



To promote, develop and support in the spirit of cooperation, the common interests of its members in all matters concerning the development and quality of maritime education and training.

NEWSLETTER

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TRAIN, TRAIN, RETRAIN, RETRAIN!



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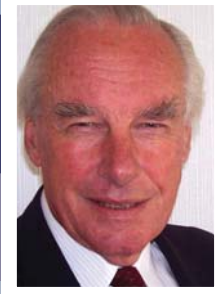
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Editorial

I am delighted to receive Francis Lasakara's article on coastal states rights to protect their coastline from oil pollution. This is an introduction to the subject and I hope we receive more from him.

In addition, there is Iman Fiqrie's article about leadership and two highlights. Iman Fiqrie has also written the letter on page eleven.

Two brief articles have been received from Chief Engineer Mahendra Singh, one on the Maritime Labour Convention and one on the importance of correct food.

Other articles are about former GlobalMET director and senior member of the Australian Maritime College staff, Capt Anura Seneviratnes move to the Abu Dhabi Higher College of Education, about rescuing migrants in the Mediterranean by the Migrant Offshore Aid Station, and an article by Roll-Royce's Oskar Levander on unmanned ships, a highly controversial subject.

From January we will be introducing new ideas, and would like your input. Some current thinking is:

- ✦ Single page print and pics may appear aged and so perhaps the 2 column page suitably mixed with pics always look good and doesn't make reading difficult
- ✦ Line spacing and font size need not follow same size throughout and editing by someone who has had magazine production experience could help
- ✦ Basic rule is fonts should not exceed three types per page
- ✦ Colours mixed properly can make pages attractive and entice readership
- ✦ Look at the Nautical Institute's periodic insert 'Alert!' which is always pretty good
- ✦ Just revamping the look of the cover might be enough as efforts like Letters to the Editor, Highlights, a Supplementary Blog and the like are working towards change.

Have a think about it and please let us know.

At the end of the month, on 25-28 of November, we will be having key meetings in Manila. There will be a lot to discuss. Our AGM is to be held on the 26th or 27th and the Board of Directors meets on the morning of the 28th. We are hoping to meet the Asian Development Bank and Marina on either the 25th or 28th. In addition there is the large 15th Asia Pacific Manning & Training Conference, to be held on the 26th and 27th.

During the conference Chairman Capt Tim Wilson will be chairing a panel on progress in global training standards, which includes Vice Chairman VAdm Edd Santos and Imm Past Chairman Capt Pradeep Chawla. Capt Chawla is also on a panel analysing the effectiveness of elearning in enhancing competency. Capt Richard Teo will be commenting on perceived gaps between the STCW Code and current practice in the Philippines. I will be on a panel discussing the impact of sustainability and environmental regulation.

Directors of GlobalMET are continuing to play quite a role in these conferences. It is probably the 12th that I've participated in.

Finally, the next newsletter will be our last for the year, so let us have some more articles from our readership. And not just for the December issue, as we have started collecting for next year.

Rod Short
Executive Secretary



Regarding World Class: The Birds of Dinggiri, Birds Don't Fly?

"A leader is one who knows the way, goes the way, and shows the way." — **John C. Maxwell**

As an American Ex Patriot (Expat) living and working overseas, people often query me about what it means to be World Class, not so much directly but none-the-less they do; Maybe they really want to confirm that they are indeed working in a World Class organization? Thus far, I have purposely avoided such direct approaches as I know my answers might not really be what they want to hear or thought they would hear—until now that is! I recently attended a Toastmaster International Speaking Event in which an unlikely speech turned into what would be the catalyst that would make me break my silence; a speech entitled, "The Birds of Dinggiri," told by a master story teller and Distinguished Toastmaster (DTM), Mr. Singam; a rare treat to hear a story orated by a DTM, this was no exception!

The story takes place in an imaginary country of birds called Dinggiri. In this country, all the birds walk and do not fly! They have roads; walk to school and everything most other countries have—except the birds don't fly! That's right, they don't know how to! One day a foreign bird arrived in Dinggiri and was amazed to find that the other birds could not fly. He explained all there was to know about being a bird and flying—and still, they would not and could not fly! Long story short, the expat facilitated training, all the birds passed, were awarded certificates, took photos and upon leaving—walked home! Now I can't articulate the story the way Mr. Singam did—but many points can be made? The story really has lessons for many aspects of the modern world and technology—e.g., even though people may have the

knowledge, skills and abilities (KSA), even a certificate—for some reason many still decline to utilize the KSAs to achieve the World Class status and greatness that they may so well deserve!

Travelling the world as a seafarer and facilitator for more than 35 years has offered me the opportunity to see and be a part of many different undertakings and organizations; this has also facilitated a perspective about what others inside and outside of the U.S. view as "World Class"! There is a striking disparity in views depending on the culture defining it! What it doesn't mean, however, is that just because an organization wants to be and says that it is World Class, that it is!

