Belgian marine scientists during WWI

Ruth Pirlet

When the German forces occupied the Flemish coastal strip in October 1914, they went about it vigorously. In view of the exceptional strategic importance of this region as a base of operations for the battle on and over the North Sea, they installed a vast network of naval ports, artillery batteries, bunkers and airfields between the Yser front and the Dutch border. In addition, the area between the Yser and the border with France was the theatre of the Great War for four years. This situation not only disrupted the everyday lives of the local population greatly, but also resulted in the unemployment of the Belgian coastal and marine scientists. Prior to the war these scientists regularly set up camp on the Belgian coast, for example to examine the marine fauna and flora. The arrival of the German forces put a temporary stop to this activity and forced the scientists to reach out to new horizons. However, this forced exile did not halt all Belgian marine research. In spite of the difficult conditions, some researchers tried to continue their research in one way or another. This chapter does not only discuss marine research in times of war, but also life and work in occupied Belgium. These individuals were not only scientists, but also civilians in an occupied country who did not close their eyes to the events happening around them.

Pierre-Joseph Van Beneden's 'Laboratoire des Dunes' was set up in the buildings of the Valcke - De Knuyt oyster farm, the company of his parents-in-law, situated to the east of Ostend's harbour channel. The proximity of the sea and the constant supply of living research material ensured that the oyster farm was a perfect location for marine biological research (Bibliothèque National de France)

Belgian marine research on the eve of the Great War

Marine sciences were a largely unexplored scientific area in Belgium until halfway the 19th century. Without intending to discredit the work of some important predecessors, we dare say that Pierre-Joseph Van Beneden (1809-1894) heralded the real start of this type of research. Van Beneden was a zoology professor at the Catholic University of Leuven and showed interest in the sea and its residents already at an early stage in his career. For example, he was the first scientist to study marine fauna in the North Sea in a systematic manner. Within this scope he even established his own modest research lab in Ostend in 1843: the "Laboratoire des Dunes" (Dune Laboratory). This first marine research station in the world (!) was an ideal base of operations for Van Beneden's expeditions at sea. Edouard Van Beneden (1846-1910), son of Pierre-Joseph and zoology professor at the University of Liège, also frequented his father's private research station. From this location he initiated numerous students into the research of underwater life.

The marine research field gained momentum in the 1870s. Marine research stations emerged at countless locations along the European coastline, while pioneering scientific ocean expeditions produced a wealth of new data. The era of modern marine research had begun. However, the Belgian authorities refused to invest in this new discipline. The foundation of a marine laboratory financed by the State appeared to be a major obstacle. Only years after the First World War would such a public body come into existence with the establishment of the *Zeewetenschappelijk Instituut / Institut d' Etudes Maritimes* (Institute for Marine Sciences - ZWI). The unwillingness of the Belgian authorities to invest in adequate research infrastructure and to provide appropriate funding contrasted sharply with the enthusiasm of the Belgian scientific world towards these marine studies. Researchers soon went to foreign marine laboratories to gain experience and assisted with several international oceanographic expeditions. When the '*International Council for the Exploration of the Sea*', a cross-border cooperation aimed at gaining better insights into the decreasing fish stocks and the marine environment, was launched in 1902, the Belgian scientists were among the first who expressed their willingness to participate.

This means that at the turn of the century, Belgium boasted a meritorious and respected team of marine and coastal researchers who explored both the Belgian waters and the seas and ocean further away. A large part of them furthermore owed a great deal to father and son Van Beneden, who had managed to turn marine studies into an essential component of scientific life in Belgium. Zoologists Paul Pelseneer (1863-1945), Auguste Lameere (1864-1942) and

The entire Van Beneden family around 1868, with Pierre-Joseph on the far left and Edouard on the right. Both played a crucial role in the development of marine studies into a fully fledged research discipline in Belgium (De Bont, Evolutionary morphology in Belgium: The fortunes of the "Van Beneden School", 2008)

Gustave Gilson (1859-1944), biologists Julius Mac Leod (1857-1919) and Alphonse Meunier (1857-1918), oceanographer Desire Damas (1877-1959), geologist Alphonse Renard (1842-1903), doctors Charles Van Bambeke (1829-1918) and Louis Stappers (1883-1916) and botanist Jean Massart (1865-1925) fell in with this research tradition. The Belgian part of the North Sea was therefore the setting of numerous and diverse scientific activities on the eve of the First World War. All these activities came to a halt when the Germans invaded.

