



# In Poseidons Reich XVII

*„Seeschlachten“*

*Denkmale und Quellen der maritimen Kriegsführung*

*- Von der Thalassokratie bis zur Schlacht im Moon Sound -*

**OZEANEUM Stralsund  
Hafenstrasse 11  
18493 Stralsund**

**vom 29. März bis 1. April 2012**

# ABSTRACTS

## **Adams, Jonathan & Rönby, Johan**

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### **The “Kravel” from 1525. From Medieval to Modern: Ships, power and agency in the development of modern Europe.**

Lying in deep water below a treacherous skerry in the Stockholm archipelago lies the wreck of a carvel-built ship from the early 1500s. Low light conditions and depths between 30 and 55m make the site difficult to work on but in recent years archaeological investigation has furnished fascinating insights, firstly into how and why the new technology of carvel ship-building swept through Europe in the second half of the 15<sup>th</sup> century, and secondly, into the formative period of Sweden’s history as a nation state. In placing this episode in a wider context, as if to order, a series of dramatic new discoveries has shed further light on the way this played out, each one punctuating key stages of the process. In doing so they reveal not only the ship as a principal tool of European state building but more generally as both manifestation and agent of social change.

## **Auer, Jens & Schweitzer, Holger**

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### **The wreck of the Princess Hedvig Sophia: The archaeology and history of a Swedish ship of the line during the Great Northern War**

Together with five smaller ships, the Swedish man of war Princess Hedvig Sophia was run aground to avoid capture at the entrance to the Bay of Kiel in April 1715. This was a result of the so called Battle of Femern, a naval action fought between Danish and Swedish naval squadrons during the second half of the Great Northern War. While all other Swedish ships could be salvaged by the Danes and were subsequently re-commissioned into the Danish navy, the prestigious Swedish flagship had to be given up and was finally sold for scrap. The wreck was rediscovered in 2008 and has since been subject of a number of archaeological surveys and two extensive excavation campaigns. The excavations were conducted as a collaboration between the Archaeological State Authority for Schleswig-Holstein, the Maritime Archaeology Programme at the University of Southern Denmark and the Institute of Archaeology at the Christian-Albrechts University Kiel. This paper aims at presenting both the archaeological results of the excavation campaigns as well as the results of historical research on the event conducted in the Danish National Archives in Copenhagen.

## **Averdung, Denise & Pedersen, Ralph K.**

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### **The Marsala Punic Warships: New Research on Old Ships on behalf of their function**

Warships were the most distinguished and expensive weapon in antique warfare. Their ability to transport troops of soldiers, weapons and supply goods in huge amounts in a small time made them very important and valued. The use of the ships themselves as a weapon, equipped with a ram, was established in the 9<sup>th</sup> century BC.

The last battle of the First Punic War (264-241 BC) fought in front of the Aegadian Islands is believed to be connected to two Punic shipwrecks found on the southwestern tip of Sicily in front of Marsala. Discovered, excavated and researched by Honor Frost in the 1970's the interpretation of the Marsala I wreck promised to seemingly unravel a mystery – the excavator thought to have found an ancient warship.

The Marsala I Ship is excavated, but the “sistership” Marsala II was only surveyed for two days, so it is difficult to say what kind of ships the two wrecks with punic origin really were. New discoveries and other research results made it possible to reconsider the findings and give way for another interpretation. One of the arguments the two Punic Wrecks being warships are the structural features found on the forefoot of Marsala II, which have been purported to be the framework of a ram.

A part of this paper presents the results of an experiment conducted to better delineate the nature of the features found on the forefoot of the Marsala II shipwreck. By this it is hoped to increase our understanding of the character of the ships found at Marsala.

## **Belasus, Mike**

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### **Von Schiffen, Krieg und grünem Gold – Neue Ergebnisse zu alten Schiffsfunden aus Mecklenburg-Vorpommern –**

### **About Ships, War and Green Gold – New results about old ship finds from Mecklenburg-West Pomerania**

Im 17. und 18. Jahrhundert wurden in dem zu Schweden gehörenden Finnland, dem schwedischen Österland, verstärkt die Wälder wirtschaftlich ausgebeutet. Dies geschah nicht nur zum Nutzen innerhalb des schwedischen Königreiches, sondern in hohem Maße auch für den Export. So hatte finnisches Nadelholz große Bedeutung für den britischen Kriegsschiffbau, der zunehmend von Holzimporten abhängig wurde. Für Schweden bedeutete der Holzhandel ein enormes Wirtschaftswachstum. In dieser Zeit errichtete man im südlichen Finnland verstärkt moderne Sägemühlen, wo auch der Hauptteil aller schwedischen Schiffbauplätze lag. Die Werften produzierten auch Schiffe für den Export. Von Historikern wird daher diese Periode auch als die Zeit des „Grünen Goldes“ bezeichnet. Im Jahre 1809 musste Schweden in Folge der napoleonischen Koalitionskriege Finnland an das mit Frankreich verbündete Russland abtreten. Hiermit brach der wirtschaftliche Aufschwung abrupt ab und Großbritannien verlor eine wichtige Rohstoffquelle für den Schiffbau an den Feind.

Wie jüngste Untersuchungen zeigen, zeugen von der Zeit des „Grünen Goldes“ in Finnland auch Schiffe, die an der Küste Mecklenburg-Vorpommerns archäologisch untersucht wurden. Sie geben heute Auskunft über die Auswirkungen der politischen und wirtschaftlichen Entwicklungen jener Zeit auf den traditionellen Schiffbau im südwestlichen Finnland.

The forests of Finland were exploited by the Swedish during the 17<sup>th</sup> and 18<sup>th</sup> century. The timber was not only needed within the Swedish kingdom but also for the building of navy ships in British dockyards where it played a major role. This caused an enormous economic growth in Sweden. During this period most of the Swedish ship yards were situated in southern Finland where ships were built also for export. This time was called the period of the “Green Gold” by historians. As a Result of the Napoleonic Wars Sweden had to hand over the Finnish part of its territory to Russia in 1809. This caused a sudden stop of the Swedish economic growth and Britain lost an important source for ship timbers to the enemy.

Recent archaeological research has shown that the period of the “Green Gold” in Finland is represented by some shipwrecks found on the Baltic coast of Mecklenburg-West Pomerania in Northern Germany. Today they give invaluable information about the effects of political and economic developments on traditional ship building in southwest Finland.

