower wing)	1.60 m
Height between the wings	2.30 m
Total length of the aircraft	9.53 m
Total height of the aircraft	3.85 m
Wing area (upper wing)	20 m ²
Wing area (lower wing)	13.6 m ²
Ailerons (in total)	3.7 m ²
Total wing span incl. tail plane	37.3 m ²
Empty weight	785 kg
Loaded weight	995 kg
Petrol	110 kg
Oil	10 kg
Pilot	80 kg
Passenger	80 kg
Other material	30 kg
Total	310 kg
Maximum speed:	140 km/h
Landing speed:	80 km/h
Endurance with a 150hp engine:	3 hours
Climbing time to 2,000 metres:	19 minutes
Usage of petrol per hour:	36 litres
Usage of oil per hour:	3.3 kg

Flyvebaat (Flying-boat) Type F.B.12

More interesting was the huge F.B.12 flying-boat suitable for the transportation of passengers, freight and mail. This aircraft was designed for airline companies that needed to have an aircraft with a comfortable interior. The Norwegian architect Aars & Ree designed the interior of the aircraft and an artist impression was published in the newspapers. The cabin was to be exceptionally comfortable. It was divided into three sections. A forward section offered five seats, two small tables and a toilet. From this section, one had a forward view as well. The midsection contained another five seats and two tables, while the aft section had five seats and a small table. There was to be an unlimited view from each seat and the height of the cabin varied from 1.8 to 1.9 metres. It all looked impressive. The twin-engine biplane of almost equal span had wings of wood with fabric covering. The hull was a deep two-step structure with two decks. The upper deck housed an enclosed cockpit for two pilots. The two engines were mounted between the wings on struts. Some of the details were dual controls, balanced ailerons, wireless, electric light and complete equipment for night landings!

The technical figures of the F.B.2:

Wing span (upper wing)	31 m
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on the name of Aero AS. Four days later, Hellesen invited the press for a joyride. During the summer, it was operated by Aero AS, but on 10 September, it was flown to Stavanger to help out DNL, but was not taken over. On 22 September, Hellesen returned in 2 hours and 50 minutes with one passenger from Stavanger to Tønsberg. This particular aircraft was chartered on 4 October to the *Hærens flyvåpen*. Already on 14 October, Lt. Brynjulf Gottenborg put the aircraft incorrectly on the water north of Kalvetangen at Frøyland. He misjudged his height and the floats filled up with water. The seaplane sank but was lifted out of the water and returned to the Hærens flyvemaskinfabrik to be rebuilt. It was withdrawn from use on 1 July 1928, and transferred to the *Marinens flyvåpen*, which eventually broke it up.

Beside this aircraft, Hellesen purchased a second W29 in February 1921, which he bought from a Danish millionaire. He rebuilt the aircraft (it had been used at a kindergarten!) and modified the aircraft in such a way, that it could be used with wheel-, ski- and float undercarriage. The engine was a 200hp Benz IV. During the air race in March 1921, Hellesen and Lt. Harald Normann flew the aircraft, now registered N.5 (2). They made a forced landing at Øieren due to engine trouble, repaired the engine and took-off again. Unfortunately, they did not get far, as the engine stalled again and this time the landing ended in some trees. The aircraft was destroyed beyond repair. Both gentlemen were injured but survived.

Another job for AS Norsk Aeroplanfabrik came from Cpt Wilhelm Meisterlin. From the surplus storage in the UK, he had ordered three Norman Thomson NT.2B flying-boats, of which the first was delivered on 5 June in cases at the AS Norsk Aeroplanfabrik. The factory assem-

bled them, but only two, N.12 and N.13, of the three were delivered in June 1920. The third flying-boat (to become N.14) was never assembled, although delivered to the factory. It was stored there until further notice. Cpt Meisterlin had bought them for the scheduled Christiania-Gothenburg-Copenhagen service that he planned to operate in pool with Handley Page Ltd.

The last effort to keep the company alive was made on 7 September 1920, when the stock capital was increased by 175,000 kroner (175 shares) in the name of ship owner Lund and director Bjørnson. Kloumann and Schou withdrew from the board of directors and were replaced by the lawyer Vogt and the First Lt. Tancred Ibsen (Aero AS).

After lengthy negotiations, Christian Hellesen signed a contract with the Forsvarsdepartement for the delivery of six Hansa Brandenburg W29s (in Norway called FF.8 Måke - Seagull) all equipped with powerful 220hp engines. The price for these six aircraft was 180,000 kroner of which 135,000 kroner was paid in advance. The factory really needed this money. The Norwegian version was a mix of the W29 and the W33. In the autumn, Norsk Aeroplanfabrik received the order for two aircraft that were given the designation Maake I and the Army's identity '501' and '503'. They were actually Hansa Brandenburg W29s and powered by a 185hp Benz engine. One of the aircraft ('501', the former N.5) made a rough landing on the water and was taken to Kjeller for repair. During the rebuild of '501' at Hærens flyvemaskinfabrik, it was discovered that this was not a new aircraft as Hellesen had said. When they removed the paint, the old registration 5 and 7 became visible. This discovery made the Forsvarsdepartement sceptical of Hellesen and AS Norsk Aeroplanfabrik. The ministry sent First Lt. Ørnulf Olav Seippel to Tønsberg to be the control officer under the construction of the ordered Hansa Brandenburg-aircraft. The Forsvarsdepartement was sceptical also because it had already made a down payment of 135,000 kroner for the ordered aircraft. On 22 November

1920, the first aircraft, s/n '503' was ready for delivery. On 7 December, Hellesen made the first flight with the aircraft and it was transferred to Kristiansand two days later.

The next problem for AS Norsk Aeroplanfabrik was to have enough space to build these aircraft. Hellesen entered a rental contract with AS Norsk Trekonstruktion at Mysen for a hangar that had been used in Kirkenes during the war. After the war, the shed was returned and stored at Mysen. Hellesen got it transported to Tønsberg, but it was not erected. It was later moved to Kjeller and used by the *Hærens flyvåpen*.

The factory continued building on the order for six aircraft. Hellesen tried to get a subsidy from the government, but this was declined. His financial problems only increased. The next aircraft was s/n '505', which was not ready until May 1921. Unfortunately, the aircraft was not in accordance with the contract agreed upon and the *Hærens flyvåpen* refused the aircraft.

It was obvious that the history of AS Norsk Aeroplanfabrik was coming to an end. The factory needed more capital despite the advance received from the military for the six Hansa Brandenburg W29s. The delivery of the aircraft was delayed and the working expenses grew steadily. It was only the goodness of the bank that kept the company going. On 25 June 1921, the factory went out of business and was declared bankrupt. The bank and the Forsvarsdepartement were, however, interested to get the ordered seaplanes ready and delivered and a staff of 13 persons was kept on to finish the aircraft and the furniture ordered. During the autumn of 1921 and winter of 1922, the six aircraft were assembled and delivered during the spring and summer of 1922: '505', '507', '509', '511', '513' and '515'. Cpt Trygve Klingenberg had been appointed director of the factory. He succeeded Christian Hellesen, who had stopped working for the company in June 1921. Bankruptcy proceedings were not completed until December.