Admittedly so, culture plays a significant role in shaping the views and workings of a country's workforce, this is true of many countries! In Asia, for example, one understands a certain steadiness; karma; need for lack of tension, stress and conflict; and a general feeling that all should be in harmony with the world, work place and people; nothing is wrong with this notion and in a very real and narrow sense, they're exactly right—from their cultural framework and point of view. Case in point, in Asia, there are not that many wars as there are in other parts of the world, food is relatively ample and all does seem in relative harmony or equilibrium with the world as they see it; Cultures like Greece, Italy, France and a few other come to mind; they suggest a certain grand obliviousness to many other world events—U.S. included! Western countries don't get a pass as there are plenty of recent examples of defective economic and World Class models there as well—but this is what we have!



Figure 1 - The Birds of Dinggiri

Permission requested from Australian National University (ANU)

So what does it mean to be World Class then? According to Utpal Vaishnav, a "World Class organization means: "The recognition of an organization as a benchmark by its industry sector and, for some aspects, by other industry sectors as well." Vaishnav goes on to point out several characteristics of that World Class Organization; the organization out performs itself in all categories (sets the standard and then exceeds it!), has delighted employees, has delighted customers, has delighted vendors, innovation is the order of the day, outstanding leadership, takes ownership, operational excellence, straight transparent feedback and work-life balance. At first glance an organization might assume ☺ that it does indeed do all these things— a closer, honest and more detailed look from the benchmark reveals there is yet a lot of work to be done to be and sustain World Class status (take U.S. and Germany, e.g.).

Meghan Brio, further points out 5 important attributes of a World Class organization: talent, passion, attitude, aptitude and fortitude; the last attribute meaning never giving up or being quite satisfied with pushing the boundaries. Pushing the envelope, demanding performance and holding people accountable doesn't seem something Asian companies are champions at; but this seems acceptable? A certain numb compliance is achieved by offering 1-3 or more months of bonuses to carrot compliance to company culture and by default—country and regional culture!

Tschesche goes on to suggest that a World Class company achieves benchmark results such that it is in the top 5% of their industry—period! Some examples include Apple, Google, Goldman Sachs, "...Only a very few leading edge organizations around the world truly deserve this [ranking and] title."

It would seem then, that if MET wanted to achieve World Class status that some kind of whole sale benchmarking exercise might be in order. Realistically, is this status really needed or achievable by all? Rather than talk about problems and faults—

seems some sort of benchmarking in MET followed up by clear steps at achieving that top 5% might be more instructive; But, the devils in the details!

To conclude, no one can make people "do the right thing" or act in accordance with international principals, not even for money—culture has the upper hand in this! Most believe they are World Class nevertheless! This paper could also have turned into an exercise in benchmarking, however most probably also know this isn't the real problem as companies do benchmarking all the time; it's just near difficult to impossible to truly implement the benchmarked plan wholesale! Organizations probably already have several unimplemented benchmarking schemes stacked up in their vaults somewhere! Hard to speak to that, except to say that one has to work toward implementing the whole plan in a timely manner and not just the parts one likes to! As they say, "...a good plan executed now is better than a perfect plan executed late" (unknown)! What's your feedback? imanfiqrie@alam.edu.my

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By

Iman Fiqrie Bin Muhammad (LCDR, USN ret)
Lecturer, Malaysian Maritime Academy

Highlight

Two Programs Every Lecturer Should Have!

by
Iman Fiqrie Bin Muhammad
(LCDR, USN ret)
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If you don't know by now, the next development in the Google Apps for Education (GAPE) system is Google Classroom (GC). It was designed to encourage more usage by teachers and also to be effective at delivering content to students; less complicated than the average learning management system (LMS) by design, as many novices had difficulties negotiating a LMS from creation to delivery of

content and the multitude of collaborative accessories associated with them. In GC, one can do assignments, announcement and much more; see the link for more information <http://bit.ly/hby9jO>



If that's not all, want to make podcasts or short videos for your Google Classroom? With Movie Edit Touch (MET) and a Smart Phone, no more expensive and complicated PC based programs; I do still use the PC based program Camstudio 8 for creating Podcasts and short videos as well. However, now with MET Premium (1.99 euros), the number of options for creating great content just got bigger!

Coastal States Right to Protect the Marine Environment from Oil Pollution

Legal rights enhanced by collision regulations

Where sea lanes are situated within the boundaries of coastal states they will generally have the right to control its territory but, there are limitations as well that are to give way to right of "innocent sea passage" and "freedom of navigation" because most of the coastal states are signatory to the Law of Sea Convention. Increase in shipping movements has proportionately increased the risk of damaging the marine environment due to oil pollution. They are also obvious from the oil pollution disasters that really happened in recent time: in 1973 Amoco Cadiz grounding, in 1989 Exxon Valdez grounding and in 2007 collision between Hebei Spirit and Samsung 1 Crane Barge are evidence that oil pollution not only happened due to structural failures but also related to collision avoidance regulations including traffic management such as traffic separations schemes and vessel traffic information services.

Protection from the 1982 United Nations Convention on Law of The Sea (UNCLOS)

In order to counter these threats international organizations such as United Nations and International Maritime Organization have adopted several internationally agreed conventions considering the threat of oil pollution and regulating preventive measures.

