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XVI

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UNDERWATER ARCHAEOLOGY MILITARY SHIPWRECK DISCOVERED IN THE BLACK SEA – ROMANIA

Laurențiu Marin DOBRE

Abstract: *Underwater archaeology is a new discipline that aims at studying and researching immersed cultural goods. In Romania the low interest in submerged scientific research has allowed amateur divers to take the initiative and develop exploration and investigations into the aquatic environment. The emulation at the level of diving associations and clubs and desire for sensationalism has stimulated and targeted the raids of the novelty amateurs to the military shipwrecks in the Black Sea and the Danube. The modern equipment and the documentary study help them substantially and the results are not a long time coming. Thus, images and objects belonging to standardized and well-preserved shipwrecks that have revived attention of specialists are brought to the surface. The Romanian submerged archaeological potential shown by discoveries made in the last century and the recent ones and the favourable legal framework emphasizes the necessity of a deep approach to underwater scientific sector.*

Keywords: *underwater archaeology, military shipwrecks, Arkadia, Moskva, Sulina.*

Together with the terrestrial and the underground world, the underwater blue is another universe with life (flora and fauna) that water barrier turned into an impregnable environment. The physical inability of our ancestors, from the early days of humanity, to penetrate into the depths of the seas and oceans of the world has created stories and myths about settlements and wrecks loaded with treasures buried deep underwater, which people still believe in today. The last two centuries, marked by an accelerated technical progress, have augmented the possibilities of conquest and exploitation of the depths and provided information and spectacular images.

Pursuing this, nowadays, more and more venturesome explorers plunge into the dark bottoms of the seas in search of rich artefacts, turning the investigations into fantastic diving. Meanwhile, scientists have developed a real underwater archaeological "industry" based on documentation, interdisciplinary working teams, special equipment and appropriate to aquatic environment, specific extraction and conservation techniques, etc.

As previously highlighted, underwater archaeology is a symbiosis of two radically different professions, diving and archaeology: diving, which is in a direct link to the report between physical training and health of the individual, and archaeology, which involves special training, both indispensable for the scientific underwater work. A professional dyad diving / research which should be equally

developed in parallel on the two levels, physical performance / scientific performance.

Underwater archaeology is a discipline subsequent to the general archaeology, aiming at searching, identifying, recovering, studying, conserving, preserving and scientifically reevaluating the historical submerged artefacts. Like terrestrial archaeology, underwater archaeology is an interdisciplinary activity, where we meet sciences specific to aquatic environment (marine science, aquatic / marine biology, marine geology, seamanship / navigation, ship building, etc.).

Genesis of this new research form takes place in France in the mid twentieth century, in the 40's and 50's, when Jacques-Yves Cousteau, naval officer, and Emile Gagnan, engineer, invented the breathing machine equipped with a regulator with "flow on demand"¹.

The beginning of underwater archaeology in Romania is signed by Constantin Scarlat in the late 60's (20th century), when, the "god of propaganda and teaching" (Vulpe, Scarlat 1982, 7) of diving and underwater archaeology, pioneer in diving, underwater topography and cartography, made the first submerged discoveries of some shipwrecks, ancient things and draw the first sketches of ancient submerged settlements, the ports of Callatis and Tomis.

Aquatic archaeology evolution is pending to the diving technique and technology. Exploring the pelagic deep has proved more effective, especially in recent years, thanks to highly improved equipment and, of course, to the study and analysis of the historical sources written and unwritten, documents, archives and local legends that have materialized in artefacts recovered and brought to shore and more new historical-scientific information.

The working field of underwater research includes stagnant water bottoms (oceans, seas, lakes), the river beds (rivers, streams) and special areas (caverns and caves).

In our country areas abundant in immersed remains are on the banks of the Danube and the Black Sea coastline (settlements, hydro technical and port developments, wrecks, etc.).

Continuous habitation on the seashore, which over time has served as a source of food, transportation route and "natural wall" defence, has favoured the creation of a rich terrestrial and underwater archaeological heritage in this area.

The large surface of the sea, the great length of the coastline (245 km) and current technology did not allow the location of all submerged vestiges, situation that allowed for decision factors of the cultural heritage protection segment to rate the entire Romanian marine surface in the Historical Monuments List as "underwater

¹ A device that provides an underwater breathing similar to terrestrial breathing by mouth aspiration of the respiratory gas with minimal effort.

archaeological site" - "Continental Shelf of the Black Sea Romanian seaside" - code L.M.I. CT-I-s-A-02561, thus providing an overall protection until relevant areas in terms of historical-scientific / archaeological purpose are identified.

