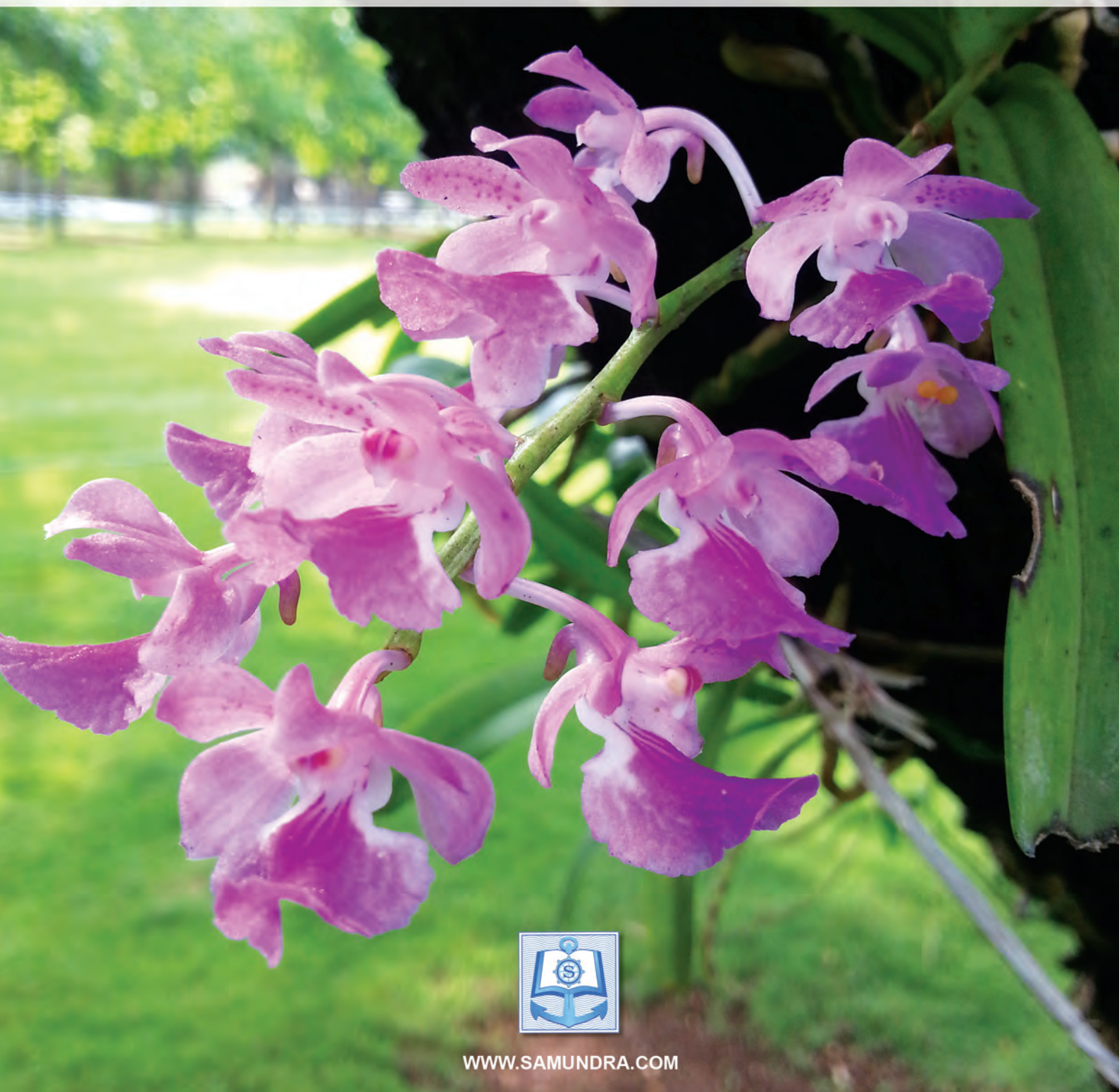
JUL 2013 . ISSUE 22

Samundra Spirit

QUARTERLY IN-HOUSE MAGAZINE FOR SAMUNDRA INSTITUTE OF MARITIME STUDIES (SIMS), MUMBAI & LONAVALA

IN THIS ISSUE



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A Training Commitment of Executive Ship Management Pte Ltd (ESM), Singapore
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- **DECK CADETS (DNS) - FEB 2014 BATCH**
  Approved by Directorate General of Shipping, Govt. of India & The Maritime and Port Authority of Singapore (MPA), and affiliated under Indian Maritime University (IMU)
- **4-YEAR B. TECH. (MARINE ENGINEERING) - AUG 2014 BATCH**
  Approved by Directorate General of Shipping, Govt. of India and affiliated under Indian Maritime University (IMU)
- **1-YEAR GRADUATE MARINE ENGINEERING (GME) - MAR 2014 BATCH**
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DECK CADETS (DNS)

- One year Diploma in Nautical Science at SIMS, Lonavala.
- Minimum 18 months of practical shipboard training before 2nd Mate's examination.

4-YEAR B. TECH. (MARINE ENGINEERING)

- Four years B.Tech Marine Engineering course at SIMS, Lonavala.
- 6 months shipboard training before appearing for Class IV examination.

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- One year training in Marine Engineering at SIMS, Lonavala which includes 6 months hands-on practical training in the **Ship-in-Campus**.
- 6 months shipboard training before appearing for Class IV examination.

Eligibility	DNS	B.Tech. (Marine Engineering)	GME
Age (as on date of joining) & Marital Status	• Not less than 17 years, upper age limit - 20 years for 10+2 candidates 22 years for B.Sc candidates 25 years for B.E/B.Tech candidates • Unmarried	• Not more than 20 years • Unmarried	• Not more than 25 years • Unmarried
Academic (Results must be obtained at 1st attempt)	**All Boards (Class XII):** Min Aggregate Percentage-60%, PCM Min-60% (Physics & Maths Min-60%). For Andhra Pradesh & Kerala board candidates, Board exams being held for each class (11th & 12th) & hence, aggregate of each class marks are considered OR B.Sc - Physics/ Chemistry/ Mathematics/ Electronics with a min of 55% in final year along with min of 55% in PCM during Class XII OR B.E/B.Tech - Any stream from an AICTE approved institute.	**All Boards (Class XII):** Min Aggregate Percentage-60%, PCM Min-60% (Physics & Maths Min-60%). For Andhra Pradesh & Kerala board candidates, exams being held for each class (11th & 12th) & hence, aggregate of each class marks are considered.	Degree in **B.E/B.Tech (Mechanical/Naval Architecture)** from an **AICTE** approved institute, **Deemed University** with min marks of 55% in final year Candidate must clear his B.E/B.Tech in 4 years only.
Language	English shall be one of the subjects with min marks scored of 50% in Class X or XII		
Eyesight	6/6 vision, no colour blindness, no use of corrective lenses allowed	No colour blindness, use of corrective lenses permitted	
IMU - CET	Candidates must clear IMU-CET	Candidates must clear IMU-CET	NA

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Background of cover picture:
The Mokara Orchids at SIMS, Lonavala

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Samundra Spirit is a quarterly in-house magazine produced by Samundra Institute of Maritime Studies (SIMS) for private circulation.

Our Editorial Team wants to hear from you!

If you wish to submit any feedbacks and/or contributions, feel free to write to the Editor at: samundraspirit@samundra.com

**Please note we reserve the right to publish your letters/articles or an edited version of it in all print & electronic media.*

Editorial Note

" Curiosity killed the cat" …

... probably is a famous half truth or rather a misnomer many of us carry in our psyche as old wisdom. Indeed very sad if it persists and/ or we allow it to endure especially in the context of teaching and learning. As much an un-inquisitive student can go no further than at the most mechanically clear the examination paper, an uninvolved insipid teacher would go only as much as merely being the cut out of a ring master in a circus.

Samundra Spirit tries to ignite the spirit of curiosity and the spark of wisdom and knowledge from the seasoned seafarers from their real-life experiences, sometimes long forgotten (till forced to put in black and white by the editorial team) and sometimes which lingers at the edge of their mind as something "cannot be forgotten". Indeed, this July edition is an example of how we wish to remain curious about ideas and knowledge related to ships, seafaring, environment, science, arts, history and the seafaring life in general and also encourage our cadets to remain curiouser. We have carried the final instalment of the Car Carrier - Know Your Ship series. A wholesome article on car carrier for anyone curious to learn about how car carrier functions and what goes behind carrying hundreds of millions of dollars worth of vehicles from the factories to the consumers across the world.

We are sure, articles on safety and fallouts of safety violations like "Safety- an Old Story" by Jims Andrews and "Avoid Traffic Collison at Sea" based on the workshop by ex- SIMS faculty Mr. Binoy Dubey of Skuld will make interesting reading as well as create new awareness on safety and prevention of safety violations. Article on Heavy Weather Navigation by Principal Mr. S. Viswanathan and also Sumner Line of Position by Capt. Raj provide invaluable lessons of life for our future generation of seafarers.

That technology is all encompassing and we need to keep pace with it in order to derive the fruits of new technology. It is well represented in the article of Optic Fibre introduced in the SIMS, Lonavala campus. We thank our IT experts Mr. S K P Singh and Nilesh for stimulating our curiosity in this lesser known area.

What lies in future? Nobody knows. However, Capt. Rajesh Subramanian's article on the future of canals is something to whet our curiosity on how new ideas to connect oceans and seas are likely to make many sea voyages shorter than now.

So, didn't you hear - curiosity killed the cat- but satisfaction brought it back?
In fact, the article from Engineering cadet Danesh proves how satisfied he was learning about the sky above and the stars and the heavenly constellations and still he remains 'curiouser and curiouser!' like Alice in Wonderland planning to carry his own telescope when he boards his first ship as an engineering trainee!

We do hope our other regular features that include R&D article, campus news and cadets' contributions will equally kindle all our readers' curiosity till the contributions page of the magazine.

Finally, here's an interesting quote from famous Canadian educationist Arnold Edinborough: Curiosity is the very basis of education and if you tell me that curiosity killed the cat, I say only the cat died nobly!

Here's wishing, asking all our readers to keep safe, keep reading and additionally to asking always remain CURIOUS!

Sikha Singh

Sikha Singh

Message from Mr. Gautam Chatterjee,

Gautam Chatterjee I.A.S
Director General of Shipping & ex officio Additional
Secretary to Govt. of India

गौतम चॅटर्जी भा.प्र.से.
नौवहन महानिदेशक एवं पदेन अपर सचिव, भारत सरकार
GAUTAM CHATTERJEE I.A.S.
Director General of Shipping &
ex-officio Additional Secretary to Govt. of India

Government of India
पोत परिवहन मंत्रालय
Ministry of Shipping
नौवहन महानिदेशालय
Directorate General of Shipping
'जहाज़ भवन', वालचंद हीराचंद मार्ग,
Jahaz Bhavan, Walchand Hirachand Marg,
मुंबई / Mumbai - 400 001.

Within a few months of my joining the Directorate, I had the opportunity to visit Samundra Institute of Maritime Studies, Lonavala. I spent half a day in the beautiful campus going around the state-of-the-art facilities, which were attuned to creating excellence in the field of maritime training and research. It is indeed an incredible experience to see such a wonderful facility that has been created with every single feature attended to in minute detail for making this wonderful facility a truly world class maritime institution.

I am happy to note that this institute provides unique hands-on training on simulators and other shipboard equipment, most of which are developed in-house and are true specimens of the innovativeness of the training and research staff. By visualizing and successfully implementing e-mode of learning, aptly titled as "blended learning", the institute is marching ahead of the rest to give the best to its students in terms of comprehending the subjects in a better way.

As we know, 75% of the earth is surrounded by ocean and 90% of the trade is being carried out by the merchant ships. Without an iota of doubt, this is a huge potential which is open for us to tap. India, with its extensive coastline, has always been known as a great seafaring nation but out contribution in terms of manpower towards the shipping industry has been minimal vis-à-vis the size of out population. Now that we are blessed with a large number of maritime institutes, most which have come up during the last decade, our onerous task is to constantly live up to the changes and continuously improve the curriculum and training methods so that we will better equipped to operate future ships and meet the challenges ahead.

I am sure that the visionaries at SIMS have created this architectural marvel with exactly these aspects in mind, that of creating a learning environment which would foster the development future mariners, who are well equipped to serve the interests of their parent company "The Executive Ship Management Pte Ltd" in particular and the world maritime fraternity as a whole.

Bon voyage!

(Gautam Chatterjee)

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Environmental Ship Index (ESI): A Tool to Measure Vessel's Air Emission Performance

Environmental Ship Index (ESM) is a development by the WPCI (World Port Climate Initiative), a group of world's 55 key ports to reducing their greenhouse gas emissions while continuing their role as transportation and economic centres.