## **Bounegru, Octavian**

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### **Hegesagoras Monimou, nauarchos autokrator from Histria and the naval war between Messembria and Apollonia Pontica (second century B. C.)**

In an honorary decree from Istros (Histria), dated in the second century BC, is honored a citizen, Hagesagoras, son of Monimos. As Admiral (nauarchos autokrator), he led a naval military campaign to help Apollonia Pontica in its war with Messambria. This decree in honor of Hegesagoras is a valuable epigraphical source that reflects the activities of the fleets from the Greek cities on the western Black Sea shore in the Hellenistic Age, the organization of the regional military fleets and their involvement in the political events from that time. In this context, Hegesagoras of Monimos appears as a military keyman, with notable contributions in the art of naval war in the region.

## **Dellaporta, Katerina**

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### **“Middle ages sea battles in the Cycladic archipelago according the byzantine iconography”**

Cyclades used to be the crucial crossroad of maritime routes in the Aegean Sea as well as the object of disputes by several sovereign and pirates powers, during the late roman to the post byzantine period.

The theme of Aigaion, the glorious reign of Nikephoros and Leo Fokas and sea victories in the X c. in aim to reconquest Creta from the Arabs, the activities of the Venetian fleet in Paros and Naxos in the XV c. are among others some of the archaeological and iconographical evidences which document sea battles and conflicts in the Aegean Archipelago particularly in the insular complex of Cyclades according shipwrecks data, byzantine frescos, icons etc. that will be approach and examined in the presentation.



## **Draeseke, Trevor**

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### **The Sword aboard Ship: The Evolution of a Weapon and Naval Identity**

This abstract is part of the proposed session on Swedish warships 1523-1715

A sword can tell a fascinating story.

It is an ancient, variable and widely found object in the archaeological record. It was a weapon, but also a powerful symbol, which means its potential for the archaeologist is vast. A sword speaks to the industry behind its making – the materials involved, as well as the skill and cost for a specialized craftsman. It speaks to the environment in which it was intended to be used – the tactics of boarding combat and the nature of fighting in a confined space with no option of retreat. But perhaps most importantly, on a naval ship, a sword speaks to the relative importance of the person holding it. While an aristocrat or career naval officer would carry an ornate sword, if a member of the crew carried a sword at all, it would be unembellished and functional.

Using examples from Swedish wrecks from the 16<sup>th</sup>-18<sup>th</sup> century including Vasa, Kronan and Hedwig Sophia, it is possible to observe the changing role of the sword aboard ship and subsequently the people who held them. As the Swedish nation-state and the navy that supported it evolved, the need to symbolize the specialized ranks of the individual crew members became increasingly important. One of the primary objects to reinforce naval hierarchy was the sword – an object of martial imagery, power and perhaps the final line of defense of one's own life.

## **Draeseke, Trevor & Höglund, Patrik**

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### **Dygden: Archaeological survey of a Chapman built ship of the line**

In 2010, the archaeology unit at the National Maritime Museums in Sweden surveyed the remnants of the Swedish two-decked ship of the line Dygden, which exploded and sunk outside Karlskrona in 1793.

Dygden was built in 1784. She was part of Gustav III's major construction program led by the shipbuilder Fredrik Henrik af Chapman. The program focused on rapid construction using pre-fabricated parts in a quasi-assembly line fashion. They used templates to guide construction and followed a detailed timetable, avoiding the time consuming process of having to alter the ship during construction. The ships were launched in record times.

Dygden was one of a series of ships of the line built to the same specifications – 49.6 meters long, displacing 2000 tons. The armament was 64 guns, 36-pounders on the lower gun deck and 24-pounders on the upper.

The Swedish navy in the 1700's was built for aggressive use. The vessels needed to have a shallow enough draft to operate in coastal waters, while also being maneuverable and fast. The lower gunports needed to be set high enough to allow them to be safely open even in strong winds. Chapman had managed to construct a relatively small ship of the line that lived up to these expectations. Dygden participated in several naval battles during the war with Russia from 1788 to 1790.

Archaeological investigations showed a remaining hull structure, at least 40 meters long, deeply buried in the sediments.

## **Eriksson, Niklas, Holmlund, Joakim & Douglas, Carl**

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### **Battle of southern Öland revisited – an Archaeology of naval action.**

The battle of southern Öland in 1676, between the united Danish-Dutch and the Swedish navies, are among the most well known naval actions on the Baltic Sea. This is due to the fact that it was the largest defeat ever for the Swedes at sea. The underwater archaeological survey of the Kronan wrecksite has further contributed to the awareness of this remarkable and unfamous battle. However, Kronan is just one of the ships that sunk during this fight or in its aftermath. The focus of this paper is the continuation of the events – the loss of Svärdet of 92 guns, Riksäppet of 84 guns and the fire ship Gröne Jägaren, which are relatively unknown. From an archaeological point of view, the consequence of all these foundering is that a substantial part of the Swedish navy of 1676, still survives. The existence of the remains of these ships, their guns and the personal equipments onboard, are quite unique, and this 17<sup>th</sup> century both naval and political disaster holds a great archaeological potential. These ships form an archaeological armada.

Through new finds, new survey methods alongside theoretical approaches, previously untried in this context, we are able to shed new light on the course of events.

## **Einarsson, Lars**

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### **Kronan – warship, society and underwater resting place**

The Royal ship Kronan – lost in an action between the Swedish and the allied Danish-Dutch fleets June 1<sup>st</sup> 1676, outside the east coast of the island Öland in the Baltic – is an extreme example of a Swedish Great Power paradox; A fierce warship in the shape of a gallant palace. Thirty years of continuous underwater archaeological work, has revealed concrete information of the onboard formation of ideas and objects in a floating society, reflecting the situation on land as well.

## **Förster, Thomas**

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### **Die strategische Lage der Insel Rügen in den historischen Quellen und im maritimen Fundmaterial.**

Die Insel Rügen besitzt durch ihre Lage innerhalb der Ostsee und vor der Hafenstadt Stralsund eine wichtige strategische Bedeutung. Die Gewässer um Rügen bieten günstige Voraussetzungen als Anker- und Landeplatz aber auch zum Aufmarsch von Flottenformationen für Seegefechte. Ebenfalls besaß Stralsund eine große Bedeutung als Hafenstadt in Pommern, die durch ein dichtes System an seeseitigen Befestigungen geschützt wurde.

In den letzten Jahren konnten vor der Insel Rügen eine Vielzahl von Schiffswracks entdeckt werden, die verschiedene militärische Operationen in diesem Gebiet belegen. Dazu gehören aus den Nordischen Kriegen beispielsweise das Mukranwrack von 1565, Wracks einer schwedischen Landungsflotte von 1712, eine Seesperre von 1715 und die dänische Fregatte MYNDEN von 1718. Aktivitäten während der Napoleonischen Kriege sind durch die russische Brigg DISPATCH von 1805 und durch eine Seesperre vor Stralsund belegt. Verschiedene Wracks sind Zeugnis für verschiedene Flottenoperationen des I. und II. Weltkriegs.