Analysing the transformations of the Romanian seaside undergone in the last 2500 years, we notice a significant change in the geographical limits, expressed through a sanding north of Singol Cape (Fishery - Constanta), reflected by shore advancing broadly² and erosion of the beaches situated south of Constanta town, evidenced by sea advancing to dry land and a reconfiguration of the cliffs. Geophysical changes of the seaside, which on the one hand have covered the remains with slime, on the other hand have submerged settlements and hydro technical structures, have produced a "transformation" or a "grinding" of the archaeological material, interfering, obviously, in the degradation process. The phenomenon is most visible at the artefacts which inhabit near shore area where marine environment, Danube sand resulted from rocks and hard shells and, in particular, surf force act simultaneously. Regarding wrecks, if we consider that until the end of the Middle Age coastal navigation was practised and that most boats were small sized and made of wood, a large number of them lies near the coast covered by sand (north of Constanta³), or fall apart on the seabed (south of Constanta⁴).

Diving with an investigation purpose in the areas above mentioned requires an experienced and a physical condition above average of the divers, both qualities being needed to identify the remains⁵ and to maintain a state of buoyancy "between the waters⁶", as the space in question is being frequently under currents and swell bottom. This is one of the reasons why many divers passionate about "searching the undiscovered" were led into the wide and, especially, towards large and made of iron shipwrecked vessels (easier to identify by the sonar and magnetic scan). The Black Sea – the Romanian seaside - compared to other seas or oceans is limited in terms of visibility, transparency of water; a large volume of Danube slimes are shed in the sea mostly through the Danube Delta, which are carried by northern marine currents along the coast towards south and together with waves, amplify water perturbation. Meanwhile, in the summer, warm water and vegetable environment enhance the opacity of the marine environment in shallow depths areas (0-10 meters).

² As consequence of this action Histria bay was closed (Halmyris) and Razelm lake was formed.

³ A wreck located abreast of the Midia-Năvodari petrochemical platform, at approx. 4 marine miles and three wrecks in Sulina.

⁴ Wrecks from Eforie Sud and Costinești.

⁵ The field evaluation and archaeological supervision or research.

⁶ Expression used in diving slang meaning a depth given between the surface and the bottom of the water.

Under these circumstances most associations, clubs and diving schools have opted to carry out recreational, pseudo-archaeological activities at a large distance from the shore, during which they brought from the depths impressive images of shipwrecks full of history.

Among the most fascinating shipwrecks that seem to be in the top of the most popular ones for divers, media and experts are military vessels. Victims of armed confrontation, warfare (mine nets, floating mines, etc.) or mishaps, the military wrecks are spectacular by martial shapes displayed on the seabed. The underwater encounter with such a stranded war machine gives you a feeling of passing through the propylaea of eras, breaking the barrier of time and becoming contemporary with the wrecks.

It turned out that a substantial contribution in promoting and acknowledging the values of the underwater environment, particularly in the deep-sea area, proved to be held by associations, clubs and sporty and amateur diving schools from the seaside.

Aquarius Diving Center is one of the clubs of amateur divers on the shore that gathers around passionate individuals for incursions and deep-sea adventures and operates under the guidance of the binomial Romanian-Dutch Doina Culea Geonă/Harry Bakker, a diving school with over 10 years of activity. Under the leadership of Harry Bakker, the team has the most prodigious submerged activity of profile clubs. Having hundreds of dives, Aquarius Diving Center boasts with a rich library of photos and videos of their immersions, but also with an enviable record on underwater discoveries (civilian and military wrecks - notably from the Second World War - *Arkadia*, *Mosckva* *SHCH 213 submarine*). The club activity has proved over time, through its activities, respect for the environment and science materialized by the collaboration with specialists and competent institutions.

I. ARKADIA – THE MYSTERIOUS “BREMEN”

In the mid 80's military divers announced that during training diving they found the wreck of a stranded cargo called BREMEN, sunk most likely in the Second World War. During the immersions that soldiers did to the ship they found and brought to the surface the ship bell, which currently is mounted on the command bridge of the "281" Romanian military ship. The inscription on the exterior of the bell, AMSEL BREMEN, has accredited the idea that the wreck is called BREMEN. (Fig. No. 1) There are statements of some military divers who descended to the relics vessel in the 80's, according to which on the bridge of the ship would have been found two small cannons that were dismantled and brought to the surface, but there are no details regarding this intervention and the place where the pieces now stand.

In the years that followed, the wreck came into obscurity and gradually was forgotten.

After 2000 the wreck and diving enthusiasts resume searches for BREMEN cargo in a qualified manner. The documentary analysis of the perimeter pointed out by the military and the study has brought them, paradoxically, in front of a cargo vessel with the shipwrecked characteristics, but named ARKADIA. (Fig. No. 2) According to the archives, in April 1943 the vessel was sailing under German flag and had left the soviet port Sevastopol heading south, and that on 29 April 1943 ARKADIA had ended in the S-57 (Albu 2014)⁷ mine net, which protected the port of Constanta.

In the summer of 2007, after several diving sessions, the Aquarius Diving Center club members rediscover the remains of Arkadia travers from Mamaia resort, GPS coordinates 44°18.440' North latitude and 28°48.430' East longitude. (Fig. No. 3).