This index is proposed to be used by ports to promote clean ships; however, it can be used by ship owners and ship managers as a tool to improve their environmental performance regarding air quality pollutants and CO2 emission. The ESI gives points for the performance of ships compared to the current international legislation i.e. IMO. Ideally, ESI should reflect all relevant emissions to the air that are important from an environmental and health point of view, including CO2, NOx, PM10 and SOx. As the PM10 (Particulate matter < 10µm) emission of maritime engines is not certified by IMO yet, no reliable certified data is available for most of the ships.

Taken the availability of useful indicators and IMO engine certificates into account, ESI is currently based on engine NOx emission and sulphur content of the different fuels used. With respect to climate emissions, IMO has already released the guideline for voluntary use of an Energy Efficiency Operational Indicator (EEOI) and Ship Energy Efficiency Management Plan (SEEMP). The ESI will give points for the use of one of both these guidelines. With collaborative efforts from ESM & SIMS R&D, SIMS has already developed the EcoGauge software which calculates the EEOI and CO2 mission of ESM vessels.The overall ESI formula consists of NOx, SOx and CO2 emission.

The weight of ESI_NOx in the overall index is twice the weight of ESI_SOx, this indicates the environmental damage from NOx in ship air emission is approximately twice the damage from SOx.

ESI formula:

a) ESI_Overall formula

By comparing the actual performance of a ship with a baseline set, the ESI points are defined. The baselines are based on IMO regulations in force, apart from fuels used at berth, where local EU regulation is used. The index gives a relatively higher weight on emissions at berth and in the ECA (Emission Control Area), as these have a larger environmental and heath impact in and near the ports. The formula used for overall ESI is as seen in fig. 1

$$ESI_{overall} = \frac{1}{3.1}\left(2 \times ESI\_NO_x + ESI\_SO_x + RR\_CO_2 + OPS\right)$$

Fig. 1

Where:

ESI_NOx = environmental ship index for NOx (range from 0 to 100, weight is 2)

ESI_SOx = environmental ship index for SOx (range from 0 to 100, weight is 1)

RR_CO2 = reward for reporting on ship energy efficiency based on EEOI/SEEMP. For energy efficiency reporting, the additional score is 10 points.

OPS = bonus of 35 sub-points for the presence of OPS (Onshore Power Supply) onboard irrespective of its use. A maximum of 345 sub-points may theoretically be reached, resulting in ESI score more than 100. However ESI score is capped at 100 points.

b) ESI_NOx formula:

ESI_NOx indicates the reductions of NOx emission per unit of power below IMO limit values (fig.2). It covers all engines and weighs them according to rated power.

$$ESI\_NO_x = \frac{100}{\sum_{i=1}^{n} P_i} \times \sum_{i=1}^{n} \frac{\left(NO_x limit\_value_i - NO_x rating_i\right) \times P_i}{NO_x limit\_value_i}$$

Fig. 2

Where:

Pi = rated power of engine i

NOxratingi = certified NOx emissions of engine i in g/kWh NOx_limit_valuei = maximum allowable NOx emissions for an engine with speed of engine i, n = number of engines.

ESI_NOx can be calculated using EIAPP (Engine International Air Pollution Prevention) certificates of the engines on board a ship. It has to be noted that the ship which doesn't have an EIAPP onboard cannot obtain points from ESI_NOx.

c) ESI_SOx formula:

ESI_SOx reflects the reductions in sulphur content of the fuel below limit values set by IMO and regional authorities (fig.3). Three types of fuel are distinguished; fuel typically used at high sea, in Emission Control Area (ECA) and at berth.

$$ESI\_SO_x = a\% \times 30 + b\% \times 35 + C\% \times 35$$

Fig.3

Where,

a = relative reduction of the average sulphur content of fuel used on the high seas

b = relative reduction of the average sulphur content of fuel used in Emission Control Area

c = relative reduction of the average sulphur content of fuel used at berth ESI_SOx can be estimated after inspection of the bunker fuel delivery notes of a ship over the past year.

d) RR_CO2

CO2 emissions are not reflected in the index directly; however, the ESI gives points to ships that report on energy efficiency with 10 points.

e) OPS

Bonus of 35 sub-points is added for the presence of OPS (Onshore Power Supply) onboard irrespective of its use. All reference values needed for calculation of ESI_SOx and ESI_NOx are provided on the official website of WPCI.

Example

a) Calculations for ESI_NOx:

Data sheet

	ESI_NOx			
	Main Engine(s)	Auxiliary Engine(s)	Unit	Remark
Nox limit Value	17	11.5	g/kWh	For year 2013, reference: IMO MAROPL ANNEX VI
Nox Rating	12	10	g/kWh	Actual emission by vessel
Rated Power	10000	1000	kW	Rated Power by Engines
Number of Engines	1	2		

Calculation:

$$ESI\_NO_x = \frac{\left(\frac{(17-12)\times 10000}{17}\right)_{\text{For Main Engine}} + \left(2 \times \frac{(11.5-10)\times 1000}{11.5}\right)_{\text{For 2 Auxiliary Engine}}}{(10000)+(2\times 1000)} \times 100$$

$= 26.68$ points

b) Calculations for ESI_Sox:

Data sheet

	ESI_SOx			
	High Sea	ECA	Berth	Remark
Baseline Sulphur (%)	3.5	1	0.1	For year 2013, reference: IMO MAROPL ANNEX VI
Actual Sulphur (%)	1.8	0.8	0.08	Actual value obtained from bunker notes
Reduction	1.7	0.2	0.02	-
% Reduction (a%, b%, and c% resp)	0.49	0.20	0.20	-

Calculation:

$$\begin{aligned} ESI\_SO_x &= a\% \times 30 + b\% \times 35 + C\% \times 35 \\ &= (0.49 \times 30) + (0.20 \times 35) + (0.20 \times 35) \\ &= 28.57 \text{ points} \end{aligned}$$

c) RR_CO2

10 points are awarded for implementation of EEOI and SEEMP.

d) OPS:

35 points are added due to the presence of OPS (Onshore Power Supply) onboard irrespective of its use.

e) Overall ESM:

$$\begin{aligned} ESI_{overall} &= \frac{1}{3.1}(2 \times ESI\_NO_x + ESI\_SO_x + RR\_CO_2 + OPS) \\ &= \frac{1}{3.1}(2 \times 26.68 + 28.57 + 10 + 35) = 40.9 \text{ points} \end{aligned}$$

It has to be noted that most of the ports such as Port of Amsterdam, Port of New York, etc have already initiated financial incentives schemes for seagoing ships and encouragement for cleaner vessels. Apart from incentives, it is our first responsibility to spare the environment. ■

Abhijit Nalwade
Research Associate
SIMS, Lonavala

Getting to Know Your Personal Protective Equipment

Capt. Devendra Kishore
Senior Nautical Faculty
SIMS, Lonavala

Use of appropriate Personal Protective Equipment (PPE) for the work activity is very important and detailed guidelines, posters and procedures have been prepared and provided in the work instructions of SIMS and ESM's shipboard manuals. Some of the PPE are ubiquitous and used without much thought by the user. Most of the time, users don't pay much heed to the importance of routine checks and care of these equipment and just take them for granted.

In this article, our aim is to provide the readerswithsome essential facts on helmets and goggles so that they can appreciate these two rather common

Working safely may get old, but so do those who practice it.

PPE much better and learn to use them safely and more effectively.

The most important part of our body is the head. Helmets are designed to prevent head injury at work place. Worn properly, a hard hat provides two types of protection. Its hard shell resists penetration by sharp objects. And its suspension system cushions the consequences of a localized blow by distributing the force over a broader area. The most common type of suspension system, a network of straps connected to a headband attached to the helmet, holds the shell at least 3 cm away from the wearer's head.

The shell of hard hat is made of high-density polyethylene (HDPE). The suspension system for industrial hard hats consists of strips of woven nylon webbing and bands of molded HDPE, nylon, or vinyl.

Shell of helmet is susceptible to damage due to heat and impact. If unchecked, it may not provide the protection when required, hence, it is very important to inspect the shell of helmets periodically. Visual examination can be done to detect cracks.

The heat damage is more difficult to detect. As a routine, helmets should be changed periodically, especially if used in high temperature areas such as machinery spaces. ALWAYS replace the hard hat after it has withstood impact or penetration. Helmets shouldn't be painted as paint is likely to chemically attack and damage the hard hat's shell, thereby reducing the degree of protection originally provided.

The hard hat suspension should be replaced if found defective during the normal inspection.The suspension and chin strap should be washed with detergent at least once a month. The sweat gets collected in fibre of chin strap and suspension. The bacteria starts growing in the damp area. It is this bacterium which gives foul odour to helmet and itching sensation on contact points. The shell of helmets should be rinsed with water once a month.

Some people have very sensitive skin. The contact area starts itching when wearing chin strap. If a cotton handkerchief is wrapped on chin strap, it will usually provide relief from itching.

Continued on page 12

Know Your Ship: Car Carrier (Part III)

This is the third and the final part of the car carrier article carried so far. The author has explained in detail the management as well as operational issues of a car carrier and the risks involved in such a high value cargo.

Fire Prevention

Pure Car Carriers (PCCs), due to the nature of their service, carry hazardous cargoes; as the vehicles they load have gasoline in their tanks. Therefore, vehicles transported by PCCs are considered dangerous cargoes according to various governmental regulations. Once fire breaks out on board a PCC vessel, is very difficult to bring it under control. For the safety of everyone on board, fire prevention must not only be practiced diligently, but must be strictly practiced as a way of life.

The following important precautions are necessary for a safe operation on board a Pure Car Carrier:

1. Fire/ smoke detectors: These should be regularly tested and kept in good working order. Any fire alarm (although false alarm may be received many times) should be treated as if an actual emergency.

2. Fixed CO2 system is a must which is required to be kept in a perfect condition at all times.

3. Ventilation system should be kept in good working order and must be operated not only during loading/ discharging work but also in port or at sea at proper intervals to prevent accumulation of inflammable gas es in car holds. The dampers for ventilation must also be kept in good order so that they can be opened & closed easily as the need arises.

4. Gastight, watertight and other access doors should always be kept closed at sea.

5. Portable fire extinguishers, fire hoses and hydrants must be regularly inspected and maintained in good working order.

6. “No smoking” and “No naked lights” signs must be exhibited to warn against possible accumulation of inflammable gases in the car holds. The no smoking/ no naked lights rule should always be enforced.

7. Gasoline safety tanks of the approved type should always be used for refilling gasoline or diesel on cars. Storage of gasoline/ diesel in the cargo hold and near a battery charging room must be avoided. Proper storage of gasoline/ diesel is of utmost importance. In port, do not refill vehicles and charge dead batteries in the same compartment.
8. Cleanliness of cargo holds, living areas and engine room must be maintained. The condition and cleanliness of such areas is extremely important. Often oil stained rags, sawdust and other fire hazards are the major cause of fire.

9. Fire patrols. Regular conduct of fire rounds at least every four hours at sea.

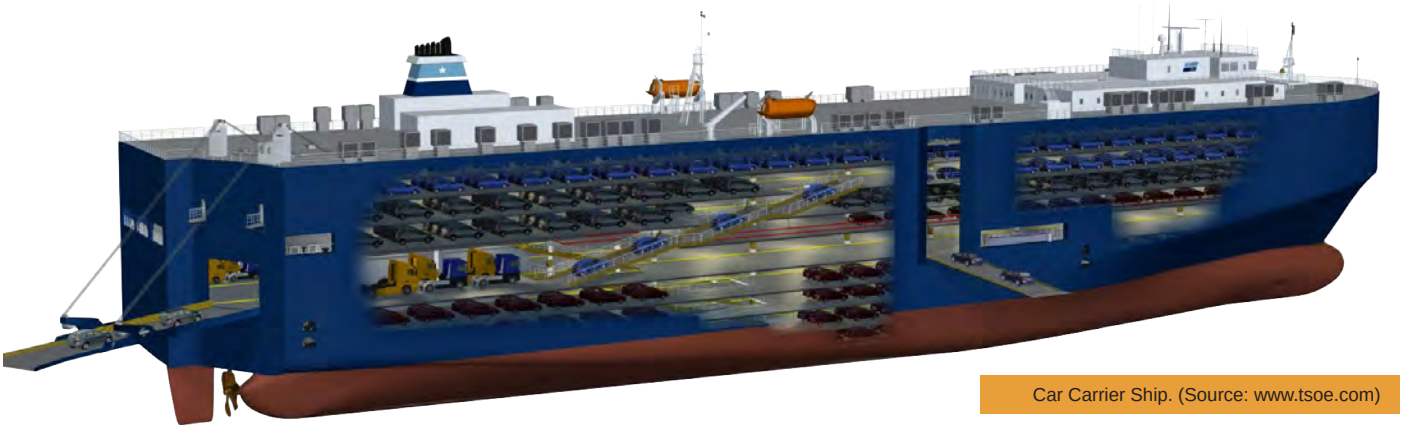
10. Regular fire drills are a must, so that in the event of any such emergency, all crew member are familiarized with their duties, responsibilities and the appropriate equipments to be brought.

