





Preface

Dear reader,

The Scheepsbouwkundig Gezelschap "William Froude" is the study association of Maritime Engineering and Naval Architecture at the Delft University of Technology. For the past 114 years our study association has acted on the behalf of our students, by being involved in monitoring and improving the quality of the education. Next to this, organizing excursions, guest lectures, social activities and other means to support our members has been an important part of our existence. Froude offers its members the opportunity to discover the many aspects, possibilities and developments in both the national and international maritime industry.



Challenging excursions, two-day trips and also a day full of case studies are organised annually. However, the study trip abroad, which lasts about a week, is the highlight of our year. We call it the MBE, Meerdaagse Buitenlandse Excursie, which roughly translate into: Multiple-day Foreign Excursion.

This year, we travelled from the 5th of May until the 13th of May trough Romania with 35 students and one lecturer. The primary goal of this trip was to get a closer look at the maritime industry in the east of Europe to gain perspective on our Western standard.

The preparation for this trip started in September 2017 when the first ideas where thought of. My personal goal was to visit a country which is very different than those visited before to offer the students as much perspective on the international industry as possible. Also a country that our students won't visit any time soon had my personal preference, so this could be a unique experience for them.

Romania is such a country, because not many people know that the maritime industry is quite big overthere. The history of shipbuilding goes way back in time and the Romanian workers are very skilled. More and more Western companies open an (engineering) office, a factory or a yard in Romania, which shows the confidence in the quality of shipbuilding. The visit to the University of Galați showed me the academic uprise of Romania, where've experienced that the skills of Romanian students and their professors can be compared to Western universities.

As you can read further on it was an eye-opening study trip. Not only for me, but I hope for all our students. That's why I would like to end with a thank you to everybody who helped me make this trip possible: the companies, the sponsors and of course the participants. I had an amazing time and I hope you all did too.

Enjoy reading this travel report!

Met immer luide plonsch,

Mick van der Velden Commissioner of Excursions The 114th board of S.G. "William Froude"





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Participants

Tom de van der Schueren Amber Viskil Tijs van der Zee Anna-Louise Nijdam Mick van der Velden

Dr. Ir. Peter Wellens

Andreas Speksnijder
Anne Reumer
Arnout Zaal
Bart Diesveld
Daan Seegers
Elise Hoffmann
Ferdinand van Heurn
Gerard Wiegersma
Ghislaine van Laar
Huub Steeghs
Jarno Kuipers

Jasper Valk Jip van Zuijlen Joep van der Spek Jorran Blaauw Julia van den Heuvel Julien Hermans **Kevin Lute** Koen Batteram Lars Kohlmann Liza van Kempen Martiin Witvoet Max Buirma Robert Zwart Siemen Obers Tom Verbist Valentijn Elderhorst Valentina Popiniuc Vincent Mullenders Vino Peeten





From the lecturer

It was my privilege to join the group of students during Froude's MBE to Romania this year. Being from across the Mekelweg originally (the faculty of Civil Engineering) I had no idea what I would be exposing myself to, although I had some clear objectives.

I have been in the Ship Hydromechanics section in M&TT for two years now. I am a MSc-coordinator for the Maritime Technology track Science (hydro and structures), I teach courses in the MSc and I supervise students in their thesis phase. Therefore I first meet students when they are rather advanced in their academic endeavours.

My first objective was to meet students from all years in MT instead of only the final two, and I got more than I asked for. An absolute disaster at remembering names, it was quite a challenge to memorise 30 new names in a day, most of them - just my luck - not from the final two years. It was a nice group of people, approximately Rayleigh distributed over the years, with a Pareto distribution of how advanced they are in their studies.

The second objective was for them to get to know me. I felt generally accepted and they only laughed at me behind my back. The objective was also for me to get to know them. Here again I got more than I asked for; I'll let Huub fill in the details. But I also saw the behaviour that gives students from Delft their good reputation: we make things work.