By modern methods of investigation (3D scanning) the team of amateur divers bring a three-dimensional image of the wrecks emerged, offering precious details on the settlement of the wreck on the seabed, the technical-physical characteristics, positioning of the vessel components, configuration of underwater relief and visiting possibilities in safe conditions. This information removes / simplifies the precursory steps, respectively diving for perimeter and object recognition. (Fig. No. 4)

The wreck lies at a depth of 31 meters, at the propeller and the highest point at 17 meters from the surface. It rests on a sandy bottom with minimal traces of dead shell and a thin layer of mud, depending on the year. The ship is facing stern-bow on the North-South direction, is inclined nearly 20 ° on starboard, is dressed in a shell garment with sea vegetation and is not covered by fishing nets or other similar materials that would block the visibility or access inside.

During the accomplished observations, the Aquarius team divers found visible traces of the sinking in the middle of the shipwreck, on the starboard side. In the area below the waterline of the ship there is a hole of irregular shape, with varying sizes between 0.8 to 2.5 meters. The hull perforation could have been caused by an explosion, given the irregular perimeter of the opening. The rest of the hull is intact, without any holes, deformed or missing parts. Aft starboard, near the wreck, there is a marine mine cart, unloaded, which we can assume it belonged to the mine that hit the vessel.

⁷ Sinking place and mine cart found near wreck matches the mine net coordonates, placed by the mine-laying ship NMS Amiral Murgescu on date "30.01.1943: launches the mine net S-57, outside the barrage of Capul Midia".

Most divers that visited the sunken cargo stated that it is a "superb" wreck from the heyday of the building vessels yards, which impresses with pieces of bronze mounted on board (navigation equipment, gas lighting lamps, portholes, naval furniture elements, etc.).

From both the hull and the ship castle⁸ are missing numerous portholes, latches, railings and other bronze pieces of naval use. The aspect of the spaces left empty indicates that the pieces were removed by dismantling long time ago (proven by the presence of the bioderm and oxide layer in a large quantity).

In 2008 diver Cristian Munteanu enters for the "first time" the superstructure, the ship command, where he identifies navigation devices and the helm of the ship, the latter being detached from the socket. Few months later, to protect the cultural property, Harry Bakker and Pică Iulian (Aquarius Diving Center), bring ashore the helm of the ARKADIA wreck, which they give afterwards to the Romanian Navy Museum in Constanta. Today, after being restored, treated and preserved properly, we can find it in the museum's permanent exhibition. (Fig. No. 5).

In the last immersions carried out on board the cargo, divers found on aft the spare propeller, and under the stern racking the spare rudder fixed in its position. During the descent to the wreck more videos⁹ were made and impressive images were brought. (Fig. No. 6). The mystery related to the name of the ship is not the only one surrounding the shipwreck, a legend fuelled by Ramiro Angelescu¹⁰, currently leader of a diving school, has floated around the sunken ship. Legend has it that in the captain's cabin would have been a case of French cognac and that the divers descending to the wreck returned "dizzy". Most likely this is an anecdote sold by military divers to Ramiro Angelescu, who in the 80's, was working on the coast on making some underwater filming. A funny story told at a party after work or a mere fiction of it.

After several dives at the sinking site, Harry Bakker sketched a scale artistic image of Arkadia wreckage, surprising the position of the ship on the seabed, the structure elements and the morphology of the seabed as it is now. (Fig. No. 7)

Diving to the shipwreck requires a good physical condition and training. Only experienced divers and instructed accordingly are recommended to enter the wreck. The immersion can be achieved with air or, for a longer duration immersion, with a binary respiratory mixture - NITROX. The visibility is moderate to good

⁸ Superstructure, construction above the deck where usually is the ship command.

⁹ *Wreck "Arkadia" – Black Sea*, <https://www.youtube.com/watch?v=x2kI5a5FMIE>, loaded on the public site <https://www.youtube.com> by "Omnismares T101" diving club in Constanta.

¹⁰ Hired in that period at Safia Film Studios.

directly related to the Danube flow, sea currents from the North and thermocline¹¹. The water temperature is variable depending on the season, from 20 ° C during the months from August to September, up to 5 ° C on the bottom in February to April. Enforce the compliance of rules of diving - team of minimum two divers with assistance from the surface.

II. MOSKVA

In the Second World War one of the monsters made of iron and steel with fire holes which ruled the Black Sea¹² was hit and sunken to the bottom in the Romanian territorial waters, following an open armed conflict in the summer of 1941. Over time the "monster" remains periodically have sparked the interest of historians and challenged several generations of experienced and amateurs divers to find them and show them to the world after decades. (fig. no. 9)

After a long period of study, consultation and analysis of several documents, civilian and military archives, both in Romanian and Russian language, alongside with a bi-national Romanian-Russian collaboration at diving enthusiasts' level, searching for the most titled Russian military ships of that era - the destroyer MOSKVA started. Thus, around the years 2009-2010, around the destroyer wreck gravitated two amateur divers clubs¹³ anxious to find the pieces of history lost in the waters. The two teams were running parallel study and searching activities.