The airlines of Norway 1918-1922

In Norway, people started at an early time looking at the possibilities to form airlines. Two initiatives were already taken during the First World War, and both were, in a sense, successful: Nordisk Luftkraft and Det Norske Luftfartseri. The first was formed as early as December 1917, while

the second in July 1918. Of course, civil flying was still banned, but right after the war, preparations were made to start up business. In the spring of 1918, Nordisk Luftkraft was the organizer of the first aviation exhibition in Norway: Skandinaviske Flyvemaskin- og Luftmotorutstilling (Scandinavian Aeroplane- and Air Engine Exhibition). Danish, Swedish and Norwegian aircraft were on display and the Hærens and *Marinens flyvåpen* made some flights in connection with the opening of the exhibition. Rationing of petrol made it impossible to make flights with the civil aircraft on display. The exhibition was held in the heart of Christiania, so there were no possibilities to take off ... In addition, Nordisk Luftkraft was also the founder of a private flying school, the first in Norway.

AS Nordisk Luftkraft (1918 - 1920)

Of course, the start of the First World War cast a shadow over Norway as well. The country remained neutral. All civil flying was now prohibited. Besides military flying there was not much activity by civilians. It was not until the end of 1917 before things started to happen. One of the early Norwegian airlines was AS Nordisk Luftkraft (probably directly translated from the English name 'Northern Aircraft Ltd Co. Ltd'), which was founded 19 December 1917 by Henrik Andreas Reinert 'Rei' Sandberg and some friends and registered on 31 December 1917 in the Trade Register of Christiania (number 2096/1917). The capital stock was 600,000 kroner, divided into 60 shares of 10,000 kroner each. Sandberg founded the company together with Severin Theodor Sverre, Eilert Lund and A Bryn. Norsk Hydro founder Sam Eyde also played a vital role in the formation of the company. Managing Director of the company was Arthur Kallevig. The aim of the company was the sale of landplanes, seaplanes, engines and other aviation related material. By contract of 19 December 1917, Xavier de Plane (Farman's sales manager in Scandinavia) took over five of the shares. At the registration of the company 275,000 kroner was paid in.

One of the first times the company became active was when the scheduled Nordic aviation exhibition in Copenhagen could not be organized and was instead moved to Christiania. The initiator of the exhibition was Xavier de Plane. By April 1918, he had already secured exhibition



The last private venture was the redesigning of a Hansa Brandenburg W29, which could fly with different undercarriages: wheel, skis and floats. It was registered as N.5 - the second aircraft with this registration. (Kay Hagby collection)



On 22 November 1920, the first aircraft, s/n '503' was ready for delivery to Hærens flyvåpen. On 7 December, Christian Hellesen made the first flight with the seaplane. Two days later, it was transferred to Kristiansand. (Norsk Teknisk Museum)



Above two photographs: The pupil Henry Somdal Åmødt crashed the Caudron G.3, J5037 when he tried to avoid a man walking on the runway. The aircraft was destroyed beyond repair. (Kay Hagby collection)

Below: Henry Somdal Åmødt in what was known in Norway as the 'tubbath' of the Caudron G.3. (Norsk Teknisk Museum)



About aircraft, flights and 'ads' (1919)

During the first years after the war, civil aviation was growing. British, German, French and even some Italian aircraft manufacturers were interested in selling their surplus aircraft. In Norway, Henri & Maurice Farman had great success and delivered many aircraft during the war to Norway. It had an aerial consultant in Christiania by the name of Xavier de Plane, who after the war offered his agency for sale. The next month, he also announced that the flying school of the brother Farman had been reopened and that three places for the next course were open. It can be noticed that there were almost no French aircraft sold to Norwegian customers between the two world wars. In the 1930s some aircraft visited Norway, but the last French aircraft to fly in Norway were, beside the military aircraft, only some British-produced Caudron G.3s.

With regard to British aircraft, there were a number delivered between 1919 and 1922, but all were surplus aircraft. For Norwegians, it was much easier to communicate with British suppliers than with the French or Italians. The *Marinens* and *Hærens flyvåpen* operated some British aircraft, like Sopwith Baby, Supermarine Channel, Avro 504, RAF BE.2e and Bristol F.2 Fighter and even a single Savoia S.13 from Italy.

The end of the First World War meant that most military aircraft now were redundant. In fact, for Germany the situation was even harder. The Treaty of Versailles dictated that all military aircraft were to be handed over to the Allies. The treaty was signed on 28 June 1919, but since the respective governments had to ratify the treaty, it took some time before it came into effect. That was not until 10 January 1920. To implement the disarmament clauses of the Treaty of Versailles it was necessary to have a Military, Naval and Aeronautical Commissions of Control: IAMCC (military), IANCC (naval) and IAACC (air). The German War Ministry set up for the commission the so-called



Heeresfriedenskommission (for the Army) and the Luftfahrtfriedenskommission (shortened to Luftfrik, Aviation Peace Commission). In February 1920, the IAACC was fully operating. The Reichs Treuhandgesellschaft (RTG) became responsible for destruction and distribution of the Entente Powers' aircraft and engines. It would take until April 1922 until the work of the IAACC in disarming the German air force was completed. As might be noticed, there was a gap between the end of the war and the date the Treaty was signed. During that period hundreds of German aircraft were sold or tried to be sold in order to make some money and not to have to deliver the aircraft to the Allies.

In January 1919, the newspaper *Aftenposten* had a large advertisement printed for the Elektricitets-Akieselskabet A.E.G. in Christiania. The AEG offered aircraft of type G 5 with two 260hp Mercedes engines and an enclosed cabin for six passengers. To show the abilities of the aircraft it was mentioned that a similar aircraft had on 23 November 1918 flown from Berlin to Eksjö (Sweden), a distance of 600km for which the AEG G.V took 4 hours and 10 minutes.

In March, a British airship was to visit Norway (Kristiansand), but the Norwegian authorities had not heard anything from the British Air Ministry. Anyway, there were no facilities in Kristiansand or Norway to moor airships ...

The Austrian pilot Ebner (to the right) wanted to fly Dr. König to Christiania, but became stranded near Gothenburg. His aircraft was a Phönix Brandenburg CI (c/n 984), which he later registered in Sweden as S-AAH. (Both Swedish Aviation Historical Society)



Left: The first AEG G.V arrived in Sweden on 23 November 1918. It had flown nonstop from Berlin to Eksjö. The Swedish air force obtained a total of five aircraft. The German AEG-concern hoped to sell some in Norway as well.

Right: Advertisement in the newspaper *Aftenposten* in which the AEG Type G.V was offered to the Norwegians. (Facsimile *Aftenposten*, 28 January 1919)

In May 1919, the Austrian polar scientist Dr. König was invited to Christiania. He flew with the Austrian pilot Ebner from Austria to Copenhagen (Amager) in a Phönix Brandenburg C.I (c/n 984, later S-AAH), spent the week in Copenhagen and continued to Gothenburg. Since the pilot had not received a landing permit for Norway, they remained in Gothenburg. After two days of waiting, permission was given and they finally departed. However, right after take-off the aircraft crashed and was damaged. Ebner and König were unhurt. They managed to repair the aircraft and Ebner made numerous joyrides in Gothenburg during the summer of 1919, but he never came to Norway. Dr. König, however, travelled to Christiania by train.

