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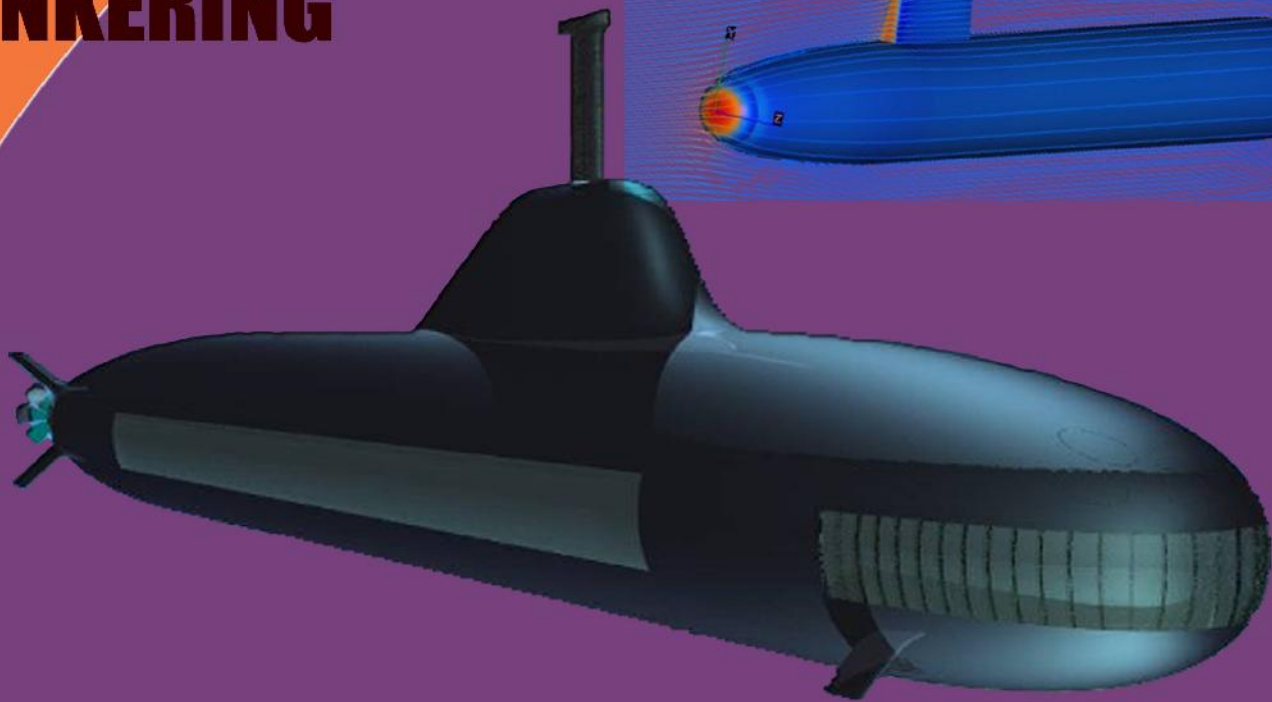
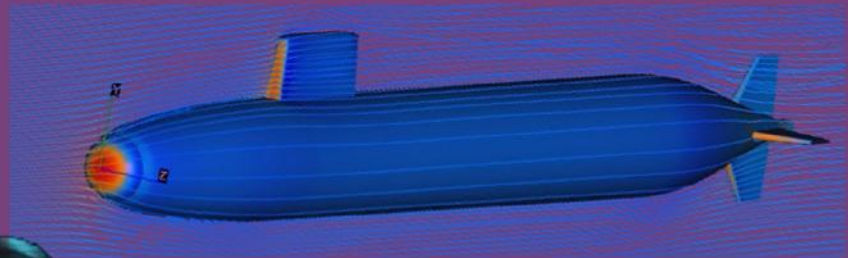
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LaOla



EVOLUTION OF SUBMARINES

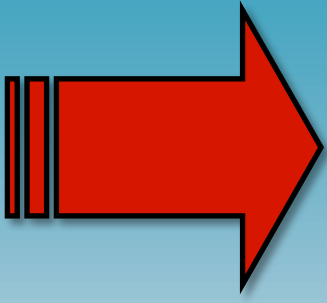
FUEL OIL BUNKERING



34th **WORLD CONGRESS**

POEM
THE PROSTITUTE

A SMART CITY
VISAKHAPATNAM



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FROM THE CHIEF EDITOR'S DESK

LaOla takes pride in releasing the Nineteenth edition. This edition is marking its glory by being the first edition of this academic year. **Prof. S C Misra** our beloved Director who had the vision of having an E-magazine in the campus conceptualized this newsletter in the year 2010. Since then this vision was nurtured by and has successfully released 18 newsletters.

My team and I were bestowed upon the job of carrying it forward through the academic year 2014-2015. As the magazine has made considerable movement it will be easy for our team to move forward under the guidance of our beloved Director in Charge **U.S. Ramesh** and editorial advisor **Mrs. Padmasree**.

I thank **Mrs. Padmasree** for helping La Ola to form a new team and help the team tackle the problems faced by a new team.

The year 2015 has brought in new changes in university with Vizag and our college coming out of wrath of Cyclone Hudhud.

Our director in charge has brought new faculties and facilities in different departments marking the growth of our campus in terms of the knowledge which they will impart. He with combined and valuable efforts of our Placement Co-coordinator **Mr. D.S.P. Vidyasagar** and our academic Coordinator **Mr. B.V. Rao** used their ability and contacts to get the Final year students placed in companies like Indian Register of Shipping, Mazagaon Dock, Vedam, Intergraph, Bharti Shipyard, Pipavav Shipyard, Dharti dredgers, Keppel Offshore, Dredging corporation of India. La Ola expresses sincere gratitude to all these institutions for accommodating them as a part of their family.

This month being February, we are reminded of St.Valentine's anniversary that is celebrated as Valentine's Day across the Globe and this month reminds us "Love is in the air". La Ola being a campus magazine gives you an opportunity to put forth your wonderful ideas and develop the creativity of writing too. Hence use the space of La Ola to exhibit your valuable thought provoking talents. Through this edition of La Ola, we present a wide spectrum of knowledge & information. After the Current developments in Indian Navy, the topic of "Submarines" has become a topic of sheer importance. Being a naval architect, it is both interesting & important to understand SUBMARINES, keeping that in mind, we present an issue on "Evolution of Submarines". A comprehensive study on Bunker Gravitating and an article for our young generation Smart Cities, this issue is overflowing with snippets that will make you ask for more. The La Ola team is committed to give its readers the best of the available talents of this campus.

We thank our beloved Director-in-charge **U.S. Ramesh**, former chief editor **Swastik Pattnaik** and the University for having faith in us to carry forward the work for La Ola. La Ola is on Facebook too, follow us there.

What you see is a beginning.....'picture abhi baki hai'.

Enjoy Reading!!

Tarun Tripathi

SUBMARINES

By Sainath Nashikkar

Submarines are incredible pieces of technology. Not so long ago, a naval force worked entirely above the water; with the addition of the submarine to the standard naval arsenal, the world below the surface became a battleground as well.