Belgian marine scientists during WWI

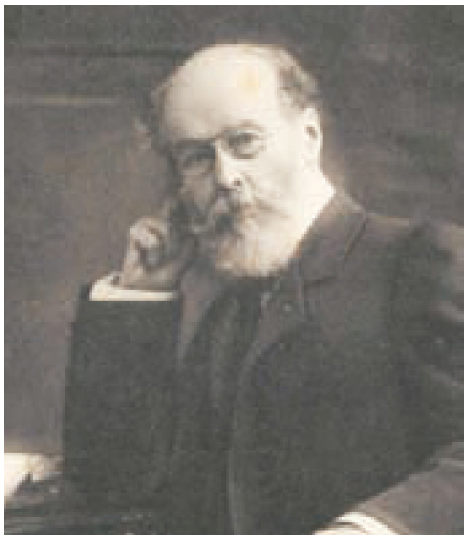
The unfortunates

The research possibilities for Belgian scientists in general were severely restricted from 1914 onwards. The universities closed their doors and numerous research labs, facilities and libraries were occupied, destroyed or plundered. Marine biologists were furthermore cut off from their main research environment, as working at sea had become overly dangerous. The German occupation even heralded the final departure of a number of scientists from the Belgian coast: Charles Van Bambeke and Alphonse Meunier, both passionate marine researchers, died without experiencing the liberation of their homeland. The war also ended disastrously for Louis Stappers, a marine scientist employed by the Royal Museum of Natural History in Brussels. This zoologist also had a degree in medicine and decided to use his medical knowledge at the front. However, the unhealthy conditions behind the trenches soon affected his health. Stappers died on 30 December 1916 in the military hospital of Calais.

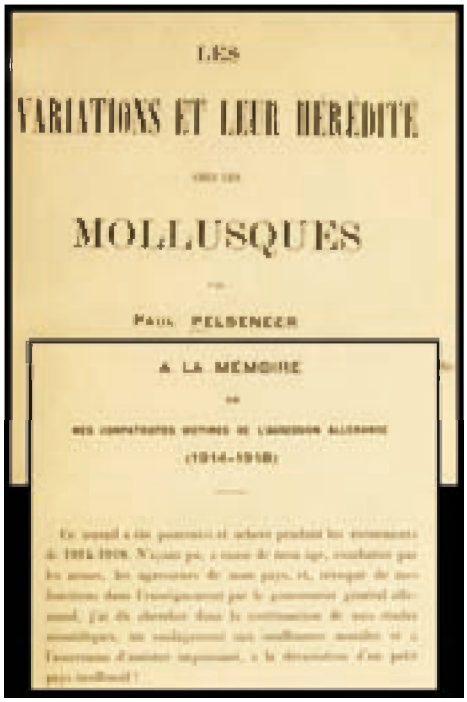
Refuge in work

Other marine scientists were more fortunate in this regard: they survived the war and even managed to continue their marine research in some cases. In spite of the many restrictions, Belgian marine research did not come to a full stop. Several scientists looked for something to hold on to in their research during the war. Paul Pelseneer, who focused on the study of molluscs, lost a lot of certainties in his life at the start of the conflict: he was fired as a botany and chemistry teacher at the Teachers' College of Ghent and had a hard time getting used to the occupation, partly because he was unable to continue his usual trips to the North Sea. He therefore looked for solace in his scientific work, which Pelsenaar said served to '*relieve the mental pain, bitterness and helplessness*' caused by the war. Using stacks of earlier notes, rough drafts and materials from his own collections, Pelseneer continued his studies on the anatomy and living environment of molluscs from his residence in Ghent. He wrote down the results in '*Les variations et leur hérédité chez les Mollusques*' (1920), a 826-page tome which discusses over 400 species of molluscs in great detail.

The war nevertheless left marks in the publication, as Pelseneer dedicated his book to all *"compatriots, victims of German aggression [...] and to those who fell while defending the things I care most about: my country, my ideas, my hope."*



Left: Charles Van Bambeke (1829-1918), top: Alphonse Meunier (1857-1918) and right: Louis Stappers (1883-1916) were part of the group of unfortunates who did not live to see the end of the hostilities. Gustave Gilson described the premature death of Stappers at barely 33 years of age as a heavy blow to Belgian marine research (left: Ugent Memoires, top: Hegh, E. (1920). Nécrologie: M. l'abbé Alphonse Meunier Revue Générale Agronomique, right: Hasselt Municipal Archives).