The MBE was perfectly organised, 9 companies in 5 days without ever feeling pressed for time is quite an achievement. I heard of one assistant professor that was stalling when they were serving us Heineken, but that was the only incident. Mick is a natural at being Commex. He said so himself a couple of times. A lot of times, actually, but it never became really awkward. He never lost the support of his fellow board members, taking turns at taking responsibility, working as a team of professionals.

Professional behaviour characterised the entire group. Sharply dressed, we allowed ourselves to be herded into minivans or buses at 8:30 in the morning. The rides were almost always uneventful. After being warmly welcomed, everyone was on the edge of their seats for the company presentations. And the level of detail of the questions was such that I was surprised that our hosts were willing to give away that information.

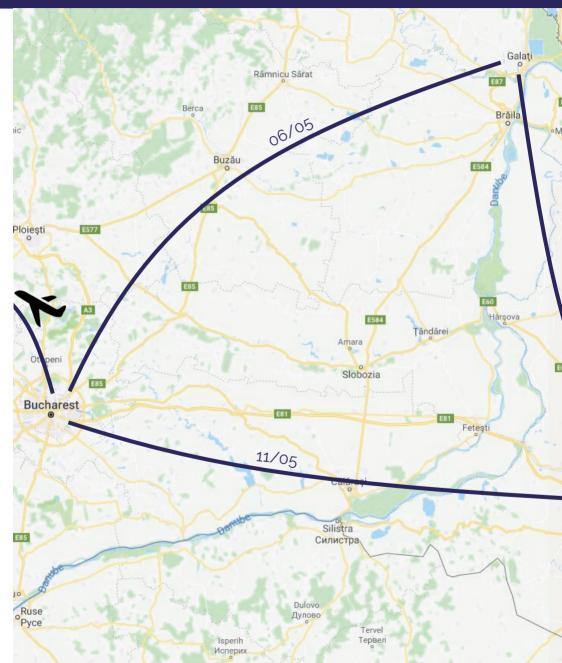
The students excel in combining their professional activities with social activities. One or two beers in the evening never had any influence on their punctuality in the morning or their attention span during the day. Those are good qualities in any sailor, and also in any aspiring engineer.

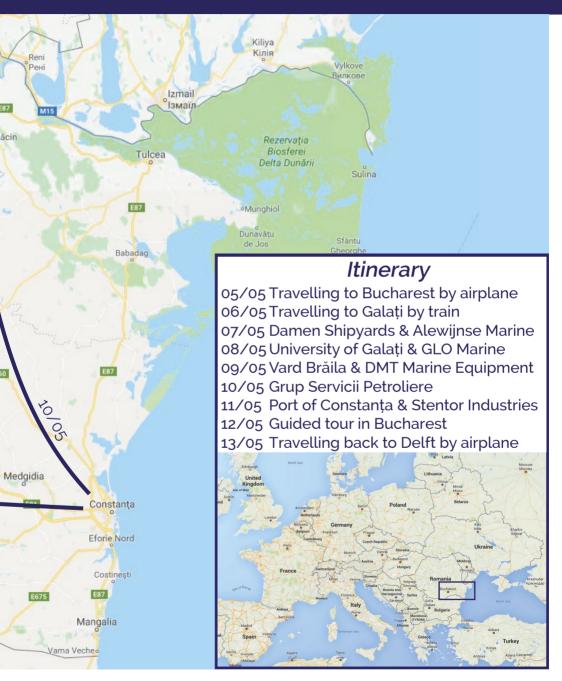
The group, our hosts and the way these worlds came together in Romania this year makes me proud to work at TU Delft in general and this group of students in particular.

Peter Wellens











Travel summary

On Saturday morning the 5th of May our group gathered at Schiphol for the flight to Bucharest. The boarding passes and personal sweaters were handed out and everybody was excited and curious how the trip to Romania would be. Almost nobody had ever visited this country in Eastern Europe, so nobody knew what to expect.

After an exciting first evening in Bucharest we travelled to Galați by train the next afternoon. We would stay there for four nights for a busy program, visiting four companies and the University of Galați. Our students were amazed by the size of the shipyards and the inhouse knowledge of the suppliers. Also, the professors and the students at the university showed us that Romania is more and more a Western country regarding the shipbuilding.