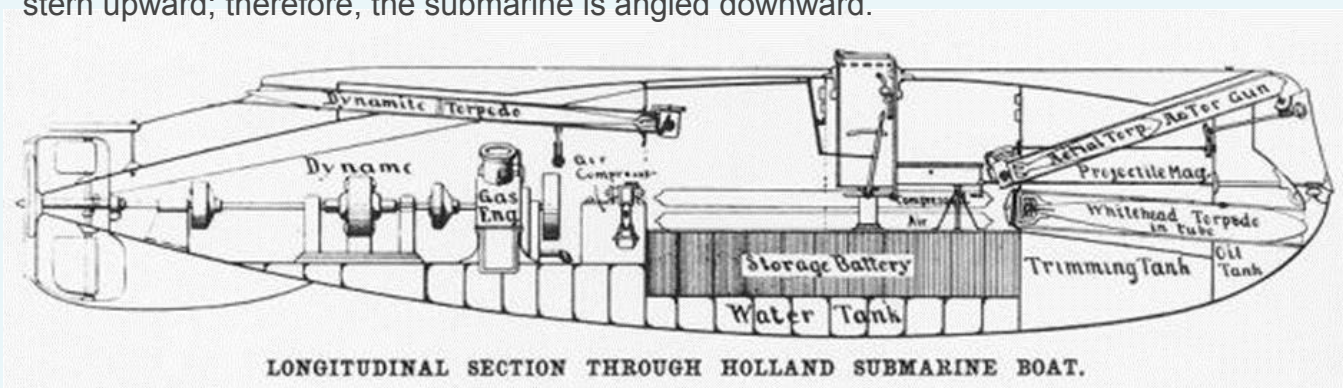
The adaptations and inventions that allow sailors to not only fight a battle, but also live for months or even years underwater are some of the most brilliant developments in military history.

In this article, you will see how a submarine dives and surfaces in the water, how life support is maintained, how the submarine gets its power, how a submarine finds its way in the deep ocean and how submarines might be rescued.

Diving and Surfacing

A submarine or a ship can float because the weight of water that it displaces is equal to the weight of the ship. This displacement of water creates an upward force called the **buoyant force** and acts opposite to gravity, which would pull the ship down. Unlike a ship, a submarine can control its buoyancy, thus allowing it to sink and surface at will.

To control its buoyancy, the submarine has **ballast tanks** and auxiliary, or **trim tanks**, that can be alternately filled with water or air (see animation below). When the submarine is on the surface, the ballast tanks are filled with air and the submarine's overall density is less than that of the surrounding water. As the submarine dives, the ballast tanks are flooded with water and the air in the ballast tanks is vented from the submarine until its overall density is greater than the surrounding water and the submarine begins to sink (**negative buoyancy**). A supply of compressed air is maintained aboard the submarine in air flasks for life support and for use with the ballast tanks. In addition, the submarine has movable sets of short "wings" called **hydroplanes** on the stern (back) that help to control the angle of the dive. The hydroplanes are angled so that water moves over the stern, which forces the stern upward; therefore, the submarine is angled downward.



To keep the submarine level at any set depth, the submarine maintains a balance of air and water in the trim tanks so that its overall density is equal to the surrounding water (neutral buoyancy). When the submarine reaches its cruising depth, the hydroplanes are leveled so that the submarine travels level through the water. Water is also forced between the bow and stern trim tanks to keep the sub level. The submarine can steer in the water by using the tail rudder to turn starboard (right) or port (left) and the hydroplanes to control the fore-aft angle of the submarine. In addition, some submarines are equipped with a retractable secondary propulsion motor that can swivel 360 degrees.

When the submarine surfaces, compressed air flows from the air flasks into the ballast tanks and the water is forced out of the submarine until its overall density is less than the surrounding water (**positive buoyancy**) and the submarine rises. The hydroplanes are angled so that water moves up over the stern, which forces the stern downward; therefore, the submarine is angled upward. In an emergency, the ballast tanks can be filled quickly with high-pressure air to take the submarine to the surface very rapidly.

Life Support

There are four main problems of life support in the closed environment of submarine:

- **Maintaining the air quality**
- **Maintaining a fresh water supply**
- **Maintaining temperature**
- **Maintaining the Air Quality**

The air we breathe is made up of significant quantities of four gases:

- Nitrogen (78 percent)
- Oxygen (21 percent)
- Argon (0.94 percent)
- Carbon dioxide (0.04 percent)

When we breathe in air, our bodies consume its oxygen and convert it to carbon dioxide. Exhaled air contains about 4.5 percent carbon dioxide. Our bodies do not do anything with nitrogen or argon. A submarine is a sealed container that contains people and a limited supply of air. There are three things that must happen in order to keep air in a submarine breathable:

- Oxygen has to be replenished as it is consumed. If the percentage of oxygen in the air falls too low, a person suffocates.
- Carbon dioxide must be removed from the air. As the concentration of carbon dioxide rises, it becomes a toxin.
- The moisture that we exhale in our breath must be removed.

Oxygen is supplied either from pressurized tanks, an oxygen generator (which can form oxygen from the electrolysis of water) or some sort of “oxygen canister” that releases oxygen by a very hot chemical reaction. (You may remember these canisters because of their problems on the MIR space station — see this page for details).



The moisture can be removed by a dehumidifier or by chemicals. This prevents it from condensing on the walls and equipment inside the ship.

In addition, other gases such as carbon monoxide or hydrogen, which are generated by equipment and cigarette smoke, can be removed by burners. Finally, filters are used to remove particulates, dirt and dust from the air.

Maintaining a Fresh Water Supply

Most submarines have a distillation apparatus that can take in seawater and produce fresh water. The distillation plant heats the seawater to water vapor, which removes the salts, and then cools the water vapor into a collecting tank of fresh water. The distillation plant on some submarines can produce 10,000 to 40,000 gallons (38,000 – 150,000 liters) of fresh water per day. This water is used mainly for cooling electronic equipment (such as computers and navigation equipment) and for supporting the crew (for example, drinking, cooking and personal hygiene).

Maintaining Temperature

The temperature of the ocean surrounding the submarine is typically 39 degrees Fahrenheit (4 degrees Celsius). The metal of the submarine conducts internal heat to the surrounding water. So, submarines must be electrically heated to maintain a comfortable temperature for the crew. The electrical power for the heaters comes from the nuclear reactor, diesel engine, or batteries (emergency).

Power Supply

Nuclear submarines use **nuclear reactors**, **steam turbines** and **reduction gearing** to drive the main propeller shaft, which provides the forward and reverse thrust in the water (an electric motor drives the same shaft when docking or in an emergency).

Submarines also need electric power to operate the equipment on board. To supply this power, submarines are equipped with diesel engines that burn fuel and/or nuclear reactors that use nuclear fission. Submarines also have batteries to supply electrical power. Electrical equipment is often run off the batteries and power from the diesel engine or nuclear reactor is used to charge the batteries. In cases of emergency, the batteries may be the only source of electrical power to run the submarine. A diesel submarine is a very good example of a hybrid vehicle. Most diesel subs have two or more diesel engines. The diesel engines can run propellers or they can run generators that recharge a very large battery bank. Or they can work in combination, one engine driving a propeller and the other driving a generator. The sub must surface (or cruise just below the surface using a snorkel) to run the diesel engines. Once the batteries are fully charged, the sub can head underwater. The batteries power electric motors driving the propellers. Battery operation is the only way a diesel sub can actually submerge.