Then the Danish-French aviator Krause-Jensen planned to fly in a Breguet 14 from Stockholm (Sweden) to Christiania. On 14 May 1919, he departed from Stockholm, but did not get further than Enköping, where he had to make a forced landing due to engine problems. A new



On the right from top to bottom: The first two photographs show the Norman Thompson NT.2B flying boat after assembly at the Norsk Aeroplanfabrik, N.12 was inspected for the CofA at the naval station at Horten. (Kay Hagby collection)

The third photograph shows N.13 during its certification at Horten. Note the difference in the flag on the rudder of N.12 and N.13. (all three: Kay Hagby collection)

Bottom: The Norman Thompson NT.2B, N.13 at Stockholm-Lindarängen from where Ole Næss made some joyrides. Behind the flying boat one can see the Junkers F 13, S-IAD of SLA. (Karl Lignell via Swedish Aviation Historical Society)

Norman Thompson NT.2B	
Registration	N.12, N.13, N.14
Engine	Wolsley Viper
Horsepower	210hp
Length	8.30m
Height	3.20m
Wing span	14.70m
Empty weight	1,233kg
Loaded weight	1,633kg
Cruising speed	
Max. speed	135km/h
Crew	1
Passengers	2

aircraft were transferred to Horten and assembled there, and on 22 June, registered respectively N.12 (PI N2275, had flown 2 hours) and N.13 (PI N2288, had flown 7hr and 14min). Cpt Meisterlin planned to operate them also on the service Christiania-Gothenburg-Copenhagen, which he planned to open. In Copenhagen, an air service run by Handley Page Ltd would transport the passengers, mail and goods via Amsterdam to London. The third aircraft was to become N.14 (previous identity N2266) and had dual controls and was intended for the flying school. Upon arrival, it was never assembled and in May 1922, it was still stored at AS Maritim in Bestumkilen. During an inspection in September 1927, it turned out that most of it had rotted. Only the engine and one of the wing floats was useable. Of the other two flying-boats, N.12 was operated out of Horten and Bestumkilen for a while, but in 1924 was sold to Court Gross for a flight to Spitsbergen (see next part of this series).

On 30 June, the same day the Handley Page O/400, G-EAKE left for Stockholm, the Norwegian pilot Ltn Ole Hallvard Næss flew the N.T.2B, N.13 from Christiania via Horten directly to Stockholm. On board was the Swedish ship owner Bernard Meyer. Næss landed at Lindarängen sea airport near Stockholm. This was the base of the Swedish airline Svensk Lufttrafikaktiebolag – SLA. In Stockholm, he made several joyrides and on 19 July, Næss returned to Christiania. Ltn Næss flew during the festivities of the city of Moss’ bicentennial joyrides from the area of the company H. Fougner Staal & Beton. The next year, the flying-boat flew occasionally, but was stored at Fougner’s factory in 1922 and later at the shipyard Soon Slip & Baatbyggeri. It was still there in 1927, but the remains were in a bad shape. All three aircraft were cancelled from the register.

After the crash with the giant Handley Page O/400, G-EAKE, in June 1920, Cpt Meisterlin returned to Christiania by train and abandoned the plans to operate a service to Copenhagen, when the Norwegian airline Det Norske Luftfartrederi received a concession and subsidy for a coastal service in western Norway and the Marinens and Hærens flyvåpen each operated their trial services.



Cpt Meisterlin took delivery of three Norman Thomson NT.2B flying boats, , but only two were assembled. N.13 was used for a flight from Christiania-Bestumkilen to Stockholm-Lindarängen in June/July 1920. The pilot Ole Næss (to the right) and the Swedish ship owner Bernard Meyer just before departure. (Nasjonalbiblioteket)

The second Norman Thompson NT.2B flying boat was N.13, seen here at AS Maritim in Bestumkilen, just outside Christiania. In the background a Friedrichshafen FF49C, N.8 of Aero AS, which was also based here. (Nasjonalbiblioteket)



(who had sardine factories in Bergen and Stavanger) the United Sardine Factories Ltd. The USF was very much interested in purchasing a seaplane and use it for inspection, fish spotting and advertisement flights. The Travemünde F4L, N.2, was powered by a 220hp Benz engine. The version USF received was equipped with open cockpits for the pilot and two passengers. USF hired the German Naval First Lieutenant Friedrich Christiansen to fly the seaplane to Bergen. He was well-known and respected, even awarded the German war medal *Pour le Mérite*. Upon his return from Norway, he went on to work as a pilot for the Dornier company, notably flying the giant Dornier Do.X on its flight to New York in 1930.

On 14 August 1919 at 04.30hr, Christiansen took off from Travemünde with the F4L, D.73 and flew via the island of Fehmarn to Lolland and between Langeland and Fyn (Denmark) across the Storebælt to the island of Samsø and Frederikshavn. After a five-hour flight, he landed the seaplane outside the harbour of Frederikshavn and taxied in. He moored the seaplane for refuelling at the company B. Schou & Co, but of course his landing attracted a large crowd. The mechanic Ltn Bernard Wladika had his hands full to keep the people away from the moored seaplane. The next day, they wanted to fly on, but made, to begin with, a few joyrides. In the morning of 16 August, at 09.00hr, he again made some joyrides, which had to be interrupted as the engine stalled. After a quick repair, they started at 12.15hr with the last leg of their journey to the Hanseatic city of Bergen. By then, the weather had turned for the worse and it was raining cats and dogs. After a flying time of 10½ hours, they arrived in Bergen. The aircraft was moored at the factory of USF and the appropriate photographs were taken. Josef Emanuel Danielsen was proud to have the seaplane at his factory. It was to be registered as N.2, but the registration was not painted on the seaplane, only the letter "N", the Norwegian flag and the logo of USF. In addition, the company's name was painted under the lower wings.

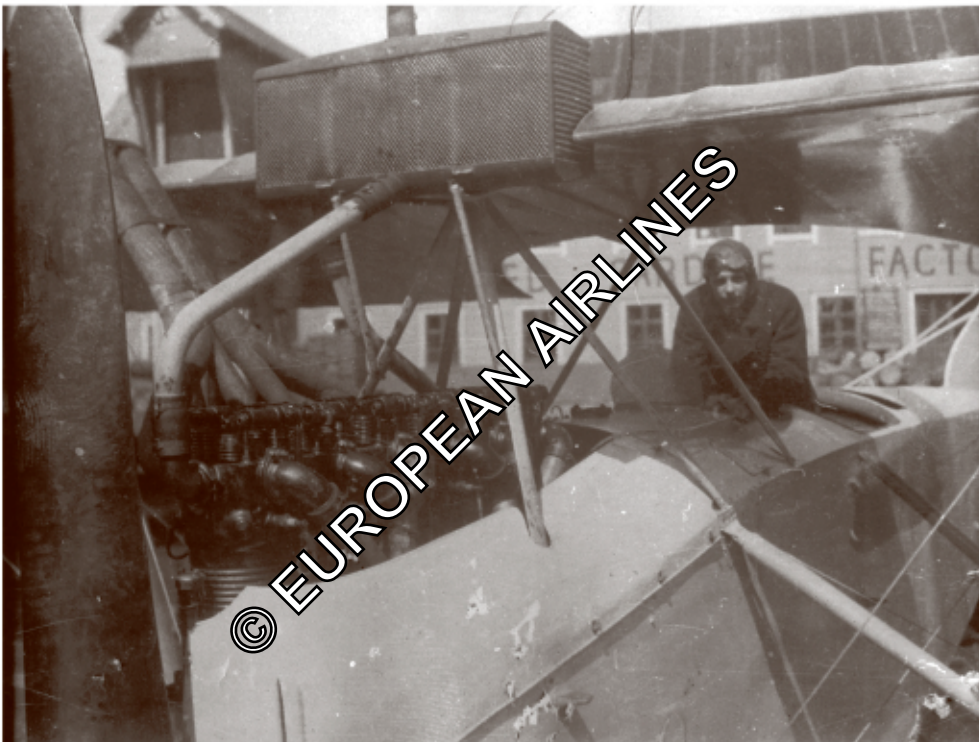
On 21 August, Mr. Danielsen invited the press for

a joyride with the F4L. The journalists could see their city from the air and were quite impressed. Lyric sentences coloured their articles. It was reported that the seaplane was immediately used for transport between Stavanger, Bergen and Florø. In addition, Mr. Danielsen wanted to use the seaplane to fly to the fishing vessels at sea, inspect the quality of the fish and buy the fish before it came ashore.