## Grossmann, Eva

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### Naval support to Crusaders Battles in the Holy Land at Arsuf (1099 and 1191)

Before the Crusader's conquest Arsuf was a small but important fortified harbour-town and the centre of the district which included the fertile coastal plain. Its borders were Wadi Faliq in the north, the Yarkon River in the south and the hill country in the east. The harbour of Arsuf was the scene of mercantile activity and served as an intermediate port for coastal shipping between Acre and Jaffa. The town was strategically important to Moslems, as well as to Christians.

Arsuf was taken by the Crusaders in 1099, but was soon lost again to the Egyptian navy which used to supply Arsuf and the district. Considerable naval forces, chiefly from Pisa, were during the winter of 1099-1100 active along the Palestine shore. With their assistance Godfrey blockaded the ports. In spite of this, the Egyptian fleet broke the blockade, took Arsuf and reinforced its garrison. While attempting to attack Jaffa, the Egyptians fell into an ambush and most of their men were killed. As mentioned before, the Crusaders were in need of a considerable fleet against the Egyptians, which were protecting and supplying the

coastal cities. Therefore Godfrey's brother and successor, King Baldwin I, asked the Genoese for their help, to which they agreed against a promise of honorable compensation.

In 1101 Baldwin and the Genoese jointly carried out a campaign to take Arsuf. Baldwin laid siege to the town on land, the Genoese from the sea. Arsuf was conquered after a siege of only three days and thereafter it remained in the hands of the Franks till 1187. In this year it was conquered by Saladin, and was taken again by the Crusaders after the famous battle of Arsuf between Richard and Saladin, on 7<sup>th</sup> of September 1191.

The marine support was crucial for the success. Barges and galleys accompanied the army along the coast and carried not only their supplies, but also the sick and the disheartened. "The transport ships followed the king, and the barges, day by day, sailed along the shore." From the book: "Three old French Chronicles I, History of the Holy War Chapter XXXVII" p. 84 ff.)

## Höglund, Patrik & Lundgren, Richard

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### **Mars – the history and discovery of a legendary Swedish warship from 1564**

This abstract is part of the proposed session on Swedish warships 1523-1793

In May 2011, the Swedish underwater exploration team Ocean Discovery found the remnants of the long sought after warship Mars in 75 meters of water outside of Öland on the east coast of Sweden.

In the 1560s, the Swedish king Erik XIV attempted to expand his influence in the Baltic region, striving to make Sweden a great power. The navy was instrumental in these ambitions and to that end many purpose-built warships were constructed.

One of these ships, Mars, was launched in 1563. It displaced 1800 tons and had a crew of 700 sailors and marines. It was armed with 107 bronze guns, most of them newly cast. She was the most powerful warship in the Baltic.

In May 1564, during the Nordic Seven Years War, between Sweden and an alliance of Denmark and Lübeck, Mars found itself in a fierce two-day sea battle. After heavy fighting Mars was boarded by the enemy and during the course of the fighting exploded, killing up to a thousand people, both friend and foe.

Mars lay undisturbed for 447 years, until now, when it will be investigated by a coalition of Swedish maritime institutions. This presentation will focus on the discovery, historical background and archaeological results to date. Mars will be placed in the context of similar Swedish ships like Vasa and Kronan.

## **Hristov, Hristomir Smilenov M.A.**

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### **Die Seeschlacht im Nil-Delta**

Im Mittelpunkt des Referates steht eine der frühesten überlieferten und entscheidenden Seeschlachten der Geschichte – die im Nil-Delta, bei der der ägyptische Pharao Ramses III. (1193-1162 v. Chr.) im achten Jahr seiner Regierung die Seevölker, deren Invasionen zu umfangreichen Umwälzungen in der damaligen Staatenwelt führten, besiegte. Somit gelang es ihm, ihren Vormarsch auf Ägypten aufzuhalten.

Zuerst werden die schriftlichen Quellen über diese Seeschlacht vorgestellt und ausgewertet. Dann folgt ein Überblick (Kunstwerke und andere materielle Hinterlassenschaften) bezüglich der unterschiedlichen Arten von Kriegsschiffen und Kampftechniken, die bei der Auseinandersetzung (am Wahrscheinlichsten) verwendet wurden. Daher werden auch die Fragen nach ihren Besonderheiten und ihrem eventuellen Einfluss auf die spätere Kriegsführung zur See behandelt.

Schließlich wird untersucht, ob und in wie weit diese Schlacht einen Ausdruck in der ägyptischen Kunst gefunden bzw. den Inhalt der Darstellungen beeinflusst hat.



## Krüger, Joachim

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### **Die Seeschlacht vor Wittow 1712 und die Schiffssperre im Greifswalder Bodden von 1715. Historische Hintergründe - neue Erkenntnisse**

In den vorpommerschen Gewässern um Rügen liegen zahlreiche Wracks aus der Zeit des Großen Nordischen Krieges (1700-1721). Dabei nehmen die Seegebiete nördlich der Halbinsel Wittow und der Greifswalder Bodden eine besondere Stellung ein. Im September 1712 griff ein dänisches Geschwader eine schwedische Transportflotte, welche Ausrüstung und Proviant für die Truppen des schwedischen Generals Magnus Stenbock nach Pommern bringen sollte, an. Zahlreiche Schiffe wurden erobert bzw. verbrannt. Im Sommer des Jahres 1715 befand sich das Königreich in der Defensive. In seinen Provinzen war es auf Stralsund mit Rügen zurückgedrängt. Um die Stadt und die Insel zu schützen, wurde am Ausgang des Greifswalder Boddens eine Schiffssperre angelegt. In diesem Referat sollen die Hintergründe für die Ereignisse von 1712 und 1715 erläutert sowie neue Erkenntnisse, die auf bisher unveröffentlichten Archivquellen in den Reichsarchiven von Kopenhagen und Stockholm beruhen, vorgestellt werden.

## **Lentini, Maria Costanza & Blackman, David**

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### **A naval monument from North-East Sicily**

At the Museum of Tyndaris in North-East Sicily two stone representations of prows can be seen: One is of much larger dimensions than the other. The larger piece seems to be part of an entire prow set against a column. The smaller piece is of a type of ram which has parallels.

The paper will discuss the idea of a naval monument in this region for a naval battle of the late Roman Republic.