11. Bilges and scuppers are to be checked and cleaned frequently, so that in the event of fire, the use of fire hoses and hydrants can be used without compromising the safety of the vessel.

Risks associated with PCC/ PCTC

In view of the peculiar construction, expensive cargo and short turnaround of these ships, the following risks must be kept in mind to mitigate them carefully for safe and smooth commercial operations:

1. Flooding. The PCCs, with big external door close to the waterline and a large vehicle deck with few internal bulkheads that are able to prevent large movements of flood water, have a reputation for being a high risk design. If any water enters the vehicle deck, it can begin setting up a free surface effect within the vehicle deck making the ship unstable and causing to capsize.



Car Carrier Ship. (Source: www.tsoe.com)

2) Manoeuvring difficulties. The PCCs have very high freeboard, and hence, ship handlers would experience difficulty in manoeuvring these vessels, as they are very susceptible to the effects of the wind. This characteristic also makes it difficult to anchor the vessel. Hence, it may cause the vessel to drag its anchor.

3) High cost of cargo & damage susceptibility. Automobiles are very expensive cargo, and are considered to be damage-prone. Even minor dents or paint scratches during loading, discharging or aboard carriage may involve high expenses. Crew on board must always be conscious of damage prevention particularly in handling the vehicles during loading and discharging.

4) Unique features. The PCCs are uniquely equipped to transport vehicles. They have unique doors, ramps, car decks (fixed or movable), deck lifters, lashing materials, ventilations and ballasting system compare to other vessels.

5) Short ports stay. Due to very fast turn around (loading/ discharging) of vehicles, PCCs have very short stay in ports. Delays in arrival/departure even by few minutes may incur high expenses. Maintaining schedules are very important as labors are normally arranged prior to arrival in port in view that any form of delay could be costly.

6) Hazardous cargoes. The cargoes are considered dangerous because of those vehicles carrying full tank gasoline and are considered hazardous. The exhaust emitted by vehicles is hazardous and failure or inadequacy of the ventilation system may cause stoppages of cargo operations.

Special instructions during stay at private berths

Cars are expensive and usually the PCCs will call a private berth owned by car companies to load the cars. The terminal requirements are very strict and any violation can be extremely expensive, sometimes running into millions of dollars of fines/ penalties for the shipowners.

Hence, care needs to be exercised as follows:

1. Remember that you may be walking between fascinating cars like Ferrari, Porsche, Jaguar, Toyota, etc. in the cargo holds, but you are not allowed to touch the cars. Even a drop of moisture, sea water or oil from overhead pipes has to be avoided as it may lead to cargo claims, if noticed during discharge of cargo. By the same logic, the cars in stock at terminal should not be touched. Walking around and cycling in any area is strictly prohibited. Taxi is required to be used from ship to dock gate and vice- versa.

2. Soot blow of the exhaust gas economizer and auxiliary boiler should be carried out extensively prior to pilot boarding.

3. The funnel smoke screens are fitted in place prior to arrival at all the exhaust gas uptakes, i.e, main engine, auxiliary engines and boiler. Diesel oil to be used for main engine and auxiliary engine in port. Fuel oil additive to be used with the fuel.

4. Continuous monitoring of the smoke emission is done by the terminal on the TV monitoring screen. They even film the smoke emission with main engine operating during manoeuvring.

5. Preferably, start/ stop of the auxiliary engine to be avoided in port. If required, the engines to be started manually with load limit value.

6. Aux boiler to fire continuously at berth. Boiler pressure to adjust by low firing or dumping steam.

7. On arrival at berth, stop use of engines at safe distance from the berth. Use tugs and Bow thruster to come alongside at berth.

8. On FWE, turn the engine on turning gear. Do not blow thru the engine.

9. On departure from berth, Do not blow thru the engine at berth. Instead, turn engine on turning gear and check for leaks from scavenge space. Depart from berth using tug and bow thruster until safe distance away from berth. Thereafter, with due consideration to wind condition, blow thru the engines and commence passage using engines.

10. If there is any damage to cars at berth or delay due to machinery failure in private berths of manufacturers such as Toyota, it will surely lead to huge cargo claims against the owners. So, strict compliance with operational procedures is the key to operate PCCs.

11. In case of sheltered access during rainy days or night watches, you can pass through the cargo holds to reach the engine room.

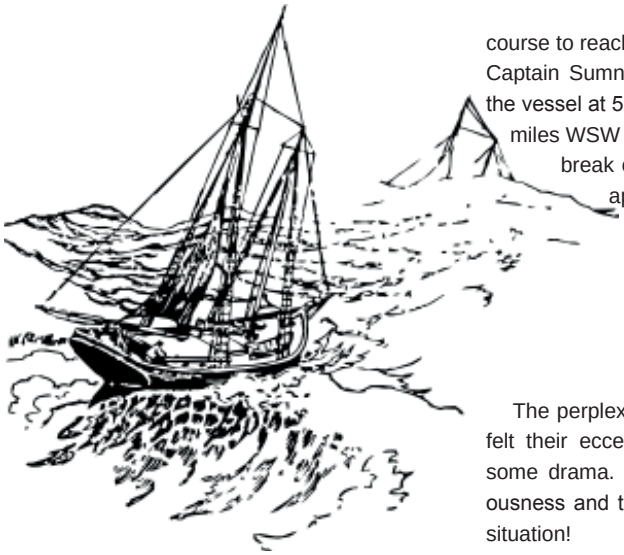
So next time you ride an imported car, do pause to reflect and understand the caution and hard work undertaken by the seafarers on board the PCC in bringing that car safely and without a scratch for you to admire, purchase and show off as your proud possession! ■

Jitendra Nath
Technical Superintendent
ESM, Singapore

Sumner Line of Position

A Discovery of Captain Sumner

Capt.Raj
Nautical Faculty
SIMS, Lonavala



We all like to listen to stories and there is nothing better if the moral of the story can enlighten and educate us. I share this with my students every time, before I start teaching them about "longitude by chronometer". On a voyage back to Scotland, it was a cold day in November 1837 and the weather was boisterous.

The navigation chart on the chart table indicated a "Fix" (position "fixed" by observation of a celestial object such as sun or star) which was plotted 10 days ago when the vessel crossed the longitude 21˚W. The American-born Captain Thomas Hubbard Sumner and his deck mates were clueless about their ship's position and were merely navigating with a dead reckoning. (DR). The DR position is obtained by a single vector whose direction component is "course steered" and the magnitude component is "ship's speed."

Captain Sumner was a Harvard graduate and the deck crew considered him to be an eccentric character for his spontaneous and erratic behaviour. They were all worried that the vessel was heading in a direction only known to the captain. At about midnight, 17th December, within 40 miles, by dead reckoning, of Tusker light, the wind hauled SE, true, making the Irish coast a lee shore.

This change in direction of the wind made the crew sense that land was nearby. With the south east coast of Ireland with its rocky dangers on their port side and English coast of Wales on their starboard side, they had to transit the St. George's channel on an ENE'ly course to reach the port of destination. Captain Sumner's DR position at 10 AM put the vessel at 51˚37'N 006˚ 40'W which was 35 miles WSW of Small's light. Luckily, with the break of clouds, the sun made a brief appearance. He used this opportunity to take a sight with sextant and measured the "true altitude" and timed the event with the chronometer. The sun's azimuth was SSE.

The perplexed crew was watching this and felt their eccentric captain was again up to some drama. Little did they realize the seriousness and the historical significance of the situation!

While working out the "longitude by chronometer", Captain Sumner was hesitant to use the DR Latitude which could be erroneous and unreliable. But did he have a choice?

He boldly went ahead with his calculations and found out the "calculated longitude." It was observed that this longitude was 15 miles east of the DR Longitude (Which in that latitude of 52˚ N was 9 nautical miles!). This was within tolerable limits from the DR position but Captain Sumner was not satisfied. The thought of erroneous input of DR Lat used in the calculation nagged at him making him aware as to how it may have augmented the error in the calculated longitude!

His crew was tired of pulling the ropes, sails and oars. Sometimes, when no one happened to strike up, and the pulling did not seem to be getting forward very well, the mate said, 'Come men, can't any of you sing? Sing now and raise the dead.' It is a great thing in a sailor to know how to sing well, for he gets a great name by it from the officers and a good deal of popularity among his shipmates. Some sea captains, before shipping a man, always used to ask him whether he can sing out at a rope."

Short-Haul Shanties, Halyard and Long-Drag Shanties, Capstan, Windlass, and Pumping Shanties, Forecastle Songs and Ballads were a few of the popular American sailor songs in full flow on main deck!

The Captain at work was least bit distracted with all this singing and the rough weather. With a sound mind, Capt. Sumner substituted Latitude 10' further north of DR position, **this placed the ship ENE 27 nautical miles, of the former position.** It was tried again with Latitude 20' north of the dead reckoning. **This also placed the ship still further ENE, and still** 27 nautical miles further.

A brainwave struck the Captain when his eyes saw something on the chart which led to the famous discovery of the "Sumner's line of position". (Fig A.)

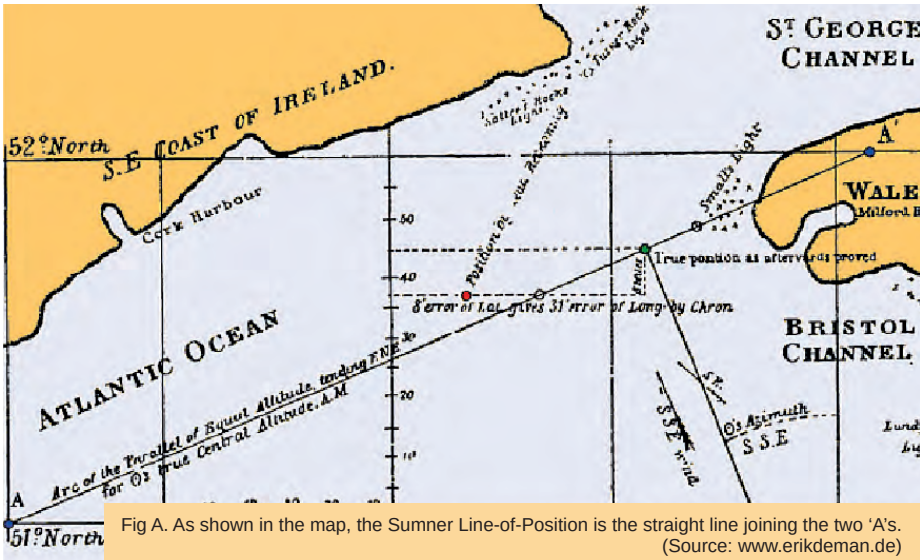
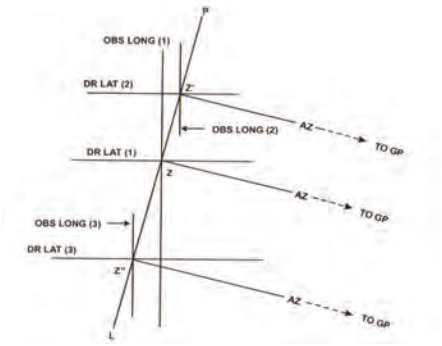


Fig A. As shown in the map, the Sumner Line-of-Position is the straight line joining the two 'A's. (Source: www.erikdeman.de)

These three positions were seen to lie in the direction of small's light (direction ENE). It then at once appeared to him that this true altitude must have happened at all the three points, also at small's light and at the ship, at the same instant of time. By joining all these points and small's light, it followed, that Small's light must



bear ENE, if the chronometer was showing right time! He realized that any ship seeing the sun at the same altitude in the sky must be located somewhere on that line. This was confirmed by sailing along that course until the Small's lighthouse was sighted on the coast. Although this single observation did not tell him the position of his ship, Captain Sumner realized that it did tell him that the ship must lie somewhere on this position line, actually a position circle, which he could draw on his chart . It was a remarkable discovery made by the captain of a ship during a storm. The crew realized this later and changed their ideas about their Captain and understood what a genius he was.