One week later, on 23 August, Christiansen already flew to the Sogne Fjord and to the small village of Balholm with Harald Stolz and Oscar Albrecht as passengers. Josef Emanuel Danielsen and Paul Scholz owned together a property there. Beside this flight, the crew made regular joyrides above the city of Bergen.

First flight to the north of Norway

By September, the aircraft had been painted in a grey paint and the company's logo was prominently visible on the fuselage. It was ready for a special and historic flight: it was to be the first aircraft to fly from the south to the north of Norway. The departure was scheduled for 15 September but had to be delayed due to bad weather along the route. The juridical consultant Bjarne Egge suggested director Danielsen to travel with the seaplane from Bergen to Harstad, instead of taking the coastal steamer. The matter was discussed with Christiansen and on 23 September, Danielsen and Egge boarded the Travemünde F4L, and at 07.00hr, Friedrich Christiansen started the engine to take off for the flight to Harstad. They intended to make a direct flight with landings only in Kristiansund and Bodø for refuelling. The return would be the day after with a short stop in Trondheim. The length of the flight was 1,200km. The northbound flight was marked by strong headwinds and fog. They made a landing at Kristiansund for refuelling and arrived around 19.00hr at Trondheim for the overnight. The next day, 24 September, they took off again and made a non-stop flight to Harstad. The 660km between Trondheim and Harstad took 5 hours and 45 minutes and was flown at an average speed of 125km/h. The scheduled landing in Bodø



Detail of the engine and cooler of the Lübeck-Travemünde F4L, N.2 of United Sardine Factories. (Kay Hagby collection)



Above: Just before departure to Harstad and Andenes. From left to right USF's owner and managing director Josef Emanuel Danielsen, the pilot Friedrich Christiansen and the company's lawyer Bjarne Egge. (Norsk Teknisk Museum)

Below: In July 1920, N.2 was modified with an enclosed cabin and had a small window added on the starboard side and a door with a window on the port side. The company's logo was painted on the fuselage and a small roof was added over the passenger seats. The cabin was different from the F4L, N.15, as the latter had two windows. (Kay Hagby collection)



Lübeck-Travemünde F4L	
Registration	N.2 (N.15)
Engine	Benz Bz IV
Horsepower	220hp
Length	11.30m
Height	3.60m
Wing span	16.70m
Empty weight	1,475kg (1,500kg)
Loaded weight	2,170kg (2,150kg)
Cruising speed	100km/h
Max. speed	140km/h
Crew	1 (2)
Passengers	2 (4)

was dropped. Before setting down the seaplane on the water, Christiansen made a flight above Harstad to advertise the USF (written under the wing). The city was honoured to be the first city in the North of Norway to be visited by a seaplane. Director Danielsen and Bjarne Egge continued to Andøya to do their business. After that they started to think about the return flight.

That was scheduled for the next day, but postponed and it was not until 1 October, they managed to commence the return. They arrived Bodø at 12.00hr after a short 80km flight in heavy rain and strong winds. At 12.30hr they took off again, made a turn above the city and flew in southern direction. The weather was terrible and it was challenging for Christiansen. There were numerous air pockets and there they dropped several hundreds of metres. Fog and low clouds forced them to climb to 1,200-1,500 metres, but the weather was not much better there. Christiansen had to make a forced landing at Rørvik in the afternoon (needed refuelling) and did not continue until 08.00hr the next day. The lunch break at Kristiansund was reached at 10.45hr. Around 13.00hr, they continued their flight and after another three hours in the air they landed safely at Lake Horsøy. The flight was mentioned in the newspapers in both Bergen and Christiania and the brave travellers were referred to as 'de flyvende forretningsmenn' – the flying businessmen. Most of the places they passed, people had never seen an aircraft. After this flight, they planned a new tour across the mountains to Christiania, but that was never accomplished.

After the flight to the north, Ltn Friedrich Chris-

with the aircraft in the air meeting from 4-6 March 1921 organized by the Norsk Luftseiladsforening. He won the competition on Friday, but on Saturday during the triangle flight, he made a rough landing at Kjeller and the tail of the aircraft hit the ground. The aircraft was severely damaged and it was decided to take it out of the competition. After an inspection, it was decided not to rebuild the aircraft. The engine was sold for use on a high-speed motor boat, while the fuselage was sold to the pilot and glider pilot Sverre Hagen in Hamar. Hagen modified it into a motor sledge with a propeller. On the third day of the air meeting, Leif Lier landed with the Brandenburg B.I, N.18, on Hengsengen and parked on the provisional airfield.

The two B.I biplanes, N.17 and N.18, were intended for use by the flying school Wettergreen and Lier planned to open. During the winter, these aircraft were to be equipped with skis and based at Kjeller. Unfortunately, they were not allowed to base their aircraft at Kjeller and compete with the Hærens flyveskole (Army's Flying School) and thus a camp was built.

On 7 April 1921, the Norsk Flyvebyraa AS was formed with Leif Lier as one of the founders and the two aircraft were transferred to the new company.

The last aircraft, a Phönix Brandenburg C.I, had been flown from Austria to Kjeller by Rolf Berg. Unfortunately, it too had a short career in Norway. This aircraft was actually Leif Lier's private aircraft. In December 1920, the aircraft was overhauled, inspected and registered as N.19. The aircraft was chartered together with Leif Lier by Tiedemanns Tobaksfabrik, who asked Lier and his colleagues Oskar Omdal and Haakon Qviller to travel to Hamar for an advertising flight. They left on 20 December 1920, and established a speed record flying from Kjeller to Hamar in 20 minutes with a speed of 140km/h. After an overnight stay,



they continued towards Trondheim, made a forced landing due to a leak in the radiator and did not come to the former capital of Norway until after Christmas. On 28 December, they made the first flight and leaflets and packages of cigarettes descended on the heads of the citizens. One can imagine what kind of reaction this gave. Children managed to get hold of the cigarettes and the reactions were not mild. During the landing on the ice of Lake Jonsvannet, the undercarriage and one of the wings was damaged, because the aircraft had no brakes and skidded to the shore. The Phönix Brandenburg C.I could be repaired with spare parts from Kjeller, and on 16 January 1921, joyrides over Trondheim were offered again. It is known that 24 persons made a flight with this new technical wonder. Unfortunately, the aircraft was damaged beyond repair on 24 January. During a flight over Lade near Trondheim, the engine stalled and under the forced landing the C.I smashed through a fence and ended in the garden of director Broch's villa. The

Above: On 24 January 1921, the Phönix Brandenburg C.I, N.19, crashed near Lade, Trondheim. It ended up in the garden of director Broch. Below: In December 1920, N.19 flew from Kjeller to Trondheim and landed on the ice of the Lake Jonsvannet. (Kay Hagby collection)



pilots were unhurt, but the cockpit was smashed as well as were two of the wings and one of the skis. The engine was undamaged, but a repair of the airframe was not possible. In fact, the aircraft was not even insured! It had to be scrapped.

