

# Coastal defence by the Allied forces behind the Yser front: about arms, water, sand and patients

Guido Mahieu & Johan Termote

The dunes of the Belgian west coast occupied an important place in the First World War. This had not been foreseen nor prepared by the Belgian high command, however. This part of the Belgian coast had only recently been discovered by tourists. De Panne and Nieuwpoort had quickly become important seaside resorts in the last quarter of the 19th century. The seaside resorts of Sint-Idesbald, Koksijde and Oostduinkerke had hardly been developed at all. The municipality of De Panne had been split off from Adinkerke as recently as 1911 and was experiencing an explosive growth as more and more villas and hotels were being built. It had originally been a fishing settlement, and fishermen still occupied an important position. On the eve of the First World War,

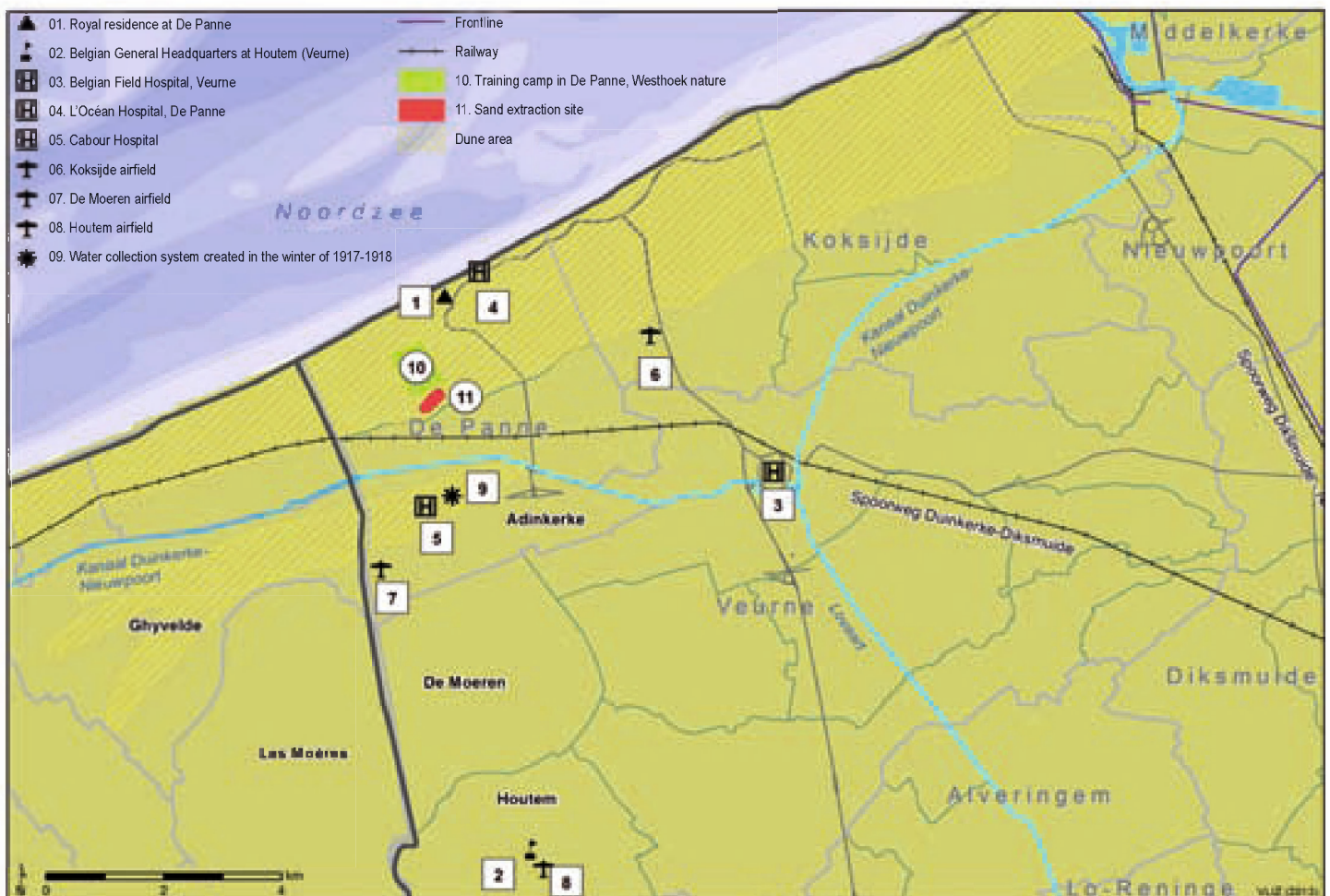
plans were ready to construct a fishing port. So there was no reason to suspect that the Belgian army would end up in this region in October 1914 when it succeeded in halting the German advance at the river Yser with the assistance of Allied troops. The Belgian rearguard was situated in a small, quiet coastal area with high dunes.