MORAL:
The observed longitude obtained by a "Long by chron" method is definitely NOT the longitude of the ship, BUT it is the best available position along with the corresponding DR Latitude to pass the Position Line. It is appropriate hence to term this longitude as a "CALCULATED LONGITUDE" Most of the navigators in the days before the GPS and Satellite Navigators, relied solely on calculating the longitude by a "Long by Chron" observation in the morning and then transferring this position line at noon, when the ship's latitude could be correctly determined by observation of "Meridian Altitude" of the Sun. Both these could then provide the ship with its observed noon position. ■

Heavy Weather Navigation

A Quick Guide to A Safer Voyage

Merchant ships sail through the oceans, straits, bays, rivers and lakes across the world. Some areas are more prone to rough weather than others. However, seasoned seafarers identify some of these areas such as Bay of Biscay, South China Sea and North Atlantic Ocean/ North Pacific Ocean in winter as high risk areas and take timely actions to navigate them through smoothly.

A thoroughly trained seafarer learns how to be on guard and prepare his ship for passage through heavy seas safely without damage to hull, machinery and the personnel on board.

Apart from physical discomfort caused by excessive rolling and pitching of ship, the heavy weather can cause damage or injury; unless precautions are taken well in advance. All ships' crew must be made aware of expected weather conditions before a voyage is undertaken. The ship's management team must make and implement a cohesive plan to safeguard against any incident due to rough seas. The plan should comprise of all activities on board the ship covering deck, engine room, steering room, pump room, accommodation, galley and stores.

Preparation phase:

- All loose equipment, spares and tools must be secured however small they may be.
- Particular care must be taken to secure containers with liquid inside, chemicals, lubricating oil, paints etc.; as in addition to causing spills, these can also cause fire.
- Dangling heavy equipment can cause collateral damage to equipment and pipelines.
- Special attention must be paid to critical areas such as steering gear room, engine room, galley, fore peak stores, bow thruster spaces, anchors and paint locker.
- Stowage of cargo must take into consideration free surface/ sloshing effect of slack tanks due to rolling.
- Store all mooring ropes below upper deck/forepeak stores.

- Clean all fuel, lubricating oil and bilge filters before the voyage begins.
- Automatic closing devices fitted to fuel tank vents on deck to be operational.
- Anchors must be properly secured.
- Water/weather-tightness of the forward compartments, deck and cargo spaces must be fully ensured.
- Check and keep air (or steam) whistles in good working condition.
- Check all navigation lights and aids for proper functioning, especially emergency equipment.

During the passage through heavy weather:

Monitor various fittings on the deck from a vantage point. Inspection rounds have to be made frequently to various spaces mentioned earlier. In addition, watch out for any movement of fixed components including foundation bolts of main engine, boiler, auxiliary engines and other equipment. Top bracing of main engine and all other equipment are to be checked. Fuel oil and lubricating oil purifiers have to be monitored for overflow. Watches have to be kept on stern tube oil flow and for possible ingress of seawater. Levels of open tanks such as hot-well and observation tank should be kept lower than normal to prevent overflow.

Extra care has to be taken while handling chemicals for treatment of boiler water, cooling water etc. Centrifugal pumps in light

Continued on page 18

S.Viswanathan
Principal
SIMS, Lonavala

Safety – An Old Story

Jims Andrews, Engineering Faculty
SIMS, Lonavla

A father and his little son were waiting on the sidewalk to cross the road. "Why did we stop?" the boy asked his father.

"We stopped so that we can observe the road carefully before we make the crossing". Father explained patiently.

That much the boy could understand. But he was inquisitive by nature and could not stop himself from probing further.

"But father, the road is almost empty. Hardly any vehicle goes by. We could have crossed the road just like that."

"I agree my son, but remember that the road is open to traffic and any time a speeding truck might pass by. It might be highly unlikely, but we are finished if it happens".

The boy was old enough to appreciate the risk involved. But he still could not understand why his father had stepped back to the pavement to do his surveillance. He felt it would have been better if they had stepped closer to the road to get a better look at the vehicles passing.

"We have stepped back so that we have a wider view of the road and can even sight the vehicles which are coming around that bend." Father said pointing towards a curve on the road, almost as if he had read what was in the kid's mind. True, the boy could now see a car coming around the bend which would have remained unseen if they were too close to the road.

"But father, that car is too far away and we could have hurried and crossed the road before it came any closer."

"True, but have you had a good look at the road? It was drizzling when we set off from home and it seems to me that the road might still be slippery. There is a risk that one of us might slip while hurrying across and it might get too late by the time we pick ourselves up again. It's a risk not worth taking. We will wait until that car passes." The father son duo soon crossed the road safely. The boy understood his father had a valid point there. This dialogue had made a deep rooted impression in him which would stay put for the rest of his life.

If we scrutinize this conversation closely, it is difficult to miss the 'Take 5' approach the father had knowingly or unknowingly adopted. Let us now try to draw the parallels.

Each task demands different degrees of involvement from the person who is carrying it out. It will be a cardinal mistake if you jump from one task to another, without giving yourself enough time to analyse, identify and control the risks involved with the latter. It is important not to get carried away by the momentum. Don't just finish cleaning the bunker filters and enter the crankcase for an inspection, all at one go. Stop first, like what the wise father in the above analogy did. Give yourself an opportunity to reflect upon the hazards of the new job. It might be completely different from that of the job you have just completed.

It's very simple: you get too close to the road and you miss that speeding car round the bend. To analyse a problem rationally, it is imperative that you detach yourself from the issue. So step back, engage your brain and evaluate the task for what it is. A person routinely carrying out the same job day after day is vulnerable to prejudice. Always approach the challenge as if you are doing it for the first time. You will find hazards revealing themselves where there were supposedly none before.

Jumping to conclusions won't do you any good. Observing and perceiving closely would

do you a world of good. Focus. Know what to look for. The education you have undergone and the experience gained till date will tell you exactly what to look for. The father was looking for speeding vehicles and not for any acquaintances walking past. It is often surprising how

new hazards spring up once you mentally take a walk through the assigned task. Your observations now will be on a completely different plane than when you had stepped back and looked at the task from a wider angle. Stepping back is more of a holistic approach whereas by walking through the task you get to the heart of the problem. Both methodologies are equally important, and if executed comprehensively, are going to tell you exactly what you need to know.

It is highly unlikely that you miss out on any hazard which will have a bearing on the safe conduct of the job in hand.You have now positioned yourself in a platform where you can correctly and comprehensively analyse the risks. There will be many and you will find a need to prioritise them. Zero in on the risks which you will need to mitigate before you carry on with the task. Give allowances for contingencies when you weigh the risks in your mind.

The son felt that they could cross the road safely even after they had a sighted a car speeding along. But remember that the father restrained him, for he was the wiser of the two. He was giving due allowance for the possibility of them slipping midway across the road. The previous step –walking through the task- had given him enough indications about that eventuality.

Establish controls over the hazards wherever you are in a position to do that. If it's not within powers, fetch help. Consult your seniors and rope in your peers. Whatever you do, you will be in safe territory if you make it a cardinal rule not to go ahead unless all the identified hazards are dealt with. Sometimes, to avert a great disaster, it just might be enough to wait a wee bit longer before execution.

Now that you have identified the hazards and established the controls effectively, what is left is to keep the other stakeholders in the loop. A stakeholder could be your own team member, a senior, the port authorities, the company

or whoever else is even remotely affected by the outcomes of the task. The stakeholders will differ on a case-to-case basis. Even someone who is working in the vicinity should be informed and made aware of the risks and controls involved in the safe conduct of the job. Remember, you have come this far. Do not blow the whole thing up just by failing to communicate.

Get on with the task, complete it safely. Keep in mind the identified hazards and the established controls. Keep your eyes and mind open for any contingencies that might spring up during execution.

Remember, no plan is fool proof. And no task is completed until the finest of the details is dealt with. Engage your brains. Let there be no place for complacency.

The boy went on to become a successful mariner and traversed the high seas with confidence. The father had faded away in the sands of time. But the message the illiterate father had etched in the psyche of the young son in his formative years ensured he carries on his duty and responsibility as a wise and confident seafarer giving safety as the first and foremost priority anywhere he goes and anything that he does. ■

(Continued from page 6)

Helmet should never be removed while in work area. However, whenever in a non-hard hat area, remove it so that sweat on head is allowed to quickly dry up.

Most of the helmets may not fit properly while using full body protection suit like gas tight suit, immersion suite etc. The instructions manual of these specialized PPE will provide you with the detail of compatible helmets. Use only the compatible helmets. Eye goggles have plastic or polycarbonate lenses.

The main body is made of plastic. The goggles are specially designed for specific purposes. We find goggles made for derusting, grinding or every day use on board ships. They have small slots on the side to allow circulation of air. Some can prevent development of fog inside.

While handling chemical or corrosive liquid or fumes, the prevention of any harmfull-liquid or fumes becomes important; hence, chemical goggles made of chemical resistant material, anti-fogging lenses and tightfitting construction are used.

Wearing of goggles:
Ensure your safety glasses fit properly. Eye size, bridge size and temple length all vary. Safety glasses should be individually assigned and fitted. If fogging starts, leave the work place and remove it in safe area. Working with fogged safety goggles is like working blind.

Care

1. Clean your safety glasses daily. Follow the manufacturer's instructions. Avoid rough handling that can scratch lenses.

2. Scratches on lens impair vision and can weaken lenses. Clean the lenses with proper lense cleaners.

3. Store your safety glasses in a clean, dry place where they cannot fall or be stepped on. Keep them in a case when they are not being worn. ■

Mokara Orchids

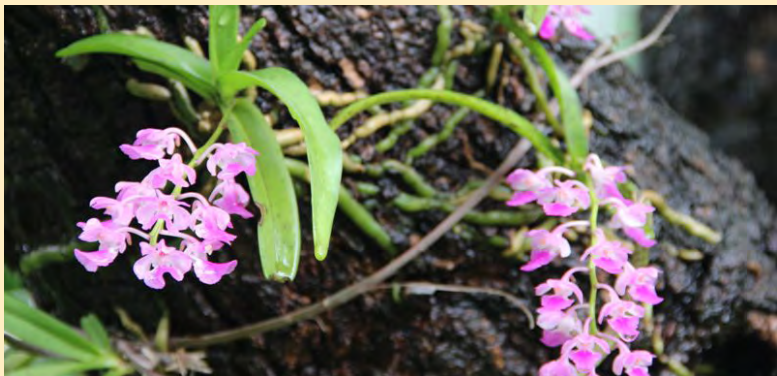
After the first monsoon shower clinched the thirst of the plants and the trees under the scorching sun in SIMS, Lonavala campus, it seems to be the time for the orchids in the mango groves to wake up from their yearly slumber.

Serenaded by the cuckoos call and nurtured by the moisture abounds in the atmosphere, the orchids in the evergreen mango trees grow their long sinewy garlands of astonishing pink, purple and white flowers spectacularly catching the eyes of anyone passing the administrative building of the campus.

The orchids in Lonavala are not native of India but they are the Singaporean hybrid called Mokara, amazingly adapted to the dry climate of Lonavala by flowering only during the monsoon season unlike round the year flowering in the humid climate of Singapore.

Orchids originally available only in wild could be one of the most experimented or hybrid among the flowers. Noted to be one of the fashion and status symbols among the rich and the famous in Europe – particularly in the 19th century England, there are hundreds of hybrid orchids around the world (Singapore is famous among them).

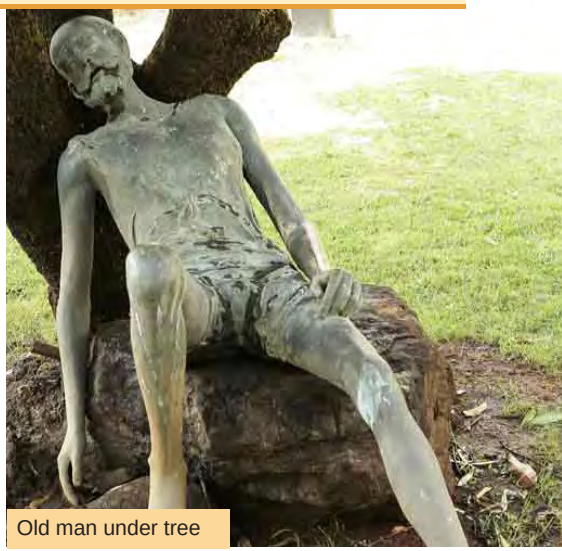
We are happy to grow this astonishing beauty back in the natural habitat of a tree and look and behold how she has adapted to the new home and changed the environment of the campus with her own decoration! We can not bring you the fragrance but sure could publish couple of pictures of our orchid blooms in the mango groves to our readers.