This could begin by describing what is the definition oil pollution as per UNCLOS, as what can be extracted from Article 1 (1) *when there is an oil spill from a ship that could be considered as introduction*

of oil into sea by man whether it happens due to his direct action or indirect action and the quantity is sufficient to cause harm to the marine environment as a whole; this include marine life, the sea and activities such as fishing, tourism, sports, etc. This is sufficient to cover oil spills caused due to negligence of ship owners and their servants.

For coastal states who are the regular victims of these pollutions

Article 19 provides that they may not allow the ships to use the territorial waters which are situated within a 12 nautical miles boundary if they could prove that the ships engaged in an act of "wilful and serious pollution". The parameters of these such as what amounts to a wilful and serious pollution is left open to own interpretation.

The Article 22 describes another way which coastal states could regulate traffic, that is by introducing sea lanes and traffic separation schemes. They also have been granted permission to introduce such traffic regulatory measures if they could find that ships passing through their waters could pose a threat to the marine environment.

Protection from IMO (MARPOL)

MARPOL describe the measures for prevention of oil pollution; those include how the ship and equipment shall be designed, how the discharge be controlled and monitored and dealing with emergencies. The enforcements are left to the flag state and not the coastal states.

International Regulations for Preventing Collisions at Sea 1972 (Colregs)

These Rules, passed by the Intergovernmental Maritime Consultative Organization held in London 1972 and entering into force in 1976 are still valid. Although all rules are applicable to preventing collision they are equally benefiting the coastal states to keep their territorial sea free from accidents and thereby free from such consequences such as oil pollution. These rules generally contains all measures to prevent collision described in 36 rules and four annexes however with respect to marine environment protection of a coastal state there are three significant rules:

Rule 6 Safe Speed has provisions that speed can be regulated giving regards to the navigational hazards and traffic density, and Rule 9 and 10 concern of Narrow Channels and Traffic Separation Schemes where most of the coastal states territorial waters lies, ultimately benefiting coastal states in protecting their environment.

Interpretation Issues and Discrepancy

The UNCLOS is a generally accepted convention due its global participation and signatory status. Therefore anything beyond what the convention has granted will be invalid.



Volunteer workers from South Korea cleaning up oil spill caused by Hebei Spirit in 2007



The following oil spills the quantities differ yet could be considered serious oil pollution due to various factors. Even a small oil spill near a historical site could be very serious compared to large oil spills out at sea.

1974 - Amoco Cadiz
Quantity spilled: 240000 MT Crude Oil
Brittany French coast

1989 - Exxon Valdez
Quantity spilled: 107 000 MT Crude Oil
USA West Coast

2007 - Hebei Spirit
Quantity spilled: 10 500 MT Crude Oil
Korean coast

2010 - Shen Neng 1
Quantity spilled: 30 MT bunker fuel oil
Great Barrier Reef Australian coast

From the above facts it is obvious a general definition of serious oil pollution could not be drawn therefore national interpretation in this case is more suitable. Whether it may counter the UNCLOS convention is a question yet to be answered. Referring to Articles 19, 21 and 24 the interpretation of right of innocent sea passage on one hand and the coastal states right to regulatory measures and proper enforcements on the other are not conclusive either.

Traffic Regulatory Measures & Their Contribution to Oil Pollution Prevention

This is derived from the concept that an organized traffic system will cause fewer accidents and subsequently reduce the risk of

pollution. Article 21 and 22 of the Convention in addition to Preventive measures on oil pollution also recognizes that ships shall comply with International Regulations for Preventing Collision at Sea. Although it is not directly mentioned in the Convention, as a generally accepted international standard the Traffic Separations Schemes adopted by International Maritime Organisation (IMO) could also be used by a coastal state. The question will be these sea traffic lanes may cover more than one state's territorial sea and introducing such control measures will require multinational agreements. International Tribunal of Law of The Sea is the legal body on dispute settlements on law of the sea matters, regional mechanisms such as Maritime Agreements between Australia, Indonesia and other Pacific Nations and ASEAN Chapter 8 could also be considered on disputes or negotiations on regulatory measures to prevent pollution. The advantage here is these negotiations on maritime traffic is done through professional levels and not political levels, therefore it will be easier, less time consuming, need not go through parliamentary approval whereas issues relating to the UNCLOS will be considered as core issues and can only be solved by the Tribunal.

Conclusion

The pollution risk right now lies with coastal States. UNCLOS has been a compromise on many aspects of the sea not limited to oil pollutions therefor in dealing with protection of the coastal states from oil pollution COLREGS is a good alternative. More research needed in order to find out more alternatives.

By

Francis Lansakara
FNI. LLM (Maritime Law)

MLC 2006

Show me a line in it that says you should rub your teeth and gums with mustard oil and salt mixed together inside your left palm, rub the teeth and gums with right hand index finger for five minutes with this and then rinse the mouth. Do it only once a week because otherwise the tooth enamel will get eroded faster. On other days, your chosen toothpaste will be good enough. Okay, you are more modern and savvy, show me a line then that says, rinse your mouth with a good mouth wash before sleep?