In 2010 a group of eager amateur divers from one of the two clubs, addicted to underwater adventures, passionate for novelty, adrenaline and sensational discoveries, team up with a Russian partner, together with whom started a documentation over the archives, which allowed them to narrow the area of investigation. The adventurous group succeeds to mark the destroyer identification in their list of records, but they don't go public with the news, wanting to make a documentary video to announce its discovery.

That is the moment that marks the beginning of the destroyer's post-mortem logbook and the debut of a new episode meant to elucidate the exact cause of the sinking of the leader of the Russian fleet.

¹¹ Thermocline rarely *metalimnion* is a layer of water that forms between the warm and cold water when the sea temperature suddenly decreases or increases. During sinking you feel as between two bodies of water. The water layer thus formed gives an opaque glass aspect, caused by the refraction of altered column of cold or warm water. The phenomenon happens in the air as well between the layers of the atmosphere, which can be observed when hot air rises; example - in desert areas and on roads where causes miraj efect.

¹² The West Zone of the Black Sea which was the military conflict area.

¹³ Because currently there is still a dispute between the two clubs, I avoid mentioning the names of these two teams.

In late spring of 2011, the representatives of the second club, united by the same hobby and goal, form a Romanian-Russian-Ukrainian heterogeneous team, which also starts a developed activity of prospecting a perimeter where, according to archival research results, that metal titanium wreckage would be found. After successive weeks of scans of the seabed by indirect geophysical methods (multibeam - sound mapping, gravimetric and magneto metric measurements) and video analysis using ROV¹⁴, appear the first signs of the existence of a possible sunken ship with the physical characteristics of the famous ship, clues confirmed by the distance from the shore¹⁵.

In May 2011, after the investigation which were accomplished, the Romanian-Russian-Ukrainian mixed team identify the Soviet military wreck and also now exploration dives take place.

The discovery of the MOSKVA destroyer caused a heated dispute between the two teams in the online environment on the main specialized forum¹⁶, a debate which placed the Romanian side in obscurity, this aspect being speculated by the foreign collaborators and proven by the articles in the international media, as well as by the allegations of a team member – Black Sea Wreck Divers Constanța (neutral group in this dispute): "...at international level the credits for finding the wreck are awarded to the Russian and Ukrainian divers, who knew how to properly manage the image capital created on the subject. "

In the summer of 2011 military divers from the 39 Divers Center and the Group of Ships of Special Operations Forces - Romanian Navy Forces, through its subordinated structures – Deep Depth Divers and EOD Divers – have performed several dives to determine the level of danger of weapons and ammunition on board, on deck and near the wreck (on the seabed).

MOSKVA destroyer is one of the ships of Leningrad class, built in the early 30s for the Soviet navy. It is a model inspired by contre-torpilleurs type from French Navy fleet. The ship is launched on water in 1934 and became operational in 1938. In this class are also included the HARKOV and LENINGRAD ships, and later MINSK, TIBILISI and BAKU, those being the biggest ships built after the Bolshevik Revolution (1917). During the era and in the specialised literature the MOSKVA destroyer was named "The Black Sea Titan".

On June 26th, 1941 a Soviet attack from the sea was triggered on Constanta. The Russian fleet with Harkov and MOSKVA destroyers among the ships during

¹⁴ ROV, abbreviation for Remotely Operated Vehicle. Device underwater operated from the surface, which can dive to different depths (depending on the technical characteristics), equipped with live cameras and prehensile arms.

¹⁵ Area located in the fire range of the Romanian-German coastal battery "Tripiz" and of mine barges located at 10-12 miles.

¹⁶ Forum designated to diving enthusiasts, <http://www.scubaboard.ro/forum/forum>.

that morning of June 26th, at 03-04, with the mine shield type devices installed, got near the mine barges (placed 10-12 sea miles from shore), which defended the port area. MOSKVA advanced through the mine net where it launched attacks on the port area and the Palas train station. At around 4:26 aboard the destroyer occurred an explosion that split the ship in two and in two-three minutes it sank. The coastal brigade and Romanian military vessels opened fire on the two vessels. The cause of the ship sinking is not fully known, today there are four assumptions (Damaschin 2014, p. 156):

- the ship was hit by the Romanian military fleet
- the ship was hit by the coastal brigade
- the ship hit a mine in the net
- a possibly confusion of the 206 SHCH soviet submarine, which fired directly on his ship.

The destroyer is impressive in size and firepower for its period:

Length: 127.5 meters

Width: 11.7 meters

Engine power: 49,000 KW = 66,000 horsepower

Speed: 40 knots = 74km / h

Standard displacement: 2.180 tons

Loaded displacement: 2,582 tons

On board weapons five cannons of 130 mm and 76.2 mm, four cannons of 25,33mm, 68-115 mines and 52 torpedos.

The wreck is located at the edge of the Romanian territorial waters¹⁷, abreast of Agigea, approx. 12 sea miles from shore (over 22 km), the coordinates of 44°4.020' North latitude and 28°57.172' East Longitude, is oriented N-S stern-bow, bearing 153 °. On the same alignment, linear with the longitudinal shaft of the vessel, aft, approx. 300 meters on the coordinates 44°4.172' North latitude and 28°57.021' East longitude was found one of the ship's baskets, more precisely the one that was located toward the bow of the destroyer.