LES
VARIATIONS ET LEUR HÉRÉDITÉ
MOLLUSQUES
PAUL PELSENEER
A LA MÉMOIRE

Pelseneer dedicated his work 'Les variations et leur hérédité chez les Mollusques' to all compatriots who had not survived the battle against the German aggressor. (Pelseneer, P. (1920). Les variations et leur hérédité chez les mollusques Mém. de l'Acad. Roy. de Belg.)

Gilson and his silent resistance

It may not come as a surprise that people like Pelsenseer took refuge in their research. After all, scientists already had a reputation for being unworldly and living in an ivory tower. Yet this is not entirely true in the case of the Belgian marine scientists. Although several of them were trying to continue their studies, they did not turn a blind eye to the problems tormenting the country. Gustave Gilson is perhaps the best example of this. Before the war broke out, he was one of the most active researchers of the Belgian marine area. In 1894 Gilson took the chair in zoology at the Catholic University of Leuven, and four years later he also went to work as a researcher at the Royal Museum of Natural History. In this period he began extensive studies of the relationship between marine animals and plants, and the environment of the *Mer Flamande* (the Southern Bight of the North Sea). When Gilson became head of the Royal Museum of Natural History in 1909, he immediately shifted this research in a higher gear. He bought a small boat for marine research and established a small marine laboratory in Ostend without any support from the government.

When the war put an end to all this, he needed to direct his focus somewhere else as of 1914. He spent most of the next four years in the research rooms of the Royal Museum of Natural History. Together with his colleagues, he engaged in preparing, cleaning, sorting and studying collections that had been brought back during previous explorations and were kept in the warehouses.

Top: Gustave Gilson (second from left) at work at sea. Bottom: Shortly before the outbreak of World War I, Gilson set up a laboratory in a building near the oyster farm 'Stichert-Stracke & Cie' to further examine the samples taken on his sea expeditions. (Gilson, G. (1914). Le Musée Royal d'Histoire Naturelle, sa mission, son organization, ses droits. Memoires du Musée Royal d'Histoire Naturelle de Belgique)

As curator of the Royal Museum of Natural History, Gilson not only performed scientific work but also had to address the administrative challenges brought by the war. Like almost all museums in Belgium, the institution was under German control as from the end of 1914. Although curators usually adopted a very reluctant attitude towards the German demands, they were forced to tolerate the German interference for fear of reprisals. Moreover, many of them remained at their post on moral considerations: someone had to take care of the national heritage. This consideration led Gilson to fight a silent battle with the occupying forces as from 1915. A particular expression of this fight was the so-called 'dinosaur issue' (see box).

Massart's anti-German writings confronted the enemy in two ways. In the first place he wanted to demonstrate the brutality of the occupying forces on the basis of their own posters and propaganda products. For example, the above picture of Aarschot was part of a series of triumphant German postcards displaying several Belgian cities that had been burnt to the ground. Contrasting with this barbarity, Massart highlighted the brave and unrelenting attitude of the Belgian people. He did so by displaying the work of various clandestine newspapers. Above: the front page of 'Patrie', 'journal non censuré paraissant comme, où et quand il peut.' (left: Massart, J. (1916). Comment les belges résistent à la domination allemande: contribution au livre des douleurs de la Belgique, right: Massart, J. (1917). La presse clandestine dans la Belgique occupé)

