PENDULUM

"To Infinity and Beyond!"

WAR-ZONE EXPERIENCE:

An untold story - Iran-IRAQ war (1980-90) by Radio Officer G.Mohandas

Monthly Edition from Pondicherry Maritime Academy

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Provide accurate, verified, and engaging reports.

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Message from Chief of Editor

Mrs. Arul Josphin Mary | Director of PMA Chief of Editor

On behalf of our editorial team, I would like to offer a word of thanks to our reader, data contributors, marine authors, editors and anonymous reviewers, all of whom have volunteered to contribute to the success of the magazine and for its mission towards in the maritime education and research. Without research, education system cannot be fulfilled to meet the industry requirements IMO's dream about GREEN VOYAGE 2050 and government of the India dream about MARITIME INDIA VISION 2030, we encourage contribution to ensure continuity of a successful maritime magazine We also welcome comments, suggestion that could improve the quality of the magazine Thank you, we trust and hope will find the magazine more informative in the future / ahead endeavor.

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Torque Failure

Loud noise and strong vibrations originated within a few minutes of connecting the Auxiliary Engine to electrical board. Engineers immediately disconnected and stopped the engine.

Investigation

Investigation revealed that in the camsaft connecting rod, Bolt-B was under-torqued and developed a gap. Bolt-A was thus overstressed, sheared and caused the subsequent damage sequence. The hydraulic tensioning pump for tightening the con rod mechanism was examined. The pressure gauge was faulty, resulting in insufficient tensioning of the rod nuts during reassembly. The company subsequently added periodic calibration of the hydraulic stud tensioning pump in the PMS.

Lessons learned

- Correct stud/bolt torquing of engine parts is a critical feature of maintenance. Having a properly calibrated tensioning pump is vital to attain the required specifications.
- PMS is a mainstay of safety follow it religiously and add value whenever an opportunity arises, as in this
 occurrence.



- Recognize that human error is the symptom, not the disease
- Design equipment, operations and systems that recognize the realities of human behavior
- Standardize equipment where possible
- Invest in effective training programs; include training for non-technical skills
- Where feasible, enable crews to operate as teams; encourage open communication
- Establish standard operating procedures & ensure compliance

Psychological approach for human error problems:

The human error problem can be viewed in two ways: the person approach and the system approach. Each has its model of error causation and each model gives rise to quite different philosophies of error management. Understanding these differences has important practical implications for coping with the ever-present risk of mishaps in shipping practices.

- Two approaches to the problem of human fallibility exist: the person and the system approaches
- The person approach focuses on the errors of individuals, blaming them for forgetfulness, inattention, or moral weakness
- The system approach concentrates on the conditions under which individuals work and tries to build defences to avert errors or mitigate their effects



High reliability organisations—which have less than their fair share of accidents—recognise that human variability is a force to harness in averting errors, but they work hard to focus that variability and are constantly preoccupied with the possibility of failure

Person approach

The longstanding and widespread tradition of the person approach focuses on the unsafe acts—errors and procedural violations—of people at the sharp end: Master, Chief Engineer, Officers and ratings, and the like. It views these unsafe acts as arising primarily from aberrant mental processes such as forgetfulness, inattention, poor motivation, carelessness, negligence, and recklessness.

Naturally enough, the associated countermeasures are directed mainly at reducing unwanted variability in human behaviour. These methods include poster campaigns that appeal to people's sense of fear, writing another procedure (or adding to existing ones), disciplinary measures, threat of litigation, retraining, naming, blaming, and shaming. Followers of this approach tend to treat errors as moral issues, assuming that bad things happen to bad people—what psychologists have called the just world hypothesis.

The person approach remains the dominant tradition in shipping, as elsewhere. From some perspectives it has much to commend it. Blaming individuals is emotionally more satisfying than targeting institutions. People are viewed as free agents capable of choosing between safe and unsafe modes of behaviour. If something goes wrong, it seems obvious that an individual (or group of individuals) must have been responsible. Seeking as far as possible to uncouple a person's unsafe acts from any institutional responsibility is clearly in the interests of managers. It is also legally more convenient.

Nevertheless, the person approach has serious shortcomings and is ill suited to the shipping domain. Indeed, continued adherence to this approach is likely to thwart the development of shipping companies.

Although some unsafe acts in any sphere are egregious, the vast majority are not. In aviation maintenance—a hands-on activity similar to shipping practice in many respects—some 90% of quality lapses were judged as blameless

Trust is a key element of a reporting culture and this, in turn, requires the existence of a just culture—one possessing a collective understanding of where the line should be drawn between blameless and blameworthy actions. Engineering a just culture is an essential early step in creating a safe culture.