## Lukoshkov Andrey

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### **Reconstruction of major episodes of Vyborg battle from June 20-24, 1790 in terms of lost ships finds.**

The Vyborg sea battle between Russian and Swedish navy is probably the most major sailboat battle in the history of the Baltic Sea. There were more than 550 ship pennants and not below 70 thousand people – natives of Europe from the other side. Among them there was a German squadron of Swedish army navy. These ships have been constructed in Stralsund and equipped fully by German sailors. The four-day battle was a chain of military operations related with attempts to destroy Swedish navy that was locked in Vyborg bay with the corps amphibious on it designed to capture Saint-Petersburg by Russians.

The first stage includes coming German de-blocking squadron into the rear of Russian blocking navy and the two-day battle that caused to be desertion German squadron as a result.

The second stage – the battle for control Biorke strait between Russian and Swedish-Finnish galley flotilla. The third stage – Runby Swedish navy from the block in which they have the most casualty. The fourth stage – a desertion of Swedish-Finnish navy and follow-up it by Russian when have been killed not less than 30 ships.

After many years of historical archives and underwater expeditions under the “Underwater Heritage of Russia” the battle was thoroughly renovated. Numerous finds of the remains of well-known Swedish, Finnish and German ships to the bottom of the Gulf of Finland confirm the correctness of reconstruction. For today the number of wrecks found more than 50 units, and their detailed study continues Among the findings identified. Finds dead ships have significantly to correct the old descriptions and maps of the battle, and to clarify a lot of “dark” episodes that previously puzzled military historians. Wrecks that have been founded in the battle are the largest collection in the world of naval vessels of the second half of the 18<sup>th</sup> century. It reflects almost the entire range of naval shipbuilding that era. Most of the wrecks are in very good condition by preserving the ability of cold and fresh waters of the Gulf of Finland and can serve as sources of information on military shipbuilding of 18<sup>th</sup> century. Today, that largest military expedition of naval history is almost completely forgotten, as the largest in the history of the Baltic Sea battle. The investigations had to restore this historic event.

## **Lukoshkov, Andrey & Kobyljansky, S.**

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### **Amphibious operation from July 1-9, 1944. (Findings of the courts and reconstruction of events)**

During the several underwater expeditions there were surveyed the largest zone of amphibious operation of the Soviet Navy in 1944 on the northern coast of the island of the Gulf of Finland to the rear of the main line of defense. This operation was the latest step in a strategic offensive, which led to Finland's withdrawal from the war. Because of the stubborn resistance of the Finns and their support of special departments "Kriegsmarine" and "Luftwaffe" Soviet troops suffered heavy losses. For a variety of data from the 100 vessels involved in the operation, killing 37. Perhaps this is why the materials operations in the Russian military archives are still secret. Generally the operation was characterized by successive capture of coastal islands, with a landing and there were killed vessels and aircraft for each time. Our studies have revealed the remains at the bottom of eleven ships, boats and amphibious tenders, as well as three aircrafts. Their identification and place of death allowed to re-construct the course of hostilities. Most of the ships found preserved the integrity in spite of the military destroying. There are the historical

monuments and graves now. At the same time, in connection with the establishment in the battles of the oil terminal, they must be picked up or destroyed as a danger to navigation. Today the fate of these objects is under discussion.

## **Matés Luque, José Manuel & Armendariz, Xabier**

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### **From war to war: naval operations on the North of Spain between 1914 and 1945. The Basque Country as a theater of operations**

During the Two World Wars, Spain remained neutral. However, the Spanish Civil War was a key event which changed the following development of Spain. It is clear that in such event naval operations played a mayor roll. Some naval operations which nowadays are still part of a remembering event with nationalistics and sentimental issues, such as the sinking of the boy Nabarra.

In addition to the Spanish Civil War events, Spain was also the theater of operations for the different navies which took part in the Second World War. U-boats used Spanish ports as shelter under Franco's tacit authorization. Different crafts were also sunk during this time, both merchant and navy ones.

This paper will review underwater archaeological projects carried out on some of the most important shipwrecks in the Basque Country, those of the Nabarra, Baldur, Huntelbank, Hochheimer.

It will also point out the recently acts linked to the remembering of those fallen during the Nabarra sinking.

This way, history, archaeology and current memory of the past will be merged.

## **Martin, Hanz Günter**

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### **Hellenistische Seesiegdenkmäler**

Mit der Nike von Samothrake tritt anscheinend ein neuer Typus des politischen Denkmals in Heiligtümern und auf öffentlichen Plätzen auf. Weitere Beispiele sind aus Lindos, Thasos, Epidauros und Kyrene bekannt, sämtlich mit jeweils eigenen Problemen der archäologischen Überlieferung behaftet. Aber handelt es sich wirklich um einen Typus mit einer eindeutigen Botschaft?

## **McCartney, Innes**

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### **The Shipwrecks of the Battle of Jutland 1916**

One of my specialist areas is the Shipwrecks of the Battle of Jutland 1916. I have a paper on this subject being published in the INTERNATIONAL JOURNAL OF NAUTICAL ARCHAEOLOGY in spring 2012 which would coincide well with the date of the DEGUWA conference.

I would propose to present my findings on the wrecks of Jutland by showing that they are of important archaeological significance. They are significant sources of new information into the battle which cannot be garnered in any other way. I would address this issue with specific case studies looking at the wrecks of HMS Defence (the topic of my forthcoming paper) and HMS Invincible, possibly others depending on time constraints.

I have given presentations on Jutland at previous conferences, but this would be a totally new approach, focusing much more on their archaeological value. Having personally found some of the wrecks and having surveyed them for Discovery television, I probably know more about them than anybody.

## Mijat, Boris

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### **Schwimmer und Ertrinkende, Gefallene und Wasserleichen. Betrachtungen zu Seekrieg und zur Seenot in der geometrischen Vasenmalerei des 8. Jhs. v. Chr.**

Trotz des Einflusses bronzzeitlicher und nahöstlicher Motive und Elemente auf die mittel- und spätgeometrische Vasenmalerei Griechenlands muss von einer Darstellung der Lebensrealität der damaligen männlichen Bevölkerung auf diesen Monumenten, die zumeist aus funeralem Kontext stammen, ausgegangen werden. Diese haben als Thema neben Landschlachten eben auch solche zur See und erlauben eine Aussage zur Darstellung von Gefallenen oder Ertrinkenden bzw. in Seenot geratenen. Nach der Analyse von rund einem Dutzend Fragmenten und Gefäßen lassen sich die dort abgebildeten Toten bzw. Sterbenden in unterschiedliche Darstellungstypen einteilen, die teilweise unabhängig vom Topos des jeweiligen Stücks, also z. B. Seeschlacht oder Landung, wiederholt auftreten. Besondere einzelne Elemente der jeweiligen Figuren, die sich eindeutig nicht in kämpferischer Aktion befinden, ermöglichen die konkrete Zuweisung in ikonographische Kategorien, wie Tote, Schwimmer etc. Allerdings sollte keinesfalls soweit gegangen werden und diesen Ergebnissen absoluter Charakter zugesprochen werden.