Exile to France

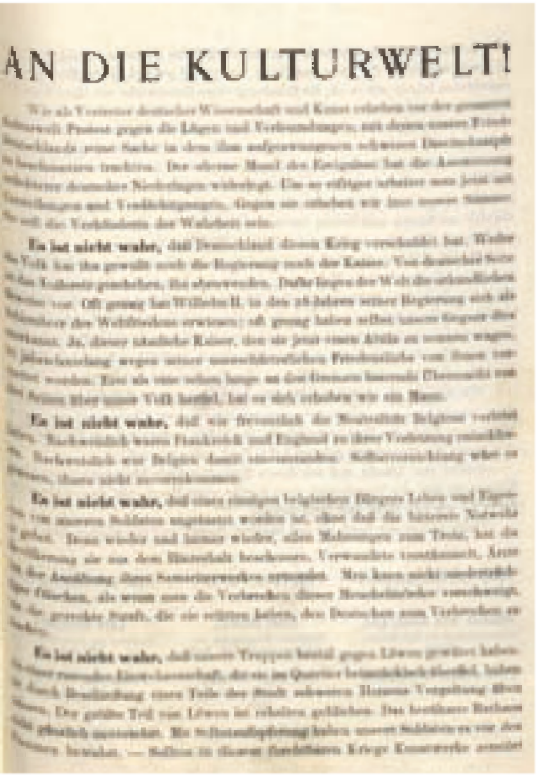
While Gilson fought the German interference within the limits of his professional activities, botanist Jean Massart opted for a more frontal approach. Shortly before the war, Massart had engaged in mapping the different plant communities in Belgium. Within this scope, he had also explored the landscape of the coastal plain. During this activity, he was not only interested in systematically listing all species. He also made a careful analysis of the environmental conditions to which the coastal and alluvial flora had to adapt. A few months after the start of hostilities, Massart suspended all his botanical studies because he believed *"there was no time to lose yourself in speculations of pure science when the entire world's political geography was at risk."* In the subsequent time, Massart especially devoted himself to writing and distributing all kinds of anti-German propaganda. He started from a scientific attitude: he wanted to demonstrate the brutality of the occupying forces on the one hand and the moral superiority of the Belgian people on the other as objectively as possible. In practice this meant that Massart secretly assembled a collection of photographs of German posters and announcements lining the walls of the Belgian capital. He also collected books and newspapers from Germany as well as Belgian newspapers that were censored by the German occupying forces. Massart furthermore obtained information about the Belgian resistance through active correspondence with the front and with the clandestine press. In this way, he amassed more than enough proof to give a precise impression of the *"state of mind of a Belgian who lived under German domination"*.

However, his illegal activities did not pass unnoticed by the German forces, who kept an increasingly close eye on Massart's family. In early 1915 the situation became too risky, so Massart was forced to flee the country. His children had been able to leave the country for the Netherlands under the pretext of health problems, but things were not so easy for Massart and his wife. After several failed attempts they eventually succeeded in crossing the border with the Netherlands near Bree in the province of Limburg on 15 August under disguise and with the cooperation of an obliging customs officer. They then moved on to Amsterdam, where they were reunited with their children. The valuable collection of information was also smuggled into the Netherlands by means of a suitcase with clothes for Belgian refugees. The whole family soon moved on to England and eventually ended up in the coastal municipality of Antibes in the south of France in autumn 1915.

Once he had settled down in this new location, Massart immediately started editing various pamphlets to boost the morale of the Belgian people and the troops. He also formulated an answer to the notorious 'Manifesto of the Ninety-Three', a proclamation issued in 1914 in which 93 renowned German scientists and artists legitimised the German invasion in Belgium in the name of spreading the superior German culture. The document met with a storm of indignation in foreign scientific and cultural circles. Massart was also furious, but he assumed that the German intellectuals were simply carried away by the wave of chauvinism that accompanied the beginning of the war. He therefore invited them, together with Swiss botanist Robert Chodat, to meet in Geneva to discuss the whole issue in a neutral atmosphere. Unfortunately, the initiative met with little success: only 2 of the 93 German scholars responded to the invitation, and both of them negatively. In *'Les intellectuels allemands et la recherche de la vérité'* (1918), Massart mercilessly condemned the lack of critical sense of these figures. The proceeds from the sale of all anti-German printed matter were used to finance several initiatives on behalf of the Belgian people, such as the *'Asiles des soldats invalides belges'*. This organisation collected funds for the establishment of homes for disabled Belgian soldiers. Interesting detail: Massart donated the manuscript of his war diary to the War Archives Committee after the war. It can be found in the General State Archives nowadays.

Jean Massart also spent his days giving English lessons at a French grammar school and teaching a number of courses at the Paris-based Muséum national d'Histoire naturelle. And even though he had argued at the beginning of the war that the time was not right to engage in science, he soon appeared in a laboratory again. He had found accommodation in Antibes in the vicinity of 'Villa Thuret', a research institution with a famous botanical garden. It is here that Massart was able to devote himself to a thorough study of Mediterranean coastal flora and other topics. He was especially interested in how the specific climatic conditions in this sunny region influenced the growth of plants which also occurred at the Belgian coast.