After the way the wreck fragments are placed in the field, the basket and other smaller pieces of the superstructure, we can understand that here "most likely is where the explosion occurred, since this point, aft stern and punctual bow form a line, and the distance is 300 meters, the relevement remaining constant."¹⁸

¹⁷ It seems that the wreck is placed right on the border of territorial waters and contiguous zone (see art. 8, aline. 4, Law no. 99/2007, *on accepting the Convention on underwater cultural heritage*).

¹⁸ Lt. Commandor Cristian Munteanu of the Romanian Navy Force.

Dives have shown that the destroyer lies on the sandy bottom at 45 meters deep, at propeller, and the nearest point of the water surface is approx. 30 meters. The wreck has the bow toward the second basket torn and twisted - overturned about 180 ° with the keel facing the water surface, making impossible to visual inspect the deck thoroughly. The aft is placed on the keel / hull tilted about 25 ° -30 ° to port. On ship's deck, the main fighting equipment were identified, all in place and untouched by the blast effect: guns, missiles and ammunition. On the sea bottom, elements of the superstructure and naval furniture are found scattered near the vessel, as many armament parts.

The destroyer wreck is covered with a layer of algae composed mostly of scallop and marine vegetable mass and is not covered with nets or other similar materials, possibly because the ship is situated in the fairway navigation of Constanta port, prohibited/restricted fishing area.

The immersions made so far to the sunken destroyer have not yet established with certainty what caused the disaster. However, the discovery of the basket detached relatively at a small distance from the body of the wreck advances the hypothesis of a mine or a torpedo hitting the vessel at the surface, in which case the explosion might have developed in the upper part of the vessel (the part above the water), absorbing the basket once with the blast, while causing a perforation of the ship's structure below the waterline, enough to induce sinking. In this case, after impact, the soviet vessel went onward inertia in the same direction until the ship sank. It is a primary interpretation of submarine data and observations. Future investigations will certainly bring out all the information needed to establish the historical truth. Assumptions on the destroyer sinking were described in detail by Ioan Damaschin in his work, but none of the options has yet received a solid confirmation from the deep. (Fig. No. 12).

The giant Russian war machine was also sought by Constantin Scarlat. There are sources that claim that the shipwreck was also found by the prestigious diver, but it was never confirmed by the author personally, in writing or verbally. "The discovery of the destroyer wreck, empirically based, has been a concern for one of the pioneers of Romanian Diving, Commander Constantin Scarlat, between the years 1970 - 1980".

Recently more underwater recordings of the wreckage have been taken and suggestive video montages have been made, the most representative being the movie *Moskva Oct 14, 2012 Aft canons, rudder, props & torpedos*¹⁹, of the T101 Constanta Club, loaded on the public website www.youtube.com

The position of the wreck, south of Constanta, where the murky waters of the Danube do not significantly affect visibility during immersions, enable sinking

¹⁹ <https://www.youtube.com/watch?v=W7wXrM71LxM>.

all year round except between July and September, when the thermocline drop to 35 meters, blocking natural light. Also, the water temperature of 5 ° -13 ° C, depending on the season, does not prevent diving, but it is a factor to be taken into account in evaluating the working conditions. Using air during diving guarantees the work safety in immersion, but with a little time for action (approximately 15 minutes), for exploration is recommended a binary respiratory mixture, preferably NITROX and a short decompression with mixtures heavily/strong over oxygenated - TRIMIX, REBREATHING.

III. UNKNOWN SHIPWRECK

In June 2011, during a training exercise conducted East of seaport Midia Năvodari, a team of military divers (Romanian Navy Forces) led by Capt. Commandor Cristian Gheorghiu and Lt. Commandor Cristian Munteanu group of divers and p.c.c.²⁰. Daniel Răsoiu identify a wreck of a ship constructed entirely of metal (iron). The ship is sunk "in beam" of Midia-Năvodari petrochemical platform approx. 2 miles of shore, coordinates 44°20.970' North latitude and 28°44.740' East longitude. (fig. nr. 13)

As it was only one descent to the wreck, it was established that the ship lies on a sandy and dead conch bottom covered with a thin layer of mud, at a depth of 17 meters, atilt on a board about 15° - 20° and oriented North-South. The highest point of the metal relic is the mast, which starts at 8 meters below the water surface.

The observations made underwater by the military divers showed that the vessel is not integer, they did not find on any side of the ship the propelling section (the propeller open end) or the outboard for steering systems (the place of the rudder blade) or the anchoring system (winches, anchors, chains, chain room), so that they could not determine the bow or stern of the wreck, "both endings are abrupt, not rounded" according to the assertions of Lt Cdor Cristian Munteanu. The dimensions provided by the protagonists are rough and for guidance purpose: length 25 meters, width 6 meters, height on the boards 1-2 meters and the mast starting from the standard deck is about 9 meters.

