

## “A matter of the most vital importance”: Military Aviation in the Netherlands 1914-1920

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Throughout the First World War the Netherlands remained a neutral country. The necessity to closely follow the developments in the manner in which the war was waged was constantly present for the duration of the war. There was a real danger that the Netherlands would be drawn into the struggle against its will. In that case, the Dutch armed forces would have to have sufficient military means and tactics at its disposal in order to have a reasonable chance of success. The military command made a sustained effort to keep up with technical and tactical developments. Dutch military aviation provides an illustrative case-study of this.

The questions presenting themselves are first and foremost how, in the particularly difficult circumstances of isolation resulting from its neutrality, the Netherlands managed to deploy aircraft in a military role. The problems facing the Dutch military command were the purchase of aircraft – the Netherlands did not have a national industry for military aircraft – and the need to keep up with the rapid technological and tactical developments in the belligerents’ use of the air weapon. Secondly, attention is paid to the question how the Netherlands made use of the war developments in order to attain a stronger and more independent position in the field of military aviation in the future. The importance of this matter was undisputed in military circles. Together with the machinegun, the aircraft was the single most important weapon of modern warfare in the eyes of the Dutch military.

### The foundation of the air branch

In 1913 the Dutch Parliament approved the foundation of a military aviation service as a subdivision of the army. A year and a month later this latest addition was part of the mobilised armed forces contributing to safeguarding Dutch neutrality by way of aerial patrols. From August 1914 the *Luchtvaartafdeling (LVA)* comprised seven French Farman reconnaissance aircraft and two planes built by the Dutch aircraft manufacturer Marinus van Meel (1880-1958)<sup>1</sup>.

Right from the first day of mobilisation, Dutch pilots made reconnaissance flights along the frontier. In the border-towns Dutch banners, flown from church spires and public buildings, indicated the location of the frontier, also to enemy pilots. The Belgians did the same.<sup>2</sup> The first report, dating from 20 August 1914, was of an engagement over Western Zeeuws-Vlaanderen, where a German aeroplane landed. The pilot was interned in Alkmaar and the aeroplane was taken to the artillery workshop in Delft.<sup>3</sup> The same thing happened to a British aeroplane that came down near Breskens in December that same year.<sup>4</sup> This set the trend for the following years. Pilots of the warring states were an important source of information and were interned after their capture.<sup>5</sup> Their aircraft underwent a thorough technical analysis, new inventions were copied, parts were re-used, or entire aircraft were incorporated in the Dutch air fleet. The captured British plane, for example, carried a bomb, a step not yet taken by the Dutch Aviation Service, which therefore aroused much interest.<sup>6</sup>

It did not take long before the military leadership and the *LVV* realized that the Dutch air fleet had to grow in numbers and that the Service had to perform other tasks besides reconnaissance. The first tasks to be developed and practised were: spotting for the artillery, aerial photography and aerial combat. A task that was quickly added was observing (enemy) troop movements from the air for the benefit of senior troop commanders in the event of war. Where the purchase of materiel was concerned, the Dutch military leadership opted for the creation of a national aircraft industry, foreign acquisition and the purchase of interned aircraft. The question arose whether this would guarantee an air fleet of sufficient quality, if the Netherlands was to become involved in actual fighting.

### **Walaardt Sacré and Wijnmalen**

Since 1913 the *LVV* had been under the command of Hendrik Walaardt Sacré (1873-1949), an engineer officer with a passion for flying. From 1910 onwards he was actively involved in the foundation of a Dutch military aviation organization. In preparation, Walaardt Sacré had visited France in 1912 and recommended the Farman as the most suitable aeroplane, much to the dismay of aircraft manufacturer Anthony Fokker (1890-1939), who was in want of orders at the time. Walaardt Sacré was very well-acquainted

with the Dutch supreme commander General Cornelis Jacobus Snijders (1852-1939). This was to give him essential support as Head of the *LVA*.

Henri Wijnmalen (1889-1964) was one of the first Dutch aviation pioneers. In 1910, shortly after having received his pilot's licence in France, where he had made the acquaintance of Louis Bleriot (1872-1936) and Henri Farman (1874-1958), he flew demonstration flights in Holland, some of which were attended by General Snijders. Wijnmalen also established the world record for high-flying (2,780 metres) on 1 October 1910, which he continued to hold for some time. By winning a flying contest, a return flight Paris-Brussels, he gained a considerable amount of money that same year. The following year he joined the Aviation Company Ltd of his uncle, motorcar manufacturer J.F. Verwey, as an instructor. In that capacity he worked in close cooperation with another important Dutch aviation pioneer, Frits Koolhoven (1886-1946)<sup>7</sup>, who left the Netherlands in 1911 to find employment in Paris. The existence of the flying school at Soesterberg was short-lived. At the end of the summer of 1911 Wijnmalen was in France and, a couple of months later, in Germany. After having tried his luck in Belgium in 1912, he returned to his native country in December 1913 with the intention to start an aircraft factory – on a Farman licence – with a guarantee from *LVA* for the purchase of his aircraft. Although slightly overstepping the mark, Wijnmalen did receive certain facilities that enabled him in March 1914 to start a factory on the *LVA* site at Soesterberg<sup>8</sup>, which was already used by a small factory of Van Meel<sup>9</sup>, who Wijnmalen was well-acquainted with. Just like Wijnmalen, Van Meel had worked together with Farman, and was working for Verwey. In 1913 he had built the first Dutch military aircraft. After having served in the military for a short spell, Van Meel withdrew from military aviation altogether, leaving Wijnmalen on his own as other Dutch aircraft manufacturers had found employment abroad by 1912, Fokker in Germany and Koolhoven in Great-Britain.

On the insistence of the military authorities Wijnmalen moved his factory to Amsterdam in October 1914, which meant that the Netherlands had its first military aviation industry situated within the protection of Fortress Amsterdam.<sup>10</sup> In December 1914 he vowed to General Snijders to deliver one aircraft every month. That turned out to be too optimistic a promise, despite the assistance and knowledge of Belgian refugee craftsmen, in particular from the renowned Antwerp bicycle, motorcycle and automobile factory Minerva.<sup>11</sup> Wijnmalen soon had to admit that a shortage of raw

materials prevented a rapid delivery of the numbers required.<sup>12</sup> Early in 1915 he travelled to London to get spare-parts, but to little avail.<sup>13</sup> His first aircraft did not leave the factory until June 1915, followed by the second one month later. Then production got underway to some extent. Wijnmalen produced about fifteen Farmans, and that was all the *LVA* received till the end of 1916. The table below shows the number of aeroplanes the *LVA* had at its disposal. The decrease of the number of Farmans was the consequence of materiel wear and crashes. In the first few years of the mobilisation the *LVA* depended on Wijnmalen's factory and on occasional foreign aircraft that were interned after landing on Dutch soil.