Let's take a walk in the garden…

The natural picturesque beauty of SIMS, Lonavala campus has been magnificently complemented by thought-provoking sculptures from various renowned Indian sculptors including National award winner Ankit Patel. Seven of his bronze sculptures themed on family and superior values in life dot the greenery and make a walk in the campus is a pleasure in all seasons. We are pleased to bring in pictures some of the sculptors in their full glory under a summer sun.

Father, Mother and Child



Old man under tree

Growing Together

Freedom

Reaching Out

SIMS, Lonavala Embraces the Fibre-Optic Technology

SIMS Lonavala campus has adopted fibre optic cable network system to keep pace with latest technology. Fibre optic is a technology using glass (or plastic) threads (fibres) to transmit data. A fibre optic cable is made up of a bundle of glass threads, each of which is capable of transmitting messages modulated onto light waves.Fibre optics has several advantages over traditional metal (mainly copper cables) communication lines:

1. Fibre optic cables have a much greater bandwidth than copper cables. This means that they can carry more data.

2. Fibre optic cables are less susceptible than copper cables to interference from lightening, cross-talk and electromagnetic radiation.

3. Fibre optic cables are much thinner and lighter than copper wires.

4. Data can be transmitted digitally (the natural form for computer data) rather than analogically.

The main disadvantage of fibre optics is that the cables are expensive to install. In addition, they are more fragile than wire and were difficult to splice. However, newly-introduced splicing techniques and devices, which reduce fusion splicing to about 2 minutes instead of 6 to 10 minutes make fibre system increasingly appealing from an installation and maintenance perspective. Fibre optics is a particularly popular technology for local area networks. In addition, telephone companies are steadily replacing traditional telephone lines with fibre optic cables. In the future, almost all communications will employ fibre optics.

The frequency limitations inherent in copper conductor system (approximately 1 MHz) makes the case for a alternative medium for high speed communication necessary. The optical fibre with its lighter weight and high frequency characteristics (approximately 40 GHz) and its imperviousness to interference from electromagnetic radiation has become the choice for all heavy demand long line telephone/data communication systems.

The following examples illustrate and emphasize some more reasons for using optical Fibres

1. The lightweight and non-corrosiveness of the optical fibre makes it practical for all radio communications across different fields.

2. A single fibre can handle as many voice channels as 1500 pair cable can.

3. Spacing of repeaters for 35 to 80 km for fibres as opposed to 1 to 1.5 km for metal wires is a great advantage.

4. The technology of fibre optics is already changing the communication and computer industry dramatically. Fibre communications links already exist across the Atlantic and Pacific basins. Computer Local Area Networks are optically linked for increased speed and expanded data flow.

Vast sums have already been invested to create a huge network of fibre optics with six trans-atlantic networks, three trans-pacific networks and other networks linking Hawaii and Australia. Major catalyst to the usage of fibre optic cable was the acceptance of fibre distributed data interface (FDDI) standard which promoted the change towards fibre optic networks all the way to desktop computer installations.

In SIMS Lonavala campus, the WiFi (wireless fidelity) network has been replaced by the optic fibre network for communications between Administration building, Academic buidling and Maritime Research Center. During heavy monsoon season, we used to encounter problems such as loss of connectivity, signal drop etc. while using the WiFi system.This was one of the major reasons to convert the network into optic fibre at SIMS Lonavala.

Because of fibre optics usage, the bandwidth has increased in high speed network. The issues concerned with poor connectivity and network problems are only things of the past. Currently 5 servers, 16 CCTV cameras and about 200 computers are running on fibre optics network. Since the classrooms are connected to network through fibre optics, common folder residing on servers can be accessed to use the PPT's, videos and other teaching materials for the cadets in the classroom

If we use Cat-5 or Cat-6 cables, it limits the local network area to 90-100 metres because wireless signals lose their strength as they move through air and especially walls. We cannot use it for larger distance networks and for such networks we have to use fibre optic cable connections.

Presently, fibre optics provide the fastest connection. Fibre optic cable network can be used in a 250,000 km area! It took 20 days for technicians to complete installing fibre optic cable at our campus. Using this network, all computers could be accommodated easily in one domain so that one can sit anywhere in the campus and access/ share data from any computer, and access the e-mails. ■

Mr. SKP Singh,
Sr. Electrical Instructor,
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What Message Are You Sending?

Onboard E-mail Communication Precautions

Capt.V.K.Singh
Faculty
SIMS, Mumbai.

Communication from ships in today's world has become highly important, technologically advanced and simple. Masters are able to communicate with various stakeholders through the e-mails with so much ease that information exchange and replies have become almost instantaneous. However if care is not exercised, inadvertent errors can be very damaging not only for the Master but for the company as a whole.

The Master must use his discretion and maintain the required level of confidentiality when communicating with the various stakeholders. Without this, there could be many red faces, fiery outbursts and sometimes even more significant issues that may be difficult to address. The challenge is to determine who should receive and provide, how much information to whom and when? Communication must be honest and factual but at the same time it is essential to keep it crisp and to the point so as to prevent information overload.

Below are some of my personal experiences from my sailing days (not on ESM ships):

Case I: My ship was approaching a port and I, being the Master, was checking the daily e-mails. There was a message from the agents advising me the flight details of the off-signing junior officer. While going through it, I noticed that appended below was a trail of messages which included correspondence between the previous Master and the office pertaining to personal matters of the officer in question which was not meant for the public domain.

It was indeed a very careless mistake by the sender in forwarding a message without removing unnecessary or sensitive information.

Case II: On another occasion, I received a satellite phone call from my Operations department after a few days on my loaded passage as it appeared that I was not copying my messages to concerned staff of the Charterers.

This came as a surprise to me as I was using the same group email function from previous voyages and all parties were receiving the messages then. The addresses were checked several times and no discrepancies were noted. On re-typing the addresses afresh and re-sending the e-mails all was in order.

It was later discovered, that this was due to a 'bug' in the system preventing certain addresses from receiving the mails.

Here the Master for no fault of his could have been held responsible for breaching his duty of not informing parties exclusively mentioned in the voyage orders.

Case III: I received a mail from office, inviting the flag state to carry out post-grounding investigation/ inspection of a sister vessel, 'accidentally' copied to my ship. There was a preliminary investigation report attached along with a trail of messages.

Case IV: As a junior officer I once had continued receiving and replying on the same personal mail for almost a month! This led to a huge communication bill at the month-end as the single message size grew exponentially on every occasion. My family members used free mailing services hence did not bother to check the size. Large messages are not only expensive but slow down the system

I am sure many of the readers would have faced similar situations. Important messages, business or personal, including replies to important queries, incident reporting, attaching large files, confidential and urgent mails etc., should be dealt with carefully as it could lead to serious issues if care is not exercised.

Below are some good e-mailing practices.

1. Be concise and to the point: long messages may not be read fully.

2. Use proper spelling, grammar & punctuation: use such tools, if available. If unchecked then the entire meaning could be interpreted differently. **Read before sending!**

3. Use a meaningful subject: Subject should be specific and indicate the content of the mail.

4. Avoid over-using "Urgent" and "Important": It loses value, if overdone.

5. Do not attach unnecessary files: they may be difficult and expensive to up/ download, large, incompatible and may contain virus.

6. Do not over-use 'Reply to All': be careful and only use 'Reply to All' if you really need your message to be seen by each person who received the original message. Information should be shared on a 'need to know' basis.

7. Remove message trails, in most cases does not serve any fruitful purpose to have long message trails going back and forth.

8. Use of "Cc" or "bcc": 'Cc' means 'Carbon Copy' and 'Bcc' means 'Blind carbon copy'. If the mail is to be copied to several recipients Cc function may be used, but if the mail is to be sent to a recipient(s) whose identity is not to be disclosed to other recipients then 'bcc' function may be used. In either case, if the mail is copied to many recipients it might also spread virus to all of them.

9. Don't send or forward emails containing libellous, defamatory, offensive, racist, obscene remarks, virus hoaxes and chain letters. Don't reply to spam.

10. Add disclaimers to your emails: this will depend on company policy but if added to your internal and external mails it can help protect you or the company from liability (e.g. 'the recipient must check each email for viruses and that it cannot be held liable for any transmitted viruses')

11. Keep your language gender neutral, as far as possible: do it if you are not sure, as many people take it as an offence if incorrect gender addressing is done. It also may be impossible to know from names (without prefixes) originating from different cultures.

If the simple measures highlighted above are complied with, we can avoid a minor or major damage to reputation. I hope it would be beneficial to my fellow Masters, in particular, and others in general. ■

New Canal to Change Future Shipping

Great Nicaraguan Canal & Canal Istanbul

If God created the, seas, oceans, channels, straits in the earth, it is man who created the canals to make short cuts in navigating around the globe. As 7km-long Panama canal created history by connecting the Atlantic and the Pacific oceans so that ships to and from the Americas can sail by a shorter route thereby cutting almost 13,000 KMs avoiding around the tip of South America .

Suez canals connected Asia and Europe and thereby saved the mankind from navigating around Africa to reach destinations across the world. The result, contribution to the world economy is equally enormous.

Needless to say, these canals have the pivotal function of connecting seas ,oceans and waterways, not only provide much shorter routes to vast number of ships involved in the sea transport but also play an important part in being a source of revenue for the country in which they are located.

To cite an example, the Panama Canal contributes to nearly 10% of Panama's GDP, a staggering contribution by any standard. Over the last five years, a project to widen the Panama Canal has been undertaken to allow larger vessels to pass through to accommodate the wider and deeper vessels which have increased in number and now have to pass around the South American landmasses. Considering the roles these canals play, over a period, there are deep concerns raised due to congestion of shipping traffic which use the canal resulting in heavy load on the infrastructure and delays to the vessels. However, this has rather raised an opportunity in some other parts of the world with the possibility of opening similar channels through countries to link two seas or oceans.

Obviously, the fall out expected is the extent of economic stimulus the canals bring to the region where they are located. The latest two canal projects being mooted at various governmental and non governmental quarters are:

a. (Fig. A) Great Nicaraguan Canal in Nicaragua cutting through the country to connect Caribbean sea to the pacific ocean

b. (Fig. B) Canal Istanbul between Sea of Marmara and Black sea by TheTurkish government as an alternative to The Bosporus Strait in the Istanbul region.

Fig B. (Source: www.en.rian.ru)

Fig A. (Source: www.geocurrents.info)

The Great Nicaraguan Canal Project:

The Panama canal is about a century old and at that time large vessels such as super tankers and post panama vessels had not been envisaged. The Nicaraguan government has reportedly commissioned a Chinese entity to make a feasibility study for such a canal and if approved, they would construct the canal which would connect the Caribbean sea to the Pacific Ocean as the Panama Canal does.

The Great Nicaraguan canal is expected to be as deep as 22 metres in its shallowest part and will involve cutting through about 175 miles of landmass. The canal itself will be three times the length of the Panama canal and will cost in excess of USD 40 billion.

This would be the largest project in Latin America over the last 100 years and could start as early as 2015.

The objective of the Nicaraguan government, needless to say, is to tap into the appreciable revenues that the canal would bring to the country, not to mention the support it will lend to associated ancillary industries and businesses. Larger vessels would find using the canal to be a more economical option when weighed against the high fuel costs it would have incurred otherwise.The study is expected to be concluded by early 2014 following which a decision will be made by the government .

The Great Nicaraguan canal will be an engineering feat of monumental proportions and would entail the use of some the most modern technology. Finally, the project would, however, be required to navigate the strong oppositions from the lobby of environmentalists citing the damage ships would cause to the ecosystem of Lake Nicaragua which is one of the most important natural resource to the country. ■

Rajesh
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(Continued from page 10)

draft vessels may lose suction when the vessel rolls. Air vents on sea chest must be operable to release the trapped air. It is always advisable to keep the engine room manned during the bad weather period. The accommodation elevator, if provided, shall not be used during this period. All important parameters including main engine exhaust temperatures and thrust bearing temperature are monitored. If required, the main engine RPM needs to be brought down to avoid racing of the engine and vibration of the hull.

At extreme climatic conditions, Master should consider altering course and reducing speed to prevent excessive stresses on the hull. One may lose balance when ship is rolling, hence, always keep your hand free to hold on to railing or other strong points to prevent slip, trip and fall injury or being washed over by a wave. Use of harness on deck, when proceeding to check condition is particularly important.