Leif Lier decided to formalize his activities and formed, in April 1922, Norsk Flyvebyraa AS. It was not the last airline he formed. During the 1920s he established one more airline, but in 1929, he and Dr. Ingvald Schreiner, his passenger, were tragically killed during a flight with his Havilland D.H.60 Moth while flying over Antarctic waters.

J. L. Tiedemanns Tobaksfabrik (1920-1922)

In November 1920, the J. L. Tiedemanns Tobaksfabrik (a tobacco company from Christiania) purchased from the assets of DNL for 23,000 kroner the Friedrichshafen FF49C, N.3. The tobacco company used the seaplane for advertisement flights and gave it the name 'Silver Spinner', named after one of its cigarette brands. During the winter, it operated on flights above cities, where packages of cigarettes were thrown down. In November 1921, it was the first to visit Molde (where the pilot Niels Hellesen was born). At Molde, during a joyride, the seaplane had to make a forced landing, which ended well. At these places, the joyrides cost 5 kroner for a 15-minute flight.

Tiedemanns Tobaksfabrik, Friedrichshafen FF49C, N.3 'Silver Spinner' during a repair at Bergens Mekaniske Verksted in Solheimsviken in Bergen. (Fredrik Carlsen via Norsk Folkemuseum)



The Friedrichshafen FF49C, N.3 'Silver Spinner', at the ship yard in Bergen during an overhaul. The engine has been taken out. (Kay Hagby collection).

On 11 August 1921, the value of the aircraft was set at 16,000 kroner and Tiedemanns Tobaksfabrik sold it to Niels Hellesen and Georg Redlich. Only, as long as the aircraft had not been paid down, the down payments were seen as rent. Hellesen and Redlich had to pay 4,000 kroner by 1 October and 15 December 1921, and another 6,000 kroner by 1 July 1922. After that, the aircraft was paid down and owned by Hellesen and Redlich. When the rent was not paid in time, Tiedemanns Tobaksfabrik could reclaim and sell the seaplane. The two gentlemen were obliged to fly wherever Tiedemanns Tobaksfabrik wanted them to fly until the total amount had been paid. They could in addi-



Det Norske Luftfartrederi AS



Before the First World War, Norway's two most important trading partners were Great Britain and Germany. In 1912, of the country's exports 25.58 % went to Great Britain and Ireland and a further 20.24 % to Germany. The goods exported to Great Britain and Ireland were mainly minerals with a value of 45.994 million *kroner*. This was close to 50 % of all exports to that area. To Germany the main product was corn, but here the variety was much bigger and corn was 'only' close to one-third of the exports. These figures show that the export to these two countries was of the upmost importance. Four years later, in the middle of the war, the exports to these two countries still existed albeit strongly reduced. For Norway, it was also important to keep communication with the rest of the world intact. Most mail not destined for Great Britain went nevertheless through that country. About every three weeks fast British *dépêche* ships transported the mail between the two countries. These ships were however frequently attacked by German U-boats or ran on mines. Something had to be done. There might be a solution...

As in so many other countries, the paper 'Commercial Aeronautics' presented by Georg Holt Thomas on 30 May 1917 at the Royal Aeronautical Society of Great Britain was not received with great enthusiasm. The paper was published in the 31 May 1917-issue of aviation magazine *Flight* and covered nearly eight pages. Holt Thomas had before the war started his career in aviation with the Farman brothers. In 1912, he formed The Aircraft Manufacturing Company (Airco), which produced famous aircraft designed by the talented Geoffrey de Havilland. Already in the middle of the war, he already saw the great potential commercial aviation could get in peace time and registered on 5 October 1916 a new company by the name of Aircraft

Transport & Travel (AT&T). He was a man with a great vision and was highly intelligent.

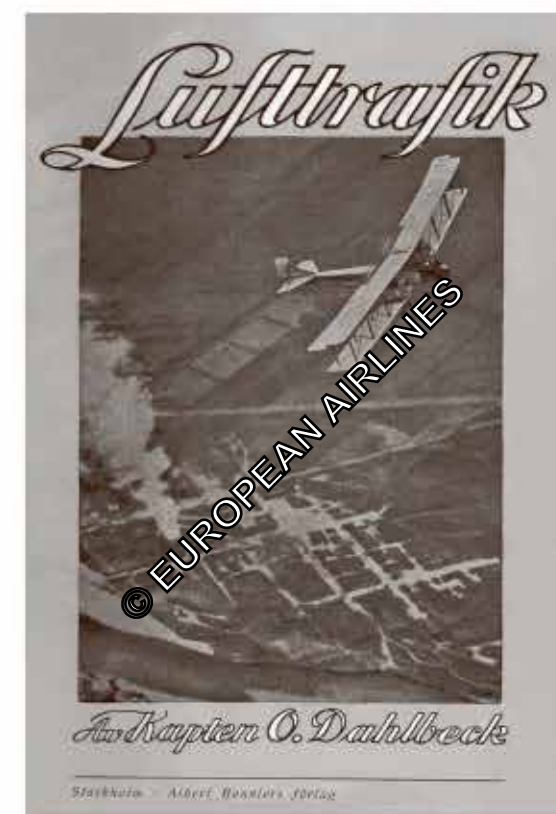
In Norway, we find another man with a vision: Dr. Wilhelm Christian Ottensen Keilhau. He was born in Christiania on 30 July 1888 and died there on 9 June 1954. He was one of Norway's most important economists. He studied law and became university teacher in Christiania in 1921. Later, he became professor at that same university. His expertise was in money- and currency matters and during the Second World War, he was a member of Norway's Central Bank in London. In 1912, he wrote a newspaper article about the military air fleet and the need for a national collection of money to purchase aircraft. For a short time, he was known in Norway for his engagement in the airline Det Norske Luftfartrederi (DNL) that would work closely together with AT&T.

The paper Holt Thomas presented included an air service to Christiania, but it ran from London via Amsterdam, Hamburg and Copenhagen. The suggestions made in the report of the (British) Civil Aerial Transport Committee were not positive for Norway either. It concluded: 'As to the route from the United Kingdom to Russia, via Norway and Sweden, it was suggested to the Committee that a service might be conducted from London to Yarmouth by seaplane to Christiansand to Stockholm, crossing the Swedish lakes, a distance of approximately 360 miles, and as a final stage, from Stockholm to Petrograd by seaplane, a distance of approximately 450 miles, crossing the Baltic and continuing up the Gulf of Finland. The total distance would be about 1,360 miles. The progressive reliability of aeroplanes will probably, within a short period, render the use of seaplanes unnecessary. This route, also, might afford a favourable opportunity for the use of airship.' The Norwegians would

rather see a direct service running from the west coast of Norway, preferably Stavanger, to Scotland, preferably Aberdeen.