Month/year	1	2	3	4
December 1915	18	5		23
January 1916	18	6		24
February 1916	19	6		25
March 1916	20	6		26
April 1916	21	6	7	28
May 1916	20	4	9	29
July 1916	19	4	9	28
August 1916	18	1	13	31
September 1916	18	2	13	31
October 1916	17	5	14	31
November 1916	14	6	14	28

Survey of aircraft present<sup>14</sup>

1= number of Farman aircraft

2= number of interned aircraft

3= number of interned aircraft taken over by *LVA*

4= total number of aircraft at the disposal of *LVA*

Moreover, the problem occurred because the knowledge and materials to build aircraft engines were a scarce commodity in the Netherlands. This soon became a sticking point. In June 1915 the Secretary of War, Nicolaas Bosboom (1855-1937), was granted permission to buy Gnome aircraft engines in France.<sup>15</sup> It would take until August 1915 before eleven of them arrived, and it was not before April 1916 that the following eight were delivered. In the course of 1916 the situation became critical when Wijnmalen's production threatened to come to a standstill, which happened just at the time when Walaardt Sacré and the Dutch military leadership had come to realize the vital importance of military aviation and

its rapid development. In the meantime, Wijnmalen's Farmans had become utterly obsolete as their engines were seriously lacking underpowered.<sup>16</sup> Should the Netherlands have had to pit its strength against the belligerents, it would have stood no chance at all in the air. That had dawned on the military leadership in early 1916. Something just had to be done.

### **Dark clouds gathering**

In May 1916 General Snijders urged War Secretary Bosboom to buy new combat and reconnaissance aircraft in France that would be able to match the quality of the belligerents' aircraft. He called it a vital importance for the Dutch armed forces. General Snijders' urgent request had been prompted by the analysis Walaardt Sacré had made of the necessity of modern fighters armed with machineguns, reconnaissance aircraft and aircraft used for observation for the artillery. Bombers were no priority for the time being. This was the perfect time for Walaardt Sacré to table his wishes for modern equipment.<sup>17</sup> He estimated the budget for modernization at one million guilders, to be spent in France. Although realizing the importance of this, Bosboom responded that large amounts of money should not be invested too hastily in such a rapidly developing weapon. Still, he was willing to put out his feelers.

In order to develop contacts with the French Government and industry, General Snijders appealed to an old acquaintance, Lieutenant Jacques Labouchere (1884-1966)<sup>18</sup>, who recommended the purchase of Nieuport aircraft with Rhône engines, and Saulnier and Caudron aircraft. The other Parisian contact was Paul Koster, who worked as unofficial military attaché of the Dutch Government for the acquisition of military materiel.

The matter became a long-term project. In July General Snijders had to report that Labouchere was still unsuccessful and insisted on Dutch compensation in this "matter of life". In August more positive news came from Koster saying that the French were prepared to deliver ten Nieuport and Caudron aircraft. Only eight Rhône engines were delivered in October. Nothing else came for the time being and waiting would not be rewarded.

Simultaneously, the situation in the Netherlands was growing darker and darker. In July Wijnmalen expressed his intention to close down the factory, which the military Cabinet members and General Snijders

definitely wanted to prevent.<sup>19</sup> Wijnmalen's proposal was to turn the factory into a state-owned enterprise with a yearly production of as many as three hundred motorcars and one hundred aircraft! Even if this were possible where raw materials were concerned, it would in any case be financially unacceptable to the Government. But the aircraft factory was simply not allowed to vanish. The Government started negotiations with Wijnmalen, in which the Munitions Agency<sup>20</sup> mediated. In September the Government made an offer of 1.3 million guilders to Wijnmalen for the annual production of one hundred motorcars and fifty aircraft. In November War Secretary Bosboom agreed to the financing of twenty-two motorcars – cars in procession and ambulances for the *LVA* – and forty aircraft.<sup>21</sup> The aircraft Wijnmalen had to produce, under *LVA* supervision, were not the old Farmans anymore, but modern fighters that could be fitted with a machinegun, and reconnaissance aircraft copied from the British Sopwith. The Sopwith was a good plane and easy to construct, with an interned specimen serving as an example. In the budget for 1917 Bosboom made funds available for the first ten aircraft, three for aerial combat, three for reconnaissance purposes and three for artillery spotting.

The autumn of 1916 was characterized by gloomy future expectations on the part of both General Snijders and Walaardt Sacré. In September Snijders thought that if this situation lasted for much longer, Dutch military aviation would soon cease to exist altogether. Walaardt Sacré was starting to feel somewhat desperate and described the sorry state of Dutch military aviation to Snijders. He regarded the interned aircraft as accidental assets, which also brought a substantial number of logistical problems with them. Ten aircraft for aerial combat, armed with Lewis machineguns, and ten for reconnaissance tasks were absolutely essential additions in the short term. He was hoping Wijnmalen would be able to manufacture them. In essence, forty aircraft were required. General Snijders in turn hoped to have at his disposal thirteen aircraft for reconnaissance, thirteen for aerial combat and four for artillery spotting by mid 1917.

To the outside world this gloom will hardly have been noticeable. On 15 March 1916 the *LVA* organized a national air tour for the public. The pilots gave demonstrations over the beach of Scheveningen, in the presence of the Queen, the Secretaries of War and for the Navy, and General Snijders. The air tour was given much publicity as a sportive event, but it also served as a try-out of the forces' deployability in the event of war. Snijders wanted the *LVA* airmen to take part in as many exercises

of the army as possible<sup>22</sup>, either divisional manoeuvres<sup>23</sup> or exercises held in Oldebroek, in which the central focus was on cooperation with the artillery. On the basis of aerial observation the artillery aimed and fired at “enemy” positions and trenches.<sup>24</sup> All across the country exercises with military units were taking place together with the artillery.