Another serious weakness of the person approach is that by focusing on the individual origins of error it isolates unsafe acts from their system context. As a result, two important features of human error tend to be overlooked.

"Firstly, it is often the best people who make the worst mistakes"

error is not the monopoly of an unfortunate few. Secondly, far from being random, mishaps tend to fall into recurrent patterns. The same set of circumstances can provoke similar errors, regardless of the people involved. The pursuit of greater safety is seriously impeded by an approach that does not seek out and remove the error provoking properties within the system at large.

System approach

The Ship in the system approach is that humans are fallible and errors are to be expected, even in the best organizations. Errors are seen as consequences rather than causes, having their origins not so much in the perversity of human nature as in "upstream" systemic factors. These include recurrent error traps in the workplace and the organizational processes that give rise to them. Countermeasures are based on the assumption that though we cannot change the human condition, we can change the conditions under which humans work. A central idea is that of system defences. All hazardous technologies possess barriers and safeguards. When an adverse event occurs, the important issue is not who blundered, but how and why the defenses failed.

The Swiss cheese model of system accidents

Defenses, barriers, and safeguards occupy a key position in the system approach. High technology systems have many defensive layers: some are engineered (alarms, physical barriers, automatic shutdowns, etc), others rely on people (Masters, Chief Engineers, Pilots, control room operators, etc), and yet others depend on procedures and administrative controls. Their function is to protect potential victims and assets from local hazards. Mostly they do this very effectively, but there are always weaknesses.

In an ideal world each defensive layer would be intact. In reality, however, they are more like slices of Swiss cheese, having many holes—though unlike in the cheese, these holes are continually opening, shutting, and shifting their location. The presence of holes in any one "slice" does not normally cause a bad outcome. Usually, this can happen only when the holes in many layers momentarily line up to permit a trajectory of accident opportunity—bringing hazards into damaging contact with victims

The holes in the defenses arise for two reasons: active failures and latent conditions. Nearly all adverse events involve a combination of these two sets of factors.

Active failures are the unsafe acts committed by people who are in direct contact with the operation of the vessel or system. They take a variety of forms: slips, lapses, fumbles, mistakes, and procedural violations.

Active failures have a direct and usually short lived impact on the integrity of the defenses. At Chernobyl, for example, the operators wrongly violated plant procedures and switched off successive safety systems, thus creating the immediate trigger for the catastrophic explosion in the core.

Followers of the person approach often look no further for the causes of an adverse event once they have identified these proximal unsafe acts. But, as discussed below, virtually all such acts have a causal history that extends back in time and up through the levels of the system.

Latent conditions are the inevitable. They arise from decisions made by Masters, DPAs, and top-level management. Such decisions may be mistaken, but they need not be.

All such strategic decisions have the potential for introducing pathogens into the system. Latent conditions have two kinds of adverse effect: they can translate into error provoking conditions within the local workplace (for example, time pressure, understaffing, inadequate equipment, fatigue, and inexperience) and they can create long lasting holes or weaknesses in the defenses (untrustworthy alarms and indicators, unworkable procedures, design and construction deficiencies, etc). Latent conditions—as the term suggests—may lie dormant within the system for many years before they combine with active failures and local triggers to create an accident opportunity. Unlike active failures, whose specific forms are often hard to foresee, latent conditions can be identified and remedied before an adverse event occurs. Understanding this leads to proactive rather than reactive risk management.

We cannot change the human condition, but we can change the conditions under which humans work

To use another analogy: active failures are like mosquitoes. They can be swatted one by one, but they still keep coming. The best remedies are to create more effective defenses and to drain the swamps in which they breed. The swamps, in this case, are the ever present latent conditions.

Conclusions:

High reliability organisations are the prime examples of the system approach. They anticipate the worst and equip themselves to deal with it at all levels of the organisation. It is hard, even unnatural, for individuals to remain chronically uneasy, so their organisational culture takes on a profound significance.

Flourish OR Perish -2

ne hour of walking is equal to two slices of bread.

"That is a tough way to lose weight. Impossible," you may say.

So why exercise at all?" Right question!

Anyone exercising to reduce weight is chasing a myth. Weight reduction from exercise comes indirectly only. Once the muscles have grown, they will burn more energy, and with the same food, we will lose fat. But once we start exercising, food never remains the same. Hunger levels go up, and we

Ch.Er. Pradeep Kumar m.s.

eat more, too. The benefit of exercise is not in the form of reduced weight, but a wholesome healthy body. Our body is designed for motion, and only a moving body can be healthy. A stationary body can never ever be healthy. In fact, our body malfunctions if it does not get its quota of daily motion.