Navigation Hazards:

Bad weather usually brings in hazards for safe navigation in the form of poor visibility, limited manoeuvrability due to waves, swell, strong winds and reduction in vessel's speed. Keep both the steering gear units running. Keep all watertight doors in upper decks and forecastle fully secured to prevent water ingress. Check conditions of forward stores, bow thruster compartments and anchor at the earliest opportunity after having experienced bad weather.

In case of prolonged bad weather, it is recommended to establish regular routines for inspection by a team consisting of experienced/ responsible persons being sent to deck/ forward stores. Their safety on deck must be ensured by altering to a safer course. The team members shall be attired in suitable PPE, particularly winter clothing, rain gear and safety harness. To illustrate some of the points highlighted above, I narrate an incident from my experience:

Encounter with Rough weather

During one of the voyages, my vessel received warning from a sister vessel, which was about six hours ahead of us on the same course. Both the company vessels had loaded cargo and bunkers in a port in the Persian Gulf. When sister vessel entered into Arabian Sea from Strait of Hormuz, the sea turned rough and the ship's crew noticed the ullage cover of starboard bunker deep tank open and swivelling on its pivot pin violently. Seawater from the breaking waves was splashing and entering the bunker tank as the ship rolled.

Chief engineer was informed and fourth engineer assisted by electrical officer tried to bring the ullage cover into place and lock it in shut position. They attempted a few times adjusting their activity with the frequency of rolling of the ship. Suddenly, there was a huge wave and fourth engineer slipped on the deck and was dragged towards the ship-side railing by are ceding wave.

Fortunately, he clung on to the railing and was saved by the electrical officer during lull period. Both of them managed to close the cover and return safely to the accommodation. The master of the vessel called our ship on VHF to inform the incident and caution us. Accordingly, we took all the necessary caution and care to check and ensure safety for heavy weather condition and safely rode through the monsoon in the Arabian Sea.

Looking at the report from the sister ship's master, obviously the simple procedure of checking and preparing the vessel for the voyage was not adhered to, putting the ship in great risk. Even during the incident, the sister vessel did not follow the normal procedure of altering the course for a few minutes by informing the master and bridge team, until the ullage cover was put back and secured safely.

The climatic conditions in the immediate vicinity of a ship at sea can cause heavy seas resulting in rolling and pitching of the vessel. Ship may sometimes move to experience all possible six freedoms of movement. Decks may be awash with large quantities of water due to seas breaking on them. Seamen must be advised not to venture out on open deck in these circumstances. Even some of the maintenance activities may have to be postponed for safety reasons.

For guidance and additional information on precautions, please refer to ESM's Navigation alert 23-13-**Navigational Safety during Heavy Monsoon Weather** dated 13th June 2013.

Conclusion:

"A stitch in time saves nine". Seafarers must prepare well in advance to safely deal with the vagaries of bad weather. It is advisable to defer heavy maintenance activity during this period. It is difficult to control the swinging of heavy weights while lifting, such as Piston, Liner and other machinery equipment. Refrain from climbing heights during bad weather transit.

Finally, a word of wisdom and experience for those liable to feel sea-sick: eat lightly and take adequate rest during these times. ■

Avoid Traffic Collison at Sea: Skuld Conducts workshop at SIMS

On 3rd April, first day of the officers' seminar, Capt. Binoy Dubey of SKULD Singapore conducted a very gripping and interesting collision workshop for all the senior deck officers and engineers.

The case

A Panamax size bulk carrier Yao Hai collided with an oil rig supply vessel Neftegaz 67 in Hong Kong waters. The supply vessel sank with the tragic loss of 18 of her 25 crew members. The collision led to the prosecution of master of supply vessel and pilots of the bulk carrier. The master and pilots were given long imprisonment sentences by the trial court.

Capt. Binoy skillfully introduced the various issues of the case and likely claims involved after casualty of this nature such as:

- Loss of vessel
- Loss of cargo
- Loss of bunkers
- Oil pollution
- Wreck removal
- Crew claims including loss of life

During the course of the workshop, he provided lots of factual information including VDR and simulation data to the participating officers, divided in a total of nine teams. Each team of officers was required to make a presentation on the case and answer a common set of questions, which were crucial to determine the outcome of the case.

Capt. Binoy Dubey, SKULS, Singapore

The individual groups prepared the presentations, after much deliberation and came out with good arguments and finally, Capt. Binoy summarised the findings by the Courts and experts.

Facts of the casualty

The collision had taken place within a deep-water buoyed channel in Hong Kong waters, Off Lantau Island, a few metres from buoys CP1 and CP2. Neftegaz67, the oil rig supply vessel sank with a tragic loss of 18 men. There was no injury on Yao Hai and its port bow was damaged. The sea state was calm with fair weather. On this dark night, visibility was approximately three nautical miles. Traffic density was low. No other vessels impeded the passage of Neftegaz 67 or the Yao Hai and the buoyed channel was clear of other traffic. There was ample sea room for the two vessels to pass each other at a safe distance within the gates of the channel at CP1 and CP2, which were about 570 metres apart.

Different interpretations of the Collision Regulations

Both vessels expected the other to give way, each applying different International Regulations for Preventing Collisions at Sea (COLREGS) for its navigation. The master of the Yao Hai believed that the vessels would pass port to port, whereas the master of Neftegaz 67 believed that they would pass starboard to starboard.

The vessels were heading for the same spot about 185 metres from buoy CP1. When the two vessels were close to each other, both moved in the same direction to effect their intended passing, the Yao Hai moving to starboard and Neftegaz 67 to port.

The bridge team on board theYao Hai considered the buoyed channel to be a narrow channel and therefore expected a port-to-port passage. The Yao Hai's master and pilots were surprised that Neftegaz 67 continued to navigate in the middle of the channel and then made a sudden turn to port, not starboard, in breach of Rule 9 (governing conduct of ships in narrow channels) of the International Regulations for Preventing Collisions at Sea (COLREGS).

SIMS Ex-cadets Joined ESM-Managed Fleet During the Last Quarter

3O VINAY KUMAR
DNS-07

3O ROMEL JACOB MATHEW
DNS-07

3O GEORGIT JAMES
DNS-07

3O DURGESH SHARAD PATANKAR
DNS-08

3O JOMON JAMES
DNS-05

3O ROHINI PRAVEEN MYLAPALI
DNS-07

3O AMJITH RAJ
DNS-07

3O ABIN BABU
DNS-07

3O NITISH NANDA-KUMAR SHETH
DNS-05

3O ANNOP KUNNOOL
DNS-07

3O ARUN PAUL
DNS-07

3O JOSE JACOB
DNS-07

4E ABU MARZAD CHEMBAN
GME-09

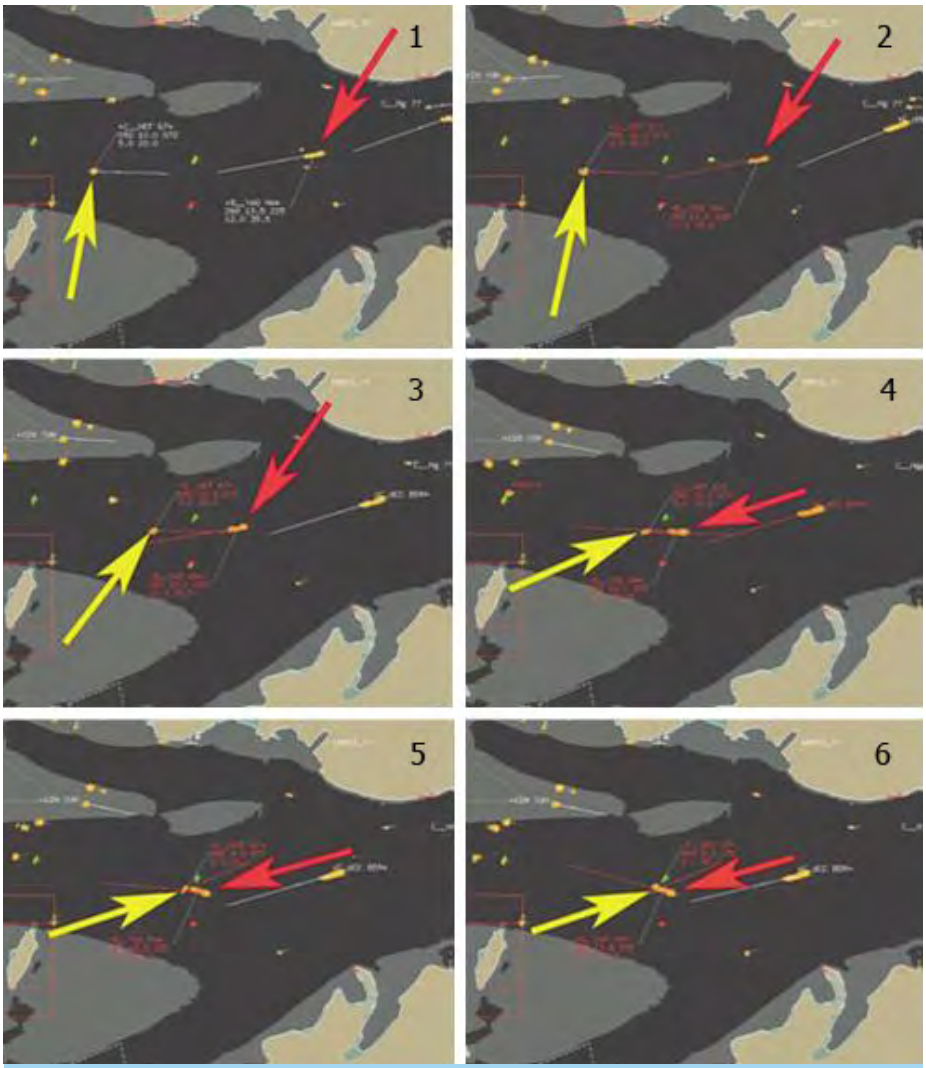
4E GURUPRASAD SELVARAJ
GME-08

4E HRUSHIKESH SWAIN
GME-09

4E KESHAVARAMAN SHUNMUGARAJ
GME-09

4E MAQVIN MICHAEL LOPES
GME-09

SUKHJINDER SINGH
GME-08



Yellow arrow marks "Neftegaz067 and the red arrow indicate "Yao Hai"

3O MANU GEORGE
DNS-07

4E NAVLESH KUMAR
GME-08

4E MOHAMMED ABDUL MATEEN
GME-09

4E SHAMAN KUMAR
GME-09

4E HARIKRISHNAN GOPAL KRISHNAN

Neftegaz 67 turned to port because its master applied Rule 15 (governing conduct of ships in crossing situation).

The legal defence also relied on the fact that no narrow channel was marked on Hong Kong government charts in the area where the incident occurred.

Court Proceedings:
Criminal charges, which were framed against all four defendants, were brought under Section 72 of the Shipping and Port Control Ordinance (Cap 313), which states that: "A person who, by an unlawful act or in any manner whatsoever without reasonable excuse, endangers or causes to be endangered the safety of any person conveyed in or being in or upon any vessel or in the sea, commits an offence and is liable:

(a) on conviction on indictment to a fine of HK$200,000 and to imprisonment for four years; and

(b) on summary conviction to a fine of HK$200,000 and to imprisonment for two years."

The four defendants were the master of Neftegaz 67, the master of the Yao Hai and - on board the Yao Hai - a Hong Kong (chief) pilot with an assistant pilot. The district court trial took place over 91 hearing days which resulted in conviction of all four defendants.

The case was appealed and Court of Appeal:

- Quashed the conviction of master of Yao Hai and junior pilot
- Reduced the sentence of imprisonment of 1st appellant's (Master Neftegaz 67) from 38 months to 18 months
- Reduced the 2nd appellant's (Chief Pilot) 3 years sentence so as to permit his immediate release
- Centrally important feature of the judgment – approach to section 72 - *no mens rea* required. The offence is one of absolute liability so far as consequence of endangerment was concerned.

(FYI, *mens rea* and are legal terms used to define a crime). Both mensrea and actusreus must be present for an accused to be found guilty of a crime (except for absolute liability). Mensrea means that the person must have had a guilty mind at the time of committing the crime - that is they must have intended to commit the crime.

Actusreus means "wrongful act" - meaning that the person must have committed an act that is defined as wrong by law. Absolute liability is a crime where mensrea is not needed –e.g., by going through a red light, you are committing a crime, regardless of whether you knew you did it or not! In a crime of absolute liability, a person could be guilty even if there was no intention to commit a crime.)

Defendants further appealed to court of final appeal, the ruling from which upheld a Court of Appeal judgment, holding master of Neftegaz 67 liable for the fatal accident resulting in deaths of 18 people. Judges cleared the chief pilot of the mainland vessel Yao Hai, and allowed his appeal against conviction.