### Technical innovation

Concerns about the expansion and modernization of the air fleet did not prevent technical innovation from taking place in various fields, reflecting the developments abroad. On all these points the *LVA* had to start from scratch.

The *LVA* did not incorporate bombers in its air fleet, but that did not mean that bombing was impossible. Reconnaissance planes could be employed for that purpose. After the initial phase of dropping darts or flechettes, experiments began with test bombs and hand grenades<sup>25</sup>. In August 1915 the Ordnance Factories supplied the first live bombs, to which War Secretary Bosboom was keen to add incendiary bombs.<sup>26</sup> The first substantial order was placed in 1916. A Utrecht Steel factory which had already made deliveries to the Munitions Agency, received an order for five hundred aircraft bombs. Their delivery proved to be a slow process. The following order for ten thousand bombs was formidable. They were to be produced at a Machine Factory in The Hague, already a major supplier to the War Ministry. The choice was made to manufacture seven thousand shrapnel bombs and three thousand incendiaries. It was decided not to produce gas bombs.

In order to be able to drop the bombs accurately an aiming device was developed in 1915, which was thoroughly tested in 1916. In April the first forty went into production and in early 1918 the device worked satisfactorily.<sup>27</sup>

Machineguns fitted on aircraft were yet another new phenomenon. The machinegun in use by the Dutch army, the Schwarzlose, was far too heavy for that purpose. The interned aircraft provided the solution. The *LVA* came into the possession of a Voisin aircraft from France, fitted with a Hotchkiss machinegun<sup>28</sup> and a British plane with a Lewis. Late 1915, Delft construction workshops designed a rack, a contraption used to fix a

machinegun to the side of an aircraft.<sup>29</sup> This made it possible to practise with a weapon purchased in Denmark, the Madsen machinegun, which was also used as an anti-aircraft weapon fired from the ground. The disadvantage of the Madsen was its slow rate of fire. The most suitable machineguns came from the belligerents and in the final years of the war a number of them could be acquired. Some had to be adapted, so that Dutch ammunition could be used. The Lewis gun appeared the most suitable for firing from the side of the aircraft, whereas the Vickers machinegun could be placed on top of the fuselage of the Nieuport and Fokker aircraft. The Rumpler aircraft carried a Spandau machinegun. Both the Vickers and Spandau could fire through the propeller-blades. Eventually, by the end of the war the *LVA* was to have at its disposal 41 Spandau machineguns, an equal amount of German Parabellums, seven Lewis and three Vickers machineguns.

Practised commonly since 1915<sup>30</sup>, aerial photography also went through a rapid development, also due to an interned aircraft. A German aircraft with photographic equipment had landed near Venlo on 1 September 1915. Towards the end of that year, photographic records were systematically made of the so-called New Dutch Water Defence Line. In 1916, an authentic Dutch aircraft was commissioned, especially designed for aerial photography. Eventually, the *LVA* developed wireless radio telegraphy for communication between pilots and ground forces. On 1 December 1915 a German Albatross touched down in Zeeuws Vlaanderen with radio equipment on board, which initiated the Engineer Corps, to research this communication possibility. Until then, pilots had used small canisters containing data from aerial observation, which were thrown or shot from the aircraft, or sent Morse signals written in sooty smoke from the engine exhausts. By using the latter method a pilot returning from a mission often descended from the aircraft all covered in black soot. Both methods obviously had their shortcomings.

On the basis of tests on the radio equipment ordered in Germany, the production of ten “radio telegraphy signal machines” could be started in early 1917. By February three of them had been completed, but it took a lot of time and effort before the equipment worked well. In April 1917 signals could successfully be sent to an aircraft for the first time. The tests continued throughout the summer. With the help of reception equipment, discovered in a Sopwith aircraft, it was not only possible, during an exercise, to send a radio message, but also to receive a reply from the pilot.



In the course of 1918 there was functional sending and receiving equipment available.

### Rescue from abroad

At long last, in 1917 foreign purchases were made, producing tangible results. Airman F. van Heyst (1883-1975) and LVA engineer Vreeburg left for Sweden in January and did business with Enoch Thulin (1881-1919), managing director of *Enoch Thulins Aeroplanfabrik* in Lanskröna. They ordered aircraft parts and ninety engines, and the first deliveries were made as of March, comprising Thulin engines to replace the outdated Gnôme engines. The Swedish deliveries took place until March 1918.

Walaardt Sacré also focussed his attention on Germany. After the failure to buy ten modern Albatross aircraft in early 1917, War Secretary Bosboom ordered pilot J.G.C.Duinker (1892-1919) to go on a study-tour to Germany to the *Inspektion der Fliegertruppen* in Charlottenburg. He reported about the possibility to buy the Fokker D-III. Pilot Willem Versteegh (1886-1975) travelled to Schwerin in July to try out the aircraft and to negotiate in Berlin. In October 1917 he returned with ten Fokker aircraft, which was a successful foreign acquisition at last. That same month Versteegh flew a number of test flights at Soesterberg. At the end of the year he presented his impressions about German military aviation in a report to Walaardt Sacré.<sup>31</sup> That same year a delegation of Dutch officers visited the German Army, both in Berlin and on the Western Front. Engineer officer and aviation connoisseur W.H.Cool reported on German aviation, after visiting an airfield close to the front at Montmédy and flying in a German aircraft. In order to safeguard Dutch neutrality, the ammunition had previously been removed from the machinegun mounted on the aircraft.<sup>32</sup>

Besides the purchases made in Sweden and Germany, the LVA remained active in France. Walaardt Sacré kept hoping that after protracted negotiations Wijnmalen would be able to fulfil his promises. In France Labouchere continued to work feverishly to secure the delivery of five Caudron and five Nieuport aircraft, together with 46 Rhône and twenty Hispano-Suiza engines, while offering tugs in compensation. For Walaardt Sacré all this was taking far too long, particularly because the German contacts did seem to yield results at short notice. Eventually, this was also

the outcome of the French negotiations, but with considerable delay. In October 1917 the cargo ship *Rhea* could be loaded with fifteen aircraft – more than the original amount – and twenty engines. In mid-December the vessel lay anchored at Vigo (North-West Spain), after which it was held up by the British at Gibraltar, only to be released by the middle of 1918. The British lived in constant fear that military deliveries to the Netherlands would be resold to Germany. Eventually, three years after the orders had been placed, the planes arrived in the Netherlands.