Because of these limitations of batteries, it was recognized that nuclear power in a submarine provided a huge benefit. Nuclear generators need no oxygen, so a nuclear sub can stay underwater for weeks at a time. Also, because nuclear fuel lasts much longer than diesel fuel (years), a nuclear submarine does not have to come to the surface or to a port to refuel and can stay at sea longer.

Nuclear subs and aircraft carriers are powered by nuclear reactors that are nearly identical to the reactors used in commercial power plants. The reactor produces heat to generate steam to drive a steam turbine. The turbine in a ship directly drives the propellers, as well as electrical generators. The two major differences between commercial reactors and reactors in nuclear ships are:

The reactor in a nuclear ship is smaller.

Navigation

Light does not penetrate very far into the ocean, so submarines must navigate through the water virtually blind. However, submarines are equipped with navigational charts and sophisticated navigational equipment. When on the surface, a sophisticated **global positioning system** (GPS) accurately determines latitude and longitude, but this system cannot work when the submarine is submerged. Underwater, the submarine uses **inertial guidance systems** (electric, mechanical) that keep track of the ship's motion from a fixed starting point by using gyroscopes. The inertial guidance systems are accurate to 150 hours of operation and must be realigned by other surface-dependent navigational systems (GPS, radio, radar, satellite). With these systems on board, a submarine can be accurately navigated and be within a hundred feet of its intended course.

To locate a target, a submarine uses active and passive **SONAR** (**s**ound **n**avigation and **r**anging). **Active sonar** emits pulses of sound waves that travel through the water, reflect off the target and return to the ship. By knowing the speed of sound in water and the time for the sound wave to travel to the target and back, the computers can quickly calculate distance between the submarine and the target.

Whales, dolphins and bats use the same technique for locating prey (echolocation). **Passive sonar** involves listening to sounds generated by the target. Sonar systems can also be used to realign inertial navigation systems by identifying known ocean floor features .

Rescue

When a submarine goes down because of a collision with something (such as another vessel, canyon wall or mine) or an on board explosion, the crew will radio a distress call or launch a buoy that will transmit a distress call and the submarine's location. Depending upon the circumstances of the disaster, the nuclear reactors will shut down and the submarine may be on battery power alone.

If this is the case, then the crew of the submarine have four primary dangers facing them:

- Flooding of the submarine must be contained and minimized.
- Oxygen use must be minimized so that the available oxygen supply can hold out long enough for possible rescue attempts.
- Carbon dioxide levels will rise and could produce dangerous, toxic effects.

If the batteries run out, then the heating systems will fail and the temperature of the submarine will fall.

Rescue attempts from the surface must occur quickly, usually within 48 hours of the accident. Attempts will typically involve trying to get some type of rescue vehicle down to remove the crew, or to attach some type of device to raise the submarine from the sea floor. Rescue vehicles include mini-submarines called **Deep-Submergence Rescue Vehicles** (DSRV) and **diving bells**.

The DSRV can travel independently to the downed submarine, latch onto the submarine over a hatch (**escape trunk**), create an airtight seal so that the hatch can be opened, and load up to 24 crew members. A diving bell is typically lowered from a support ship down to the submarine, where a similar operation occurs.

To raise the submarine, typically after the crew has been extracted, pontoons may be placed around the submarine and inflated to float it to the surface. Important factors in the success of a rescue operation include the depth of the downed submarine, the terrain of the sea floor, the currents in the vicinity of the downed submarine, the angle of the submarine, and the sea and weather conditions at the surface.



US president Mr. Barack Obama visits India

A benchmark episode in the development of India

By Aditya K. Vithlani

Leaders forge treaties. In the process, a nation's growth rate and GDP is directly proportional to the number of treaties and MoUs signed between such leaders. So, they travel to various parts of the world seeking advancement in various spheres for their territory. It's sort of a symbiosis relationship where both the host nation and the guest profit from each other's presence and subsequent effort that follows.

As we all know that US president Mr. Barack Obama visited India in January leading to the foundation of a very strong relationship between the two largest democracies of the world. Although a warm hug, long friendly talks, cool atmosphere pave the way for the actual work to be done by the deputies, there is much more to what we see.

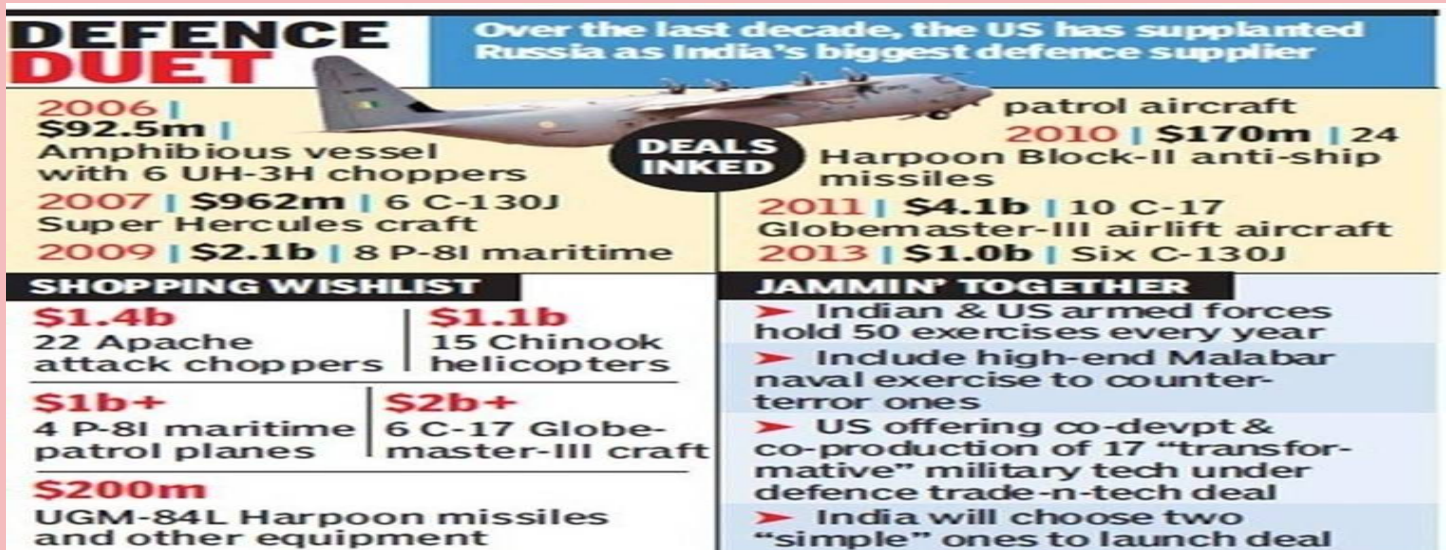
Let us have a look:

1. Nuclear Deal breakthrough: India and the US broke the deadlock and committed themselves to a deal which would see a power-hungry nation satisfy its insatiable desire for power. If India wants to grow at a rate of 10% for the next 30 years, we need modern agriculture, modern industries and modern institutions of development.

It is possible only if we have an abundant, clean and perennial source of energy. Here comes US and gives us just that. India traditionally blamed to put the liability of a nuclear disaster on the suppliers of the equipment under the Civil Liability for Nuclear Damage Act, 2010, which put off the US manufacturers.

