Report on the condition of the wreck of the Belgica, expedition May 4-8, 2008

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Introduction

During 3 working days about 30 dives were carried out by a mixed team of divers on the wrecksite of the Belgica in Brurvik Bay, Harstad, Norway.
The goal of this expedition was to survey the overall condition and decay of the wreck since the writing of the first report in the fall of 2006. For this purpose, visual and photographic means were employed, but also an assessment was made of the condition of the wooden hull by means of woodsampling and the pylodine method. The sampling was supervised by a Danish specialist of Kopenhagen University.

General impression

The view that one got when exploring the wreck is one of rapid desintigration of the total structure of the hull. Much has changed in the composition and strength of the hull since she was first explored by our society in August 2006.

2006

In 2006 most of the hull planking was still in place and seemed to be relatively intact. There was a break in the midships' section in the area of the former second mast on the port side. This break consisted of a number of hull planks hanging outward. The reason for this break was due to the pressure of the silt and cargo of munitions which still remains within. The angle in which the wreck lies, about 30° to port, puts a large amount of pressure on the portside and so doing influences a quicker decay. Most of the decking was gone, except that of the stern section, which was relatively covered. The starboard side remained intact, partly covered by a lost herring net. This net has since been removed.

2008

In the latest survey it was seen that much had changed in the overall condition and we can state that the wreck has gone into a very distressed state. The break on the port side, midships, has gone larger and about a dozen planks have fallen from their original position and lie scattered on the seabed. The destruction has spread to the forward end of the port side, bowsection, where planking has also dropped out of position. The recent loosening is obvious when one looks at the uncovered planks which are relatively clean and free of marine organisms. The appearance of large numbers of openings in the hull has made it possible for mud and sand to wash out of the former hold and display larger numbers of gunpowdersocks and boxes of stacked ammunition. Eventhough the pressure from the mud on the hull has diminished, the eventual collapse of the port side cannot be reversed. The main cause for the pressure is the high position of the winchhouse and capstan with mechanism on the frontdeck. This creates a lever of power which leans on the weaker hullstructure. Due to the possibility of collapse, this area has also become a danger for divers to work beneath. Both winchhouse and capstan have also changed position according to the general line of the ship and stand at about 30° sideways.

Deterioration has not been confined to the forward and midships' sections of the port side. The starboard midship, middle, section has loose hanging planks which are still connected to one end. Starboard forward, topside, planks have loosened and are scattered below on the seafloor.
Closer analysis of the planking which have come loose from the middle to bottom sections are in a relative perfect condition. There is marine growth, calcified formations and barnacles on the outer skinsection and only fragmentary evidence of small boreholes originating from the activities of the shipworm below the surface of the wood. The wood from this part was in a hard condition and it didn't show much wear and tear. The planking on the upper part of both sides of the hull is generally not so well preserved and shows a variation in qualities of wood going from hard to soft and generally rotten.
It is surprising to report that analysis of the recently loosened planks are in a good shape but all metal fittings, i.e. nails and bolts, have vanished and only a crust of ironoxide remains around the nail- and bolt holes.
The covering deck of the aft section has also vanished or shifted to the portside. This has laid open further evidence of partly stacked ammunition.

Sampling-Pilodyn

In 26 strategic locations on the wreck sample areas were marked out. 5 sets of areas with an interval of 4 m were set out on the port side of the hull, outer skin. Each set consisting of 3 points situated in the upper, middle and kealson parts of the ship. On the starboard side, midships, 1 point was selected with 3 areas. The rest of the samples were taken along the supporting top timber of the port side, a cross beam of the forward part and a cross beam of the aft section.
After measurements and marking spots had been set up, core samples were taken in an area not further than 10 cm from the center point as to get a realistic enough sample of wood. This task was divided amongst two teams consisting of each two divers.
Density and quality of the wood was measured by using a Pilodyn in the same inner circular area as where the wood samples were taken from.
Results of the samples and pilodyn readings will be received in due course.

Conclusion

During the past 18 months the deterioration of the hull of the Belgica has rapidly increased. Although one would have appointed rot and woodworm as the main factors of the collapse of the wreck, this expedition has managed to determine that this has not been the main problem. The disappearance and near total absence of most of the constructional bolts and nails lies at the basis of the collapse. Most parts are only held together by remnants of metal and iron oxides frosted with sand and calcified wormholes. Even when lightly touched, some fragments of the hull just fall apart. If there is to be a recovery of sectional or whole part of the wreck then speed of action is of vital interest. Life for the Belgica as a standing structure is estimated to be about a year or only slightly more.