Some where in 1995-96, our ship was in a Norwegian port and I went to see the dentist for some tooth ache. The doctor and her assistant were excellent people. They cleaned my teeth very carefully. Then, they asked me, how often in India you go to a dentist. I answered, we go when some tooth starts paining. They had a very hearty laugh.

Why be shy about your ass hole, where is it written to clean it with some diligence? We clean the asshole of the main engine. We clean the scavenge drain from the cylinder to the common pipe, but not beyond upto the scavenge tank and it is here you will find blockage, especially if the ship has been trading in cold areas.

Show me a line that mentions sleep. Everywhere we find hours of work and hours of rest. The better term in place of "Rest" will be "sleep". Half of the seamen don't sleep enough even when they get a chance to do so. These days we find the Tokyo memorandum of understanding and Paris memorandum of understanding busy checking

"X" signs on the sheets. As it is, this "X" sign denotes negativity. Better would have been a small cross which would have reminded us for prayers. I requested these august bodies to undertake study on, say, ten ships of 15 year of age or more, under each classification society, and to find out how many oil fuel tanks on such ships are not in use and have not been internally examined, but there is silence because here some work needs to be done. Checking merely the "X"s and passing detention orders or imposing fines is an easier job.

MLC in its present form may be a fairly good document but it certainly lacks a soul. It's vision remains confined to millimeters on the ship. But a seaman remains a seaman when he gets off the gangways till he rides on it again after vacation. The wider canvas demands that you look the scenario here as well. In India, we have recently started addressing it through cleanliness drives. Preventive health care and practice of Yoga and "pranayams" greatly contribute to preventive health and, no, they are permanent cures too, even involving chronic ailments. Everything can not be done perfectly in one go. Constant improvements in MLC 2006 will surely be sought for from time to time.

By

Mahendra Singh
Chief Engineer



Desperate Migrants Pay Extra for Life Jackets

On Monday, the crew of Migrant Offshore Aid Station (MOAS) vessel Phoenix rescued 274 people, including 200 Syrians, from a 15-metre wooden boat in distress. For MOAS founder Christopher Catrambone it is a sign of change in the plight of refugees.

People traffickers now seem to be responding to a new market: "Syrian refugees have more money to spend than the Sub-Saharan Africans. For a higher price, migrants are now offered life-jackets and the best places on the boats. Those who cannot pay enough get an even worse deal than they used to. In some cases they are placed below deck where they are more vulnerable to dying if the boat capsizes or takes in water. The situation is dire," says Catrambone.

Italy's rescue operation Mare Nostrum is now coming to an end, and there is a real risk that nobody will be at sea to save refugees in distress. Usually the migration season slows in winter when the seas get rougher. This year, however, Catrambone expects the migrations to continue due to the deteriorating situation in Libya and other parts of the world. Today there are more refugees worldwide than there were at the end of the Second World War, he says.

"Each rescue is different but in most cases the boats are heavily overcrowded and unseaworthy. In some cases the boats would be taking in water meaning they would sink if they are not assisted in time.

"After spending hours at sea on overcrowded boats, the people on board are usually dehydrated and exhausted. In many cases they do not have any water so they drink sea water and get sick. Our paramedics and doctors have treated migrants for fuel burns, broken bones, infected wounds and several other illnesses. When we conduct a rescue, we prioritize children first, women second and men last. Our doctors and paramedics treat the most vulnerable first."

When migrants arrive on Phoenix they know they have survived their ordeal at sea. "In some cases they are incredulous because they would have been resigned to death. In other cases, they are too tired and sick to take it all in," says Catrambone. "In our rescue last week, we met a Senegalese woman who was six months pregnant. She travelled to Libya with her husband, but they eventually parted ways and she continued the journey alone, risking her own life and that of her unborn child in order to find refuge in Europe. The elation in her eyes when she realized she was saved was deeply moving.

"The saddest part of all this is that there are no long term solutions in sight. Conflict around the world is on the increase and displaced refugees need to find a safe place to live. Without any asylum procedures in places like Libya, the migrants are forced to risk their lives and pay ruthless criminals to make this journey in unsafe boats. Many of them do not reach their destination."



The best feeling is saving the lives of young children who are oblivious to their plight, says Catrambone. "I've been on the boat for almost every rescue. I want to be there and give a helping hand because it's an experience like no other."

Since it began operating on August 25th, MOAS has rescued more than 2,500 migrants from distressed boats crossing the Mediterranean Sea. The biggest challenge for Catrambone has been to raise enough funds to make this operation sustainable. His team has overcome the logistics and regulatory issues associated with the venture relatively easily. "MOAS has been extremely successful in saving lives at sea, but we need more funding to conduct future missions. We are also dependent on the excellent cooperation we are finding from Rome's Maritime Rescue Coordination Centre and Mare Nostrum, which will unfortunately soon come to an end. We must all work together to ensure that lives continue to be saved," he said.

MOAS is a private NGO initiative to save lives in the Mediterranean Sea, one of the world's deadliest border crossings.