## Intensive use of the dune area

When you look at the map, you immediately realise the strategic importance of this area. The area between Nieuwpoort and De Panne had a belt of high sand dunes overlooking the sea with a hinterland that



The Belgian west coast was undergoing an explosive growth prior to WWI. Numerous villas and hotels – such as Hotel Terlinck – were being constructed (Kristof Jacobs, Nieuwpoort sector 1917)



Map of the dune area between De Panne and Nieuwpoort representing various (military) infrastructures (VLIJ)

could be inundated for the most part. The old dunes of Adinkerke-Ghyvelde (hereinafter the “old dunes”) extended as far as one kilometre inland near the French-Belgian border. The area was only used to a limited extent as farmland and hunting grounds in this period. Both the near-shore dunes and the old dunes located more inland were very easily accessible, including from France, as they were situated between the important transport links of the Nieuwpoort–Dunkirk canal and the single-track railway between Diksmuide and Dunkirk. The principal traffic junction of unoccupied Belgium, which turned out to be vital for transport to and from the frontline to the east, was therefore situated between both dune systems. Furthermore, the western part of this area was initially out of range of the heavy German guns. This advantage was short-lived, however, because in April 1915 the Germans started to deploy long-range artillery that covered the entire coastline up to Dunkirk. Nevertheless, said circumstances helped to determine the location of the royal residence in De Panne. The new General Headquarters were moved from Veurne to the presbytery of Houtem village on 23 January (as Veurne came under fire) and they were easily accessible via Les Moères/De Moeren. Yet the war was also felt here, seemingly safely far away from the frontline. In particular the take-over of the coastal area by the British Fourth Army in early 1917 in preparation for the Allied offensive at Ypres

resulted in heavy and relentless German bombings. This did not prevent this western dune area from being used for all sorts of purposes during the Great War. It has never been used more intensively than in this eventful period.

## Prepared for a German landing on the Belgian west coast

### Dunkirk protected

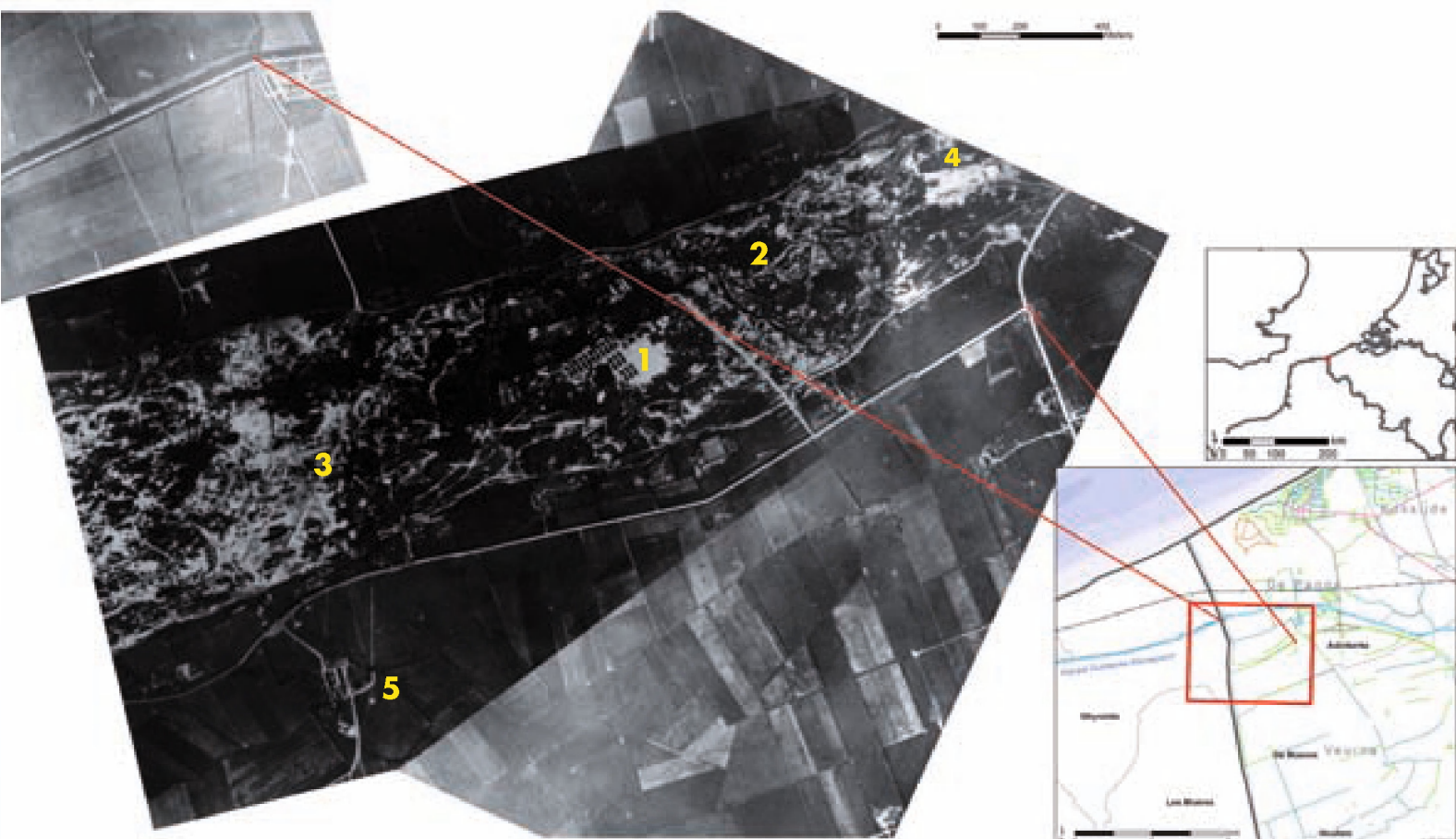
An extensive defence infrastructure was established on the dunes. This may seem surprising since this location was at some distance from the front. If we take a look at the bigger picture, it soon becomes clear what the reason was: everything revolved around the defence of the Channel ports and Dunkirk in particular. In this context, various scenarios had to be taken into account. The Germans could mount an attack by land as well as by sea. The French were especially interested in the protection of Dunkirk. The port of Dunkirk therefore had its own defence system, the so-called *camp retranché*, which had been gradually developed from 1878 onwards. It consisted of an inundation belt south of the city and a series of batteries on the coastline. The weakest link was the French-Belgian border area, in particular the two above-mentioned dune belts, which formed the ideal corridors towards the port in case of a German breakthrough. The Belgian coastal strip was therefore under