Desweiteren soll im 2. Teil des Vortrags eine bislang unpublizierte Scherbe geometrischer Zeit aus der Erlanger Antikensammlung besprochen werden. Das Fragment zeigt zwei Figuren und ein weiteres, auf den ersten Blick nicht näher zu spezifizierendes Element. Diese Scherbe soll im Rahmen des Gesamtkontextes eingebettet, näher bestimmt und besprochen werden.



## Moser, Lena

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### **“In sailor’s apparel I’ll dress and go with you...”: Women and the Naval Warfare of the Revolutionary and Napoleonic Wars**

Naval warfare in the Age of Sail has been seen as an exclusively male domain for a long time, with the “female sailor” a phenomenon fit only for ballad and song, but a surprising number of historical sources would seem to suggest that the female contribution to naval warfare, without wishing to exaggerate it, could be quite substantial, and occasionally even won official or semi-official approval. Some women chose to fight a gun alongside their husbands, others might not have been physically present, but contributed to the “war effort” from ashore; some received pensions after being wounded in action, others were denied all public recognition. However, while the existence of female pirates has received fairly good coverage in historical research, hardly any attention has been awarded their sisters who took to sea in Royal Naval ships, so that there is an “enormous void” (N.A.M. Rodger) where those women’s lives are concerned. This paper, through the study of historical sources such as letters and eyewitness accounts, and a few cautious glances at the ballad tradition, is a first attempt to fill this

void a little by looking into the roles that British women – some of them crewmen’s or officers wives, some of them in male dress and crewmen in their own right – were assigned or chose for themselves in the naval battles of the Revolutionary and Napoleonic Wars.

## Müller, Constantin

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### Der Weg zur Seemacht beginnt an Land - The way to the maritime power begins ashore

Nach der Aussage, wonach eine gut geplante Schlacht bereits entschieden ist, bevor sie tatsächlich begonnen hat, nehmen die Vorbereitungen zu jedem bewaffneten Konflikt einen, wenn nicht sogar den wichtigsten, Part ein. Für die Seekriegsführung bedeutet dieses, das eine gut funktionierende Marinebasis von gleich hoher Bedeutung ist, wie die Schlagkraft ihrer Schiffe. Ein exzellentes Beispiel für einen solchen Stützpunkt ist die Hauptbasis der attischen Marine im Piräus. Die auf alle drei Hafengebieten verteilte Basis war durch ihre Einbindung in den städtischen Mauerwerk gegen Außenangriffe geschützt, wodurch gleichzeitig auch die Hafeneinfahrten verengt wurden und sie vor Außenansicht geschützt waren. Hierdurch wurden sowohl die Basen geschützt, als auch die Möglichkeit für einen Ausfall der Flotte geschaffen.

Besonders die auch zur Stadt hin ummauerten Abteilungen in der Zea und der Mounychia Bucht stellen durch ihre außergewöhnlich reichhaltigen archaischen Funde und zahlreichen antiken Quellen ziemlich genau die Infrastruktur einer solchen Basis dar. Zea mit den Überresten von sechs Schiffshäusern, von ursprünglich 196 und der Skeuothek des Philon tritt hierbei in den Vordergrund. Die um das Hafenbecken im Halb- bis Dreiviertelkreis aneinander gereihten Neosoikoi dienten den attischen Trieren zur Lagerung und zur Wartung. Hierdurch nahmen sie einen entscheidenden Platz innerhalb der attischen Marine ein, was sich auch im literarisch überlieferten Stolz der Athener auf ihre ab dem 4. Jahrhundert v. Chr. steinernen Schiffshäuser widerspiegelte, wodurch sie, neben ihren praktischen Funktionen, zu einem Symbol für attische Seemacht wurden.

After the statement which tells a well-planned battle is already decided before it has really begun, the preparations to every armed conflict take one, if not even the most important part. For the strategy of a naval war this means that a well-functioning naval base is of the same importance as the weight of punch of her ships. An excellent example of such a base is the main base of the Athenian navy in the Piraeus. The base, distributed to all three bays of Piraeus, was protected by its integration into the urban defence wall against outside attacks and at the same time the port entrances were narrowed and were protected against outside views. So the bases were protected as well as the possibilities were created for a sally of the fleet.

Especially the Zea and Mounychia bays separated from the adjacent parts of the town by defence walls, show with their extremely extensive archaeological findings and numerous antique written sources, quite exactly the infrastructure of such a base.

Zea, with the remains of six ship houses out of originally 196, and the Skeuothek of Philon becomes the focus of attention. Around the harbor basin, arranged in a semicircle or three-quarter circle, the shiphouses accommodated Attic triremes for storage and for servicing. Hereby the ship houses took a determining place within the Attic navy. This is also reflected by the pride of the Athenians attested by written sources in her ship houses. These were built of stone since the 4th century B.C. which made them, beside their practical functions, a symbol for Attic maritime power.

## Peplow, Christian

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### Hansische Seekriege des 14. und 15. Jahrhunderts. Alltag – Wirklichkeit – Mythos

Der Einsatz von Gewalt innerhalb des Hansebundes galt als *ultima ratio*, dennoch gehörten Seeblockaden, Handels- und Kaperkriege zu den wichtigsten militärischen Druckmitteln der hansischen Seestädte. Umso verwunderlicher ist es, dass dieser Komplex hansischer Schifffahrtsgeschichte nur wenig Beachtung findet. Obwohl Konrad Fritze und Günther Krause 1989 mit ihrem Buch „Seekriege der Hanse. Das erste Kapitel deutscher Seekriegsgeschichte“ eine solide Studie über die Seekriege der Hansezeit vorgelegt hatten – die bisher einzige deutschsprachige Monographie zu diesem Thema – blieben viele Fragen zur Durchführung und Ablauf eines bewaffneten Konfliktes auf Nord- und Ostsee unbeantwortet. Andreas Kammler erkannte dieses Desiderat und mit seiner 2005 veröffentlichten quellenintensiven Untersuchung zur Kaperschifffahrt des späten 15. und frühen 16. Jahrhunderts gelang es ihm, zahlreiche Aspekte der hansischen Kaperpraxis deutlicher herauszustellen.