Wendy Laursen
October 21, 2014



Captain Anura Seneviratne Joins the Higher Colleges of Technology (HCT) of the United Arab Emirates (UAE) as Program Chair: Marine Transport



Captain Anura Seneviratne joined The Higher Colleges of Technology (HCT) of the United Arab Emirates (UAE) in August 2014 as Chair of Marine Transport programs. Captain Seneviratne comes to HCT from the Australian Maritime College (AMC) where he spent over 20 years leading its maritime training.

Captain Seneviratne will lead the development and delivery of marine transport training program for UAE in collaboration with the national maritime industry. This is a five year program which will lead to the award of bachelor degrees. It includes three semesters of sea service and will incorporate education and training up to the Management Level of the STCW international convention on standards for seafarer training. It will also satisfy the academic requirements of the National Transport Authority (NTA) for the issue of STCW'10 certificates of competency up to Master.

Captain Seneviratne commenced his 17-year seagoing career as an officer cadet and worked with a number of reputed international shipping companies. He obtained his Master Mariner's licence after undertaking professional studies at RMIT University in Melbourne, Australia. He ended his seagoing career as Master on ships engaged in world-wide trade prior to taking up the academic position at AMC.

Captain Seneviratne's experience in maritime education and training extends across both vocational and higher education sectors. He was a key member of the industry panel that reviewed the Australian national maritime training curriculum in light of the 2010 amendments to the STCW Convention. He also led the development of bachelor degree programs for Deck and Engineer officers as well as for the shore-based maritime industry, at AMC.

Captain Seneviratne's area of expertise is in curriculum design, development, accreditation, implementation and review. His experience in maritime education and training is further evidenced by the following professional activities, consultancy and projects:

- ↳ leader of the AMC team that reviewed the seafarer training standards of a number of nations in the Asia-Pacific region under the auspices of AusAid Program;

- ↳ member of the national panel of experts that recently developed the Marine Surveying qualification standards for Australia;
- ↳ past member of the Industry panel that is currently developing Marine Pilotage degree qualifications for Australia;
- ↳ past member of the Technical Advisory Panel of the National Marine Safety Committee which consists of all State and Federal marine authorities of Australia;
- ↳ member of the international panel (of GlobalMET) that reviewed the QMET (Quality Maritime Education and Training) standards of the PSB Certification Ltd., Singapore, for their suitability for the adoption by maritime training institutions in the Asia Pacific region;
- ↳ member of the national technical review panel which developed maritime training competency standards (Maritime Training Package) for the Australian National Training Authority in 2001;
- ↳ key player of the national panel of experts that developed the STCW 1995 seafarer training programs for Australia in 1997;
- ↳ development of Marine Surveying and Stevedoring training qualifications at AMC as Head of Department; and
- ↳ compilation of a series of learner's guides for use by students enrolled at AMC.

Captain Anura was a Director and the Secretary of the Global Maritime Education and Training Association (GlobalMET) until his recent departure from AMC. He is an Associate Fellow of the Nautical Institute and an LRQA-qualified Lead Quality Auditor. In March 2013, he received the prestigious Sailor-Today Maritime Trainer of the Year international award in Mumbai, in recognition of his contribution to global maritime education and training.

HCT is very lucky indeed to have such an experienced person join it to lead the development of its education for seagoing deck officers. This will be of great benefit to the country, as it strives to increase the number of Emiratis in the maritime industry.

By **Martin Renilson**, Dean, Maritime Programs,
Higher Colleges of Technology



Make Way

Unmanned ships aren't a silly idea being floated. We must make way for the technology and the mindset that's creating them

On 23rd September this year Daimler unveiled the Mercedes-Benz Future Truck 2025. It does indeed look rather futuristic, and the interior of the cab is beautifully appointed as one might expect from a premium brand. Although it seems a little bit strange that they've gone to so much trouble, when you consider that this truck drives itself.

Daimler's objective is to cut down on the thousands of injuries and deaths which occur each year on the world's highways. It admits that there are a variety of regulatory and legal barriers to overcome but the general consensus seems to be that autonomous trucks, rather than trucks driven by exhausted, fallible humans, are a good idea.

Not quite a week after Daimler made its announcement Hapag-Lloyd's MV Colombo Express lost control and slammed into the MV Maersk Tanjung as both were heading south through the north end of the Suez Canal. There are plenty of collisions at sea, but this one was notable for a couple of reasons. The first was that someone caught the collision on video, thereby guaranteeing it went viral, popping up on news sites worldwide which normally take little interest in the day to day operations of the shipping industry. The second reason was its location, forcing the closure of the Suez Canal for three hours, the knock-on effect of which caused significant, lasting disruption.

For these reasons this particular accident got a lot of airtime, but it's just one of many. Far too many. Thankfully no one was killed on 29th September, but plenty are. Shipping has a crew fatality rate ten times that of OECD best practice levels.

The other important figure to bear in mind is that between 85-90 per cent of all maritime accidents are caused by human factors. Now, with drones rapidly gaining acceptance as the next phase of last-mile delivery—and longer—and self-driving truck prototypes being revealed, you might expect that the shipping industry would be enthusiastically embracing the possibilities of unmanned ships. Well, I've got good news for you. It is.