However now an insurance pool of \$120 million is set up to help the investors, and which might be recovered from the people by charging higher.

2. Defence Agreements: Indo-US partnership can be hoped to foster a long-term defence co-operation. A renewal of the 10-year defence framework agreement between the two countries will help in the long-term. And **Ashton Carter**, the administration's nominee for defense secretary, is arguably one of Washington's most enthusiastic champions of a deep U.S.-India security relationship.



The four products to be co-produced are the next-generation Raven unmanned aerial vehicles (UAVs), "roll-on, roll-off" intelligence-gathering and reconnaissance modules for C-130J Super Hercules aircraft, mobile electric hybrid power sources and "uniform integrated protection ensemble increment-2 (chemical, biological warfare protection gear for soldiers)".

Defence Technology and Trade Initiative (DTTI) has been operationalized with focus on co-development and co-production in India not only for India, but the global market. If this could someday result in a technology transfer from the US to India, it will be a big boost to Narendra Modi's "Make in India."

3. Talking of the Dragon's maritime aggression:

The US-India Joint Strategic Vision for the Asia-Pacific and Indian Ocean Region notes, 'Regional prosperity depends on security. We affirm the importance of safeguarding maritime peaceful means, in accordance with universally recognized principles of international law, including the United Nations Convention on the Law of the Sea.



This is the second time Indo-US joint statements have mentioned China, and this time in a way it can not ignore.

4. Supporting India to become a global power: China has been trying a lot to contain India to the "South Asia pocket" in its talks in the recent years. However, the US in the same document states the below to anchor India's situation in the Asia-Pacific context.

It says, 'In order to achieve this regional vision, we will develop a roadmap that leverages our respective efforts to increase ties among Asian powers, enabling both our nations to better respond to diplomatic, economic and security challenges in the region. As part of these efforts, the United States welcomes India's interest in joining the Asia Pacific Economic Cooperation forum, as the Indian economy is a dynamic part of the Asian economy.'

5. Efforts towards clean energy: After a renewed focus on clean energy, it can be hoped that the US will help India realize its dream of a sustainable economy using cleaner sources by sharing its experience on innovative financing mechanisms and transferring cutting-edge technology. There has been no solid work done on this footing but hopes are running high.

This includes broadening the areas for undertaking research in clean energy; addressing urban air quality; expanding policy dialogues and technical work on clean energy and low greenhouse gas emissions technologies; undertaking demonstration and pilot clean energy projects; and developing cooling solutions to replace hydrochlorofluorocarbons (HFCs), which contribute to global warming.

6. Bilateral Investment Treaty: We also saw the two sides commit themselves to renewing talks on the Bilateral Investment Treaty and taking forward the much desired Social Security Agreement. Current bilateral trade stands at around US\$ 100 billion and the trade target that has been set by two sides is US\$ 500 billion. The decisions taken by the two sides and the progress made across key areas will move us in the direction of strongly enhancing our

U.S.-China Trade in 2012		 	
TOP IMPORTS FROM CHINA (IN BILLIONS)		TOP EXPORTS TO CHINA (IN BILLIONS)	
1. Mobile phones and broadcasting equipment	\$49.8	1. Soybeans	\$15.0
2. Computers	44.9	2. Waste and scrap	9.5
3. Computer equipment	17.2	3. Planes	8.4
4. Audio/video equipment	15.9	4. Autos	5.7
5. Toys	15.5	5. Semiconductors	3.9
All American imports	\$425.6	All American exports	\$110.6

Source: U.S. Census Bureau, U.S. International Trade Statistics, http://censtats.census.gov/naics3_6/naics3_6.shtml (accessed February 11, 2013).

heritage.org

Obama committed a sum of \$4 billion in investment and loans to unleash the untapped potential of the Indian market and boost business. India accounts for 2% of the US imports and 1% of exports and the total trade is one-fifth of US-China trade.

Obama said that U.S. Export-Import Bank would finance \$1 billion in exports of 'Made-in-America' products. The U.S. Overseas Private Investment Corporation will lend \$1 billion to small- and medium-sized enterprises in rural areas of India.

Regarding renewable energy, a key focus for Modi, \$2 billion will be committed by the U.S. Trade and Development Agency for renewable energy, Obama said.

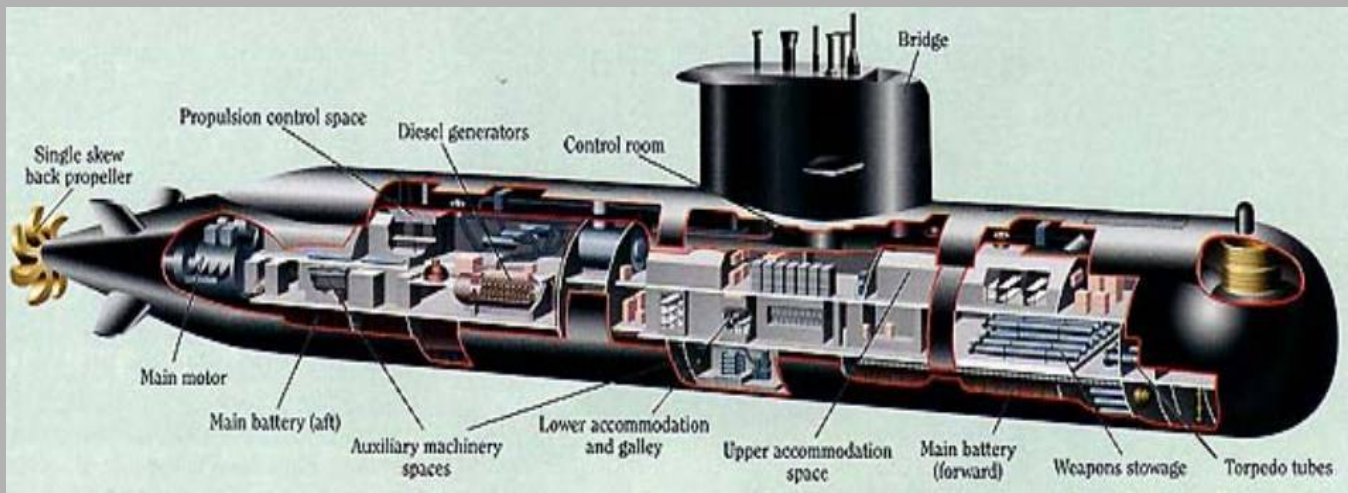
7. Other small areas focused:

There have been assurance from the US regarding the modernisation of the Jan Dhan Yojana which aims at providing every family with a bank account, which tackles corruption and provides insurance to every citizen. A high level Indo-US strategic group to encounter bureaucratic hurdles in decision making gives further thrust to Make in India. Also India discussed H-1B Visa issue. Also the US has signed MoU to develop 3 smart cities: Ajmer, Vishakhapatnam and Kolkata even before India's plan started. Also a plan for a social security fund for the Indian workers is on cards.

EVOLUTION OF SUBMARINES

By Sourav Jena

Submarines. War machines under water. Predators that almost decided the fate of the Second World War in Germany's favor. The best thing human mind has come up with to wage a guerilla warfare underneath the seas. When we hear about a submarine, the first thing that comes into our mind is the technical complexity of an engineering marvel well below the seas, oceans, lakes and lochs. The evolution of such an "object" has been one of the most sought-after topic in the recent times.