shared Belgian and French control, with a strong presence of French troops in the Nieuwpoort sector.

### The line of defence behind the Yser front

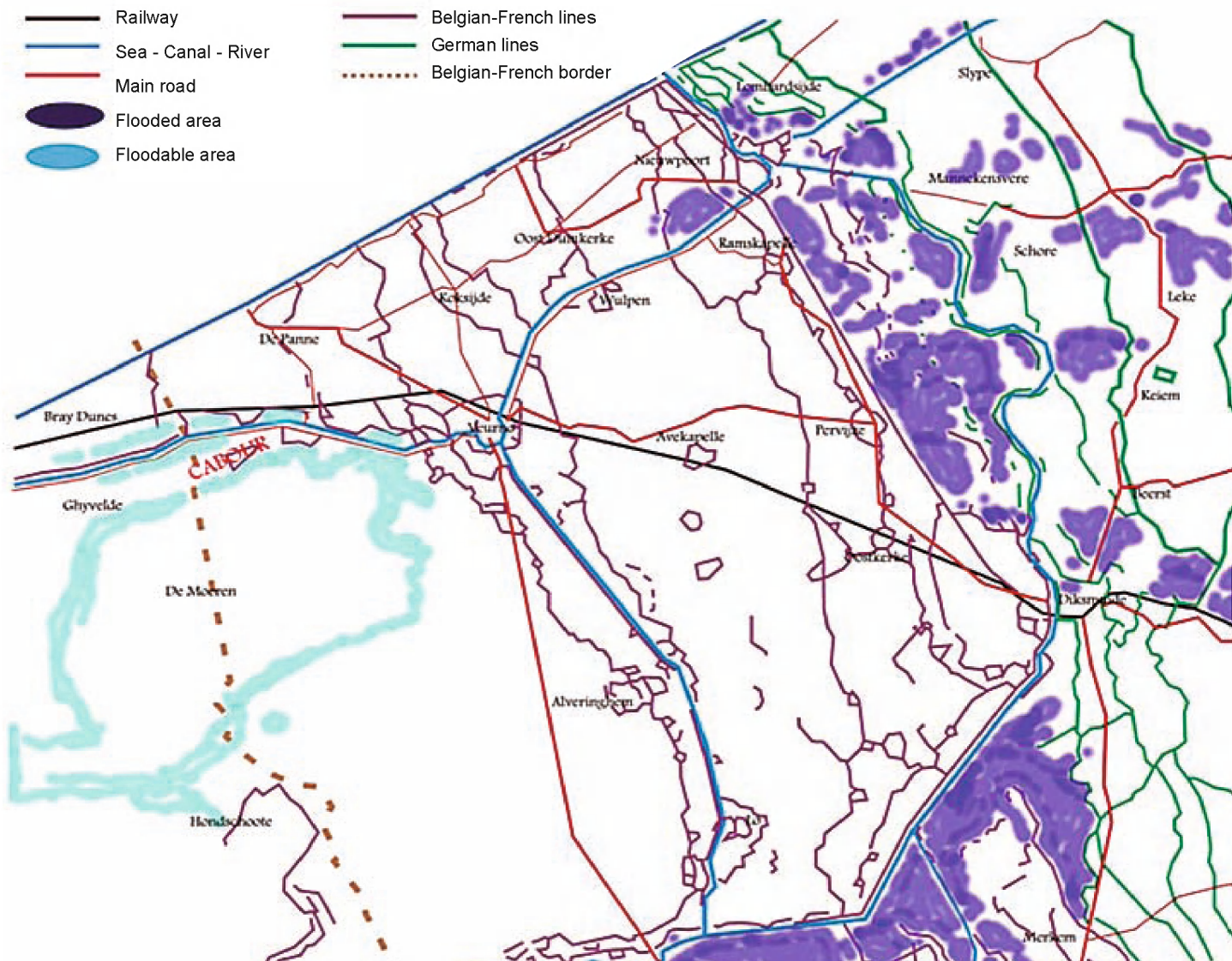
The Belgian army was responsible for the defence of the Yser plain. Immediately after the consolidation of the frontline in the Yser plain, Belgian troops established a new line of defence behind it. This line consisted of a series of parallel defensive lines combined with areas that had been or could be flooded. On Belgian territory four north-south running lines were established, the westernmost of which extended beyond the coastal polder area. The lines continued to the dune belt, where they split up. The crucial point was the Yser estuary, where the Allies were able to maintain the bridgehead of Lombardsijde until it was taken by the German army during operation *Strandfest* on 10 July 1917.