So we cut down our food to lose weight. Good. But what foods will you cut down? All foods? Certainly not. We cut down only carbohydrates. We increase the nutrient-dense foods like leafy greens, sprouts, green salads, multitudes of other vegetables, berries, nuts, pulses, and seeds.

"And fat? Yes, increase fat, but only healthy fats. Avoid vegetable oils, palm oil, canola oil, and peanut oil, too, if you can. Chinese butter is a big no. Fats are best when not overheated. One specific type of fat, Omega 3, is an essential nutrient. Fish oil and chia seeds are rich in Omega 3.

"Fats do not make you fat, but carbohydrates do - not unless you take too much fat. Correct amounts of fat, in conjunction with carbohydrate limitation, will accelerate weight loss, meaning fat loss.

"Besides cutting down grains, we also can remove one meal out of our daily routine so that the body can repair itself during the interval of fasting. This is called intermittent fasting. Skip the morning breakfast after a dinner at 6:00 p.m., and the body gets a window period of 18 hours to repair, rebuild, and cleanse up.

Or you can skip food after lunch. This even better than skipping breakfast.



The best place in the world to see rainbows is in Hawaii

If you're an avid rainbow gazer and want to get your fill of the beautiful phenomenon, look no further than the state ${\rm of\ Hawaii}$

"We can also increase our water consumption. It helps very much during our fasting duration in the day."

"So is weight reduction absolutely necessary? Not so. If your body is uniformly rounded, then it is not so much of a problem. Maybe you can get an orthopedic in extreme situation, but not more.

The problem starts when your limbs are thin, and only your stomach is bulging. Then it is a big-time problem. A whole lot of diseases and an early miserable death await us. Be on guard.

So what about exercise in this scheme of things? Is it an essential component? "Why excercise at all" - our original Question.

*Yes, it is.*

"Exercise is an essential component of a restricted diet (fasting). This is because, along with fat loss, we will also experience muscle mass loss. To check/prevent muscle mass loss, weight training during a restricted diet is compulsory. Rebuilding muscles is not easy, so take care not to lose what you already have."

"Okay, now what to do with Hunger"

Well use Fat to moderate the hunger pangs.

Hunger also is moderated by conditioning. Moderation and toleration is the key - it soon becomes second nature "

"Any other surprises" "Yes indeed." "Feeling weak and sleepy can be a problem. Irritation is yet another"



"To succeed in life and achieve results, you must understand and master three mighty forces - desire, belief and expectation"

- Dr. APJ Abdul Kalam



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4	R-MEDICARE	4,11,18,25	4,11,18,25
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New Innovative technology

converts

carbon and plastic waste into fuels

here is an urgent global need for clean, sustainable energy sources and the reduction of plastic waste. The impact of which is visible in recent events such as heatwaves experienced in the European Nation, the Australian subcontinent, and an overall rise in ocean temperatures. However, researchers from the University of Cambridge have found an innovative technology to resolve above global problems. The new technology uses solar-powered reactors to convert carbon dioxide and plastic waste into clean, sustainable fuel and other valuable chemical products.

The researchers from the Yusuf Hamied Department of Chemistry have developed an integrated photo-electrochemical system that efficiently captures CO2 from both Industrial exhaust stream concentrations and air itself, converting it directly into synthesis gas (syngas) using sunlight. The process has taken inspiration from carbon capture and storage (CCS), where CO2 is captured and then buried underground.

However, this system employs a hydroxide solution to captured gas and utilizes photo-electrochemical methods to transform it into syngas without the need for any externally applied voltage.

In this integrated system, there are two main compartments which operate together. On one side, CO2 is captured by passing air through an alkaline solution, which selectively traps carbon while releasing harmless nitrogen and oxygen. And on the other side plastic waste is added, which plays an important role by providing alloy catalysts.

The catalysts are derived when plastic waste goes through the process of oxidation, which results in the production of glycolic acid.

The entire process relies on flue gas or air as the carbon source, discarded plastic waste as an electron donor, and sunlight as the source of energy input. The deconcentrating of carbon sets the stage for additional conversion,

which enables the solar-powered system to effectively transform two harmful waste products, into clean, sustainable fuel. Overall, the technology thus produces value-added fuels and chemicals directly from industrially relevant CO2 streams and plastic waste, with an ultimate aim of defossilisation i.e., to eliminate dependence on fossil fuels completely.

This remarkable innovation reported in the journal Joule in June 2023, not only addresses the issue of CO2 emission and rising plastic pollution but also takes major steps towards a net-zero carbon footprint. The solar-powered reactor effectively, captures CO2 from thin air uses plastic waste, and transforms them into valuable products by harnessing the power of the Sun.