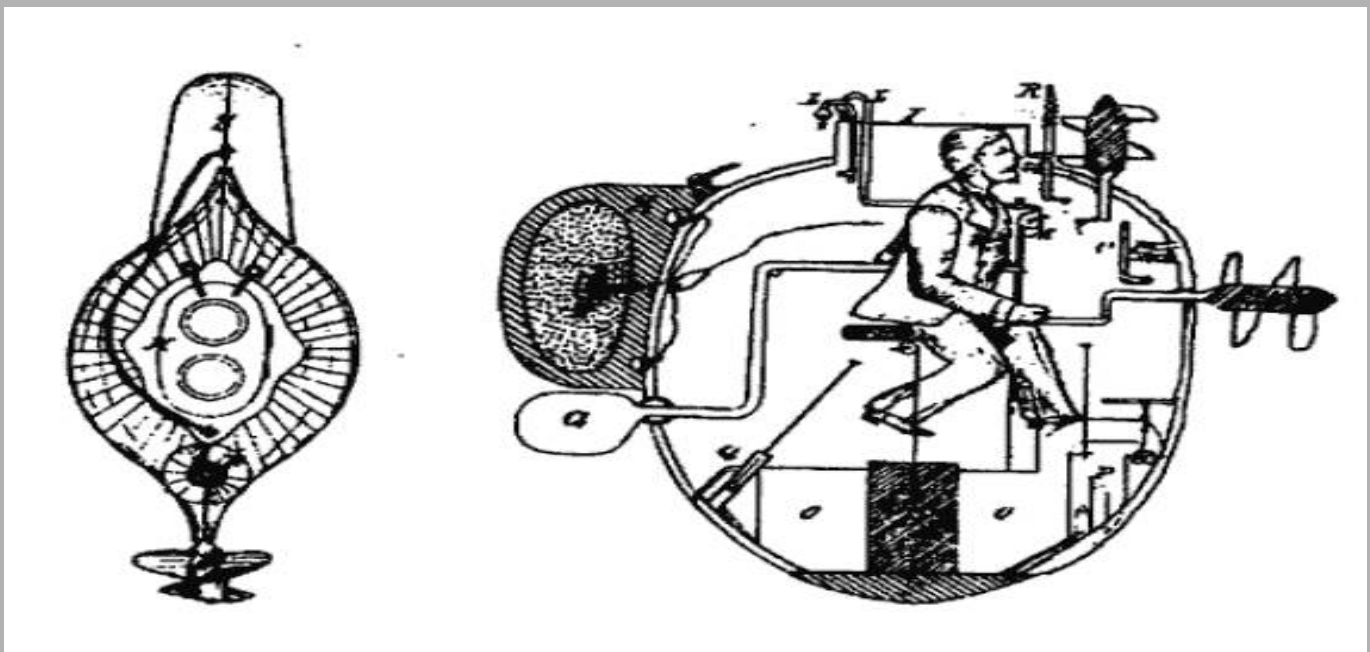


The year was **1580**. Hard to perceive that the story dates way back to 1580, isn't it? The first published prescription for a submarine came from the pen of **WILLIAM BOURNE**, an English innkeeper and scientific dilettante. Bourne first offered a lucid description of why a ship floats – by displacing its weight of water -- and then described a mechanism by which: "It is possible to make a Ship or Boat that may go under the water unto the bottom, and so to come up again at your pleasure. [I]f Any magnitude of body that is in the water . . . having always but one weight, may be made bigger or lesser, then it shall swim when you would, and sink when you list"

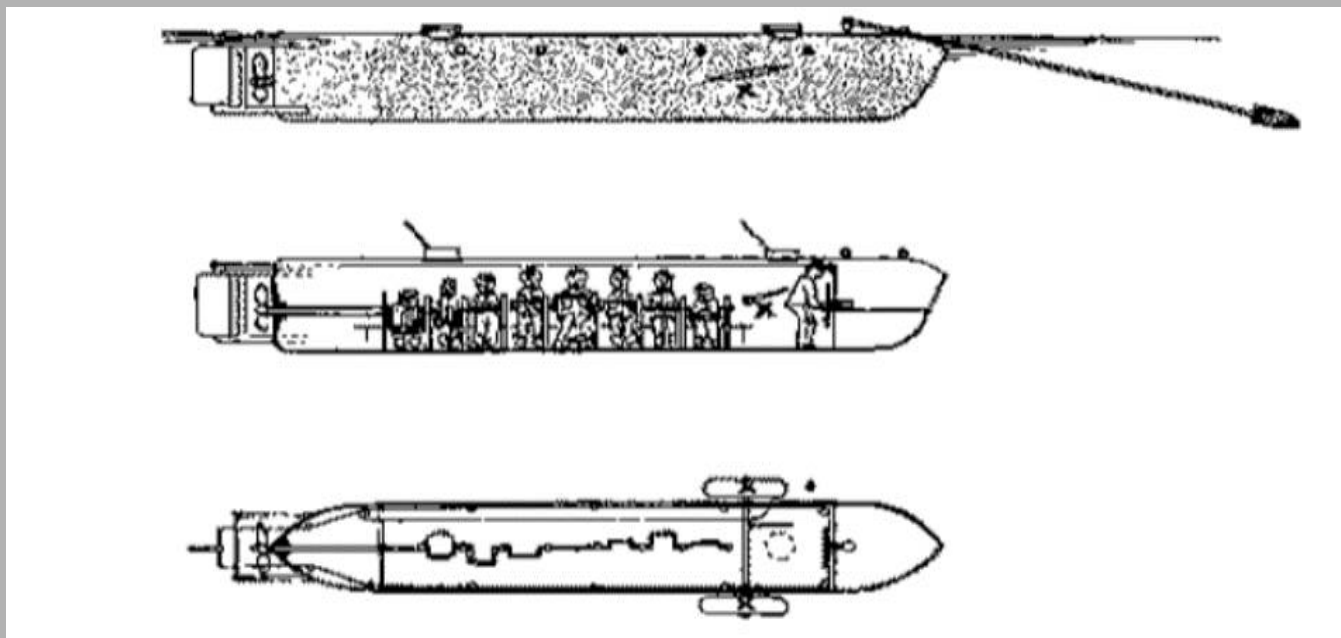
The year was **1623**. Further developments in technology took place. Man's mind became more matured. Dutchman **CORNELIUS DREBBEL**, hired in 1623 as "court inventor" for James I of England, built what seems to have been the first working submarine. According to accounts, some of which may have been written by people who actually saw the submarine, it was a decked-over rowboat, propelled by twelve oarsmen, which made a submerged journey down the Thames River at a depth of about fifteen feet.

Now, our view shifts to the first time when one ship was actually attacked by a submarine. The year was **1653**. **Rotterdam Boat** was the name. The 72-foot-long "Rotterdam Boat," designed by a Frenchman (named **DE SON**) was probably the first underwater vessel specifically built (by the Belgians) to attack an enemy (the English Navy). This almost submarine – a semi-submerged ram – was supposed to sneak up unobserved and punch a hole in an enemy ship. Ironically, the British, later on, became the pioneers in submarine warfare after Germany.