In early 1916 the Allies also became aware of the risk of a German invasion on the Belgian west coast. This was the result of the increasing activity in the occupied Belgian ports and the presence of *Marinekorps Flandern*, which prompted the Allies to set up a coastal defence system under the command of Lieutenant General Drubbel, at this time commander of the Belgian 2nd army division. Five defensive structures, each manned by a company, were built on the near-shore dunes between the towns of Bray-Dunes and De Panne, the most obvious landing place. These structures consisted



■ The Belgian part of the dune area of Adinkerke – Ghyvelde (aerial photographs 118, Royal Army and Military History Museum)

1 Cabour military hospital. 2 First line of defence. 3 Second line of defence. 4 Water collection system created in the winter of 1917-1918. 5 Groot Moerhof farm



■ Location of the Cabour lines as part of the Belgian-French defences behind the Yser river (map based on the overview map of the Yser front by A. De Boeck, 1918)

of three firing lines equipped with machine guns and an artillery piece to hit targets at sea. Such small-scale coastal defences were also constructed in the remaining part of the Belgian west coast, east of De Panne.

### The “forgotten” trenches

The Belgian defence was apparently limited to the above-mentioned linear elements. The French defences were slightly more solid and were mainly directed against a possible German attack by land. Both in the near-shore dunes and in the old dunes the French army constructed an in-depth defence system which partially extended into Belgian territory. Vestiges of these defences have been conserved. They belong to the best-preserved trench lines from the First World War on Flemish soil and are a classic example of the structure of a trench system. The trench system is situated east of the Cabour hospital complex (see below) and was part of a bigger system of trenches dug in the old dunes. It consists of various lines forming a large triangle pointing east. The system is intersected by a *boyau*, a trench connecting and providing communication between the



■ Westhoek nature reserve, aerial view of the Belgian-French border area with traces of the first French line of defence (Google Earth, 2-4-2007)

## The Cabour trenches at present

The main trenches are built in a zigzag pattern. The northern line follows the first inland dunes, parallel to Veldstraat, which is the northern edge of the dune complex. In the easternmost part, the line is constructed as a zigzag trench in a raised dune. The area towards Veldstraat was levelled for this purpose. The trench runs in a north-south direction across the site. The existing dune terrain was taken into account, and the trenches split up on the high parts of the dune ridges. The use that was made of the existing terrain explains the erratic course of the trench. Bomb shelters were constructed over the trench in three places. They are made of yellow brick and have a concrete roof. This was reinforced with a 60 cm thick concrete plate at the time of the German spring offensive of 1918. The three bomb shelters are located at either end and in the middle of the line at a distance of about 150 metres. In front of these lines there were several barbed wire fences, which are still visible as evenly levelled strips about ten metres wide, partly running in a straight line, partly in a zigzag. The chronology in which this was built remains unclear. The descriptions and the rare aerial photographs that have been preserved only date from late 1917 and early 1918.