In the meantime, Wijnmalen was using a two-tier production system in Amsterdam. The Munitions Agency had begun to act as a regulating body to turn the Amsterdam factory into the desired modern national aircraft industry yet. This meant the end of the production of Farmans. Instead, original designs had to be developed and modern foreign aircraft copied. The first original design was a fighter plane, the Spyker V1. In May 1917 Van Heyst took it up for a test flight, but it was never put into serial production. The performance of the weak Thulin engine made it unsuitable, in fact.

The other tier of production was copying foreign aircraft. Initially, attention had focussed on a modern version of the Sopwith. That changed when in February and March 1917 new types of Sopwith and Nieuport fell into Dutch hands. Secretary Bosboom then opted for the serial production of twenty Nieuport fighters powered by Thulin engines, possibly at a later stage to be followed up by the Sopwith. This process could not go swiftly enough for Walaardt Sacré, who wanted fighters (Nieuport) as quickly as possible, “otherwise we will be powerless against any enemy”.<sup>33</sup> Moreover, he wanted them in much larger numbers than had been approved by Bosboom. He deemed the rapid production of forty aircraft desirable, to be extended to 60 with the addition of twenty Sopwiths. When the Nieuport fighters were finally delivered in 1918, they were already somewhat outdated. They were hardly used.<sup>34</sup>

Other additions consisted of the purchase of interned aircraft. In September 1917 the *LVA* had bought thirty interned aircraft. In total more than a hundred belligerent aircraft landed in the Netherlands during WW1, but not all of them were suitable for acquisition by the *LVA*. Thirty of them were in such bad repair that they could only be stripped of the still useable parts. An equal number was made part of the air fleet as registered *LVA* aircraft. This number was equalled by the number of different types

of aircraft. The diversity was instructive, but not always practical where maintenance and spare parts were concerned. After the Armistice of 1918 almost all these aircraft were scrapped.<sup>35</sup> A single one was still used in 1919 for the purpose of giving Dutch pilots the experience of flying abroad.

In June 1917 General Snijders drew up the balance. If all the orders<sup>36</sup> would arrive, the *LVA* would have ninety “front” aircraft at its disposal by the end of the year. However, that was still not sufficient, as General Snijders wanted the *LVA* to possess 116 fighters, 132 reconnaissance aircraft and forty training aircraft. These numbers would have to be accomplished in 1918-1919, which was quite a long wait. Yet there was light in the dark. The newly-appointed War Secretary, Bonifacius Cornelis de Jonge (1875-1958), wanted to make a serious effort to create a national aircraft industry<sup>37</sup> in which he was willing to invest. He added another million guilders to the budget of the Dutch War Ministry, as he was none too pleased about the dependence on foreign deliveries. He used the Munitions Agency, more than was the case already, as an instrument to rouse the interest of more companies in aircraft production. Wijnmalen would have to face national competition and the contracting out of the production of ammunition to private companies had provided the Munitions Agency with many contacts and much experience. Walaardt Sacré was enthusiastic about this, as Wijnmalen’s slowness and steep prices had often annoyed him

The factory that showed an interest was Van Berkel’s Patent<sup>38</sup>, a Rotterdam factory. With Hispano-Suiza engines Van Berkel would primarily concentrate on manufacturing navy seaplanes on the basis of a German aircraft (W-12). The first Van Berkel W-A got airborne in June 1919. At the time, a workforce of three hundred labourers, including some Germans, worked at the factory especially built for this type of aircraft. In June 1921 all work stopped for want of orders.

In Rotterdam the Dutch Aircraft Factory AVIA, presented his biplane in Rotterdam in December 1918. There was no follow-up.

The third manufacturer was Joop Carley, who started an aircraft factory in Ede in 1917. He built a number of aircraft and, also after the Armistice, his factory continued to produce training and passenger aircraft. 1922 saw the closure of his enterprise due to a lack of customers.

In order to be independent from foreign countries, for a short spell the *LVA* took to designing its own aircraft. In 1918 Vreeburg started with the A.2M bomber, which was finished in 1919. Versteegh flew it during the ELTA, the major aviation exhibition held in Amsterdam from August to September 1919. As its Rhône engine was not really powerful enough, no more aircraft were made and the existing one was demolished in 1921. So aircraft production without the involvement of Wijnmalen was rather small-scale, but the War Secretary and the *LVA* were not altogether dissatisfied with the effect it had on Wijnmalen's exclusiveness.<sup>39</sup>

Another development took place when the Dutch Naval Air Service (*MLD*) became independent in 1917. Both General Snijders and Walaardt Sacré regretted this dissipation of strength and tried to turn the tide. However, the Dutch Royal Navy, referring to its colonial tasks, insisted on the desirability of having an air service of its own and did not flinch.<sup>40</sup>

### Goals unaccomplished

Initiatives to stimulate other firms to compete with Wijnmalen, a company with a workforce of one thousand in 1918, were of little avail, as we have seen. There was little else for the *LVA* to do but to turn to neighbouring countries again and to support Wijnmalen. The Amsterdam factory made a serious effort to improve quality, but really could not handle the new order from the Government. With setbacks, such as when the British withheld aluminium destined for Amsterdam in December 1917, followed by months of negotiations, the situation went from bad to worse. On the Dutch part it was suspected that the British were deliberately frustrating Dutch aircraft production.<sup>41</sup> More and more the Munitions Agency determined the production goals and mediated in the difficult relationship between the grumbling *LVA* and Wijnmalen. The ambition to create an independent aircraft industry continued in 1918 with the order given to Wijnmalen to manufacture two hundred Clerget aircraft engines. The contract of March 1918 stipulated the delivery of the first fifty before 1 January 1919, the remainder following in August 1919 that same year at the latest. Eventually, the first fifty were overdue for inspection and, besides that, rejected by the *LVA* on technical grounds. In 1919 the Government wanted to cancel the order altogether. The factory was to receive 1.1 million guilders in compensation without ever delivering. The engines left the factory as scrap. Despite the compensation he pocketed, Wijnmalen

suffered a huge financial loss because of the rejected and unwanted engines.

After the fighter-plane, Wijnmalen delivered his first, self-designed, Spyker training aircraft, the V-2, in April 1918. The company received the order to build 56 planes for the *LVA* and 40 for the Dutch Royal Navy. Production culminated in 1918-1919, which may be regarded as the peak of Dutch aircraft production until then. It was the first time Dutch aircraft went into serial production. The first flight took place in April 1918, and the highest production output was at the end of 1918.