The fastest gust of wind ever recorded on Earth was 253 miles per hour.

Hang on to your hats because this isn't your average wind storm. In 1996, a tropical cyclone named Olivia hit off the coast of Barrow Island, Australia with such force that it broke an incredible record. With ongoing efforts to enhance efficiency and practicality, this technology has the potential to revolutionize the way clean energy is currently produced.

Although further refinements are required for this achievement to mark a large-scale sustainable energy production. But this significant leap demonstrates the potential for scaling up the technology for paving the way toward a world powered by clean, renewable resources



Capt. Moovendhan

DR. ANGEL CELIN M.B.B.S

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War-Zone experience: An untold story

URING Iran-IRAQ war (1980-90), On the August 15th, 1983, I was sailing as a Radio Officer on board MV SEEPAYAL, a general cargo ship from Antwerp/Belgium with bagged sugar and destined for far east. After crossing Suez Canal, the Master held a meeting of all Officers & Crew and announced that vessel is proceeding to Bandar Khomeini/Iran, a war zone and as per rules double the Basic salary will be paid to every one for the entire stay in war zone. Those who are willing to sail can stay on board and for others relievers will be arranged at port of Aden, and gave one day time to decide and let him know by the next day.

Fair enough, all Officers sat down at dining hall, sipping tea/coffee, discussed the pros and cons of going to IRAN. 1983 was the year, Shipping industry was in RECESSION. News from seafarers waiting to join ships from Mumbai was not satisfactory. Already many Officers and crew facing difficulty getting job. Ships were being laid off for various reasons. We also were curious listening to BBC NEWS broadcast about the development of Iran-Iraq war. We heard that Iraq is targeting and bombing only IRAN flag vessels and other flag vessels were attacked only if carrying Arms and Ammunitions to Iran. That news was a consolation for us, the reason being ours was a Hong Kong Flag ship and carrying Sugar. In this dire strait by next day morning, we, all the Officers were willing to go to IRAN. The crew also were willing.

(If you recall, in the year 1983, the communication from ship was not that easy, no satellite communication, no e-mail facility. To contact home, everyone on board must come to the Radio Officer and get a call booked through Coast Radio stations. From that area of our ship, being a R/O, I was able to book call via Bahrain Radio at ease, for those who were calling their family.)

Fortunately, we were all Indians on board, and that was a real good reason for being a happy ship. No one had any ego on board, each one was friendly, anyone could walk into any one's cabin without any hesitation, and was welcome, including Master and Chief Engineer. Indian crew Indian food, wages in USD and friendly atmosphere. What else one could ask for?

It was a usual practice that in the evening hours during sailing and at anchorages, I used to play music from radio room radio receivers to the entire ship through the public address system. But now continuously BBC News was broadcast from radio room, all were getting updated news about war scenario along with other world news.

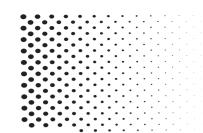


Upon reaching Iranian waters, we were taken in a convoy along with nine other ships escorted by Iranian war ships to Bandar Khomeini port. Just an hour before arriving the port, we were all shocked to see our Indian ship RISHI VISHWAMITRA was anchored with a very large hole on the ship side, (size approx. 7 x 4 ft). Everyone's stomach churning, was told by the pilot on board that this ship was hit at Buoy No.10, the usual area the Iraqis Turret guns strike the Iranian ships in convoy. Also, he said, that Iraqis by mistakenly hit this Indian ship and the only casualty was the second engineer who was at that time manning the Engines. All others were as a normal practice, already mustered in boat deck during crossing of buoy No.10 abandoned the vessel, boarded the life boat, and rescued by Iranian war ships. Since second Engineer was all alone in Engine room, was killed, no one was there to shut down the engine. The ship was underway for a while without any soul on board, until the Iranian Navy boarded the vessel, and brought her to this anchorage.

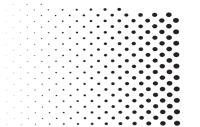
With many mixed feelings, we finally were safely secured alongside at berth No.5. This port had "L" shape jetty, where starting from the port entrance gate, 4 berths were built and then about 20 berths along the other limb of the letter" L". cargo work is allowed during day light hours only. Upon sun set, all the ships and the entire port area maintain DARKNESS. No light should be visible outside the ship.

(to be continued)





November Month Birthday









PRADEEP KUMAR.M.S



SADAIYAN STEPHEN

"Cheers to more fun, more memories, and more cake!"



PRABAKAR K

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