Lots of advancements took place from **1653** to **1776**. Then, finally the first officially recognized "First Submarine" came into picture during America's First War of independence in **September of 1776**. Yale graduate **DAVID BUSHNELL** built the first submarine to actually make an attack on an enemy warship. It was called "**Turtle**". It was roughly 2m in length. It resembled a sea turtle floating vertically in the water. A man had to sit inside the "Turtle" and



The next breakthrough came in **1863**. The name of the "submarine" was **H L Hunley**. It was around 13m-40m in length. The number of people who can fit right in was possibly nine, eight to crank the propeller and at least one to steer and operate the seacocks and hand pumps to control water level in the ballast tanks. This was also primarily designed to place a warhead underneath a ship. It used a long metal rod in the bow (front) part to place the warhead effectively and thus, inflicting the maximum damage on an enemy vessel.



If you are interested to know what happened after this development, don't forget to read our next issue.

BUNKER GRAVITATING By Pratik Kudtarkar

In shipping industry, bunker fuel suppliers employ several dubious practices during a typical bunker stem operation.

Having said that no matter which part of the world the vessel is fixed to stem bunkers, the importance of accurately measuring the barge fuel tanks before and after delivery is a crucial phase in any bunker stem operation. It is therefore very important that the vessels bunker operation team methodically take the barge tank measurements, applying the correct trim/list before and after bunkering, recording the actual temperature of the bunker fuel before/after delivery etc. Proper temperature measurement alone can save thousands of dollars.

Disputes can arise either by innocent mistake or deliberate short supply by the barge; like introducing air to froth up the fuel (cappuccino effect) or giving incorrect temperatures and so on. Also when bunker is being transferred from a refinery to a storage tank and to the barge and then delivered to the vessel, there is a lot of scope for errors and deliberate manipulations that will result in a difference (sometimes quite significant) between the quantity claimed to have been supplied and the quantity received by the ship.

If this is due to an innocent mistake then probably with fullest co-operation of the barge company/ fuel suppliers and full disclosure of stock movement records might indicate the missing bunker.

However, often this is not the case and experience tells us that when disputes do arise over quantity transferred, any post-delivery investigation on quantity shortages are often inconclusive especially if the shipboard personnel involved in bunkering operation have neglected the basic principles of safeguarding its owners or charterers rights in way of collecting and preserving evidence.

Protests, legal fees, etc. all add on to costs with usually neither party actually concluding with certainty what transpired on board. A success of any bunker dispute claim will largely depend on the detailed contemporaneous written evidence by the shipboard personnel at the time the supply is made.

Gravitating of fuel

Inter tank transfers of liquid or gravitating whether it may be ballast water, fresh water or fuel oil is a very common practice on board ships. This process entails transferring liquid by gravity without the use of a pump.

Gravitating is carried out for various reasons – to balance out liquid levels in tanks either to reduce the free surface effect, achieving a desired list/trim and in oil tankers reducing the level of a full cargo tank (dropping the level) as a precaution against inadvertently overflowing and for priming the cargo pumps and suction lines before discharging and for various other reasons.

Since the liquid is essentially dropped under gravity from a high level to a lower level – the total liquid or cargo quantity remains unchanged after gravitating because the liquids are only transferred internally in a closed system. This technique though very useful in day to day ship operations could be used during stemming bunkers by the supplier resulting in substantial shortage for the vessel.

How Gravitating Of Bunker Fuel Is Achieved By An Unscrupulous Supplier?

During the opening gauge the fuel could be transferred from high level to a low level or empty / slack tank by gravity. For example a barge may have four tanks 1P/1S, 2P/2S, 3P/3S and 4P/4S. The opening gauge starts from say forward tanks 1P/1S. While the gauging is underway, the tank level of 1P/1S is dropped under gravity (note this tank has already been just gauged) to a slack or empty tank aft for example to 4P/4S. Thus, essentially when the 4P/4S is gauged, the same fuel quantity is measured twice.

This method is still in use and if not detected the barge can claim that full quantity was delivered to the vessel with the vessel suffering a substantial shortfall in bunker quantity received onboard. Once the bunkering has commenced it is too late to do anything and it will be virtually impossible to trace the missing fuel.

A thorough investigation will be needed to determine the exact SMR (stock movement record) and full disclosure from the supplier which can take many months/years of legal action and still the matter may not be resolved.



How Do You Prevent This Mal-practice?

As a precaution against gravitating, it is imperative that the attending surveyor or vessel's representative gauges the tanks in the following sequence:

If the initial gauging is forward to aft, in our example 1P/1S, 2P/2S, 3P/3S, 4P/4S then after gauging the last tank (4P/4S) the surveyor or vessels representative should re-gauge all tanks from aft to forward. The ullages or soundings should be exactly the same.

Also as an additional precaution, at the commencement of bunker transfer, the surveyor or vessel's representative should re-gauge the first tank(s) used to transfer fuel oil to the vessel. The reading should match that taken during the initial gauging.

By Avi Kunal

The U.S -India Business Council (USIBC) and its member companies look to play an integral role in India's commitment to build 100 Smart Cities across the nation and particularly Visakhapatnam, Allahabad, and Ajmer.

The company would focus on setting up a skill development centre (incubation centre) and providing training through its global talent tracker. The company is working with the state government to digitise education and healthcare. Cisco has also evinced interest in working on disaster management technologies.

Cisco is mulling developing Vizag on the lines of those in Barcelona. So far, a task force has been constituted by the state government to follow up on the implementation.

As per the Chief Minister's plan, most of the city's infrastructure will go underground. There will be no cables hanging, nor will there be poles. Power, cable TV and landline telephone lines will go underground. LPG cylinders will be replaced with piped gas. Only mobile towers will remain as surface communication infrastructure.

The unprecedented and massive devastation wrought by Cyclone Hudhud has set Visakhapatnam on the path to be developed as the country's most modern city.

The term smart city is still quite a fuzzy concept and is used in ways that are not always consistent. According to the Indian Government, "Smart City offers sustainability in terms of economic activities and employment opportunities to a wide section of its residents, regardless of their level of education, skills or income levels."

Challenges Faced

Interest in smart cities is motivated by major challenges, including climate change, economic restructuring, the move to online retail and entertainment, ageing population, and pressures on public finances.

Notable existing Smart Cities include Barcelona, Boston, Chicago, and Stockholm.

Characteristics

It has been suggested that a smart city uses information and communication technologies (ICTs) to:

- Uses physical infrastructure (roads, built environment and other physical assets) more efficiently supporting strong and healthy economic, social, cultural development.

- Engages effectively with local people in local governance and decision by use of open innovation processes and e-participation with emphasis placed on citizen participation and co-design.

Fundamental processes

Intelligent (smart) cities are deploying online services in different sectors of cities - the local economy and development, environment, energy, transport, security, education, health, trade, housing, governance; and in different districts of cities - financial, university, marketplace, port, airport, technology, and industrial districts.

These various domains of the intelligent city rely on a few knowledge processes, which are present regardless of the sector /district of the city. Fundamental knowledge processes which sustain intelligent cities are: broadband communication, interactive services.

Sensor networks, including wireless sensor networks and in the Internet of

Things technologies are used to monitor many aspects of a city in real time, including traffic, power networks, street lighting and water/sewage systems.