Massart was not the only Belgian coastal and marine scientist who spent the war in France. August Lameere and Marc de Selys Longchamps also awaited the end of the conflict in this country. In the summer of 1914 both biologists embarked on a short working trip to the *Station Biologique de Roscoff* in Brittany together with their families. The outbreak of military operations in Europe prevented them from returning to Belgium, as a result of which this holiday resulted in a 'four-year exile', to put it in their own words.



AN DIE KULTURWELT!

The notorious 'Manifesto of the Ninety-Three', originally entitled 'Aufruf an die Kulturwelt', was published on 4 October 1914 in Germany. The document was signed by 93 famous German Nobel prize laureates, artists, doctors, physicists, chemists, theologians, philosophers, poets and architects. The manifesto extenuates, among other things, the war crimes committed by Germany in Belgium, which provoked a storm of indignation abroad (Archiv der Berlin-Brandenburgischen Akademie der Wissenschaften)

The dinosaur issue

In 1878 a coal mine in Bernissart (Hainaut) was the setting of one of the most spectacular finds of dinosaur skeletons in the whole of Europe. At a depth of 322 metres, mine workers found the petrified bones of an Iguanodon, a plant-eating dinosaur species that walked the earth over 125 million years ago. A team of mine workers, technicians and specialists of the Royal Museum of Natural History managed to bring some 30 Iguanodons to the surface, including a large number of complete skeletons. When the excavations were temporarily suspended in 1883 due to practical and financial reasons, it was clear that many more treasures remained buried under the ground. For a long time there were no specific plans for new excavation works. This changed when the Germans invaded Belgium in 1914. A group of German palaeontologists, led by Otto Jaekel from the University of Greifswald, saw the occupation as a great opportunity to get hold of these treasures. The German scientists also managed to convince Berlin of the importance of the fossils, and in July 1915 the German government decided to resume the excavations. The researchers of the Royal Museum of Natural History were appointed as experienced experts to support the entire operation. Gilson, who was little inclined to enter into any form of cooperation with the Germans, tried to prevent this 'detestable theft' of valuable Belgian archaeological heritage from the very beginning. He did nevertheless realise it was unwise to refuse categorically. Gilson explained his strategy in a post-war report: instead of refusing all cooperation, he decided to hinder the excavations *"through inertia and slowness of action. […] We started to behave in a completely passive way by avoiding any contact with the Germans and refraining from doing any work."* This approach initially seemed to work, as the project remained in a purely hypothetical stage for quite a long time. In May 1916 Jaekel was fed up with it and ordered the construction of a first access tunnel which was supposed to lead to the dinosaur skeletons. The works on this tunnel started two months later. Gilson and his employees had to abandon their strategy of general passivity, but this did not mean they gave up just like that. The new plan was a subtle combination of pump system sabotage, controlled collapses and small-scale staff strikes. This enabled them to put the excavations on a back burner. So little progress had been made by 1918 that the German government felt compelled to strike out hard: the place where the Iguanodons had been found had to be accessible within six months. The end of the war eventually came right in time. The proposed six-month period had not yet expired when the Germans were eventually forced to sound the retreat. Prior to their retreat they flooded the tunnels that had already been dug so as to strongly hamper possible future excavations. After the war Gilson argued in favour of continuing the excavations to ensure that *"the fight against the looting of the treasures of Bernissart had not been in vain."* However, resuming the project appeared to be too expensive and not much of a priority, as a result of which Gilson had to give up on the plan with a heavy heart.

The impressive skeleton of an Iguanodon found in Bernissart, as currently on display in the museum of the Royal Belgian Institute of Natural Sciences (Paul Hermans)

A picture of 'Villa Thuret' around 1924. The famous botanical garden was laid out in 1857 by French botanist Gustave Thuret and provided Massart with ample research materials during his exile in France ('Histoire des jardins des Alpes-Maritimes: du jardin exotique au jardin méditerranéen').