■ This aerial photograph of the old dunes at Adinkerke-Ghyvelde clearly shows the linear traces of trenches from WWI (Decler)

lines, which continued to the middle of the north-south running western line. The design took the terrain into account and made use of the higher dunes. Where these were absent, a dam was created with sand coming from the levelling of the surrounding terrain. This way the trench was above ground level, which gave the defenders a considerable advantage.

The near-shore dunes were also put in a state of defence by the French. This system consisted of a series of trench lines at right angles to the coastline and intersecting the dune belt. The westernmost line was constructed on the Belgian-French border (see picture p.41). These lines have been partially preserved as well.

### Dune hospitals

Good communications and the relatively safe location were valid reasons to establish the principal Belgian military hospitals in the westernmost dune area. The medical service of the Belgian army was in a state of collapse after the German invasion of 1914, and the Red Cross (appointed by law as the mobilisation reserve of the medical service and consisting of civilian volunteers) was also unable to perform its task properly. During the invasion, the evacuation of the wounded was therefore quite chaotic, partly because the medical services did not have any experience with treating the victims of modern industrial warfare. Three hospitals would eventually be established in this part of unoccupied Belgium: the Belgian Field Hospital (in Veurne, later on in Hoogstade), the l'Océan field hospital (in De Panne) and the Belgian military hospital (on the Cabour domain in Adinkerke). These three hospitals each took care of the wounded from a particular sector of the Belgian front. They also ensured the organisation of a number of surgical outposts: Sint-Jansmolen post for l'Océan and Groigny post for Cabour.

#### Belgian Field Hospital (Veurne-Hoogstade)

As a result of the general reorganisation after the Battle of the Yser, two additional hospitals were established at a distance of approx ten kilometres, one run by the Red Cross (De Panne) and the other by the Belgian army (Adinkerke). Both institutions had their own management and funding, which frequently led to tensions. This rivalry eventually resulted in effective assistance which was unique in the context of the war and would finally serve as a model for the treatment of the wounded in later conflicts. This Red Cross hospital was managed by the strong-willed doctor Antoine Depage (1862-1925), and in part thanks to British and American material and financial support it developed into one of the best performing hospitals of the First World War. The development of De Panne as a logistic and administrative centre as well as the

presence and support of the royal family all contributed to this success. Summer resort hotel l'Océan, located on the esplanade of De Panne, was the hospital's main building. A real complex grew up around it in the following years (see picture p. 43). The hospital remained operational until 15 October 1919, albeit with a reduced medical staff.

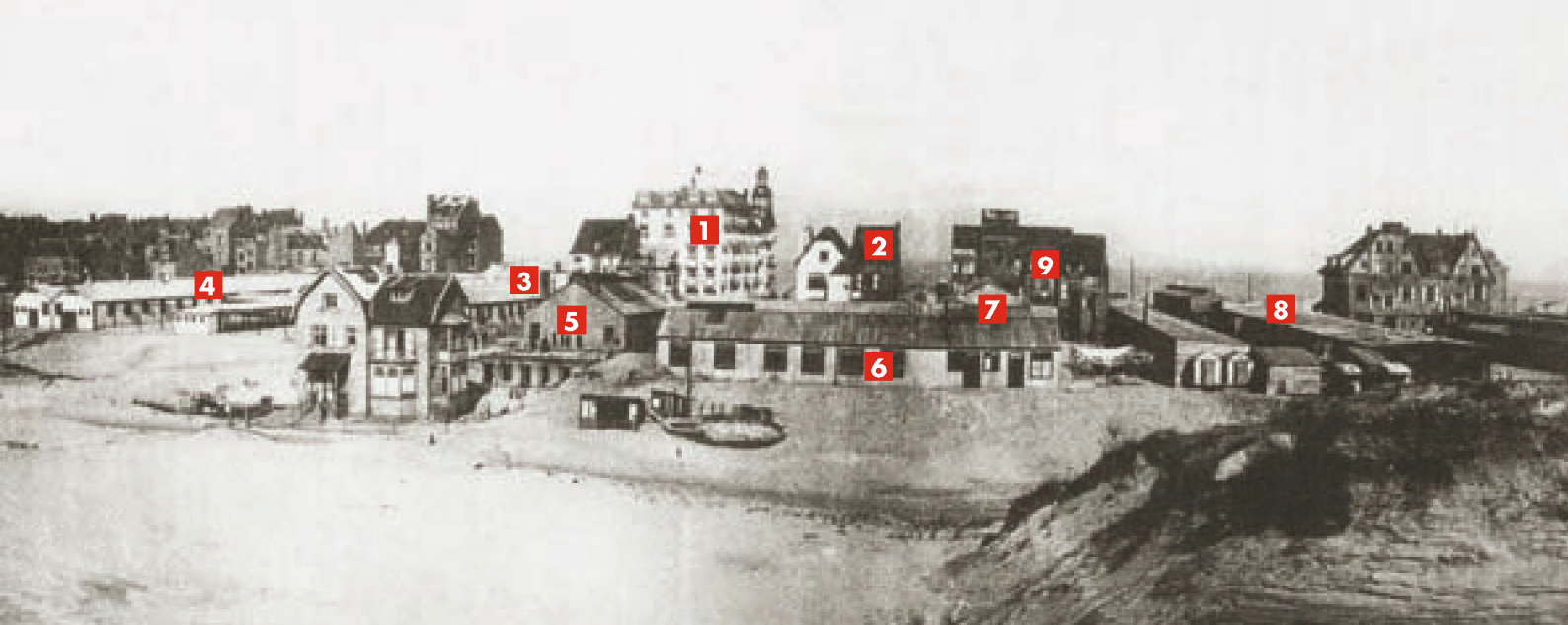
#### *l'Océan field hospital (De Panne)*