Ausgehend von den beiden genannten Arbeiten strebt der Vortrag eine tiefergehende Analyse hansischer Seekriegsführung an. Um diesem Ziel gerecht zu werden erfolgt eine Auswertung schriftlicher und bildlicher Quellen unter alltagsgeschichtlichen Gesichtspunkten. Diese Methodik ermöglicht einen anderen Blick auf die Quellenüberlieferungen. Daneben kommt der Auswertung archäologischer Fundkomplexe im Bereich der Nord- und Ostsee eine fundamentale Bedeutung zu. Doch genau hier liegt meines Erachtens das Problem. Bisher erlauben die unterwasserarchäologischen Wrack- und Beifunde nur marginale Rückschlüsse auf die Klärung hansischer Seekriegsführung des 14. und 15. Jahrhunderts. Der Beitrag wird somit nicht nur zeigen, welche Forschungsarbeit auf diesem Gebiet bereits geleistet wurde, sondern auch deutlich jene Bereiche benennen, auf deren Erforschung in Zukunft mehr Aufmerksamkeit zu richten sein wird.

## Schäfer, Christoph

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### **Die Schlacht von Actium – Ein Sieg des Antonius?**

#### **The Naval Battle of Actium – a victory of Antony?**

In den antiken Quellen wie in der modernen Literatur wird die Seeschlacht bei Actium als großer Sieg des Agrippa über die geschwächten Flotten des Antonius und der Kleopatra interpretiert. Dabei ist die Überlieferung durchweg von der augusteischen Propaganda geprägt. Nimmt man die bekannten Rahmenbedingungen und kombiniert sie mit den nautischen Gegebenheiten am Eingang des ambrakischen Golfs, kommen Zweifel auf an der Eindeutigkeit der Niederlage des Antonius. Zwar war die an sich gut geplante Versorgung des Landheeres über den Seeweg durch den Verlust von Methone und Leucas weitgehend zusammen gebrochen, allerdings hatte Oktavian eine Landschlacht verweigert, so dass Antonius immer noch über eine intakte Armee verfügte. Angesichts der logistischen Probleme arbeitete die Zeit allerdings gegen ihn. Nur durch einen Ausbruch aus dieser Situation und das Verlagern des Krieges in Osten des Imperiums, konnte er hoffen, den Kampf gegen Oktavian mit Erfolg fortzusetzen. Daher war die Seeschlacht von Actium von vorneherein als Durchbruchschlacht angelegt. Trotz heftigen Widerstands durch die von Oktavians Feldherrn Agrippa kommandierte Flotte Oktavians gelang es Antonius, mit einem Großteil seiner Schiffe die Blockade zu durchbrechen und nach Süden in Richtung nordafrikanische Küste abzulaufen. An Bord befanden sich nicht nur die ägyptische Königin Kleopatra und die Kriegskasse, sondern auch ein großer Teil seiner Elitetruppen. Es lässt sich zeigen, wie der gesamte Schlachtplan auf den nautischen Gegebenheiten vor Actium aufgebaut war und, dass der Schlachtplan des Antonius aufging. Auch wenn Antonius und Kleopatra den Krieg letztendlich verloren, in der Seeschlacht vor Actium haben sie ihre Ziele erreicht.

In ancient sources as well as in modern literature the Battle of Actium is considered to be a great victory on the ragged fleet of Antony and Cleopatra. However, the historical tradition has to be seen in the context of the propaganda of Augustus. On the basis of the conditions known to us today and upon consideration of the nautical conditions given at the entrance of the Ambrakikos Gulf doubts raise if Antony was really defeated. It is true that the well planned supply by sea of the army had largely collapsed due to the loss of Methone and Leucas. However, Octavian had refused to carry out a Land Battle so that Antony still had an intact army. But in view of the particular logistical problems time was against him. Essential for a successful battle against Octavian was, on one hand, a complete change of the above-mentioned situation and, on the other hand, it was important to move his army to the eastern empire. That is why the Battle of Actium was conceived from the start as a “breakthrough-battle”. Despite all opposition on the part of Octavian’s fleet under the command of Agrippa Antony succeeded in breaking through the blockade with the majority of his ships and thus he was able to move south towards the North African coast. The Egyptian queen Cleopatra and the war chest were on board as well as a major part of his elite troops. It becomes obvious how the complete plans of the battle were built upon the nautical conditions of Actium and moreover, that Antony’s plan worked. Even if Antony and Cleopatra were finally defeated they achieved their goals in the Battle of Actium.

## **Schmidt, Tassilo**

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### **Seeschlacht bei Salamis und griechische Geschichte**

Unter dem anscheinend (auf den ersten Blick vielleicht wenig spektakulären) Titel „Seeschlacht bei Salamis und griechische Geschichte“ will ich die Bedeutung der Schlacht von Salamis 480 v.Chr. vor allem für das Selbstverständnis erst der Athener, dann vieler Griechen unter der Perspektive zu entwickeln versuchen, dass damit eine wesentliche Voraussetzung für die Entstehung des hellenistischen Königtums nach einer weiteren Seeschlacht von Salamis (hier Salamis auf Zypern) 306 v. Chr. und für die Eigenart dieses Königtums geschaffen wurde.

## Sorokin, Petr

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### **Vyborg Sea battle 1790. Some results of archaeological research.**

Vyborg Sea Battle of 1790 became one of the decisive battles of the Russo-Swedish War of 1788-1790. It is considered to be one of the biggest during all the history of the Baltic Sea by the amount of participated ships. The losses of the Swedish fleet are very controversial, they amounted  $\frac{1}{3}$  of the total fleet. As a result of them several doses of ships remained on the bottom of Northeastern part of the Gulf of Finland. They represent the parts of historical and cultural heritage and need research and protection.

Historical documents concerning this battle – descriptions, pictures and maps – are in Russian and Swedish Archives and Museums. That is why research of battle places allows getting information about how it developed, about the ships and their construction and armament, about the people who were on those ships. Archaeological information significantly adds to some new facts data that are contained in the historical documents and sometimes speak against them in a very convincing manner.

The archaeological research on the Vyborg battle place were began 21 years ago. In 1990, the 200<sup>th</sup> anniversary of the Battle of Vyborg by The Institute of the History of Material Culture Russian Academy of Science Their aim was to search and to evaluate the today's condition of the ship remains presented here and make documentation. Among other wrecked ships are Swedish vessels that were lost in this battle: ship of the line "Hedvig Elizabeth Charlotte", "Enigheten", "Lovisa Ulrika", fregate "Zemire" "Uppland", yacht "Aurora", and several vessels which are not identified.

Concentration of those ship remains in one place, in the area of Krestovy cape, makes it very interesting from the historical and cultural viewpoint. This area should become a place of many years' underwater archaeological research and give interesting material for museums.

## Tilley, Alec

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### Naval Battles on the Ancient Mediterranean

This paper examines naval battles on the ancient Mediterranean, particularly those at Salamis and Artemisium. But before we can understand those famous battles, we need to know what the ships that fought it, triremes, were like.