Online collaborative sensor data management platforms are on-line database services that allow sensor owners to register and connect their devices to feed data into an on-line database for storage and allow developers to connect to the database and build their own applications based on that data. Examples include Xively and [Wikisensing](#).

The 3D approach (Intelligent vs. Digital)

Intelligent cities (communities, clusters, regions) are multi-layer territorial systems of innovation that bring together knowledge-intensive activities, institutions for cooperation in learning and innovation, and digital spaces for communication and interaction in order to maximize the problem-solving capability of the city. The distinctive characteristic of an intelligent city is the high performance in the field of innovation, because innovation and solving of new problems are main features of intelligence.

Intelligent cities evolve towards a strong integration of all dimensions of human, collective, and artificial intelligence in a city.

All intelligent cities are digital cities, but all digital cities are not intelligent

Criticism

The main arguments against the superficial use of this concept in the policy arena are:

A bias in strategic interest may lead to ignoring alternative avenues of promising urban development.

The focus of the concept of smart city may lead to an underestimation of the possible negative effects of the development of the new technological and networked infrastructures needed for a city to be smart.

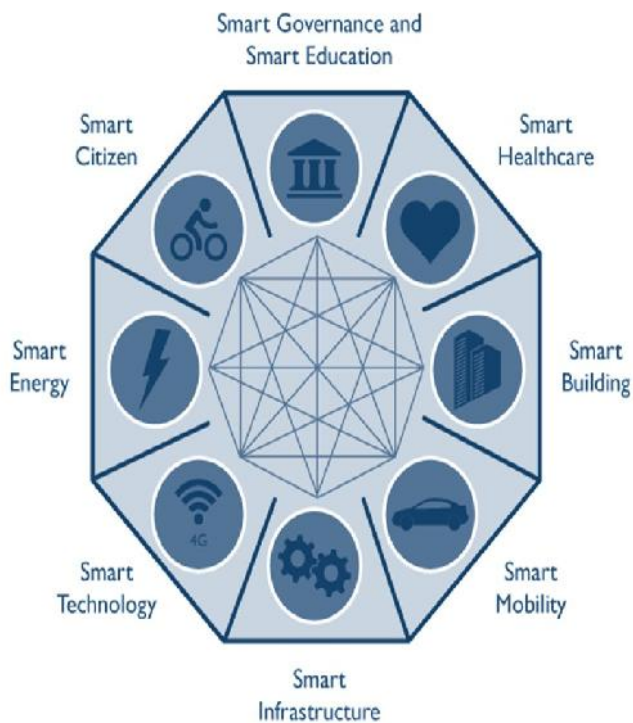
Privacy concerns are strictly related to the network of sensors deployed and the wealth of information that they produce. It could be used to find a parking spot, but also for surveillance. As long as the goal is to fight crime, it's all right. But what happens when this same technology is used to spy on innocent citizens? As we should all know by now, after Snowden, it is serious and not a theoretical issue.

Also strictly related, is the theme of vulnerability. What if someone hacks the “brain” that controls the city, or even just part of it? What if the flow of data becomes so intense it's impossible to manage? The fact the cities are bound to become increasingly connected could also mean that a failure in one sector could lead to problems in others. What kind of back-stops and safety features could be put in place to avoid a domino scenario? These are all questions that need to be answered, before embracing too enthusiastically the indubitable benefits of the smart city's approach.

Check out the Gallery part related to Smart Cities in the next page.

GALLERY

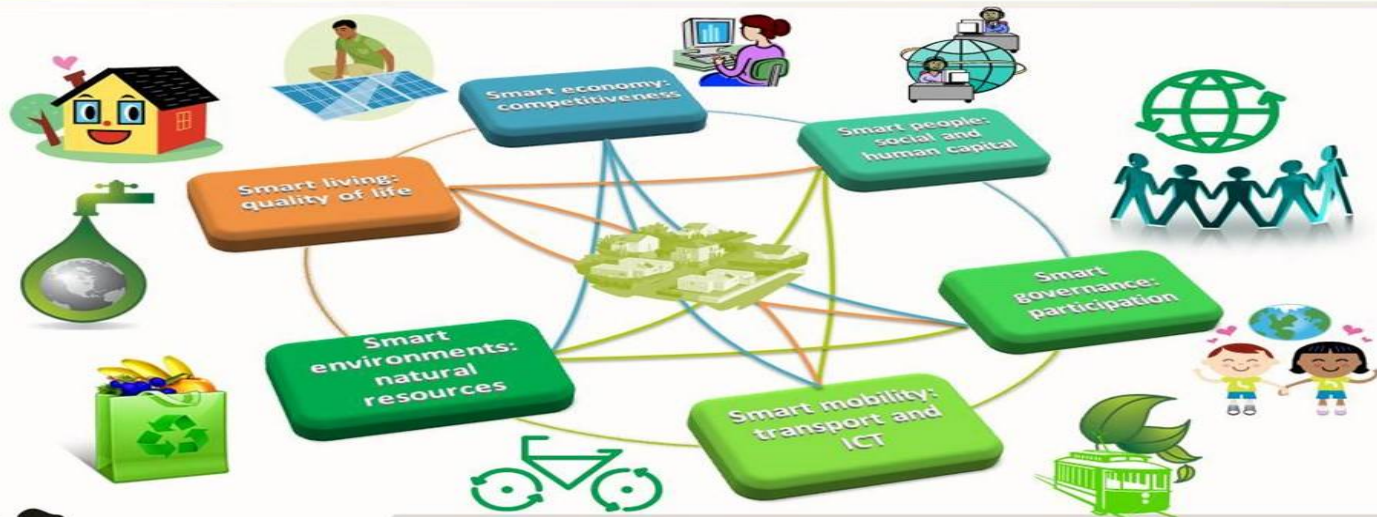
SMART CITY CONCEPTS



Source: Frost & Sullivan



Network of European Smart Cities: an Holistic View by Vienna University of Technology



The Innovation Group

BEING THE BEST IN BILLIONS!

*How does it feel when one appreciates you?
 How does it feel when one congratulates you?
 Must say it's a happiness that comes as a reward,
 It's a true thing being best in billions that doesn't come
 to a coward.....*

*How does it feel when one sees hope in you?
 How does it feel when one asks help from you?
 Must say it's a prestige that one wants to get,
 It's being best in billions for that you don't want others
 to let!!!*

*How does it feel when one inspires you?
 How does it feel when one admires you?
 Must say it's a boost that everyone likes to feel,
 It's about being best in billions in REAL and not just in
 REEL.....*

By Shyamli Kumari

THE PROSTITUTE

Abhorred and yet picked by the same,
 Unchaste, lecherous & prurient, Am I? ,
 I ask the mighty mirror.

Shameless & reflective, she too shies away.
 Dissolving, in the dissolved world, I see me!
 I wait to be breached & betrayed

Loneliness & calm seems to hate me too..
 I'm joined by the carnal beast,
 Darkness is plundered by a ray of the sun,
 a sun of LUST... may be love?
 love for me or FOR ME?

Hands of carnality or care, pierce my skin with its touch
 I deemed next?
 He pillaged my already nude self,
 Shredding the second skin off

I lay still like a carcass
 only pain, I can feel - a pain of life.
 i am doomed to carry.
 Suddenly, the hands of care, turn harsh and rough.
 i was dead or was he..... the whole world!!