As a result of the general reorganisation after the Battle of the Yser, two additional hospitals were established at a distance of approx ten kilometres, one run by the Red Cross (De Panne) and the other by the Belgian army (Adinkerke). Both institutions had their own management and funding, which frequently led to tensions. This rivalry eventually resulted in effective assistance which was unique in the context of the war and would finally serve as a model for the treatment of the wounded in later conflicts. This Red Cross hospital was managed by the strong-willed doctor Antoine Depage (1862-1925), and in part thanks to British and American material and financial support it developed into one of the best performing hospitals of the First World War. The development of De Panne as a logistic and administrative centre as well as the presence and support of the royal family all contributed to this success. Summer resort hotel l'Océan, located on the esplanade of De Panne, was the hospital's main building. A real complex grew up around it in the following years (see picture p. 43). The hospital remained operational until 15 October 1919, albeit with a reduced medical staff.

#### *Belgian military hospital (Cabour - Adinkerke)*

The Belgian military hospital was established a short while afterwards on the so-called Cabour domain in the old dunes. The domain is named after insurance broker Charles Cabour from Dunkirk, who, at the turn of the 20th century, inherited the estate from his uncle Eugeen Carpentier, who had bought it from the Belgian State. Charles Cabour had a country house built on this site which was to become the core of the surgical hospital. The hospital was established between 2 and 26 April 1915 by order of doctor Leopold Mélis (1853-1932), inspector general of the Belgian Army's medical service. The Antwerp British Hospital Fund and Count Félix de Mérode supported the hospital financially. The Belgian military hospital had the advantage of being much closer to the railway and the canal so that it provided better possibilities for evacuation to France. Dr. Paul Derache (1873-1935), who had been put in charge of the Belgian military hospital in Fort Louis near Dunkirk in October 1914, was appointed superintendent of the hospital.

The Cabour hospital complex consisted of the country house and 22 wooden pavilions,



■ *L'Océan field hospital (Brussels, Royal Army and Military History Museum)*

- 1 Hotel l'Océan, 2 British pavilion, 3 Everyman's pavilion, 4 Albert-Elisabeth pavilion, 5 Power station, 6 Laundry, 7 Reception pavilion, 8 Rehabilitation rooms, 9 Dispensary and workshops



■ *The blocks and the number of storeys of the current l'Océan residence still refer to the former pre-WWI construction (Johan Termote)*

19 of which were destined for patients and 3 for staff. The total capacity was some 500 beds. Each pavilion included 24 beds and in each corner there was a separate room for quarantine patients, a linen room and a bathroom. The pavilions were well lit and were constructed on a concrete or brick base. The operating room was located in the country house. The hospital complex was brought into use on 26 April 1915. Cabour surgical hospital (*Cabour chirurgicaal*) was operational up to 12 March 1917. An average of 5 operations were carried out each day and a total of 2811 soldiers were operated upon. The mortality rate of 6.8% was relatively low. A scientific journal was published on a monthly basis for the benefit of the entire medical service: the first issue of 'Archives Médicales Belges' appeared on 1 January 1917. Both Cabour and l'Océan made use of the casualty clearing station near Adinkerke railway station.