In Norway's neighbouring country Sweden, Cpt Olle Dahlbeck presented in October 1917 his plan called 'Luftfartygsförbindelser med våra grannländer' (Aircraft Connections with Our Neighbouring Countries). It did not foresee any direct link between Stockholm and Christiania. The Norwegian capital was merely the end of a side line running from Copenhagen via Gothenburg. Dr. Keilhau had seen all these plans and after having read Dahlbeck's plans he started to think about a Norwegian airline. This company was to express the Norwegian view on aviation. He forwarded a plan to the Norsk Luftseiladsforening for support, and, on 27 February 1918, the association recommended the formation of a national airline. Dr. Keilhau strongly believed that air services in Norway should be operated with so-called 'hydroaeroplaner' (literally hydro aeroplanes – a joint name for flying-boats and seaplanes). It was therefore obvious for him to seek support and expertise from one of the most respected naval aviation experts in Norway, Naval Cpt Halfdan Gyth Dehli (1881-1963). In 1910, Gyth Dehli had started his flying career in balloons, but in 1912 received an education for mechanics and obtained a flying certificate at the 'École supérieure d'aéronautique et de constructions mécaniques' at Paris (France). During the summer of 1913 he joined the *Marinens flyvåpen* and was soon put in charge of the Navy's Air School (1916-17). Up to 1918 he also led the *Marinens flyvebaatfabrik* (Navy's Flying-boat Factory) and under his command the factory delivered the first naval aircraft. It may not come as a surprise that Gyth Dehli also had some plans for civil aviation, but due to his work at the factory he had not been able to make any firm plans. When he therefore during a

Dr. Wilhelm Keilhau.

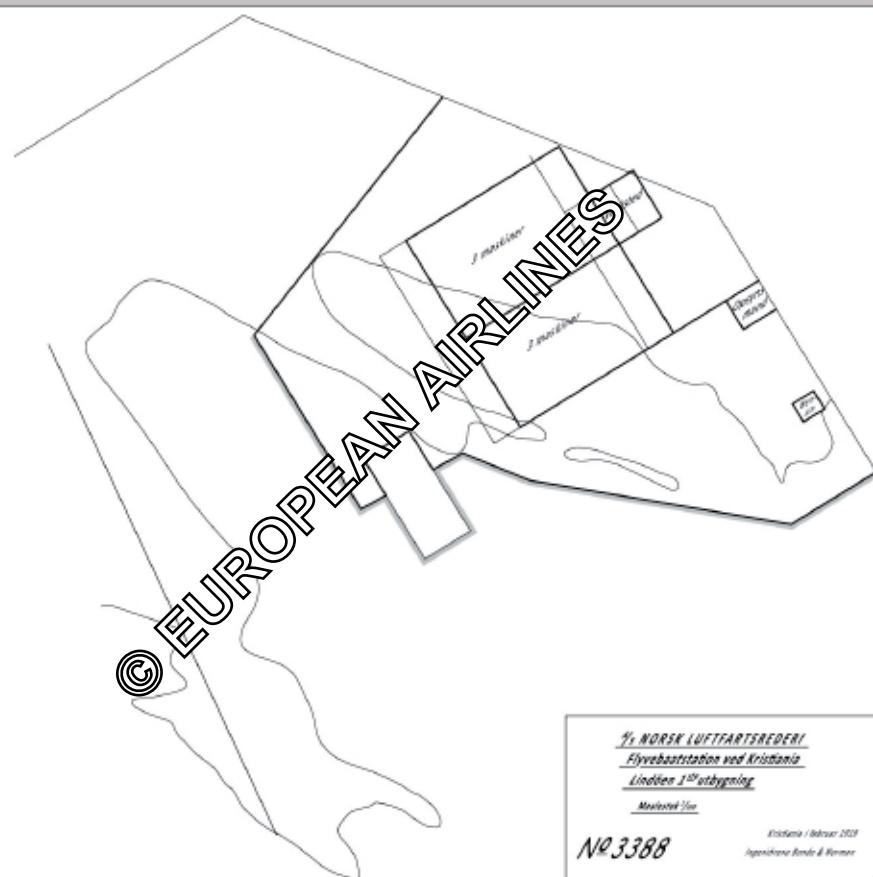


'Lufttrafik', an essay about the air connection between Sweden and its neighboring countries. Together with the paper 'Commercial Aeronautics' by Georg Holt Thomas, got Dr. Keilhau interested to start up a Norwegian airline to secure Norwegian aviation interests. (*Flysamlingen Gardermoen via Guttorm Fjeldstad*)

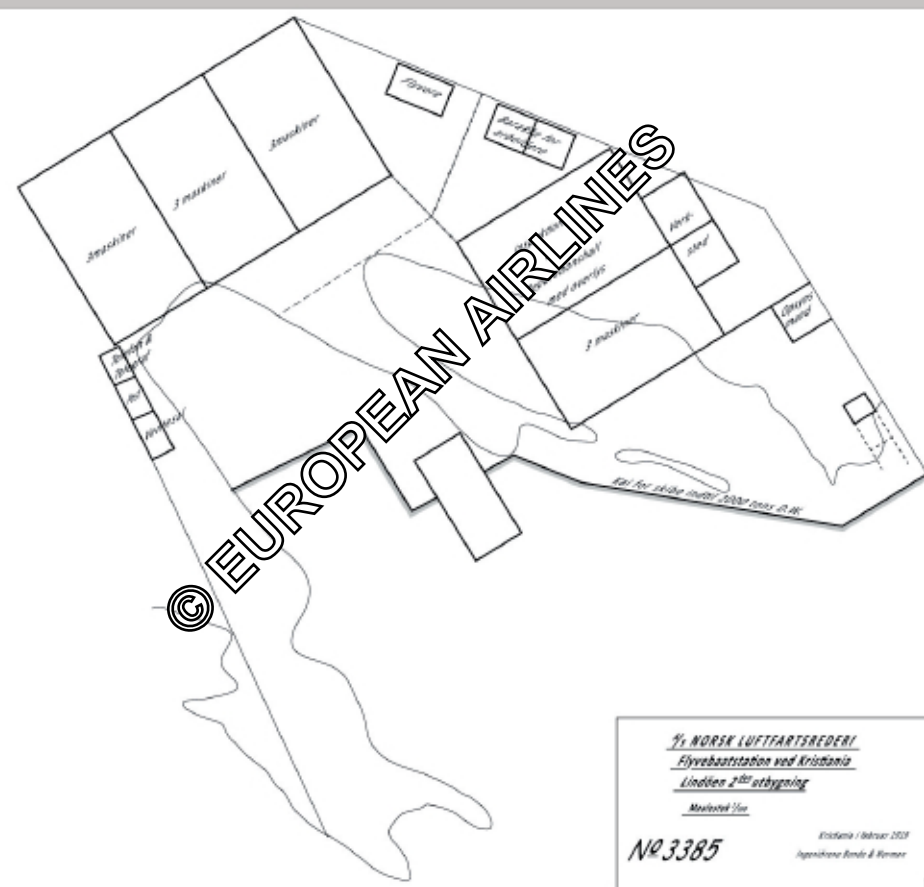
Naval Captain Halfdan Gyth Dehli. (Jens Carl Frederik Hilfling-Rasmussen via Oslo Museum)