What was specifically noted during visual inspection by the divers comes from their statements: "We found a small square²¹ with entrance from deck level, with dimensions: length about 4 meters and 3 meters wide, with small portholes aprox.10 inch and traces of floor fixing of some sofas", also the authors appreciate that the ship is "most likely a fishing vessel of the fishing fleet in the Black Sea or a river boat."

²⁰ Contractual Civil Personnel.

²¹ Spacious room existing on the ship board, where crew members usually meet.

Unfortunately there is no argument so far to support the above, there are no clues regarding the ship's type, size, origin, flag or name under which it sailed. To elucidate the enunciations further diving and investigation are needed. Given its size, where the breadth reported to length is typical to warships (very narrow), we cannot exclude the possibility that the wreck is an old warship.

The wreck is covered with a minimum shell substrate on top of mud and the mast presents massive deposits of large conches. On the outer surface are not present fishing nets or other similar materials.

Diving to the wreck must consider the visibility which is strongly affected by northern currents and the Danube flows - carrying alluvium (spring, early summer); the depth makes it ideal for air immersion and should not be ignored assistance from the surface.

IV. WOODEN MILITARY SHIPWRECK AT SULINA²²

I think that the most exciting and fascinating shipwrecks are the wooden fighting vessels. In Romania the most spectacular ship of this class was discovered recently in the port basin of Sulina.

In the spring of 2015 the passion for shipwrecks brings the Constanta Marine Explorer Club team (Roibu Pascale and Iulian Rusu) in the Danube Delta. The study of the expertise works and the close experience in military applications deployed in the Danube waters brought the two divers to Sulina. Here, after completing the knowledge on the spot, with the support of the locals and the fishermen, they focused their search area and marked off an aquatic area near Sulina. The perimeter subject of the examination was the water basin of the port established out of Sulina, on the same side of town, with access from Sulina Arm. (Fig. No. 14).

Ultrasound scan revealed three forms similar with some vessels bodies. From the first verification submerges the divers established, without doubt, the presence of three wooden shipwrecks (the first two identified are merchant ship, the third being a battleship). Because the observations were conducted during a single day (20 May 2015), the inspections were sketchy and the authors could not get more details on the state of preservation, building type, size or chronological fitting of the wrecks.

The third ship found under water is placed in the middle of the southern side of the basin, at about 200 meters from shore, the GPS coordinates 45°9'20.91" North latitude and 29°40'50.11" East longitude.

²² I will resume a fragment from the article *Wood wrecks discovered in the period 1989 - 2015*, which I presented in the book - Mustăţea Sergiu, *Current trends in the protection of the archaeological patrimony in Romania and Moldova Republic*, Arc Publishing House, Chisinau - Iaşi, 2016, to which I added additional data.

Underwater observations of the two divers were focused more on this shipwreck, because of the inventory that has been noted since the first immersion (parts of weapons and ammunition).

The determinations taken show that the vessel is a military ship made entirely of wood, situated on an area of sand and mud, devoid of aquatic vegetation at a depth of 7-8 meters, with the longitudinal axis oriented north-south. The wreck has a length of about 45 meters, is buried in the lake bottom, the keel and the merging parts with the shell are hidden under sandy mud, the hull has parts detached and is significantly damaged, bow or stern could not be identified. The damage may have occurred following the actions of desilting of the lake by mechanical dredging. Inside the hull of the wreck, in the south-central side, has been identified a part of a dredging cup stuck in the shell, between two floor frames. The close examination of the upper area showed that the shipwreck has the main deck uncovered, with many of the components of the superstructure missing and elements of the rigging unfound. In the central area of the ship, where seems to be the boat calla, it was located an arsenal consisting of more than 100 cannonballs (Pascale 2016, p. 31) and three canon carriage wheels. (Fig. No. 15, 16). Inside the ship were found several items naval-related: wooden and metal pulleys, component elements for shell reinforcement, kevel fragments, etc. Surely a large part of the wreck's inventory is sunk in the mud covering the ship. On the outside of the wreck are present in several places fishing nets that favoured vegetable deposits and making it impossible to visit the vestiges. At about 4-5 meters from the wreck in the North-West area are visible a few cannonballs and a cannon carriage wheel, all half-sunken in the mud, most likely fallen from the board during the sinking.

To elucidate the cause of the sinking²³, the vessel type, the era it belonged to, were brought to the surface two pieces (a cannonball and a cannon carriage wheel) and suggestive images. The artefacts recovered were delivered to the Sulina History Museum and the Tulcea County Department for Culture was notified about the discovered shipwrecks.

Thus, after removal of silt and vegetable deposits, without interfering on the goods in any way, visual checks were carried out on the physical characteristics of objects (fig. No. 17)

- The cannonball is made of iron, has a black / red color, with pronounced traces of corrosion and oxidation, has a diameter of 30-35 cm and weighs about 70 kg, the interior has traces of black powder;
- The cannon carriage wheel is an auger model, made of wood with iron block and the rolling way is protected by a strip of iron, has a diameter of about 1-

²³ Underwater the objects seen through the viewfinder are larger, it creates an optical phenomenon of magnifying glass, also, with the descent into deep, items lose natural color.