■ *The Cabour surgical hospital in mid-1915*

- 1 Cabour country house, 2 pavilions, 3 chapel and 4 pond (Archives of Walter Lelièvre, Ramskapelle)



■ Doctor Derache and his team in action in the operating room, formerly the drawing room of the Cabour country house (Tonneau photo collection)

### **The end of the (relative) calm**

From early 1917 onwards, the German bombings steadily increased with the preparation of Operation Hush (a British amphibious landing plan) and the Battle of Passchendaele (or Third Battle of Ypres). The British took over the coastal sector from the French on 20 June 1917. The Cabour and L'Ocean hospitals had to be moved to the hinterland. On 12 March 1917 Derache moved with his surgical division from Adinkerke to the new military hospital of Beveren-aan-de-IJzer. A general hospital for the ill (*Cabour Médical*) remained on the Cabour domain and was managed by doctor Pierre Nolf. This medical station was operational until 17 February 1920 and concentrated on 'special cases': it treated mustard gas or Yperite victims as from August 1917 and Spanish flu patients as from early 1918.

L'Ocean field hospital was moved to the hinterland, in particular to the village of Vinkem, on 24 October 1917. These two field hospitals were not the only ones: one was brought into use in Bourbourg on 18 May 1915, and the Elisabeth Private Hospital on the Couthove estate in Proven was operational from 21 May 1915 to 25 November 1918.

### **Water collection in the dunes**

The supply of clean drinking water in the area behind the front was of vital importance, e.g. to prevent the spread of contagious diseases. The army gradually put in place a new distribution system for water supplied from France (for the area north of the Dunkirk-Nieuwpoort canal). New water collection systems were created along the Yser river in Haringe and Roesbrugge, and surface water was collected as well. The ground under the dunes contained considerable freshwater resources that were used for the first time during the First World War. During the preparation for the Passchendaele offensive in mid-1917 the British army developed a first limited water collection system in the old dunes on French soil, just west from the border. This sector returned to the control of the Belgian army after the offensive had failed. A fully-fledged water collection system was created by the engineers of the TAG (*Troupes Auxiliaires du Génie*) under the command of Major Van Meenen. This fitted in with the development of a general water distribution system for the area behind the front. The Cabour domain enabled the distribution south of the Veurne-Dunkirk canal, west of the Lo canal and north of Alveringem. The dune area north of the Veurne-Dunkirk canal up to Koksijde was supplied from Dunkirk.

This laid the foundation of a more systematic approach to water collection in

the dunes. The Belgian Ministry of the Interior became responsible for the installations and the distribution after the war. In 1920 the installations were transferred to the Royal High Commission for Reconstruction, which further expanded the water distribution system to the towns and villages to be reconstructed. This authority increased the capacity and added a dozen drilled wells to the drainage ditches. The municipalities of Adinkerke, De Panne, Veurne, Oostduinkerke and Nieuwpoort founded the Veurne-Ambacht Intermunicipal Company for Water Distribution on 24 December 1924. In 1928 they purchased a first part of the Cabour domain and further expanded the water collection system. The company's name changed to Intermunicipal Waterworks of Veurne-Ambacht or IWVA in 1930. Due to the area's high nature conservation value, water collection has been stopped and the Cabour domain has become a Flemish nature reserve.

The core buildings from this first water collection installation, built during the First World War, have been preserved on the domain. They constitute a remarkable industrial-archaeological whole. The installation was located east of the defences. The Belgian army probably took over the water collection system in late 1917 and began to expand the infrastructure in the winter of 1917-18. The system included a pump unit as well as two round water catchment holes. The two drinking water

tanks west of the pumping station probably date from this period as well.

The original pumping station is a simple single-storey building with 6 bays and a pitched roof. A steam-powered pump was installed in the northernmost bay. West of the pumping station are the covered reservoirs, built from cement-coated brick. These reservoirs were covered by a pitched roof during the war. A preserved bomb shelter is located near the pumping station. Two of the original water catchment holes have been conserved as well. They are 10m and 4m in diameter respectively. The installation was expanded and altered several times.