Lameere had settled in this 'Station Biologique de Roscoff' in the summer of 1914 to observe Dicyemida when the outbreak of World War I prevented a possible return to Belgium. In the following years Lameere was able to continue his research in Roscoff, at the 'Laboratoire d'Evolution des Etres', which is affiliated with the Sorbonne, and in 'Villa Thuret' in Antibes. His work on these parasites earned him the 'Decennial Award for Zoological Sciences' in 1922 (Guesnier, V.).

Both Lameere and de Selys Longchamps continued their research at various French institutions during this period. In the winter months they regularly visited Antibes, where they joined their colleague and friend Massart in 'Villa Thuret'. The Armistice of 11 November 1918 ensured that these Belgian families could at last return home.

After WWI

The war had not been a complete waste of time for the Belgian marine researchers. Pelseneer wrote an impressive work on molluscs, Massart performed a comparative study on coastal flora in various climatic regions and de Selys Longchamps continued his research on tunicates and plankton. Lameere in turn used his time in France to thoroughly study Dicyemida, tiny worm-like parasites that live in the organs of cephalopods. His publication on the subject even won the 'Decennial Award for Zoological Sciences', the highest Belgian award within his area of expertise, in 1922. The predominant feeling among the marine scientists was nevertheless that they had been limited in their research possibilities for four years. Furthermore, not all marine scientists had had the opportunity to continue their studies during the war, so they were very eager to get back to work in and around the Belgian part of the North Sea in total freedom after 1918.

However, the coastal region they found after 1918 was no longer the same as the one they had known before the outbreak of the worldwide conflict. Jean Massart was for example confronted with significant environmental damage caused by the strategic flooding of the Yser plain around Nieuwpoort. The brackish seawater had brought about a significant increase in the salt content of the soil, which obviously had repercussions on the vegetation in this landscape. Massart had extensively mapped the Belgian coastal flora before the war, and now he could return to observe and describe the transformations. To conduct this investigation in a thorough matter, he temporarily installed an improvised laboratory in Nieuwpoort, from which he studied soil reclamation in the former front zone.

The material damage inflicted on the Belgian coast by the Great War also slowed down the resumption of marine research activities. The only Belgian marine station, installed by Gilson in Ostend shortly before WWI, was severely damaged during the war. The vessel which Gilson had used for his explorations at sea had been destroyed. As there were no funds available to repair the research station, Gilson and his colleagues were strongly limited in their research capabilities. In addition, the 'International Council for the Exploration of the Sea' (ICES) decided to resume work in March 1920. Partly because of a lack of appropriate research infrastructure, Belgium was unable to participate in this intergovernmental science organisation.

This was reason enough for Gilson to resume his pre-war campaign to have a publicly financed modern research station set up in Belgium. *"Only the establishment of a permanent organisation by the sea can meet the needs that result from the continuous study of the marine environment*," said Gilson. However, it appeared quite difficult to establish such an institute in a country recently ravaged by war. The Belgian state was not immediately able to donate large amounts of money to science. After years of diplomatic manoeuvring, Gilson eventually succeeded in convincing the government: 1927 saw the establishment of the Institute of Marine Sciences (ZWI) in Ostend.

The inundation of the Yser plain near Nieuwpoort did not only affect the flooded farmland, but also the natural vegetation in the area. The above picture of the flooding between Nieuwpoort and Ramskapelle shows trees that have fallen victim to the salty sea water. Upon termination of the hostilities, only a few green branches remained in the area according to Massart. The results of his post-war study into the effect of the increased salt content of the soil on the local flora were published in 'La Biologie des Inondations de l'Yser' (1922) (Massart, J. (1919). Ce qu'il faut voir sur les champs de bataille et dans les villes détruites de Belgique: II. Le front de Flandre)

The institute only had limited means and Gilson was its first director. The organisation focused on offshore fishing research, inventory of fauna and flora in the Belgian coastal waters and statistical offshore fishing inspections. ZWI's modest facilities represented the only marine research site at the Belgian coast for many years. The building was razed to the ground during the Second World War, after which a new reconstruction process began. Only in the 1970s did a new generation of marine and coastal scientists succeed in launching marine research in Belgium.

JOURNAL DE LA CÔTE

L'Institut Maritime d'Ostende

EN ROUTE

An article from the 'Journal de la Côte' of 19 November 1927 discusses the new Institute for Marine Sciences in Ostend (Journal de la Côte)

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