In our era it has been assumed that ancient triremes were sizable warships, like the supposed replica, *Olympias*.

But ancient triremes were not at all like that. The “tri” in the ancient Greek *trieres*’ indicated three files of oarsmen in all, not three each side (Tilley 2004, 23–32). Athenian triremes had their oars arranged as shown on the *Siren Vase*, each file having 30 oarsmen.

They had been developed from *pentekontors*, by adding a third row of oarsmen down the middle.

Triremes on the Persian side were rowed differently and were much lighter, having been developed from great war canoes rowed by a single file of oarsmen using pairs of oars, and transformed by the addition of bulges which made room for an additional file of oarsmen either side.

Without these two types of ship in mind, one cannot understand the battles of Salamis and other battles between triremes.

The need to support the orthodox notion of three-level triremes (which contradicts most of the ancient evidence) gave rise to the doctrine that “In the case of every ship representation ... error is always to be presumed unless the contrary is proved” (Basch 1985:413). If we disregard that doctrine, and search for ideas that are in accordance with the evidence, we will be enabled to understand earlier, pre-trireme conflicts on the Mediterranean.

## Tisseyre, Philippe

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In 2008, near Capo Rasocolmo, was found a ram of a warship in front at the straight of Messina. In a first time, the ram will be dated to the first AC., maybe a wreck result from the ship battle between Agrippa and Sesto Pompeo, called Naulocco. But the recent analysis of the bronze and the wood, and an accurately stylistic analysis of the decoration of sword over the ram, report the real datation to the III AC., probably the period of the battle of Milazzo (260) or another battles for the conquest of the Eolie island and Sicily during this strategic period. But how the ship can have a good refurbishment in the harbor of the island, and how and why Lipari will be for year subject of Punic, Roman and Etruscan fleets attacks? During the excavation of the modern harbor of Lipari, archeologist have been found the ancient harbor with a “criptoportico”: This article try to open a new chapter for the strategy of the island during the roman republican period, with a study of archeological finds like the harbor and the ram.

En 2008, un éperon de navire ancien fut retrouvé au Cap Rasocolmo, au débouché du détroit de Messine. Dans un premier temps, l'éperon de bronze fut daté au premier siècle av. JC, en tant que reste d'une épave provenant de la bataille de Naulocco. Les récentes analyses des métaux, et du bois de l'éperon ont permis de corriger cette datation au troisième siècle av. JC, probablement à l'époque de la Bataille de Milazzo ou l'une des batailles pour la conquête de la Sicile à partir des îles Eoliennes. Toutefois jusqu'ici nous ne connaissons pas la base stratégique des îles Eoliennes et le pourquoi des attaques répétées à Lipari de la part des flottes romaines, puniques et même étrusques. Au cours de la création du port moderne de Lipari, les fouilles archéologiques ont mis à jour le mole ancien du port et un cryptoportique: cette article essaiera d'ouvrir un chapitre nouveau pour l'histoire des îles au cours de la période républicaine, à la lumière des découvertes archéologiques du port et de l'éperon en bronze.



## Wagner, Sieghard

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### 1597, Seekrieg in Asien mit bedeutender politischer Auswirkung

Anfang des 20<sup>ten</sup> Jahrhunderts gelang es Japan, halb Asien zu erobern. Schon Ende des 16<sup>ten</sup> Jahrhunderts standen sie kurz davor, dies zu verwirklichen. Am Ende des Bürgerkrieges waren bestens trainierte Schwertkämpfer verfügbar, die im ersten Schritt Korea eroberten. Zudem verfügte Japan als einziges Land in Asien Feuerwaffen (Luntengewehre). Die koreanische Hauptstadt Seoul wurde über Busan und Jinju anrückend in drei Wochen nach der Landung eingenommen. Durch das beherzte Eingreifen der koreanischen Flotte unter Admiral Yi wurde der japanische Nachschub über See unterbrochen und der weitere Vormarsch kam in Pyongyang zum Stehen. Möglich wurde dies nicht nur durch die herausragenden Fähigkeiten Yis sondern auch durch den Einsatz eines neuen Schiffstyps, Schildkröte genannt. Zahlenmäßig weit unterlegen kämpfte sich die koreanische Flotte von Sieg zu Sieg. Der Rückzug der Japaner wurde so, auch mit Hilfe der Landstreitkräfte und eines chinesischen Entsatzheers, erzwungen. Über den Verlauf der Kämpfe berichtet das erhaltene Tagebuch des Admirals. Die Schiffe sind durch Bild und Text leider erst viele Jahrzehnte später beschrieben. Neuere Wrackfunde von vergleichbaren Schiffen bieten jedoch die Möglichkeit, die Schildkrötenschiffe zu rekonstruieren. Es können nicht nur die äußeren Masse sondern in Analogie auch Bauweise, Konstruktionsmerkmale und Materialien angegeben werden. Auch die Bewaffnung ist bekannt. Dennoch gibt es noch vieles zu klären so z.B. die Anordnung der Riemen oder die „eiserne“ Panzerung. Admiral Yi wird in Asien zusammen mit Lord Nelson als einer der größten Seehelden genannt. Im heutigen Korea wird er immer noch hoch verehrt. Seine Statue findet man entlang der ganzen Südküste.

In the first half of the 20<sup>th</sup> century, Japan succeeded in occupying half of Asia. But already at the end of the 16<sup>th</sup> century they were close to it. Well trained sword fighters were out of business after the civil war. At a first step they occupied Korea. In addition Japan was the only state in Asia which owns rifles. By passing Busan the Korean capital Seoul were taken within three weeks. Caused by the brave actions of Admiral Yi the Japanese supply by sea was interrupted and the advancing Japanese troops came to a halt at Pyongyang. This was made possible by the superb character of Yi and a new type of combat ship called turtle. Operating much lesser ships than the Japanese the Korean fleet won all sea battles under the command of Yi. His victory combined with the aid of land forces and a Chinese army caused the Japanese withdrawal from Korea. The details of the battles are shown in the Admirals diary which is still available. Unfortunately the ships are described by text and pictures many decades after the war. Recently discovered wrecks of Korean ships enable a reconstruction of the turtle ship. Weapons are known also. Nevertheless much is still unclear i.e. the arrangement of the oars and the iron plating. In Asia Admiral Yi is compared with Admiral Nelson. Still today Yi is honored by the Korean people. His statue can be found at various places in Korea.