The final order of the *LVA* for the V-3 fighter propelled by a Clerget engine was placed late October 1918. Its production would total 72. The first V-3 was to leave the factory in July 1919. Flown by Versteegh, it was shown at the ELTA air exhibition, but the order was cancelled. Thus, efforts to expand Wijnmalen's factory into a modern Dutch aircraft industry by mediation of the Munitions Agency utterly failed. The major problem had been the supply of raw materials, but lack of knowledge, in general, and commercial insight on the part of Wijnmalen in particular, must have contributed to this failure.

In January 1918 the Paris envoy sent reports about the possibility to buy aircraft in France, originally destined for Russia. It concerned Sopwith aircraft propelled by Rhône or Clerget engines. Walaardt Sacré wanted to have a go at it, but General Snijders was reluctant. Fed up with long delivery periods, he put his cards on Germany, with which experiences had been excellent in 1917.<sup>42</sup> Therefore, in 1918 Versteegh again left for Berlin to purchase 24 Rumpler aircraft, which were also suitable for aerial photography and wireless radio-telegraphy. In August they appeared to function well, so that delivery could take place. Besides money the Germans also desired horses as means of payment, but that did not happen. By the end of October forty aircraft were delivered, with Spandau and Parabellum machineguns and ammunition.

Straight after the war these aircraft would come under scrutiny due to the relatively high number of crashes. Pilots Duinker and C. Land (1888-1919) lost their lives in this way on 14 May and 1 November 1919, respectively. Prince Hendrik, the Queen's consort, was more fortunate: on 6 June 1918 his flight in a Rumpler, piloted by Van Heyst, ended safely. Alibert Cornelis Visser van Yzendoorn (1858-1924), Liberal MP, blamed the *LVA*

for purchasing defective material, but Walaardt Sacré objected, arguing that although the Rumplers may not have been the most modern aircraft, they certainly were the best possible buy at the time. In 1919 the aircraft stayed on the ground most of the time and a committee researched the matter in 1920. The aircraft were eventually superseded by Fokker C VIIIs.

The expansion of the *LVA* envisaged by General Snijders and Walaardt Sacré could neither be realized by acquisitions abroad, nor by national Dutch aircraft production. Walaardt Sacré even lamented in June 1918 that the interned aircraft were the backbone of the *LVA*. In the final months of the war the purchase of these aircraft was stopped altogether, because there were too few parts available to keep them in the air. General Snijders regretted this because they were the most modern aircraft he could get.

The *LVA* calculated in 1918 that, in the event of war, there would be a shortage of one hundred fighters and eighty reconnaissance aircraft.<sup>43</sup> By the end of the same year the state of affairs was:

number	make	origin	period of use
10 fighters	Fokker	Germany	1917-1920
20 fighters	Nieuport	Wijnmalen	Hardly
10 fighters	Nieuport	France	1918-1925
5 recon. aircraft	Caudron <sup>44</sup>	France	1918-1920
40 recon. aircraft	Rumpler	Germany	1918-1920

The goal was still to have 116 fighters and 132 reconnaissance aircraft available by the end of 1919. Evidently, achieving that goal was still a long way off. Even General Snijders' own calculation made in June 1917 fell far short of that.

Where aircraft engines were concerned, the delivery from Sweden was rather stable. Besides that, some twenty engines could be ordered from Oberursel, a Fokker subsidiary in Germany, while Van Berkel was working with Hispano-Suiza. Wijnmalen's Clergets have already been mentioned. The calculated requirement for 585 engines late 1919 was not fulfilled by far.

## Exit Wijnmalen, enter Fokker

After the Armistice, demand dropped rapidly and aircraft manufacturing in the Netherlands changed dramatically. On the one hand, there was the wish of many to have a national aircraft industry; on the other, Wijnmalen's reputation was not exactly glowing, and the political demand for economies was beginning to play a role. Besides, Fokker returned from Germany.

The collapse of Imperial Germany signalled the moment for Fokker to bring his aircraft to safety in a spectacular way. He was able to repurchase a number of aircraft from the German Government at a reasonable price. Together with what he had in stock, this amounted to 220 aircraft.<sup>45</sup> In March 1919 he managed to take them into the Netherlands, loaded into 350 railway carriages, to be safely stored in Amsterdam. Fokker had only one goal, which was to carry on with his factory in the Netherlands. The first step was to come to an agreement with Wijnmalen, so that this company could act as the official importer of the aircraft that had arrived. Fokker's return is therefore closely connected with Wijnmalen's demise.

In April 1919 Fokker received publicity again in the Netherlands. He was back into organizing air shows and founded a flying school in May 1919.<sup>46</sup> In June he started to organize round tours from Scheveningen and entered into contact with Wijnmalen in order to establish a national aircraft industry.<sup>47</sup> For the time being this was limited to founding the Dutch Aircraft Factory Ltd in Amsterdam in 1919 with Fokker as its managing director. In order to make the enterprise as Dutch as possible he made Joannes Benedictus Van Heutsz, the general officer who had secured a Dutch victory in the Aceh War, and the affluent entrepreneur Fentener van Vlissingen, members of the Board of Commissioners. Fokker also wisely avoided advertising his own name. Van Heutsz was rather taken by the idea of an independent Dutch aircraft industry and gave Fokker his wholehearted support.<sup>48</sup> In the Netherlands Fokker's initiative was greatly stimulated by ELTA, which prompted him to disguise the military character of his aircraft as much as possible, all the more because Fokker was given permission to build his factory on the ELTA site.<sup>49</sup>

In the meantime Fokker had to dispose of the aircraft he had smuggled out of Germany. Thus, Fokker ended up with Wijnmalen and the War Ministry

again. In January 1920 these parties reached an agreement for the delivery of 92 D VII fighters and 92 reconnaissance aircraft C I. Any feelings of joy were short-lived, however. Already in April economies impelled the Government to reduce the initial order to twenty D VIIIs and sixty C Is to the amount of 600,000 guilders. In the years that followed it would give Fokker great pains to sell the remaining aircraft abroad. That was not the end to the matter for the Government: Wijnmalen had to be given compensation.