The court of final appeal, however, clarified that none of the statutory defence mentioned in the ruling of Trial Court and Court of Appeal, displace the presumption of *mens rea* and the prosecution must prove knowledge, intention or recklessness as to every element of the offence. All participants found the workshop very interesting and an extremely useful learning experience regarding the legal implications of a collision, which can land the bridge team members into prison! ■

Boiler Uptake Fire

* We invite responses from our learned readers as to the causes and lessons learnt through this case study. Please send your responses to samundraspirit@samundra.com.

S.Viswanathan
Principal
SIMS, Lonavala

Oil tankers are equipped with auxiliary boilers for steam generation. Steam is used as motive force for various applications including cargo oil pump turbines, deck machineries, cargo heating, engine room and galley services.

With advancing technology, automation has been utilized to maximize efficiency and safety. Auxiliary boilers have also been subjected to this change with good intensions and results. For the ship to function efficiently and safely as designed, the operators (engineers in this case) have to be trained in operation and maintenance of sophisticated control system. In the following narrative, the author recollects an incident resulting in auxiliary boiler uptake fire caused by careless and ignorant action of a junior duty engineer.

This incident happened in a 89000 DWT crude oil tanker, while cargo discharge operations had just begun at 0430 hrs in an oil terminal on the west coast of India.The vessel was fitted with 2 double evaporation boilers and both were steaming at full load to supply steam to three COP turbines. After about an hour, the standby tug informed the vessel about flames in the funnel. Fire alarm was sounded and all cargo operations were shut down. Engineers proceeded to engine room to tackle the emergency.

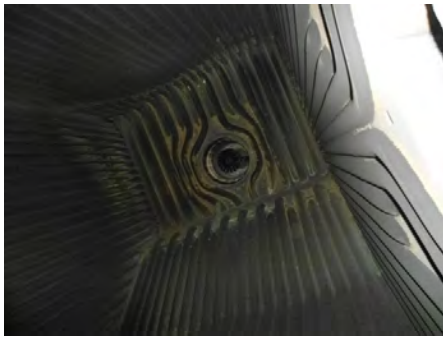
Events that led to the incident

As the COPT's were started one by one on the instructions of chief officer, the duty engineer noticed the flame failure alarm for the third burner of one the boilers was activating repeatedly in spite of resetting the duty engineer promptly went near the boiler front for investigation and found one of the automatic valves for the burner was closing. He assumed it to be the fuel valve and opened it manually to supply fuel to the burner. Within ten minutes the fire alarm was sounded by the chief officer.

Investigation:

The chief engineer called all engineers and engine crew to engine room for assistance. On his instructions, all cargo pump turbines were stopped, boilers shut down and banked. After confirming the fire in the uptakes had subsided, fuel burners and filters were cleaned, fuel tanks checked for water content. Both boilers were started again, when the second engineer noticed one of the burner valves was remaining open all the time. Manuals were taken out and the actual operation of various control valves were ascertained and manually open valve was put back to automatic position.

When the cargo operations were resumed, boilers were steaming normally with proper combustion taking place. It was concluded that faulty fuel burner was the cause for the uptake fire. The duty engineer had kept the steam blowing valve for the burner mistakenly open and continued operating the burner.



Extent of damage:

1. A dangerous situation had developed with fire in the boiler uptake in an oil terminal.
2. Cargo discharge operations were stopped for four hours.
3. Unnecessary and additional work was incurred by the ship's engineers.

From the details provided and your knowledge about auxiliary boilers, please provide answers to the following regarding this case study:

1. **What is the primary cause for the up take fire?**
2. **What is the routine preventive maintenance carried out in the auxiliary boiler before arriving in a discharge port?**
3. **What is the function of a blowing steam valve for an oil burner?**

Responses for Damage to Cargo Oil pump Turbine:

Issue 20 (Apr 2013)

Based on the positive number of feedback and responses from our readers on the previous case study, here's a compilation of the answers received:

1. What is the primary cause for the rotor to bend?

   High pressure steam from the inlet line should expand through the turbine blades to the condenser pressure. Proper energy transfer should take place by keeping the exhaust valve open. In this case , exhaust valve was closed and the lack of energy flow causes warping of the rotor.

2. What is the device provided for sensing the back pressure of a steam turbine?

   A pressure switch (which is set at normal atmospheric pressure)

3. What is the correct method of testing a high back pressure trip of a steam turbine?

   It can be tested either by bringing down the setting of the pressure switch or disconnect the connection from condenser to pressure switch.

Group Photo on 27th April 2013 at DGLL Kolkata Premises

SIMS Develop Course for Allied Industry

Samundra Institute of Maritime Studies, Lonavla (SIMS) has successfully developed English and Maritime Awareness course for the Directorate General of Lighthouses and Lightships (DGLL) for training their navigational assistants, who are employed at various lighthouses around the Indian coast.

The first course based on curriculum developed by SIMS was held in Kolkata between 18th March 2013 to 26th April 2013. IMU, on behalf of DGLL, had decided to seek the assistance of SIMS, Lonavla, in October 2012 for developing the course and curriculum development work was outsourced to SIMS.

The curriculum for the six weeks' long course was required to cover speaking, writing and reporting skills in English, IMO's Standard Marine Communication Phrases (SMCP), as well as several maritime topics ranging from ship administration, shipboard routines, responsibilities and duties of officers and ratings as indicated.

- Standard Maritime Communicable Phrases & Anchoring Terminology
- Loadlines on ships and their purpose
- Emergency Procedures on ships
- Overview of MARPOL and SOLAS Chapters IV and V
- Important Navigational equipment such as GPS/ DGPS, RADAR, ARPA, AIS, NAVTEX, VDR, etc.
- Collision Regulations and their importance
- Roles of Indian Navy, Indian Coast Guard and Vessel Traffic Management Systems (VTMS)
- Nautical publications, such as List of Lights and Fog Signals, Sailing Directions, Radio Signals, Mariners' Handbook, etc. from which important information is obtained by Mariners.
- Various type of ships and their operations in general.
- Overview of ISM & ISPS Code
- Role of Tugs, Port Authorities and Marine Pilots

After initial meetings of IMU officials with Capt. V.R. Krishnan Actg. Dean DNS, SIMS Lonavla, to discuss the structure, timetable, costing and other logistics, the course curriculum was developed and completed within 4 weeks and delivered to IMU for their review and subsequent concurrence of DGLL New Delhi.

Capt. K.R. Krishnan prepared complete participants' course documentation including handout, timetable, certificate, course-related forms including feedback form in appropriate formats. Additionally, he worked out costing of the course. He also assisted in sourcing competent local English and nautical faculty resident at Kolkata to deliver the course as per IMU/ DGLL requirements appointed competent local English and nautical faculty resident at Kolkata to deliver the course as per IMU/ DGLL requirements. It was decided by IMU and DGLL to conduct the first course at their Regional Office Training Centre in Kolkata.

The inaugural function for the course at the regional training centre of DGLL, Kolkata was attended by the senior officials including Capt. Surej Kumar, Mr. PP Singa , Mr. K.P. Singh while Capt. V.R. Krishnan represented SIMS. The inaugural class comprising of 16 trainees was conducted by Mr. Raja Bandopadhyaya.

On 27th April 2013, the closing ceremony of the course was held. The trainees were assessed for their understanding of the various topics covered during the course by a written assessment paper as well as Viva Voce for assessing their English communication skills and nautical knowledge. It was encouraging to note that all the trainees performed exceedingly well in the assessments and scored over 70% marks.

The closing function was presided over by Deputy Director General, DGLL Mr. P.P. Sinha. The Guest of Honour was Capt. Mukesh Baveja, Vice Chancellor, IMU. All the speakers from DGLL were very pleased to report that the entire course was well-managed and conducted in accordance with the planned course content and that it met with their desired aims and objectives.

It may be added that this was the fourth course for the allied maritime industries developed by the faculty members of SIMS till date including two courses on oil tanker operations and a ship stability course for the oil and corporate business houses. ■

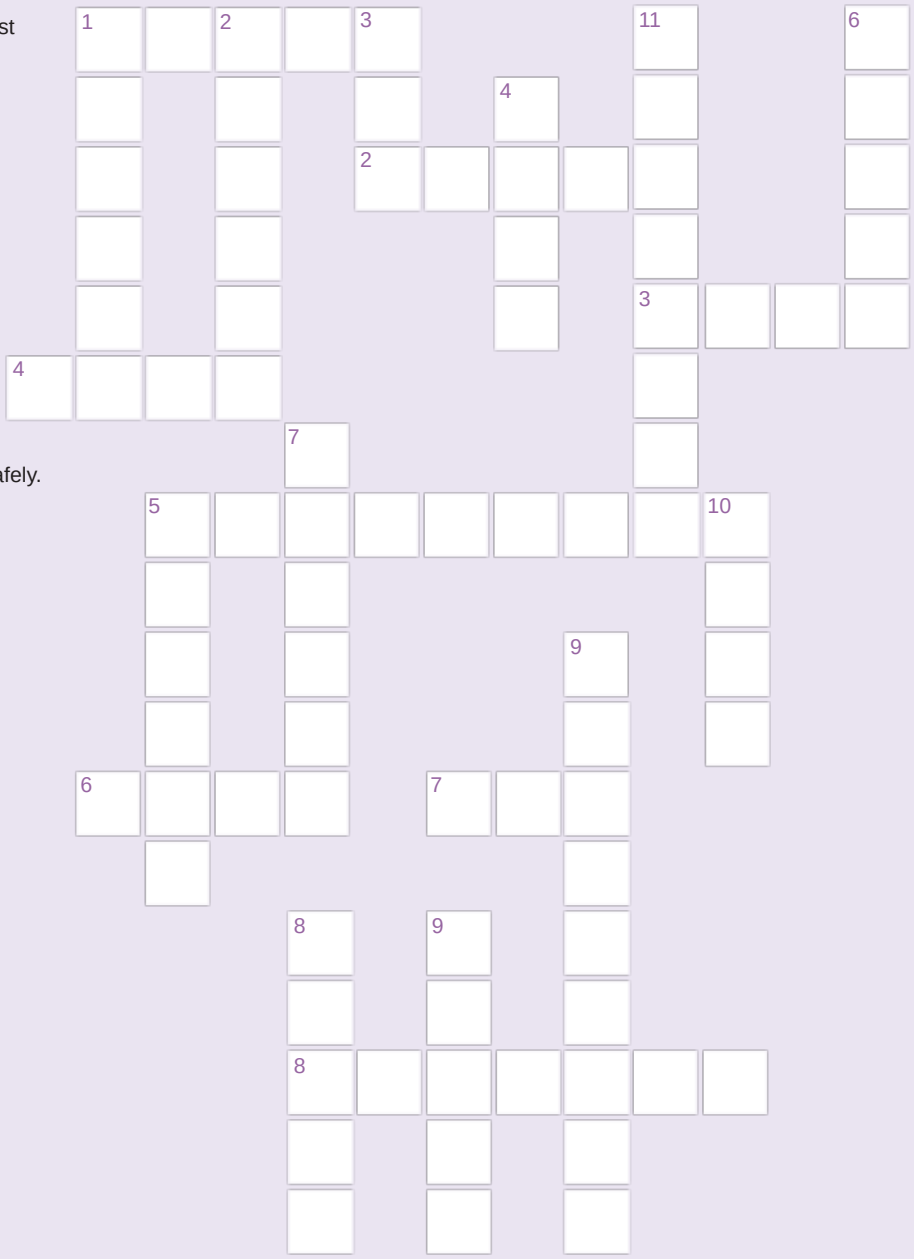
Crossword Puzzle

Across

1. If you have lost a tool in the engine room, the best place to look for it is _____.
2. The flat back end of your vessel which carries the name of the ship.
3. A mariner says _____ when he either means 'Hi' or 'Goodbye'.
4. The fastest way of stopping the ship is by grounding the _____.
5. The largest screw onboard is_____.
6. Without a man at the _____ she (ship) is uncontrollable.
7. This part of the ship often bends over in honour of rough seas _____.
8. We often trip of it when we walk on the deck.
9. Its an art to read the _____ and navigate safely.

Down

1. It has wings.
2. It's a permanent mark on the shipside.
3. A device which changes a.c. to d.c
3. The shipboard galley is always a_____.
4. It also refers to a collection of 52 cards.
5. It is a conversation between two quarrelling mariners seeking truce.
6. We have a dedicated an island to this mammal onboard the ship.