## **Wolke, Lars Ericson**

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### **Asset or burden? Pommern and the Swedish navy during the Great Northern War, 1700-1721.**

The lecture will stress the basic fact that the Swedish empire up to 1721 (or even 1815) was a seabond empire, where the sealines of communications (“SLOC” in modern military english) were essential also for the warfare on land. In the southern part of the Baltic Sea the control of the SLOC between Pommern and mainland Sweden was, in accordance with this, also of extremely importance for the Swedish empire. A lot of research has been done about the land warfare in and around Pommern during the Swedish era, but very few studies on naval aspects of Pommern’s “Swedish history”.

The defence of Swedish Pommern was a more or less impossible task if these vital links between Stralsund/Greifswald (and of course Wismar and Stade outside Pommern) and mainland Sweden couldn’t be controlled.

If we look at it from another point of view, Pommern (as well as northern Germany in general) was also of great importance to the Swedish navy, both for supplying the naval shipyard in Karlskrona with naval stores (especially timber) as well as an area where sailors could be recruited for the Swedish navy.

The lecture will deal both with strategic as well as operational and tactical aspects of the Swedish naval warfare in the southern part of the Baltic sea and also in the coastal waters of Pommern and other parts of northern Germany in these years. This includes the use of both high sea ships-of-the-line as well as smaller archipelago vessels in different kinds of operations. The archaeological excavations of Hedvig Sophia outside Kiel is of course very closely connected to these events.

## Posterpräsentation

### **Hornig, Karin**

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#### **„Feuerspeiende ‚Löwen‘ an Bord“.**

In der Antike wurde Explosivstoffe anscheinend schon lange vor der ersten Erwähnung des sogenannten „Griechischen Feuers“ im Seekrieg eingesetzt. So berichtet eine Quelle aus der Zeit um 400 n. Chr. von einer – lang zurückliegenden, jedoch nicht näher datierbaren – Seeschlacht der Phöniker, bei der offenbar eine Art Kanonen ver-

wendet wurde. Diese besaßen die Gestalt von kompletten Löwenkörpern oder auch nur Löwenköpfen, wobei der Brandsatz offenbar aus ihren Mäulern herausgeschleudert wurde. In diesem Beitrag soll der Versuch unternommen werden, den Zeitpunkt und die Umstände des Einsatzes dieser singulären Waffe näher zu bestimmen.

### **Konrad, Michael & Neubauer, Daniel**

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#### **TUWA Survey Attersee 2011**

TUWA – The Austrian club for archaeological divers conducted in September 2011 a survey at the lake Attersee. It's main purpose was to get an idea of the Neolithic settlement borders.

During this survey, which was conducted on behalf of the state's agency for monuments, innovative equipment was used in order to achieve scientific results.

### **Loose, Jasmin & Grassel, Philipp**

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#### **Medieval Ship Timbers found at Frankenhof, Stralsund**

From April to December 2010, the area “Quartier Frankenhof” in Stralsund (about 0,5 ha) was excavated by the “Landesamt für Kultur und Denkmalpflege – Mecklenburg Vorpommern“ in the context of

War” (17<sup>th</sup> century) showed up. The majority of that evidences were dated to medieval period. Two of the interesting medieval structures could be determined as a small shipyard and a wooden water conduct

building activities. The excavations took place while the planned construction works were already started. Archaeological evidences and wooden structures from the mid of the 14<sup>th</sup> century to the “Thirty Year’s

system, both mainly build of former ship-timbers. They have been analyzed in two exams and will be presented in the poster “Medieval Ship Timbers found at Frankenhof, Stralsund.”

## **Lukoshkov A., Kobyljansky S.**

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### **Amphibious operation from July 1-9, 1944. (Findings of the courts and reconstruction of events)**

During the several underwater expeditions there were surveyed the largest zone of amphibious operation of the Soviet Navy in 1944 on the northern coast of the island of the Gulf of Finland to the rear of the main line of defense. This operation was the latest step in a strategic offensive, which led to Finland’s withdrawal from the war. Because of the stubborn resistance of the Finns and their support of special departments “Kriegsmarine” and “Luftwaffe” Soviet troops suffered heavy losses. For a variety of data from the 100 vessels involved in the operation, killing 37. Perhaps this is why the materials operations in the Russian military archives are still secret. Generally, the operation was characterized by successive

capture of coastal islands, with a landing and there were killed vessels and aircraft for each time. Our studies have revealed the remains at the bottom of eleven ships, boats and amphibious tenders, as well as three aircrafts. Their identification and place of death allowed reconstructing the course of hostilities. Most of the ships found preserved the integrity in spite of the military destroying. There are the historical monuments and graves now. At the same time, in connection with the establishment in the battles of the oil terminal, they must be picked up or destroyed as a danger to navigation. Today the fate of these objects is under discussion.

## **Müller, Johann**

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### **Novel methods for controlling wooden maritime structures from teredinid attack**

Shipworm are highly destructive marine bivalves which are estimated to cause over a millions of dollars of damage to maritime structures per annum. Any wooden structures exposed below the water line are

tory to evaluate their effectiveness in preventing wood degradation by boring organisms. The covered panels in both laboratory & field tests showed no signs of damage due to either teredinid or limnoriid

susceptible to attack. This preliminary research aimed to test the effectiveness of Terrafix® geotextiles against wood degradation from marine boring organisms. Geotextiles were tested in both the field and laboratory. Terrafix® geotextiles were successful at completely limiting borer attack for both field and laboratory testing after a six month period.

Conversely, control blocks showed surface damage from *Limnoria* and were heavily infested by both *Lyroduspedicellatus* and *Teredo navalis*. Preliminary results show that Terrafix® geotextiles were. Thus, Terrafix® geotextiles offer a relatively cheap alternative to wood preservation and should be considered for further trials.

## **Tilley, Alec**

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### **Sirens on Greek Vases**

The presentation consists of a single poster. It displays a Greek vase dating from about 480 BC, known as the Siren Vase, because it shows the ship of Odysseus going safely past the Siren Rocks. Odysseus and his crew were the first to have survived this passage. All previous sailors had been drawn by the irresistible singing of the Sirens onto the rocks, and there drowned.

The wily Odysseus had made his crew stop their ears with wax, but he had himself bound to the mast, his crew under orders not to release him, and so became the first mortal to hear the Sirens' song and to survive.

In accordance with a sacred prophesy, that killed the Sirens, and indeed there are none there now. I have past their rocks, just south of Capri, many times and not a Siren to be seen or heard.

But the episode that solved the famous riddle of what song the Sirens sang, solves another nearly as famous – the riddle of the trireme. Odysseus' ship shows four oarsmen, six oars and seven oarports. This mysterious combination of numbers reveals to the initiated just how ancient Greeks rowed their incomparable triremes.

## **Wagener, Sieghard**

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### **The Living Ocean and Coast**

Expo 2012, Yeosu, South Korea