The Dutch Government wanted to be relieved of the responsibilities by which it was bound by contract to Wijnmalen because, as Secretary George August Alexander Alting von Geusau (1864-1937) declared, more modern means had become desirable in the meantime. The buying-off took place in December 1920 and caused a bit of a stir in the Second Chamber of the Dutch Parliament. Wijnmalen received 1.1 million guilders in total for the engines - which were all sold for scrap – 0.8 million as down payment for the delivery of 73 fighters (V 3) and 118 reconnaissance aircraft (V-4), which were never delivered, and 1.8 million in compensation for the cancellation of the purchase contract by the State. All in all, a total sum of 3.7 million guilders was involved, for which the State got very little in return apart from a heap of scrap steel. A motion, introduced by the Liberal Hendrik Coenraad Dresselhuys (1870-1926), to investigate these financial transactions into some depth could not change anything. The injection of millions of guilders could not save Wijnmalen. Nor could the, in the meantime internationally, renowned aircraft manufacturer Koolhoven, back in the Netherlands since 1919 and lodging with Wijnmalen. It was now becoming clear that Wijnmalen was a better aviator than a commercial entrepreneur. Fentener van Vlissingen stopped giving financing support in 1922 and Wijnmalen resigned in May that same year. Koolhoven, who had primarily occupied himself with Spyker motorcars, also took his leave in May. Baumhauer, the engineer behind the aircraft designs from 1917 to 1919, went to Van Berkel to design seaplanes for the Dutch East-Indies. Mechanic Vannehard went to work in Joop Carley's aircraft factory. In 1926 Wijnmalen's bankruptcy was definite.

The close of the First World War and the ensuing economies made plans for a national aircraft industry an illusion. The *LVA* did business with Fokker, but its purchases were far from substantial. Fokker aircraft replaced the Rumplers and the remaining Farmans, which were used for



instructional purposes or sold. Subsequently, the aircraft were sold to Carley's aircraft factory in Ede<sup>50</sup> in 1920-1921.

But there were also other players who, in the turbulent post-war years, tried to get their share in the aircraft industry. It was not just Fokker, with his German background, who was involved. The British also tried to obtain a firm footing, even literally, in one instance. In January 1919 there was talk of the location of a British airship base on the Dutch coast. The RAF was looking at locations near Hook of Holland and Duinrell (Wassenaar), but cancelled the plan a month later.<sup>51</sup> Great Britain was also the first country where the *LVA* tried to obtain the latest knowledge. In October 1919 a delegation was formed to make the journey across but, due to all kinds of difficulties, it never went forward.

Far more structural was the interest displayed by the British aircraft industry, especially Vickers. In Britain, Fokker's activities were eyed with suspicion. On 14 March 1919 the belligerents had met in Brussels and reached an agreement to ban the export of all war materials from Germany. On the basis of the cease-fire agreement of November 1918, which was being worked out in detail in the Versailles Treaty, and about which negotiations were going on at the time, all German war materials were considered war booty. This concerned an estimated 20,000 aircraft. Fokker's aircraft should therefore never have left Germany, nor should the Netherlands have accepted them, the British argued. Although the Netherlands were no party in the negotiations with Germany, accepting the Fokker aircraft was a blemish on the image of the Dutch Government, even more so because the British were eager to take possession of the Dutch aircraft market themselves. They feared that the Germans would soon saturate the market in neutral countries with their aircraft. Their fear was not totally unfounded. The Junkers factory, for example, had hidden 24 dismantled aircraft in Nijmegen from 1919 to 1920, while newspapers contained many advertisements in which German aircraft were offered for sale. Such manoeuvres also went on in the Scandinavian countries.

What was the British perception of what was going on in the Netherlands? In March 1919 British envoy W. Townley demanded an explanation about forty Fokker aircraft that were supposed to have arrived in the Netherlands. Five days later he reported that the Dutch Government was intent on buying two hundred Fokker aircraft, which were rumoured to be there already. On its own initiative, the Munitions Agency entered into

contact with the British, who took the formal stance of not being a party in this matter. That changed when in May the British aircraft industry<sup>52</sup> got wind of it and reported to London that this was consequently going to cost them orders and that the Dutch Government was violating international agreements. In June the British Air Ministry thought that the Netherlands stored these Fokker aircraft with Wijnmalen in order to enable this factory to meet its delivery obligations. In the course of the months that the British were investigating this matter, they even took it to the level of the Allied Supreme Commander, Marshal Ferdinand Foch (1851-1929). It appeared that, as early as the ceasefire negotiations at Spa, the sale of Fokker aircraft from the German Government back to Fokker had already been discussed between British delegate Richard Haking (1860-1945) and German Kurt von Hammerstein (1878-1943). After that, the British aviation authorities argued, Fokker had probably from April to May 1919 bribed Customs officials and smuggled 180 aircraft into the Netherlands and stored them at his own factory. The Dutch Government was supposed not to have bought them, or only just a few of them. The aircraft were said to have been spotted at the ELTA site, with German identification marks still visible through the newly-applied paint. The British also averred that Fokker had concealed five thousand aircraft engines near Arnhem, which he tried to sell by way of newspaper advertisements.<sup>53</sup> In January 1920 the British alleged that the Fokker aircraft were yet taken over by the Dutch Government via Wijnmalen.

British apprehension about the “slipping” of German aircraft into the Netherlands continued in 1920 and 1921. They suspected Carley of being paid by the Germans, or even being a German agent, and investigated Holz, a Amsterdam company that organized an auction for German aircraft in Ede in 1921.<sup>54</sup>

After having been succeeded by Hardenberg and leaving the service, Walaardt Sacré took his chances with Vickers, which tried to get a firmer foothold in the Netherlands through him. Vickers’ activities had started in August 1919. From this cooperation stemmed the National Aircraft Industry Ltd in April 1922, in which familiar names reappear: Joop Carley as managing director, Walaardt Sacré as member of the Board of Commissioners, Frits Koolhoven as engineer and Van Heyst as test pilot. Initially, the aircraft were manufactured at an engineering works in Rotterdam the Munitions Agency had already done a lot of business with.

After a fire on 5 December 1922, construction was transferred to The Hague, before the company went bankrupt in 1925.