On Thursday morning we travelled to Constanța with our own touring car, where we would visit one more company in the afternoon. Some students even took a refreshing dive in the Black Sea afterwards. The next morning we made a short stop at the Port of Constanța for an interesting tour, whereafter we travelled back to Bucharest for the last company of the week.

We ended our study trip with two nights in Bucharest, because our flight would be leaving at Sunday. To finish the week with some culture, we gathered Saturday morning for a walking tour around the old city centre. The two tour guides showed us the important buildings and told us about the history of the city and the habits of the inhabitants.

After nine days in Romania, our students had a better view on the maritime industry, but also on the country itself. It was an interesting and eye-opening week, so the goal of the trip was achieved: to show the students an unknown part of the maritime industry.



Damen Shipyards

By Max Buirma & Valentijn Elderhorst



The first official company visit of the study trip to Romania was a visit to a company well known to our study association, namely Damen Shipyards in Galaţi (DSGa). The Dutch company took over the now 125 year old shipyard in 1999. Employing approximately 2,300 people, Damen shipyards Galaţi is a provider of many employment opportunities for the region. DSGa is currently the largest out of all 32 shipyards owned by the Damen Group.

As a group of Maritime Engineering students of all stages of progression in their studies, it was clear that there was something interesting for each and everyone. The more advanced students have seen many ship production lines in many different yards in their time and are able to analyze unique differences in the production method, look at specific constructions and recognize functionalities of small design details instantly. First year students, in contrary, were still amazed by the process of welding stiffeners to plates. We think however, no matter how seasoned of a maritime student you were, everyone of us was amazed by the sheer size of this production facility. The big blue buildings and the enormous blue overhead crane marking the name of the shipyard create a landmark that can be recognized from miles away.



In the drydock construction was going on of one of the bigger and more complex projects the yard had ever undertaken: the build of a 160 metres Antarctic Supply Research Vessel. Also, a quick visit to a complete, brand new anchor handling tug supplier was the cherry to the cake to the visit.



It was impressive to see how health and safety standards were taken very seriously at the shipyard and at the highest level. Each student was outfitted with the proper PPE, such as safety goggles, ear protection, helmets and even gloves. Attending the HSEQ briefing gave us a certificate valid for a year to prove we were aware of the safety procedures on the yard and the potential risks and hazards.

All in all the reception was splendid and we felt very welcomed by Damen. A good lunch made sure we all left the yard on high moral. In conclusion, we visited a high tech shipyard that has many good influences on the country of Romania and the city of Galaţi, both in their provision of work, and their close involvement in the education of good engineers at the university. Hopefully more Western European shipyards will follow Damen's example and this way contribute against the migration of the Romanian workforce to other European countries, which is a crippling problem for the growth of Romania as a country.



Alewijnse Marine

By Kevin Lute & Elise Hoffmann



After enjoying our lunch at Damen Shipyards we went on to visit Alewijnse. Conveniently they were right across the street from our previous company visit. This didn't seem to be a coincidence as we were about to find out. We were enthusiastically received and given a brief presentation about the numerous activities of Alewijnse by Florin Nicutaru. The ships that the company was and is working on, looked quite familiar. Not surprisingly the motto was: "Where Damen goes, we go."

As students of Maritime Technology we have a general understanding of the essential equipment on board of a ship. However, for most of us, some exhibition pieces presented already questioned our knowledge. We learned that Alewijnse can deliver and integrate the whole electrical side of the ship as well as its automation. After the presentation, and of course some questions, we got back to our bus and continued our journey.

It soon became clear that this wasn't everything that was arranged for us, as we would also visit the production facility close by. We were split into small groups and got an explanation of the assembly process of the consoles and the switchboards. From our study point of view we think about a switchboard as an inconveniently large case that is required to run the ship and therefore a lot of room should be reserved for those. The grey color downgrades the attractiveness somewhat further, but what is inside turned out to be fascinating.

