

The 1539 Carta marina by Olaus Magnus, an exiled Swedish priest.

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Look at almost any map from the Renaissance period and you will realize the importance of the oceans for travel and commerce. A voyage at sea was far easier than a journey over land. The maps bear witness to this: the most accurate and detailed aspect of many of these maps is surely the coastline and the location and names of ports important for navigation and trade. But if the maps inform about the coastlines, they remain conspicuously quiet about the ocean, which almost always appears as a void, nothing of note. But there is one truly remarkable exception, namely the 1539 Carta marina, a map of the Nordic countries published in 1539 in Venice by an exiled Swedish priest, Olaus Magnus. This physically huge map, made up of nine wood lithograph prints, gives the first reasonably accurate description of all of northern Europe, from Iceland in the west to Finland and into Russia in the east. Almost like in a picture book, Olaus draws little descriptions of human activity, of hunting and fishing, swimming and ice skating, sleigh-riding and skiing in the mountains. More than a map, it provides a detailed pictorial of life in the Nordic countries at the end of the middle ages. Two copies of this map exist today and one of these can be seen at the library at the University of Uppsala, Uppsala, Sweden.

But, as its name indicates, this map provides an extraordinary wealth of information about the ocean too. It names all the major island groups such as Iceland, the Faroes, Orkneys, Hebrides and Shetland Islands. It shows a variety of marine activities, commercial traffic, fishing, measuring water depth, boats in distress. The reason for my interest in the map is unusual. In early 2001 I attended an oceanographic workshop in Bergen, Norway where we developed a research program to study the inflow of water from the North Atlantic to the Nordic Seas between Iceland and the Faroes. These waters are very warm for these latitudes and contribute significantly to the mild climate of Europe. As they flow into the Norwegian Sea east of Iceland, they encounter the very cold waters from north of Iceland. The sharp contrast in temperature results in a rapid and

highly variable current making it difficult to study and accurately describe. Hence the interest in developing a research program to map and better understand how these warm waters flow into the Norwegian Sea.

A few weeks after the workshop I bought the book 'Cod' by Mark Kurlansky. On page 53 is reproduced a section of the 1539 Carta marina. In it I saw Olaus Magnus' descriptions of the sailing vessels of the time, the strange creatures of the sea, some clearly recognizable, some rather more fantastic. But what caught my attention was that Olaus Magnus gave the ocean itself unusual presence by drawing everywhere little dotted lines to give the ocean surface an irregular yet evident presence. But just east of Iceland he departs from this routine and instead draws what look like eddies or whorls indicating a circular motion. These become even more evident if you look at the whole map (the book shows only a small portion). Remarkably, these whorls coincide almost perfectly with what we now call the Iceland-Faroe Front! Nowhere else in the entire map does he give eddies or whorls such conspicuous or systematic presence; the question is why. So I read up on all the literature I could find on Carta marina, but I could find no description of the whorls, much less their meaning. So perhaps we will never know for sure, but it seems highly likely that he learned about these waters from the mariners of the Hanseatic League who sailed to Iceland each spring just when the weather is improving, but also when the temperature contrast between the Atlantic and the Icelandic waters becomes particularly evident: warm air over cold water leads to fog as we New Englanders well know. Further, the slow movement of the sailing vessels (holks and cogs) may have made it difficult at times to maintain a stable heading in the presence of strong and variable currents in the area. It seems likely that the mariners, sailing these waters century after century, would have developed a detailed knowledge about the currents and temperatures, the marine life, presence of waves and fog, anything and everything to help ensure that they would reach their destination, Iceland, safely. Little written information seems to have survived from these times, but Olaus Magnus, a keen observer as the rest of his map clearly indicates, almost certainly used these same talents to provide as detailed and accurate information as he knew how about the ocean too. I wonder what he called these whorls; did they have a name? I don't know and the Carta marina literature

makes no mention of them. But it is tempting to ask whether the word maelstrom can be applied to these. Webster's defines maelstrom as 'a powerful whirlpool often hazardous to approach'. It would be interesting to know more about ancient usage of this word.

Olaus Magnus never returned to Sweden. He settled down in Rome and lived there the rest of his life. Fifteen years after he died, in 1572, the map was reissued, this time as a half-size copper print. All details of the original map can be seen in the reproduction: the human activities, the marine life, the vessels, and the ocean surface, but not the whorls. They are gone!