## The balance

On behalf of the Government the Munitions Agency tried to establish a national aircraft industry from 1917 onwards, by giving Wijnmalen specific orders and by stimulating other companies. Apart from the War Ministry, the Ministry of Colonial Affairs and Commander-in-Chief Snijders also lent support to this policy, which suited the broader aim of having a national Dutch industry for war production. This was rather a tall order, because it implied giving private companies Government subsidies to manufacture aircraft. The results proved to be limited. Wijnmalen and Van Berkel, the companies that profited most from the subsidies, did not manage to pull through as soon as the war was over. The support for making available large funds for this purpose was also rapidly dwindling as the foundation of this support, laid during the war, had become too narrow.

Military aviation in the Netherlands had reached maturity in the First World War, just as it happened with the belligerent powers. For gathering knowledge and acquiring raw materials, the particularly unfavourable position of the Netherlands left an emphatic mark on the construction of the *LVA*, in a qualitative as well as quantitative sense. The *LVA* continuously found itself far below the desired level, despite the awe-inspiring efforts of Walaardt Sacré and Snijders. The interned aircraft, though important for knowledge gathering, did not play a significant role in making up for the deficiency. Neither were the British aviation authorities positive in their judgment about the *LVA* at the end of the war. When in 1918 they were considering the possible delivery of aircraft, they spoke of “negligible numbers”, realizing how small the *LVA* in fact was, and referred to the training of airmen as “very elementary and inefficient”.<sup>55</sup> Fokker was a God-sent! Earlier, positive experiences with him in 1917, together with the glowing reputation of his aircraft during the war, must have strengthened the choice to welcome this prodigal son back with such warmth. Besides, Fokker was a far better businessman than Wijnmalen. The Netherlands was lacking specialist expertise for producing engines – aircraft engines are technically very challenging –, lacking actual war experience and, together with that, the very rapid technical progress in

the field of aviation in the war years, and had to do without the fundament of an already existing aircraft industry in the pre-war years.

The scales, however, are not tipped in such a way that a one-sided, negative picture of the *LVA* emerges. Its growth under Walaardt Sacré was impressive: its workforce expanded from 111 to 708 employees, with a modern and complete airfield as its home base, and as such “a solid basis for Dutch military aviation”.<sup>56</sup> In Dutch military operational thinking the air force had achieved a firmly-fixed position. In 1919, military aviation was incorporated in the Strategic Directives, the all-comprising General Staff regulations, which spelt out the preparations of national defence and mobilization of the armed forces.

The *LVA*, it is true, also received substantial funds, especially in the closing years of the war. In April 1917 for instance, when the necessity of drastic expansion and modernization of the air fleet became apparent, General Snijders was hoping for a budget of 15.7 million guilders for 1918. He was granted 10 million, which was an increase of the air force budget of 250% in one year’s time!

After the Armistice, the continuation of such huge expenses was no longer politically feasible. In 1917 General Snijders had still put in for a budget of 6.3 million for the year 1919.

Just like Bosboom, War Secretary De Jonge was willing to pay for the air force. He even caused something of a political stir when he announced that the annual budget would have to be as high as twenty million guilders!<sup>57</sup> Left-wing resistance in the Second Chamber was gathering momentum in 1919. A socialist MP referred to the military air force as “boyish toying”, unfit for a small, neutral country like the Netherlands. He would rather see the military air force vanish altogether. Self-evidently, War Secretary Altling von Geusau, did want to go as far as that, declaring that “every field army needs an air service for reconnaissance and observation, but especially for counteracting reconnaissance by the opposition”. In the recent war the air force had been “of the greatest significance for morale and defensive force”.<sup>58</sup> Conversely, to left-wing MPs the military air force was no more than just a symbol of the indulgence in an expensive hobby. In this respect their opposition resembled the nineteenth-century combined resistance of left-wing Liberals and Socialists against the building of expensive fortifications. Just like then, opposition was futile.

Perhaps they found some comfort in the fact that the craved for national aircraft industry had not got off the ground.

The national military aircraft industry may not have materialized, but the ideals lived on, as this remark made by War Secretary Van Dijk in 1921 testifies: “In particular I would once again like to emphasize the national interest, which demands that, in the event of mobilization, for the sake of preserving its neutrality the country can dispose of an industry that should, more than previously, be able to meet the most necessary requirements of the army and navy air services. The past war years may serve as conclusive evidence that supplies from abroad cannot be sufficiently guaranteed.”<sup>59</sup> This fragment goes to show that in the inter-war years the discussion was by no means closed, but the urgent necessity was not there. The financial means to make this step were neither readily available shortly after the war, nor was the foundation laid during the war firm enough. Moreover, Fokker unexpectedly filled the gap the *LVA* was threatening to fall into in a manner that rendered a firm Government initiative superfluous. In any case, despite major efforts, at the end of the First World War the *LVA* was still far removed from what a modern air force would have to look like.

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<sup>1</sup> Existing literature on this subject is principally in Dutch. The best study is R.de Winter, *Leven voor de Luchtvaart* (The Hague, 1992). The best introduction to the Netherlands in 1914-1918 in English is M. Abbenhuis' *The Art of Staying Neutral* (Amsterdam, 2006);

<sup>2</sup> General Snijders to the Queen's Commissioners, 2 August 1914, *National Archives The Hague (NA), archives of the General Staff (GS) inv. nr. 37*;

<sup>3</sup> *NA, GS inv. nr 37*;

<sup>4</sup> *NA, GS inv. nr. 136*;

<sup>5</sup> French pilots were interned in Urk, an isolated island in the Zuiderzee, and questioned by the *LVA*;

<sup>6</sup> Walaardt Sacré to General Snijders, 18 December 1914, *NA, GS inv.nr 115*;

<sup>7</sup> S. van der Zee, *Vergeeten legende* (Amsterdam, 2001) and <http://www.alexdenouden.nl/artikelen/koolhoven.htm>.