Inside the switchboard a number of connected copper bars are used to transport the immense amount of electrical power that is nowadays installed on ships. These bars were simply massive and with the ever growing demand for more (diesel-) electric propulsion, these are bound to grow in size. One of the boards, which was in a later stage of assembly, was more than 3 meters wide and was said to be capable of handling over 2,000 ampere. Also found inside are the connections to the different electrical consumers, circuit breakers, connection for the control panel and so on. This might al sound quite overwhelming, but in the hour we were instructed about the workings, we really got a lot of information and a great impression about the company and a part of its products.

At four o'clock an alarm went of for the employers to drop their work and go home. This was also a sign for us to shake hands with our guides and head back to our hotel. It's always nice to see great Dutch companies at work in a faraway country and on our first day we saw two fascinating examples.

















University of Galați

By Jip van Zuijlen & Andreas Speksnijder



On Tuesday we visited "Dunarea de Jos" University of Galați. A few students picked us up at the hotel in the morning and accompanied us to the university. During the walk we stopped at different points of interest, where we received some fun and interesting facts about the history and culture of Romania. Once arrived at the university, we were welcomed by the dean of the faculty of naval architecture. He told us he was a little shocked to see all the Dutch students suited up for the visit. The dean guided us through the faculty and we were seated in one of the rooms that was set up for the occasion. Even the local press came to have a look after they found out a bunch of Dutch students came by to visit the university. Some of us were interviewed about our stay in Romania.



At the faculty we were welcomed by the staff and they kicked off with a general presentation by professor Adrian Lungu about Romania and the university, followed by his own work wit hCFD (Computational Fluid Dynamics). His colleague professor Leonard Domnisoru gave us a presentation about Finite Element Method (FEM). The two presentations were followed by a lunch, where a number of typical Romanian dishes were served. This lunch gave us a small insight in the Romanian cuisine.

Once back at the faculty we attended a presentation from professor Dan Obreja about designing and testing ships, followed by an experiment in their 40 metre towing tank. Here we saw a familiar setup as the one we are used to in Delft, but there were also some differences. For instance: the towing tank cart in Delft is made of a far more heavier and bulky construction, whereas the cart in Galați was made of an aluminium frame and rails. This broadened our spectrum on the different possibilities of such a testing facility.

After all the interesting presentations of the faculty, it was time for Mick and our lecturer Peter Wellens to return the favour to our Romanian colleagues and tell them something about Delft. We switched places with the Romanian students and moved to the back of the room. Peter Wellens started with a presentation about our study program, the courses and the possibilities of post graduates to apply for a master program in Delft. After this, Mick gave a presentation regarding our study association, our traditions and the most important job of S.G. William Froude: to be the connecting factor between the students, companies and the university.







When this fascinating morning and afternoon ended we were up for a little surprise. The university organised a boat trip together with the Romanian students! This was the perfect opportunity to share interests, get to know the Romanian students and to ask about life in Galați as a naval student. The common interest (and the beer of course) made it easier to get to know each other. At last we've had a dinner together to wrap up the day. We can definitely say that everybody had a interesting and informative day, but also an amazing experience. We even heard rumours of some Romanian and Dutch students making an extra pitstop at the Daily pub before calling it a night, but that's none of our business.;)





GI O Marine

By Koen Batteram & Gerard Wiegersma

On a rainy Tuesday in Galați we visited the university of Galați and besides the presentations from the professors, we also got an introduction to a company called GLO Marine. The company is well known to the university and the spokesman of the company, Alin Pohilca, started telling us about the company that he founded with Liviu Moise and Liviu Galatanu.

Although GLO Marine is specialized in ship design and engineering solutions in the maritime industry, Alin especially wanted to introduce us to a new concept that they are developing. With the help of 360 degree photography they plan to map all sorts of ships and store these in a virtual library. This way the entire layout of a ship can be easily accessible which can be useful for numerous examples of applications. For an engineer who has to design a few adjustments from his office desk, it can be extremely helpful to walk around on the ship. However, from an educational perspective it can be just as useful. Not often can you explore the type of ships you would like to design in the future, because they're operational or simply because the ship owner won't allow it. For a teacher it can be quite handy to show his students exactly what you are trying to explain.