That probably wasn't the statement you were expecting. And if you were one of those who read this February's Bloomberg article about Rolls-Royce and its unmanned ship concept—and the subsequent fall-out—it might not sound like good news at all. When Rolls-Royce's Marine Engineering & Technology VP of Innovation Oskar Levander gave his considered assessment of the necessity and inevitability of autonomous and unmanned ships, the organisations lining up to rubbish the idea read like a Who's Who of shipping. Bloomberg interviewed IMO, the International Chamber of Shipping, the International Association of Class Societies, DNV GL, BIMCO, the International Transport Workers Federation and the International Group of P&I Clubs for good measure, all of which without exception made it sound like Levander was some kind of crackpot, and a dangerous one at that.

Of course Levander is no crackpot, far from it, and unmanned vessels aren't the madcap scheme that some of maritime's vested interests seemed to want to paint them. They are a logical response to the changing world. "I try to follow trends both in marine and wider technology, that's my job, to look at where the world is going, and when we were establishing our roadmap we saw that now is the time, the technology is at a level where we can begin to actively develop it," says Levander. "It will take some time, but we have to start now because that's how we gain a competitive advantage." One wonders why Rolls-Royce's intervention in what Levander calls the 'Ship intelligence', remote and unmanned ships debate should have caused such a backlash, when an EU funded 3.5 million-euro study the Maritime Unmanned Navigation through Intelligence in Networks (MUNIN) has been underway for some time. Levander himself points out, "These concepts are not new, but it was more that we now wanted to be identified as driving them. We were a little bit surprised at the attention, but very positive about the level of interest."

It's an important point. For a big maritime company to outline its future strategy is unusual—received wisdom says that doing so will threaten

the competitive advantage it's hoping to gain. But if Rolls-Royce is to achieve its objective, of becoming the number one marine systems integrator and supplier platform in the new shipping 3.0, a paradigm shift is needed, and Rolls-Royce knows it can't make that happen alone. "The biggest obstacle is not the technology, it is regulations and international law," says Levander, speaking exclusively to Futureautics. "International regulations take at least ten years, the new SOLAS convention is due in 2024 but it could be fifteen years, for that reason it is important to be public about what we're doing."

Contrary to what you might surmise from the media coverage and social chatter, since Rolls-Royce made its strategy public they've garnered a lot of support. From flag states to ship operators, big maritime stakeholders and class societies, the unmanned ship—rather ironically—has quite a few people onboard. If you're wondering whether Levander already knew when he made his initial remarks that the biggest class society in the world was preparing to launch a report predicting the first autonomous prototype ship could arrive as early as next year, he says not. And that shouldn't surprise us, because—as we've been at pains to point out for the last year—the technology trends and drivers which are pushing us towards the autonomous/unmanned ship aren't difficult to spot.

"I see that increasing autonomy of, and connectivity between, ship systems and shore are a major trend for the upcoming years even for manned vessels." Hans-Christoph Burmeister, MUNIN Project Co-ordinator, Fraunhofer CML.

The issue of autonomy is certainly gathering momentum. DNV GL's unveiling of the ReVolt, a battery-powered, autonomous, unmanned concept-ship designed for short-sea use earlier this year is an indication of that. Designed to act as an 'inspiration' to the rest of the industry, it seems clear that autonomous and unmanned vessels are shaping up to be a key part of shipping 3.0. "I see that increasing autonomy of, and connectivity between, ship systems and shore are a major trend for the upcoming years even for manned vessels," says Hans-Christoph Burmeister, MUNIN Project Co-ordinator at Fraunhofer CML. "The difference between autonomous and remote controlled vessels is that the former doesn't require a constant control loop to shore as the autonomous systems are capable to make decisions on their own to ensure a safe voyage. The shore entity primarily acts as an monitoring instance above the technical control loop, thus connectivity drop outs do not directly results in a vessel being uncontrolled. Therefore, I don't see reduced bandwidth or lacks of connectivity as a major hurdle, as this can be solved by a robust design of the autonomous on-board controllers and appropriate fail-to-safe mechanisms."



It is the safety issue which has been at the forefront of the anti-autonomy reaction. Opponents point to the increasing concerns in commercial aviation where it's claimed some pilots are losing the skills they need because the planes are mostly flying themselves. And when the machine hands back control in an emergency they're unprepared to respond. Situational awareness for those monitoring or controlling unmanned ships in the future is an issue, but surely that's a problem which isn't limited to the maritime industry? "You are right; it is not a maritime specific issue that situational awareness for controlling unmanned systems must be dealt with," says Burmeister. "As the human is no longer part of the operative decision making, it has to be ensured



that he or she can quickly step in, in case his problem-solving capability is needed and is not overwhelmed by the upcoming critical situation. However, you have similar challenges for example in a control room for nuclear power stations."