## Sand extraction

The dune area provided another resource besides water. Dune sand was extracted in huge quantities to produce cement. It was also used as a track bed for the various narrow-gauge railways through which the frontline was supplied. But above all, a lot of sand was needed for the sandbags used to construct and repair the trenches. Sand was extracted systematically. On the southern edge of the Westhoek nature reserve in De Panne, in particular in an area west of the Duinhoek neighbourhood, the so-called Fransooshille dune was completely levelled. The sand was transported to the railway line via narrow-gauge railways. This parabolic dune was an obvious choice as it was still shifting and threatened to swallow the road (current Duinhoekstraat). This large-scale levelling across an area of nearly 0.5 km was carried out by the engineers (TAG) of the Belgian army. This makes it one of the highest dunes on the Belgian coast to have been levelled. The southern edge of this sand extraction site, which stands out as low-lying and scrubby, is still visible as a southward bend in Duinhoekstraat. A vast drill ground, where the Belgian troops prepared for the final offensive from September 1917 to early 1918, was established north of this sand extraction site and south of the Centrale Wandelduin dune, situated in the centre of the Westhoek nature reserve. A network of practice trenches that could be surveyed from the higher dunes was dug in the low dunes. This area was connected to the coastal tram line and surrounded by barracks and storage depots. The American army also drilled here in 1918.

## Airfields on the Belgian west coast

The air force became fully fledged during the First World War. The Belgian army started constructing airfields in early 1915. The dune area indirectly played a part in this as well, since dunes are characterised by strong thermals. Planes benefit from this during takeoff, which was sufficient reason to



■ The pumping station for water collection in the Cabour dunes in the winter of 1917-1918 (Archives of Walter Lelièvre, Ramskapelle)



■ The construction of a water catchment hole in the winter of 1917-1918 (Archives of Walter Lelièvre, Ramskapelle)



■ The levelling of the Fransooshille dune, located on the southern edge of the Westhoek nature reserve (Brussels, Royal Army and Military History Museum)

construct airfields preferably near the dune belts. It was no coincidence then that the first military airfield was located on the grounds of the Ten Bogaerde farm in Koksijde. It was extended with a second strip along the dunes' edge in 1916 and was the home base of the 1st, 2nd and 3rd squadron. Koksijde airfield, invariably called "Furnes airfield" by the British high command, was close to the frontline, which made fast interventions

possible. But this was also one of its weaknesses. In the night of 8 to 9 September 1916, German aircraft bombed this airbase, which compelled the Allies to move the airfield westward. They selected a sandy spit of land in De Moeren south of the Ghyvelde-Adinkerke dune belt. This airfield was on the grounds of the Groot Moerhof farm near the French-Belgian border. The relocation took place in stages. The 1st squadron was



■ Aerial view of De Moeren airfield (12 April 1918) (Brussels, Royal Army and Military History Museum) projected on a present-day aerial photograph. The hangars are scattered so as to minimise the impact of bombardments.

1 Belgian-French border, 2 Groot Moerhof farm, 3 Hangars

transferred after the construction in late 1916. The 2nd and 3rd squadron followed on 9-10 February and at the end of May 1917 respectively. Both airfields were also used by the Royal Air Force, as were the recently constructed airfields near the port of Dunkirk (Bray-Dunes, Coudekerque, Saint-Pol and Petit-Synthe).

## Conclusion

After the war, the dune area was metamorphosed further by the resurgence of tourism. The traces of the Great War were largely erased and nature gradually took back its place. A few large-scale infrastructures that had proved their usefulness, such as the water collection system, have been conserved.



■ Georges Gynemer made an emergency landing on De Moeren airfield on 9 September 1917. An attentive soldier took this picture. Gynemer was shot down above Poelkapelle a few days later on 11 September (Brussels Air Museum)

## Sources

- Depret J. (2003). Le Nord, frontière militaire, tome I, période de 1874 à 1914.
- Desiere N. (2004). Cabour. Duinen - Wereldoorlog I - Wereldoorlog II. 80 jaar IWWA 1914-2004.
- De Munck L. & L. Vandeweyer (2012). Het hospitaal van de Koningin; Rode Kruis, L'Océan en De Panne, 1914-1918, De Panne.
- Ryheul J. (2010). Marinekorps Flandern. De Vlaamse kust en het hinterland tijdens de Eerste Wereldoorlog.
- Thans P.H. (1934). Mijn Oorlog, Sint Franciscus drukkerij, Mechelen.
- Zwaenepoel A., E. Cosijns, J. Lambrechts, C. Ampe, J. Termote, P. Waeyaert, A. Vandenbohede, L. Lebbe, E. Van Ranst & R. Langohr (2007). Gebiedsvisie voor de fossiele duinen van Adinkerke, inclusief beheerplan voor het Vlaams Natuurreservaat de duinen en bossen van De Panne, deelgebied Cabour en deelgebied Garzebekeveld, WWI, Aeolus & Universiteit Gent in opdracht van Agentschap voor Natuur en Bos.