Even though it was just a concept that's in an early stage, we were made just as enthusiastic as the guys from GLO Marine, because it seems like an exceptional idea with many applications that no one has probably even thought of. In the end a refreshing presentation that put our minds to work.





Vard Brăila

By Vincent Mullenders & Tom Verbist



On the third day of our week we visited Vard Brăila. Here we got a warm welcome from two employees who gave us a presentation about the history of the company. After the presentation we prepared ourselves with the required PPE for a very interesting tour on the shipyard. The tour would have the same order as the building process of the ships, starting at the side where all the steel plating and profiles are stored. Next, we entered the hall where the plates were sandblasted and painted with a primer. After we went through the next door, we saw a very big, but well organized production hall. In this hall, the plates came in to be cut en welded together. It was a modern facility with a lot of automated processes and we saw a state of the art welding robot which could weld multiple profiles at the same time. It was nice to see that people were working coordinated together on different isles throughout the hall.



In the next hall, they assembled the sections for the different ships. Throughout the tour, the staff provided a lot of information about the yard and the different building isles. The employees were very happy and keen to answer all our questions. It was nice that, with permission of the staff, we could go anywhere and see anything we wanted. There were no such restrictions as on other shipyards.



After we saw the sections, we went outside to see the assembly area. A lot of work was done outside. On the yard they could produce twelve ships at the same time. At the moment they were working on two double ended ferries and a heavy load vessel. Even outside, everything was well organized. They used free standing cranes instead of overhead cranes. After we got some information about the ships on the yard we went to the ship lift. We saw the control room for the lift together with the big winches which control the lift. After the lift we went to a very big finishing quay, which accommodated seven almost finished vessels. We went onboard the almost finished Topaz Tobol, which is a heavy loading vessel for the Black Sea. As on the other parts of the yard, we got a very detailed tour throughout the vessel.

We ended our visit with a nice slice of pizza which was offered by the yard. In spite of the fact that the yard was not often visited by large groups of students, an extensive program was prepared for us. We would like to thank the Vard Shipyards very much and perhaps some of us will return here after completing the study.



DMT Marine Equipment

By Lars Kohlmann & Julia van den Heuvel



After our visit to Vard Brăila we went to DMT Marine Equipment. When we arrived we saw two men in front of the entrance which we could clearly identify as Dutchmen. Piet ter Schure, the founder of DMT, and his brother André welcomed us and lead us inside the building. The building seemed quite new and was located in a somewhat remote area not so far from Galați. Once inside, a fresh cup of coffee was waiting for us.



Firstly, Piet introduced the company by use of a powerpoint presentation. DMT is a company skilled in designing and manufacturing marine winches and navel equipment. We were informed about many different winches and how every winch is unique in its own way. Another detail they told us about was the standard of cleanliness which they upheld in their workplace. When the presentation came to an end we were given a tour around the factory and the office building itself.

When we came into the factory hall we could easily see that they had not lied about the cleanliness, there was no speck of dust to be seen. A highly advanced turning and milling station took the attention of the group. As well as the mechanical beast that was locked in a cage at the rear end of the hall. This machine was a test bench where the winches undergo the required maximum tension that is required. This feature is one of the main advantages as the class inspection can be executed before installation. In another corner a winch, which had already been tested, could be found.

When we had seen all the different facilities of the factory hall we were brought to the office. The office was a five-story high building in which every floor contained a different department. We started on the ground floor and worked our way up. We saw the department of sales, where a lot of enthusiastic women were working. In the design department are new ideas tested by printing it with a 3D printer and then see how it works out in reality. Another department was marketing where they produce interesting corporate movies to show the capacity of the winches and their everlasting endurance.



At last, we reached the fifth floor. This floor contained a bar as you can find them in the Netherlands, which was filled with ice cold beers and finger food ready to be eaten. They had been expecting us. The building had a large roof terrace where we could enjoy the beautiful view with our drinks! We want to thank Piet, André and all the workers for their great hospitality and the interesting tour of DMT Marine Technology, we really enjoyed it!

