But at least in a nuclear power station the lines of ownership and responsibility are pretty clear—unlike merchant vessels today. Once autonomy enters the equation where does responsibility for the operation of vessel lie? The ship owner, ship manager, maritime agency, shipyard or the software supplier? It's something the MUNIN project is looking into. "We will provide answers on this after the tasks "Legal and Liability Assessment" in Work Package 9 and "Impacts on Maritime Business Opportunities" in Work Package 10 are finished in Spring 2015," Burmeister confirmed.

Ship intelligence, the connected ship, autonomy and unmanned operation are the zeitgeist, but when it comes to how these will play out opinions diverge somewhat. The MUNIN project is due to finish next year, but Rolls-Royce aren't involved, or particularly aligned with it, and take a different view. MUNIN is reportedly scheduled to develop a prototype for simulated sea-trials next year, but Levander says that Rolls-Royce is looking at being able to demonstrate an autonomous/unmanned vessel in three to four years time. So where does he believe unmanned ships will first appear?

"Cargo vessels with low-risk cargoes are likely to be among the first that will adopt unmanned operation, but society will still possibly want to see a back-up," says Levander. He points out that sectors which carry a lot of passengers are far less likely to become unmanned for the simple reason that in an evacuation humans will be needed to step in. That doesn't mean that passenger vessels won't use autonomy to reduce numbers of crew on board though, the cost savings for ferry and cruise operators are just too tempting to ignore.

According to Moore Stephens crew costs account for up to 44 per cent of total operating expenses for a large container ship, and Levander's own figures suggest that an unmanned ship stripped of the infrastructure necessary to support crew would be 5 per cent lighter, carry more cargo and would burn 12-15 per cent less fuel. But the sectors which could make the biggest gains from unmanned ships are unlikely to be the first to adopt them. And not because they're unwilling to. "We predict this will start in local shipping, because of the issues with regulations and laws," explains Levander. "We have a lot of interest from Flag states who want to make it quicker to adopt, and they can give permission in their own waters, as opposed to international waters, but the biggest gains would be on big ships."

So how would it work with big ships? Rolls-Royce see vessels running autonomously in the deep sea but coming under a remote control as they approach more congested territorial waters and ports. Ships will be monitored at sea via much improved bridge-type solutions offering far better situational awareness, and then steered into port by privately operated VTS centres where connectivity doesn't rely on expensive satellites. Whether or not the maritime industry is ever going to have the level of connectivity necessary to make this work has been a subject of some debate, but Levander is confident that it won't act as a brake on unmanned adoption. "The level and reliability of connectivity is not there worldwide now, but in ten to fifteen years time the situation will be completely different." By then Levander says that marine connectivity will probably be the same as today's shore-based mobile networks, and that will be perfectly sufficient for unmanned operation. "Ships need less response time, the momentum of a ship means that no matter what you do it won't react in a millisecond, or even a second. While at sea the ship will sail autonomously, and once it's in port it won't be using satellites but multiple communications channels. It's not in place now, but it will be by the time we're ready to use it."

But if developments in connectivity are keeping pace with the unmanned ship, there are areas in which real change is needed. Some have suggested that current high-maintenance diesel engines just aren't suitable for unmanned operation, and the lower maintenance LNG engines might be. This has led to speculation that autonomous/unmanned operation could be the killer argument for LNG. Levander disagrees though. "The first unmanned ships will have diesel engines in them, LNG does have longer service intervals but the difference is not that big. But I do agree that we will require much higher reliability

than today and it's a big development area for us." Rolls-Royce is focussing on increasing condition based maintenance, engine health management and improving the ability to predict failures well before they happen. And, as Levander points out, all these necessary steps on the way to unmanned operation are going to benefit current customers. Levander believes there's a far more fundamental step-change that needs to take place with regard to reliability though. "The mentality is that we are used to having crew on board who maintain engines, but no one in the airline industry would expect someone to climb out on the wing and fix the turbine in flight." It's a lovely image and the joke isn't lost on Levander, but the point is a serious one. "Shipping needs to have a similar attitude," he says, "we have to make the systems reliable, predictable and move maintenance to ports, and that will require a big shift in the business model."

Talking to Levander the full potential of unmanned operation as a catalyst for profound changes to the whole maritime ecosystem become clear. Maritime economist Martin Stopford recently accused the industry of building the same ships since 1985, but could a more concerted approach to standardisation actually be beneficial? According to Levander shipyards like to build long series ships with the same hull and the same steel, but real gains could be made from standardising systems, auxiliary systems and machinery. In short, you'd have the same engine room with a different type of ship in front of it. "If we used the same modular systems we could get volumes up," explains Levander. "That would give us hundreds of ships from which we can see trends and validate them, improving the reliability." It's this kind of big data, iterative learning process which is going to underpin so much of shipping 3.0.



Levander's original comments came only a few months after the launch issue of Futureautics outlined our vision of what we termed the 'Sentient Ship'. Made of new materials, boasting hyper-connectivity, and able to think for itself, we suggested the only logical conclusion was that these intelligent, connected ships would eventually become unmanned. That scenario got short shrift from a variety of quarters too, so I'll admit to a sense of satisfaction when Rolls-Royce broke cover and showed the industry just how advanced the thinking around autonomous/unmanned ships was. For us at this magazine the unmanned ship has provided an unprecedented opportunity to contextualise so many of the technology trends we write about. And far from the approbrium heaped upon them, Levander and Rolls-Royce deserve the thanks of the industry for sharing their strategy and vision to drive us all forward.