Cdt Danesh
Kersi Khambata
GME - 14
SIMS, Lonavala

Answers:

ACROSS:

1. BILGE 2.STERN 3.AHOY 4.KEEL5.PROPELLER 6.HELM7.BOW 8.COAMING 9. CHART

DOWN

1. BRIDGE 2. PLIMSOL 3.MESS 4.DECK 5. PARLEY 6. MONKEY 7.BOTTOM 8. JACOB 9.HAWSEPIPE10.ROLL 11. BINNACLE

By
Cdt. DaneshKersiKhambata.
GME-14.

Harvesting Rain at SIMS, Lonavala

A Water Conservation Initiative

After this scorching summer, rain has finally found its way to Lonavala. As we all know, Lonavala is famous for its breathtaking and beautiful locations and its rainy season. During this summer, we have seen certain regions of Maharashtra facing adverse draught situations like Satara, Sangli & Latur. Lonavala was also within the draught affected zones in spite of receiving heavy rainfall during rainy seasons that lasts from June to September. As a matter of fact, the River Indrayani that is just next to our campus got completely dried up and whole of Lonavala was facing water shortage problem due to inadequate arrangement of rain water harvesting by the government.

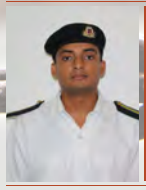
But being in SIMS was a totally different scenario. It was forward thinking by management. that gave SIMS its one-of-a kind of famous and largest solar panel. In addition to this, there is one more way in which SIMS is eco-friendly, and that is through fully-equipped "rain water harvesting system." We have two rain water harvesting lakes, one in front of the ship in campus and the other, on the other bank of the Indrayani river. The capacity of the main lake is approximately 16000 cubic meter. The capacity is such that it can store more quantity of rain water than is being required for the whole campus needs, thus maintaining "positive water balance."

There are various purposes where we use this harvested water. As SIMS is a marine college and swimming is the integral part of any cadet's training, filling of swimming pool requires a huge quantity of water so we use that main lake harvested water for filling the swimming pool round the year. This water is pumped from the main lake and after filtration and various water treatment stages it is used for swimming pool.

As SIMS had lush green campus full of different variety of plants species and maintaining the greenery throughout the year, it requires large quantity of water. This requirement is also fulfilled with the help of harvested rain water from the lake. The entire campus is equipped with sprinkler arrangement, thus preventing wastage of water for gardening purpose. In case of "extreme emergencies" we have used that lake water for "drinking purpose" after filtration and various treatment phases. We also use that lake water in ship in campus for various machine operations and other cleaning purpose.

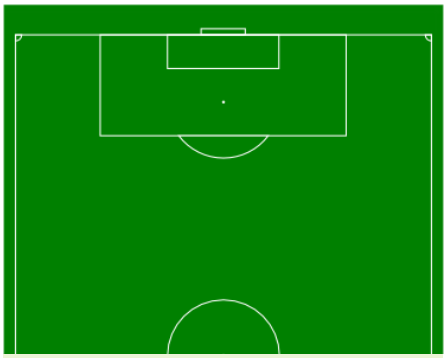
The water that is used for our domestic requirements is later treated by sewage treatment plant and used for gardening purpose.
This harvested water has fulfilled our various needs from time to time throughout the year hence, while using it, we should keep in mind that the water available in the lake is in limited quantity and it should not be misused. As a proud cadet, I would like to say that these exposures broaden our mind set up and will help us to shape our future in a better way.

Such water harvesting project should be initiated throughout the country in order to meet the water demands, similar to Samundra Institute of Maritime Studies. ■



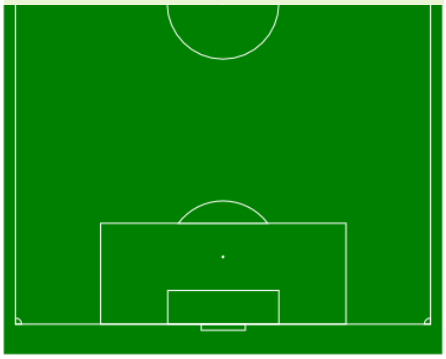
Cdt.Harish
(GME15)
SIMS, Lonavala

Inter-house Football Championship

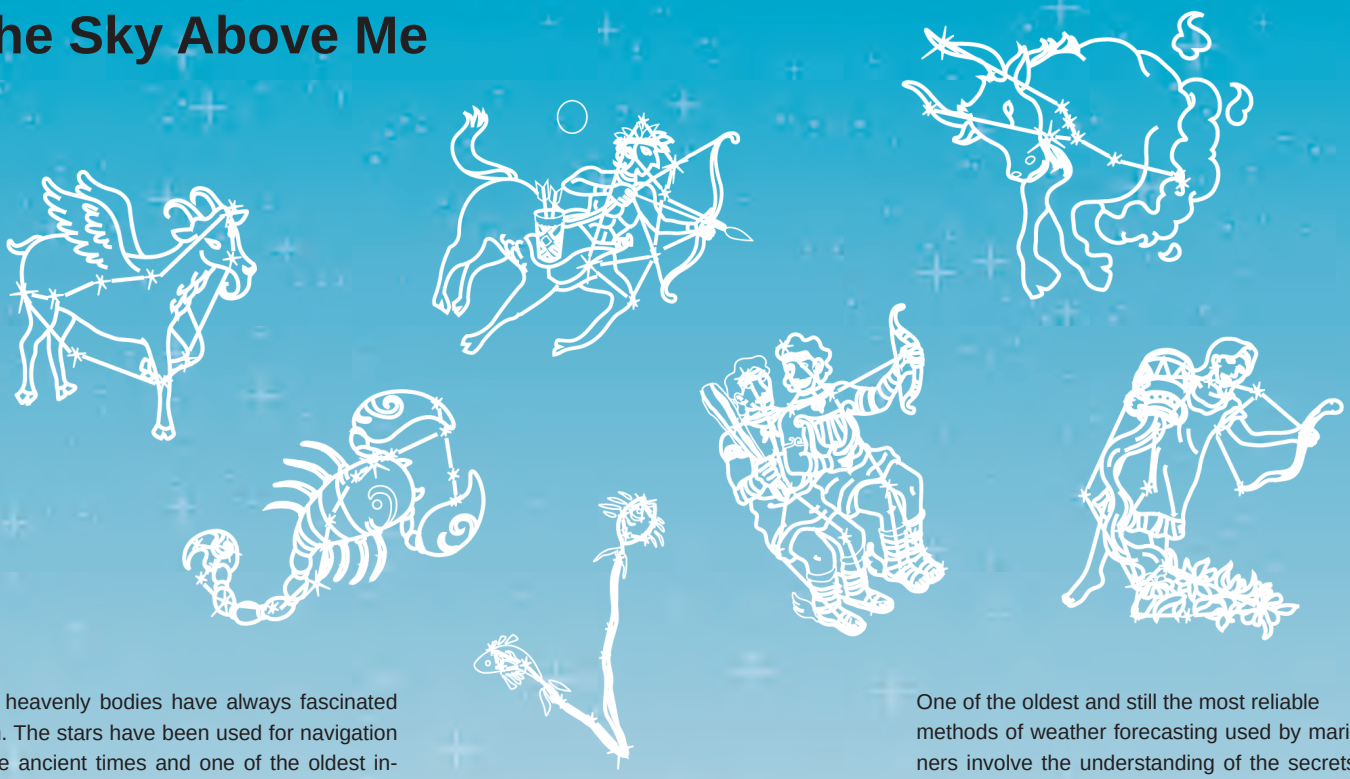


The summer heat was at its scorching best on 7th may 2013 when Tapti house and Godavari house locked horns for the coveted inter-house football championship. Both sides started cautiously, each trying to gauge the other carefully. The strategies remained unchanged until Cadet Shreyas Patgiri from Tapti House broke through and

drew first blood. Godavari house no longer could resort to defensive tactics and their forwards, guided amply by their Captain Tadak Nalo, frequently raided the enemy post. Tapti, led by Cadet Abhay Rautela, had better control over the midfield and held on to their slender lead for the better part of the game. Godavari did find their equaliser through the tireless Tadak Nalo, only to be condemned to the runners up place by an own goal towards the dying moments of the game. Tapti lifted the trophy with a final score line of 2-1. The spectators were feasted to a game of total football played out in the true spirit of the game. Engineering faculty Mr. Jims Andrews officiated in the game. ■



The Sky Above Me



The heavenly bodies have always fascinated man. The stars have been used for navigation since ancient times and one of the oldest incidents I can recall is of the three wise kings being led to the birthplace of Jesus Christ by a shining star. Here at SIMS, we often overhear the nautical science cadets discussing about celestial navigation, constellations, cloud formations and how important it is for a mariner to know about the sky above him as much as the sea.

Being a marine engineering cadet, I never had a chance to study about astronomy and experience the sky in its full glory like them, until recently. About a month ago, when I was on my way to the cafeteria for dinner, I saw a group of nautical science cadets gazing at the night sky with faces full of excitement and thrill. Curious, I asked them what they were staring at. They replied that they had located the Big Dipper and could also locate the Polaris star with the help of the pointer stars 'Dubhe' and 'Merak' and they showed me the asterism; a pattern of stars. It is understood that the Big Dipper is not an area of the sky otherwise known as a constellation by itself.

It is instead an asterism of seven stars belonging to the Ursa Major constellation more commonly referred to as the Great Bear. Whereas, the Polaris is the current North Star and a part of another constellation, known as the Ursa Minor and can be easily found by imagining a line from Merak to Dubhe and then extending that line for about five times the distance between the two pointers and thus helps a mariner to locate the due north. However fascinating star gazing may be for a lay person, watching the stars and their movement in the night sky actually is part of a navigation skill a mariner must possess to establish his /the ship's bearings in the wide ocean. Fascinated with the connections it made to seafaring, the incident sparked an interest to learn more.

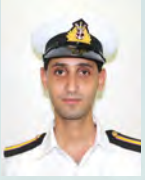
In my quest for knowledge, with the help of my fellow DNS cadets, I learnt how to locate the various stars in the night sky using a star finder. I also learnt that the zodiac signs which we commonly used for figuring out our horoscope are actually constellations. The Zodiac is an imaginary band centered about the elliptic (the apparent path of the sun as viewed form the earth) and the constellations that lie within this band are called the Constellations of the Zodiac.

These zodiacs hold key importance in navigation as the various planets; the moon and the sun are found within the Zodiac constellation. One of the most interesting facts I learnt was about stellar / astronomical scintillation (that is the twinkling of stars). Stars really do not twinkle but as the light from a star travels through the earth's atmosphere it is refracted and scattered several times causing this apparent twinkling phenomenon. That is why a star closer to the horizon appears to twinkle more than a star overhead as the light from the star closer to the horizon has to travel a longer distance through the atmosphere and thus is subject to more refraction and scattering.

One of the oldest and still the most reliable methods of weather forecasting used by mariners involve the understanding of the secrets that the clouds above us hold. Being in SIMS since last September, I had the chance to witness the onset of various seasons and the variety of clouds they bring with them. The winter brought along with it foggy mornings which led to the Stratus cloud formation and small round puffs called Cirrocumulus clouds.

The onset of spring was announced by the Cirrus cloud formation which usually forecasts pleasant weather. Monsoon arrived with lightning and thundering Cumulonimbus clouds and the daily downpour was brought about by the Nimbostratus clouds. After having studied about these heavenly constellations and clouds, I can only stand in awe of the ingenuity of human mind and thirst of knowledge that created and named the constellations to further the knowledge of the universe and the nature.

Indeed a fascinating world beyond our world and so when the time comes for me to pack my bag to go onboard my very first ship as a junior engineer, I am certain that along with the various books and boiler suits that I shall carry, there will also be a miniature telescope in my back pack. After all, we mariners may always be at the mercy of the seas, but there shall always be a guiding star somewhere up there to give us solace! ■



Cdt Danesh Kersi Khambata
GME - 14
SIMS, Lonavala

Visitors' Comments
Second Quarter, 2013

This is a most impressive facility! It's far exceeded my expectations.
Congratulations, and thank you for all your work with BP Shipping.
Mr. Rob J. Day
Chief Financial Officer
BP Shipping LTD
United Kingdom

It was an interesting and educative visit to an ultra modern training facility.
All the very best for a bright future.
Rear Admiral GV Ravindran
Deputy Commandant
Indian Naval Academy
Ezhimala

Very impressive campus and training facility
Capt John Hafner
Training Manager
International Registries, Inc

A great pleasure to be back again and pleasing to see that the institute continues to improve despite already being world-class
Terry Luke
Marine Supdt
Chevron Shipping Company
LLC

I have been very impressed and as per my experience your institute is world-class leader in this business
Capt. Drazen Jasic, PHD,
Chevron Shipping Company
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