The Air Station on Lindøya

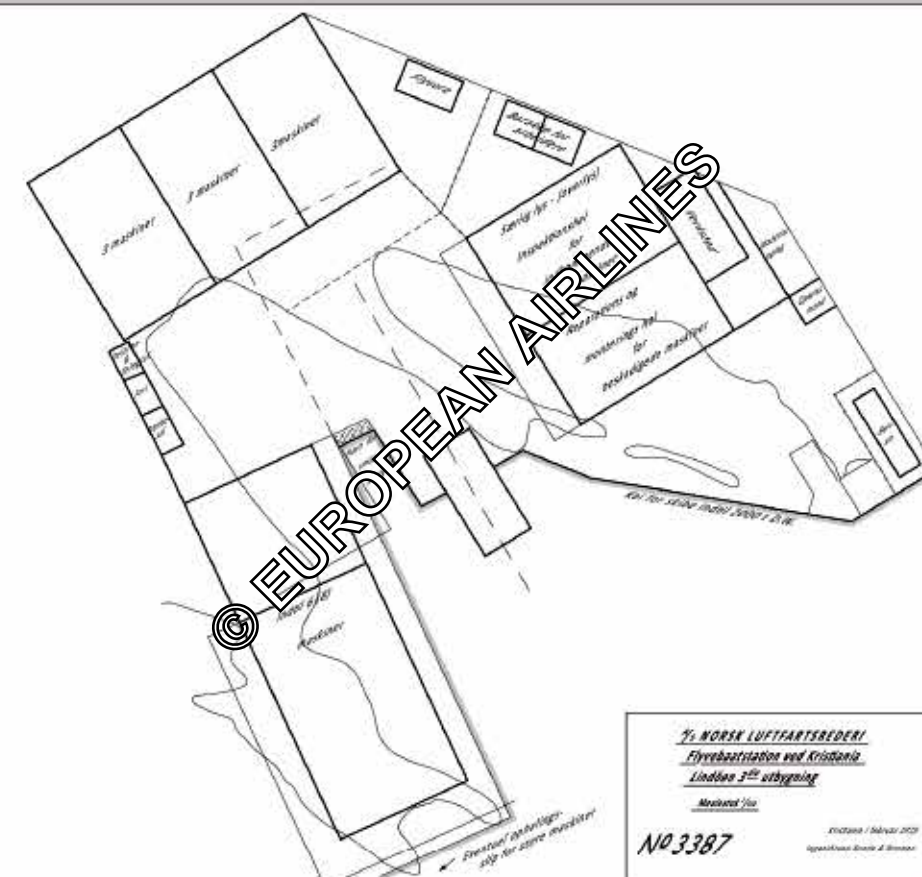


Stage 1: The first stage included a double hangar with space for a total of six flying-boats. Behind the hangar was a little workshop, petrol storage and a house for the concierge. There was to be a slipway and a tarmac covered with asphalt. (Traced from original drawings by Nils Mathisrud / Vingtor Design)



Stage 2: The second stage saw an extension with three new hangars for a total of nine flying-boats, an extension, an enlarged workshop, a barrack for workmen and one for pilots. On the other side of the tarmac was a small house for the expedition of the passengers, mail and goods. Also, a small house for telephone and telegraph was included. (Traced from original drawings by Nils Mathisrud / Vingtor Design)

The Air Station on Lindøya



Stage 3: The last stage saw an extension of the area with 10 mål (9,843.40 m²) and erecting another hangar with space for eight flying-boats. The first erected hangars were then to be reconstructed into workshops and other service buildings. (Traced from original drawings by Nils Mathisrud / Vingtor Design)



Artist's impression: In February 1919, a drawing was published showing the air station on Lindøya. This drawing differed from the drawings of Stage 3 found in the archives. The centre of the air station was formed by a tarmac measuring 100 x 50 metres. Alongside the tarmac were hangars constructed in concrete and with a length of 50 metres, a width of 30 metres and a height of 10 metres. The flying-boats could be towed to the shore via a railway track. On the left, the workshops were built, the petrol depot, quays and a large administrative office with several floors (30 metres long and 8 metres wide). On the ground floor was the passenger terminal, a restaurant and rooms for telephone and telegraph services. The quay was used for the tender boat between the island and the mainland. (Facsimile Aftenposten, February 1919)

Date	Trip #	Aircraft	Pilot	Service
August 16	1	N.6	Oskar Omdal	Stavanger-Haugesund-Bergen 13.00 – 13.45 / 14.00 – 15.00
	2	N.10	Fredrik Lie Vogt	Bergen-Haugesund-Stavanger 13.10 – 14.30 / 14.45 – 15.15

Weather: westerly winds, 6-8 m/sec, low clouds and rain showers.

17	3	N.6/N.9	Oswald Stangeland	Stavanger-Haugesund-Bergen 13.00 – 13.30 / 13.45 – 15.00
	4	N.10	Fredrik Lie Vogt	Bergen-Haugesund-Stavanger 13.35 – 14.45 / 15.00 – 15.30

Weather: low clouds and showers.

On the northbound service, the Friedrichshafen FF49C, N.6 had to be taken out of service. The valve lift on cylinder number # 2 counting from the front broke off just before take-off from Flatøyen. The Supermarine Channel, N.9 took over the southbound service.

Date	Trip #	Aircraft	Pilot	Service
August 18	5	N.9	Oswald Stangeland	Stavanger-Haugesund-Bergen 13.00 – 13.40 / 14.00 – 15.20
	6	N.6	Oskar Omdal	Bergen-Haugesund-Stavanger 13.09 – 14.00 / 14.10 – 14.50

Weather: rain between Stavanger and Haugesund.

Date	Trip #	Aircraft	Pilot	Service
August 19	7	N.6	Oskar Omdal	Stavanger-Haugesund-Bergen 13.10 – 13.45 / 13.50 – 15.00
	8	N.10	Arthur Christoffersen	Bergen-Haugesund-Stavanger 13.05 – 14.10 / 14.35 – 15.15

Weather: northerly winds with 5-8 m/sec, rain near Haugesund, low clouds.

On 16 August, the Supermarine Channel, N.10, inaugurated the air service from Bergen. (Kay Hagby collection)



Date	Trip #	Aircraft	Pilot	Service
20	9	N.8	Christian Luxdorph	Stavanger-Haugesund-Bergen 13.15 – 14.05 / 15.20 – 17.15
	10	N.6	Oskar Omdal	Bergen-Haugesund-Stavanger 13.00 – 14.10 / 14.20 – 14.45

Weather: north-eastern winds, not too strong, rain between Haugesund and Stavanger.

On the northbound service the Friedrichshafen FF49C, N.8, had take-off problems at Haugesund. The pilot Luxdorph filled up the tanks with two cans of petrol. He sent the mechanic Alfred Sunde and the two passengers ashore. Strong winds and rain showers followed the seaplane from Haugesund to Bergen. On the transfer flight from Bergen to Flatøyen fittings on the aileron strut loosened off. Nevertheless, he landed without problems.