<sup>8</sup> About Wijnmalen: H.J. Hazewinkel, *Vliegtuigbouw in Fokkers schaduw* (1988) and De Winter, *Leven*, p.70;

<sup>9</sup> H. Hoofdman, *Van Brik tot Freedom Fighter* (Zwolle, 1963), pp. 16-9;

<sup>10</sup> From 1916 Schiphol became the main military airfield for the same reason;

<sup>11</sup> Koolhoven worked for this factory in the years 1906-1910;

- <sup>12</sup> Wijnmalen to General Snijders, 17 March 1915, *NA, GS inv.nr. 322*;
- <sup>13</sup> Ministry of Foreign Affairs to London envoy, 10 January 1915, *NA, archief Nederlandse ambassade Londen, inv.nr 854*;
- <sup>14</sup> Figures based on the monthly LVA reports in *NA, GS*.  
Consult <http://home.casema.nl/kw.jonkre/vliegtuigtypen.htm#C> and Hooftman, *Briek* (Zwolle, 1963) for a complete survey containing all the technical data of all the aircraft in the service of the LVA;
- <sup>15</sup> Bosboom to General Snijders, 30 June 1915, *NA, GS inv.nr 324*;
- <sup>16</sup> Hardenberg Memo, 11 November 1921, *NA, GS inv.nr. 962*;
- <sup>17</sup> De Winter, *Leven*, pp. 84-85;
- <sup>18</sup> Labouchere's grandfather was French and his three brothers lived in France. He was a pilot, having received his flying license in 1910. General Snijders accompanied him on his flights during the large-scale manoeuvres of the Dutch Army in September 1911. Most of the time Labouchere worked in France inspecting engines that were exported to the Netherlands. He also provided information about the latest French developments in military aviation;
- <sup>19</sup> Wijnmalen to Walaardt Sacré, 1 August 1916, *NA, GS inv.nr 501*;
- <sup>20</sup> This Agency, founded by the Government in June 1915, can be compared with the Ministry of Munitions in Great Britain.
- <sup>21</sup> Negotiations with Wijnmalen, September-November 1916, *NA, GS inv.nr 501* and *Archief Artillerie Inrichtingen, inv.nr 2690*;
- <sup>22</sup> General Snijders, 15 April 1916, *NA, Archief Eenbeden Landmacht inv.nr 549*;
- <sup>23</sup> See W. Klinkert, "Om den oorlogstoestand zooveel mogelijk na te bootsen..." in M. Kraaijestein and P. Schulten (eds.), *Wankel evenwicht; neutraal Nederland in de Eerste Wereldoorlog* (Soesterberg, 2007);
- <sup>24</sup> General Snijders to Buhlman, 9 January 1915, *NA, GS inv.nr 322*;
- <sup>25</sup> Scheltema to Bosboom, *NA, GS inv.nr 322*;
- <sup>26</sup> Bosboom to General Snijders, 15 November 1915, *NA, GS inv.nr 330*;
- <sup>27</sup> Dossier Richttoestel GM 1916, *NA, GS inv.nr 492*;
- <sup>28</sup> Walaardt Sacré to General Snijders, 23 September 1915, *NA, GS inv.nr 275*;
- <sup>29</sup> General Snijders to Bosboom, 15 December 1915, *NA, GS inv.nr. 271*;
- <sup>30</sup> Walaardt Sacré to General Snijders, 17 May 1915, *NA, GS inv.nr. 322*;
- <sup>31</sup> *NA, GS inv.nr 647*;
- <sup>32</sup> *Het Vliegveld*, 1919, p.94;
- <sup>33</sup> Walaardt Sacré to General Snijders, 9 March 1917, *NA, GS inv.nr. 643*;

<sup>34</sup> For criticism of the results in the field of military aviation in the Netherlands, see the series of articles published by Johan Rozendaal in the *Nieuwe Courant* (12 October to 2 November 1917);

<sup>35</sup> Besides foreign aircraft flying over Dutch national territory, the opposite also happened. On 5 January 1915 Dutch lieutenant J.P. van Oosten (1891- 1918) flew over Elten in Germany.

<sup>36</sup> He took it for granted at the time that Wijnmalen would deliver sixty aircraft (Nieuport, Sopwith and Caudron), twenty from France (Nieuport and Caudron) and ten Fokkers from Germany. Fourteen Farman would remain available as training aircraft;

<sup>37</sup> De Jonge to the Ministry of Foreign Affairs, 8 September 1917, *NA, Archief Buitenlandse Zaken, A-dossiers Europese Oorlog (BZ A) inv.nr 724*;

<sup>38</sup> Interview with Van Berkel in *NRC*, 15 March 1921. For the factory, see *Het Vliegveld* (1921) p. 98;

<sup>39</sup> De Jonge to General Snijders, 9 November 1917, *NA, GS inv.nr 643*;

<sup>40</sup> Dossier samenvoeging luchtmachten November 1917-februari 1918, *NA, GS inv.nr 741*. Also, *Het Vliegveld* 1929, p.372 and 438 and *Gebeime verbalen Ministerie van Oorlog 1920, inv.nr 313*;

<sup>41</sup> Ministry of Foreign Affairs, 10 May 1918, *NA, BZ-A, inv.nr 729*;

<sup>42</sup> January-February 1918, *NA, GS inv.nr. 765*;

<sup>43</sup> Walaardt Sacré to General Snijders, 12 July 1918, *NA, GS, inv.nr. 821*;

<sup>44</sup> On 1 November 1918 a Farman collided with a Caudron in mid-air over Soesterberg. The aircrews of both planes died in the accident;

<sup>45</sup> 120 D VII, 70 C 1 and 20 D VIII;

<sup>46</sup> *NRC*, 26 April and 6 May 1919; *Het Volk*, 6 June 1919;

<sup>47</sup> *Het Centrum*, 2 & 28 June 1919;

<sup>48</sup> E. Franquinet, *Fokker* (Eindhoven, 1946), pp. 179-80;

<sup>49</sup> Fokker's adventures have been recorded in detail in M. Dierikx, *Dwarswind* (Den Haag, 1997). See *Het Vliegveld* (1920) for a survey of his aircraft;

<sup>50</sup> Head of the LVA to the General Staff, 22 October 1921, *NA, GS inv.nr. 962*. See *Het Vliegveld* (1920), p. 319;

<sup>51</sup> *National Archives London (NA-GB)*, Air 1/34/15/1/206;

<sup>52</sup> Besides Vickers, this also concerned the AVRO factory of Alliot Verdon Roe (1877-1958);

<sup>53</sup> *Algemeen Handelsblad*, 25 October 1919;

<sup>54</sup> *NA-GB, dossier Air 2/199*;

<sup>55</sup> *NA-GB, Air 1/34/15/1/206*;

<sup>56</sup> De Winter, *Leven*, p 65;

<sup>57</sup> 28 November 1917, p. 512 and 5 February 1918, p. 1225;

<sup>58</sup> 18 December 1919, p. 1062;

<sup>59</sup> *Van Dijk Memo*, 4 November 1921, *NA, GS inv.nr. 962*.