Unmanned operation is a totemic issue for shipping because it is a physical manifestation of just how profoundly this industry is going to change. And I think that's why the response to Oskar Levander's vision was so fierce. The prospect, or just the thought, of being aboard a big ship on the ocean is what brought the vast majority of us into the industry. For people who have spent their professional lives accruing the experience needed to take responsibility for a ship and often the souls aboard, it is understandably very hard to accept that it may not be either necessary, or desirable in the future.

Unmanned ships make us nervous and emotional but we have to get past that. The autonomous unmanned ship is not just a silly idea being floated. It's already making way, and we have to make way for the technology and the mindset that's creating it.

The crewless vessel, flagship of shipping 3.0, will soon become a tangible reality. And if you aren't onboard, it won't make any difference at all.

Images courtesy of Rolls-Royce

By **Oskar Levander**
Rolls-Royce

Food is God

The title may, prima-facie appear a bit shocking, but yes, food and water are very necessary things in life. I used to visit a homeopath who will not give me medicine unless I produce him the diet chart of at least seven preceding days. If I enlist "tea" in the morning, he will not be pleased but if I write "coffee", he will be positively angry and give me at least 15 minute lecture. If I enlist having eaten vegetarian food, he will be happy but if I write "mutton", he will produce quite a few certificates from his patients who voluntarily gave up non-veg food. Because of my inability to follow this strict regime on board, I stopped going to him but, another one these days, has also started emphasizing on diet. Yes, what we eat is what we are, it determines our health.

On board ships we eat too much and we eat too much oily and spicy food and waste food in large quantities. Wasting food must be avoided. A lot of people around the world, sleep on half empty stomach or even empty stomach and we must be mindful of this.

We should solemnly pray for a few seconds before commencing to eat to thank God for the food and we should take in the plate only so much that we can finish. Adding extra salt or extra sugar should be avoided. On board, it becomes necessary to eat chicken, mutton, beef, pork and fish but we should prefer chicken and fish as compared to the others, though viana steak is quite tasty and healthy.

We must drink at least 2-3 litre water every day (not too cold) and should not get habituated to soft drinks. Fruit is better than fruit juice. One apple in the

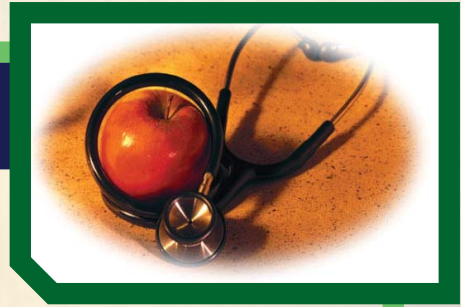
morning is quite good but if you have a banana, eat them together.

We must keep our meat, fish and vegetable rooms clean and at minus 21 degC (cut off) and plus 4 degC (cut off) for vegetable room. Do not depend on ship chandlers alone to fetch you vegetables and fruits, when you go ashore in a group, look and buy directly from the market and carry it yourself. This way, you will value what you bring by yourself.

One of our German masters used to ask his steward to bring him his two cans of "green medicine" (the beer) for lunch. He will not eat anything but, if you want, you can always change, he eventually took to liking to fruit yoghurt.

There are certain things in "Ayurveda", the most common, the cheapest and the best is "Triphala" tablets (it comes in powder form too but sticks to the throat causing coughing). Make it two tablets with warm water after dinner, solves many problems. I have been pleading with the Government of India to facilitate availability of these by small shops inside the ports. Let us hope, something is done on it. And yes, Salmon Omega-3 and natural B (vitamin B complex), or suitable equivalents, should also be the companions of seamen.

The above is a well meaning write-up and there is no intention to dictate or promote anything. Individual choices and regional specialties are worthy of respect.



Letter

MGN 71(M) Muster, Drill, Onboard Training, Decision Support System

First published in 1999, the Guidance Note is well worth the read! It provides abundant guidance on the requirements of a number of regulations regarding muster lists, training and drills. The guidance in paragraph 4, Emergency Signals details the use of the General Emergency Alarm for summoning crew to their assembly or muster stations, but may be used on Cargo ships (for the purpose of a drill) to summon crew to their survival craft embarkation stations only.

Paragraph 5 Musters and Drills, the guidance recommends holding a fire drill simultaneously as the first part of the abandon ship drill as well as for emergencies other than fire. And, that the purpose

of the General Emergency Alarm is for muster and not a signal for abandon ship; Paragraph 5.5, where life jackets must be worn by both passenger and crew to muster or assembly- that those taking part in fire and other emergencies may remove their jackets if a hindrance to task.

The Note may help many rethink old methods on conducting fire and boat station drills separately. What do you think, write the editor; imanfiqrie@alam.edu.my

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