Date	Trip #	Aircraft	Pilot	Service
August 21	11	N.6	Oskar Omdal	Stavanger-Haugesund-Bergen 13.00 – 13.40 / 13.50 – 14.35
	12	N.8	Arthur Christoffersen	Bergen-Haugesund-Stavanger 13.11 – 14.20 / 14.35 – 15.15

Weather: north-eastern winds, some rain near Stavanger. Clear north of Haugesund.

During the first week four different aircraft were used and five different pilots operated them. They flew a total of 2,332km in 1,440 flying minutes (24 flying hours). The service was operated with great difficulties during the second week. The departures were mostly on time, but technical problems caused delays and irritation.

Date	Trip #	Aircraft	Pilot	Service
August 23	13	N.10/N.6	Arthur Christoffersen	Stavanger-Haugesund-Bergen 13.10 – 13.55 / 16.00 – 17.15
	14	N.6	Oscar Omdal	Bergen-Haugesund-Stavanger 13.00 – 13.55 / 14.10 – 14.35

Weather: weak northern winds. Around Leirvik north-western winds.

Arthur Christoffersen had stayed the weekend over in Stavanger and on Monday morning he took off from Stavanger in the Supermarine Channel, N.10. He arrived in Haugesund according to plan, but could not take-off due to a leak in the front of the flying-boat. Omdal who had arrived at Haugesund simultaneous decided to take the airmail for Bergen on an extra flight after he had taken his mail to Stavanger.

Date	Trip #	Aircraft	Pilot	Service
August 24	15	N.8	Christian Luxdorph	Stavanger-Haugesund-Bergen 13.00 – 13.30 / 13.35 – 14.50
	16	N.9	Arthur Christoffersen	Bergen-Haugesund-Stavanger 13.00 – 14.00 / 15.15 – 15.45

Weather: north-north-western winds and high clouds.

Again problems: This time Luxdorph had landed at Haugesund and discovered a damaged aileron strut on his Friedrichshafen FF49C, N.8. It took him 1 hour and 15 minutes to repair. He could continue his flight after the repair.

Date	Trip #	Aircraft	Pilot	Service
August 25	17	N.9	Arthur Christoffersen	Stavanger-Haugesund-Bergen 13.13 – 13.33 / 15.40 – 17.00
	18	N.8/N.11	Christian Luxdorph / Fr. Lie Vogt	Bergen-Haugesund-Stavanger 13.03 – 14.20 / 14.56 – 15.00

Weather: near Bergen weak winds from north-western direction. Clouds along the whole route.

Arthur Christoffersen in the Supermarine Channel, N.9, took off from Bergen and above the Fane Fjord the connecting bolt between the valve lifting stag and the traverse broke off. He landed and fitted a spare bolt. This took only eight minutes, after which he could continue his flight.

Unfortunately, Luxdorph in the Friedrichshafen FF49C, N.8, had to make a forced landing near the Vormedal Factory in the Avaldnes Sound, just south of Haugesund. The reason was a damaged valve. Lie Vogt in the Supermarine Channel, N.11, came to the rescue and took the airmail to Bergen.

Norsk Flyvebåt F.B.12

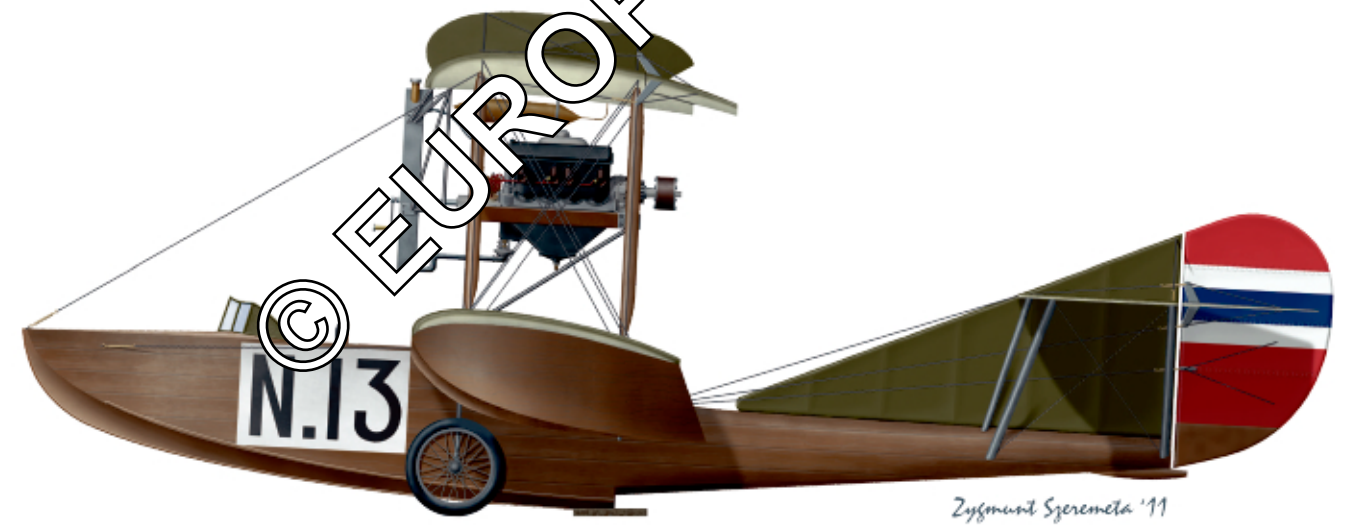


The Norsk Aeroplanfabrik designed the flying-boat F.B.12 for 14 passengers and wanted to operate it on an air service from Tønsberg to Christiania. See page 31-32 for more details. (Zygmunt Szeremeta)

Norman Thompson NT.2B Flying Boat



Cpt Wilhelm Meisterlin ordered three Norman Thompson NT.2B flying-boats. All were delivered, but only two were assembled. Note the different flags on the rudder of the flying-boats. (Zygmunt Szeremeta)



The Beginnings of Norway's Airlines

Part 1: 1918 - 1922

The story of the first attempts in Norway to form airlines is interesting right from day one. As early as 1912, the first company was formed, although not with the aspiration to become a national airline in the present sense of the word 'airline'. It was simply formed to organize joyrides and demonstration flights. During the First World War (1914-1918) Norway held a neutral status, with all civil aviation banned until 1918.

In this book, the author presents the first airlines formed in the period up to 1922 and shows the development of commercial aviation in Norway. The main story features the first major airline: the Det Norske Luftfartrederi AS (DNL). The founders of this airline were the economist Dr. Wilhelm Keilhau and the technical genius Naval Cpt Halfdan Gyth Dehli. Initially, they wanted to open an air service between Norway and Great Britain to safely transport overseas mail. The end of the war halted their original plans, but they soon turned DNL financially into a solid company. Negotiations with British, Swedish and Danish authorities and their existing airlines commenced with the goal to make an overall plan for an international network of air services that included Norway.

The Norwegian company was one of the founders of the International Air Traffic Association (IATA) and tried to work within that framework on its own agenda. The political and financial situation in Norway was very sound in the days right after the war. However, after 1920, the economic climate changed for the worse and DNL was forced to cease its activities. It only operated the air service Stavanger-Haugesund-Bergen for two months during the autumn of 1920, flown by seaplanes and flying-boats. This book details the history of DNL and the other Norwegian airlines formed in the years up to 1922. In addition, it will give the reader a closer look at the development of flight in Norway and the history of 'Norsk Aeroplanfabrik', an ambitious private aircraft factory.