1.1 meters and weighting about 60 kg, a thick layer of oxide on the ferrous components can be observed on the exterior.

The ship is partially buried in the sand covered with a consistent layer of mud. On the vestiges is visible a bioderm specific to the stagnant waters with silt and sand deposits.

The shipwreck area, the position of the wreck - relatively close to shore, in shallow waters at 6-8 meters - the construction type, which seems to be specific to the 18th – 19th centuries, related to the shore conformation in recent centuries, make plausible the theory of ship's stranding on the sand banks located south of Sulina port due to navigation errors or storms (the best known the one in 1855 - November 24 / December 6), or a military confrontation.

Theoretically, in this case, given the depth at which the wreck lies, the dive is accessible to all regardless of training level, but because of sandy bottom with silt and stagnant waters specific vegetation, plunging is recommended to experienced divers who are familiar with such an aquatic environment.²⁴

Of all underwater archaeological discoveries made in the last two decades, the military ship stranded at Sulina, represents the only discovery that is not in an archaeological site or in an archaeological protection area.

The existence of the military wrecks in Romanian waters of the Black Sea is a certainty expressed in historical documents, in statements of witnesses of the events and in the findings presented.

A lode of underwater archaeological sites (wrecks²⁵) is in the contiguous shore area as a result of practising cabotage in navigation until the early nineteenth century. Many civilian / commercial and military ships have failed or have wrecked generally in the avanport areas or on the navigable routes due to armed confrontations, bad weather, navigational errors, mishandling of ships, accidents on board etc.

Protecting underwater archaeological sites and their cultural belongings began with the establishment of some protection measures and ranking in the Historical Monuments List the areas with an obvious archaeological heritage. An

²⁴ An inexperienced dive (expressed by sudden, uncontrolled moves, without stable buoyancy or an improper position of the body in relation to artifacts) would cause a disturbance of sand with silt or deposits which will result in a rapid decrease in visibility and consequently a temporary cessation of work or even damage or destruction of the sensitive, fragile, friable vestiges.

²⁵ In terms of topology, underwater sites are classified into four categories: wrecks, submerged terrestrial sites, underwater sanctuaries and underwater deposits without ritual character.

attitude that resulted from a synergistic trend of European policies to protect underwater cultural patrimony and of underwater activities of the reputed diver - Constantin Scarlat.

Ad litteram implementation of the legal frame calls for an active involvement of the authorities with responsibilities in the field, special technical equipment, specialized personnel and a financial effort proportional with the needs imposed by the on-site reality. In support of resolving the situation, the leaders in the field must take action and encourage underwater archaeology cleavage of the terrestrial archaeology by forming an archaeological trained personnel able to carry out archaeological evaluation, supervision and research activities in the aquatic environment. This is the condition that assures that underwater conducted activities on the vestiges will treat the sites covered by water in a professional, qualified and comprehensively manner.

It is true that underwater archaeology is a new discipline, at the beginning both on global and national levels. But, if countries with tradition in archaeology and with submerged archaeological potential understood to open another path in archaeology and invest humanly and materially / financially in the new way of scientific research, to create institutions of training and study in the underwater segment, why not Romania, where exists a rich archaeological resource and where in these days this discipline is anomic, amorphous, still empirical and only in the sight of pseudoarchaeologists.

Underwater archaeology in our country, now, more than ever, needs air both underwater and on the surface.

PHOTO SOURCES

Fig. 1 Personal Archive

Fig. 2 Aquarius Diving Centre Archive Constanța

Fig. 3 <https://earth.google.com/>

Fig. 4 Aquarius Diving Centre Archive Constanța

Fig. 5 Personal Archive

Fig. 6 Aquarius Diving Centre Archive Constanța

Fig. 7 <http://www.romania-actualitati.ro/vas-sovietic-scufundat-de-romani-descoperit-dupa-70-de-ani-28993>