Grup Servicii Petroliere

By Robert Zwart & Jorran Blaauw



After our trip to Constanța we visited a company named Grup Servicii Petroliere (GSP), located at the port of Constanța. GSP is a company active in the oil and gas industry and is specialised in drilling wells. It owns and operates a fleet of multipurpose vessels and drilling rigs designed to effectively cover the entire supply and transportation service chain for the offshore industry. Besides that, they manage an offshore training centre that is able to train people in numerous specialities related to the offshore market. From learning how to master a drill on a drilling platform to controlling a subsea robot for inspecting drilling holes and much more.

We were warmly welcomed at the red building located at the port, with a good lunch and an extensive tour and presentation. In our visit we were able to experience how training participants are being trained in a virtual reality drilling platform that represents real life conditions. This virtual reality environment is one of the few in the world of this size. It consists of two centralized chairs with sophisticated technical control panels in front of a half dome of windows with projectors behind it, which projects the view from the control room on a drilling platform, one to one to the reality. Next to that, we were also able to see a training room for subsea robots. We have seen how they control a subsea robot from a long distance by using a control station with different technical panels and displays that help the pilot at high depts.





After this, we got the opportunity to go to shipyard and quay operated by GSP. The DP2 pipelay vessel GSP Bigfoot was moored at the shipyard quay. It was ready to be upgraded by GSP for a new job. The ship is built in 2010 by GSP itself. The tour started with a view from the bridge, which offered a good view over the shipyard and the equipment on the main deck. From the main deck we entered the pipelaying production line.

The final part of the company visit consisted of a look into a production hall. It was the same production hall in which the stinger of the Bigfoot was constructed. While the shipyard activities were on a low at the moment, the orderbook for next couple of years sounded much more positive. It was interesting to hear the shipyard's plans to manage the need for workforce to complete all orders. The visit was concluded with a group photo at the shipyard.





Port of Constanța

By Jarno Kuipers & Huub Steeghs



We started the day with a warm welcome in the lobby of 'Gare Maritima Constanța' for an interesting presentation about the port. With a total area of 3,926 ha it is the largest port located on the Black Sea. It defines itself as a multi-purpose port capable of handling all kinds of goods as well storing them on site. Located next to the Danube and the Black Sea makes it the ideal port for traveling goods further down Europe. Transporting through the Danube is 4,165km shorter than conventional routes by sea. The port is capable of receiving ships up to 300 metres in length with a draft of 7 metres. Around 60 million tons of cargo pass through the port every year of which the majority is dry bulk.



After the presentation was finished we continued our visit by a tour around the port in our own bus and with two guides from the company on board. As we drove through the port they told us more about the things we saw. They told us that the port was founded more then 2000 years ago, because of it strategic trading position. The modernization of the port began in October 1896. The construction was designed by the famous engineer Anghel Saligny, who also designed the famous bridge of Constanța. Saligny also planned and built the first cereal silos in the world made of reinforced concrete. These silos are still intact and used today, despite being over 100 years old.



Stentor Industries

By Daan Seegers & Ferdinand van Heurn

On the last day of our trip we visited the company Stentor, located 50 kilometres from Bucharest. Again, this company is a very good example of successful Dutch entrepreneurship and Romanian craftsmanship. We were greeted with a cup of coffee and a presentation about the company. What immediately became clear is that Stentor is a very young company, but has moved itself into a very good position in the maritime market. They are a highly specialized company for the production of nozzles for several kind of thrusters. Soon it became clear why they were able to make such a name for themselves; Stentor guaranties high quality and on time delivery. Besides that, Stentor is highly involved in the development of new production techniques. They own an in house developed spinning machine for the production of large nozzles with an interior diameter of up to 4 meters which allows them to manufacture the nozzles out of one sheet of metal.



It was very nice to see that the company decided to build their new factory in the Romanian countryside and thereby boosting the local economy of the village. The village and the company hereby assist each other in accomplishing their goals. For the village the income generated from the factory is a large part of their income and for Stentor it helps to have a municipality that is actually helping them to grow. We were even told that the new school was painted in the colors of Stentor. The visit, and the week, was also finished in a Dutch way; having a 'borrel' in the evening sun.









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