Fig. 8 Aquarius Diving Centre Archive Constanța

Fig. 9 Aquarius Diving Centre Archive Constanța

Fig. 10 Aquarius Diving Centre Archive Constanța

Fig. 11 <https://earth.google.com/>

Fig. 12 <https://earth.google.com/>

Fig. 13 Marine Explorer Club Archive Constanța

Fig. 14 Marine Explorer Club Archive Constanța

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Fig. 1



Fig. 2

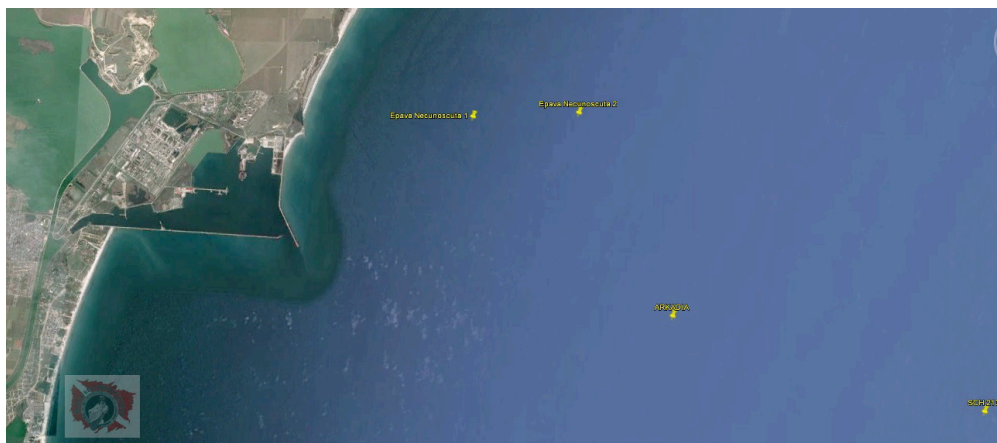


Fig. 3

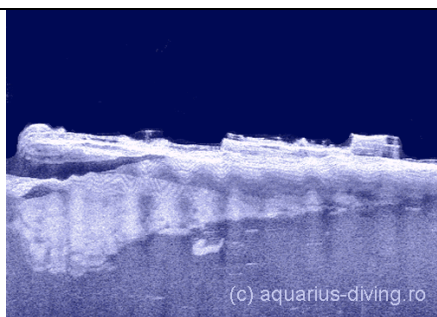


Fig. 4



Fig. 5

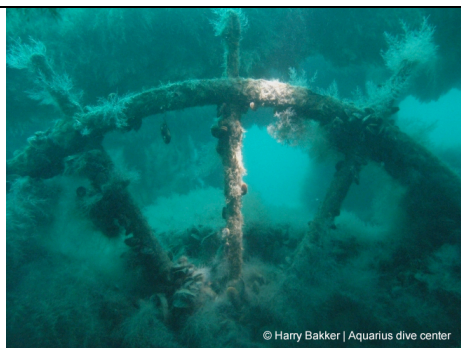


Fig. 6

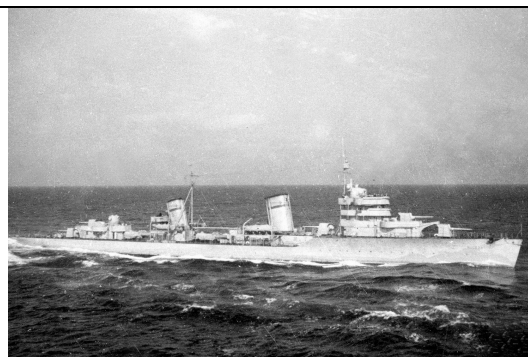


Fig. 7



Fig. 8



Fig. 9



Fig. 10

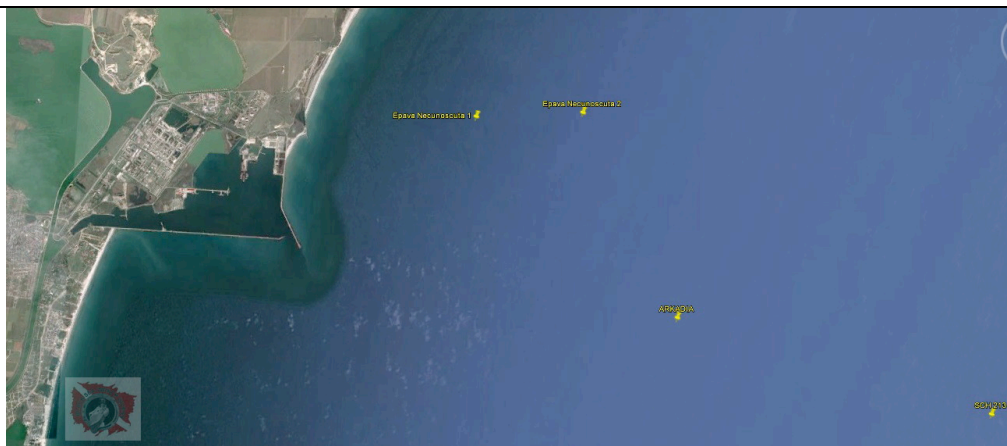


Fig. 11

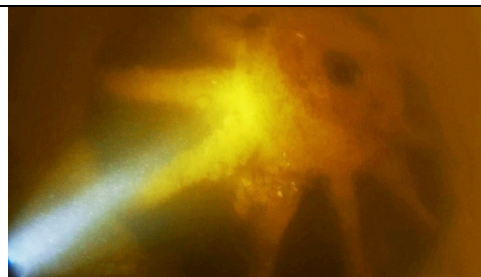
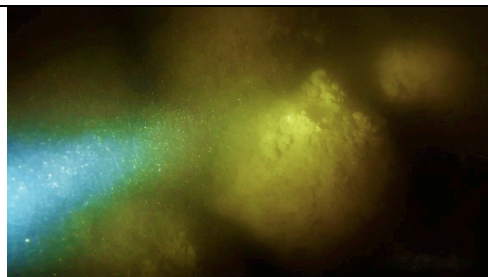




Fig. 15