Everybody gets, Loses more..
 Nobody get...gained all
 Accept me, except me
 he excepted..i accepted

The careless lust disappears,
 Abhorrence is back in his demeanor..
 Fastens his pace to get away from a vermin like me..
 The careful lust remain, though.
 He helped me or I him??

By Kamal Palariya

THE 34TH IARF WORLD CONGRESS

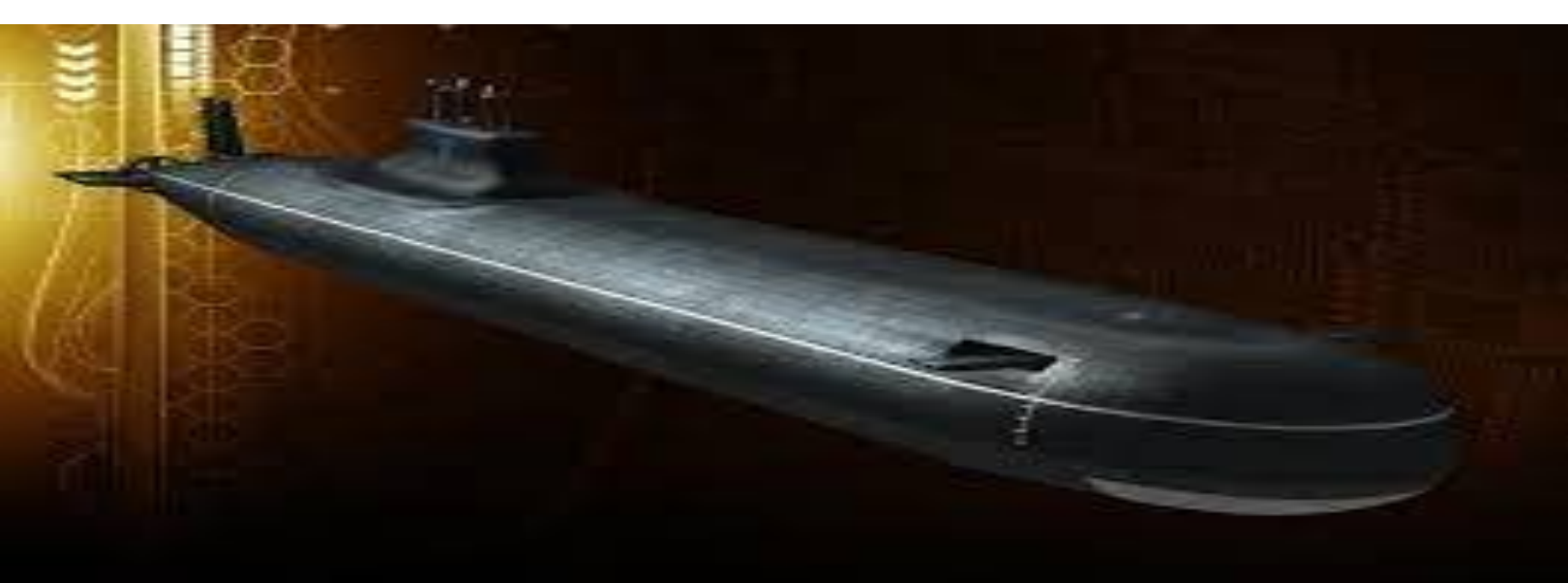
“Peace cannot be kept by force; it can only be achieved by understanding.”

— Albert Einstein

The world Congress me and my companions from South-Asia attended from 24th -27th August, 2014 in Birmingham had this basic motive of uniting young adults from all over the world through universal understanding and interaction transcending barriers of religion. Young adults from different countries like Netherlands, Iran, Israel, Japan and others gathered for the Congress to share and discuss with other countries their challenges and opinions on diversification of different faith and religion. On 24th the journey began on a holy note with a visit to the New testament church of god followed by an introductory session at the conference hall of University of Birmingham. The subsequent day was followed by presentations from different chapters of IARF on their tasks accomplished in the last four years to restore human rights and interfaith activities in their countries. It was really enthusiastic to see how, in spite of all barriers, people were able to establish universal interfaith. Post lunch session had circle group interactions where my group consisted of members from North Africa, UK, Hawaii, Israel and others. We discussed on the kind of impact each day of the congress had on each of us, the importance of social media in spreading the concept of interfaith and uniting people. All the people in our circle group decided to share their experiences of the congress to as many people as possible after reaching their natives. The final resolution taken after two consecutive day sessions of the circle group was to develop a network among us and also to showcase a blog to make more and more people aware of the congress and IARF. We also had RFYN (Religious freedom young- adult network meetings for youths all over the world on the evening of 24th headed by IARF president and IARF council member and youth representative from South Asia, Brother Albert Xavier. During this session all individuals shared challenges of religious freedom in their own countries; my companion was from Israel from whom I came to know their hardships in communicating with the Palestinians and how social media has helped them to overcome the obstacles. Resolution of the meeting was to entice more youths into the RFYN and gradually make a strong bond all round the globe. The penultimate day observed general body meeting and business meetings in which election of the new IARF president took place. It was a pleasure for all us to see Ms. Janhvi Gupte being selected as the new IARF council member from India chapter. This was followed by presentations by us i.e young adults from South Asia consisting of a Power point demonstrating all the human rights programme conducted by South Asian coordinating council and then we performed three skits illustrating women harassment, honour killing and terrorism. Our skit expectedly had a pretty good impact on the audience making our endeavour a grand success.

As a child the legacy of Swami Vivekananda electrifying the audience at the Parliament of World religions at Chicago used to inspire me profusely ,so sitting in a World Congress like this was and would be a lifetime achievement for me forever. Undoubtedly this congress has enhanced my leadership and communicating skills to a great extent. It was really a pleasure to know about the linguistics, culture , religions , beliefs of people from different countries all over the globe. So nice it was to observe how India was literally leading in human rights awareness campaigning in comparison to the other chapters of IARF. The four days of the congress along with the time spent with my companions during the congress had left an indelible impression in my mind which I will cherish throughout my life.

By Sanmitra Guha and Shantanu



WHAT DOES THE POLAR CODE MEAN FOR SHIP SAFETY?

EQUIPMENT



WINDOWS ON BRIDGE
Means to clear melted ice, freezing rain, snow, mist, spray and condensation



LIFEBOATS
All lifeboats to be partially or totally enclosed type



CLOTHING I
Adequate thermal protection for all persons on board



CLOTHING II
On passenger ships, an immersion suit or a thermal protective aid for each person on board



ICE REMOVAL
Special equipment for ice removal: such as electrical and pneumatic devices, special tools such as axes or wooden clubs



FIRE SAFETY
Extinguishing equipment operable in cold temperatures; protect from ice; suitable for persons wearing bulky and cumbersome cold weather gear

DESIGN & CONSTRUCTION



SHIP CATEGORIES
Three categories of ship which may operate in Polar Waters, based on:
A) medium first-year ice
B) thin first-year ice
C) open waters/ice conditions less severe than A and B



INTACT STABILITY
Sufficient stability in intact condition when subject to ice accretion and the stability calculations must take into account the icing allowance



MATERIALS
Ships intended to operate in low air temperature must be constructed with materials suitable for operation at the ships polar service temperature



STRUCTURE
In ice strengthened ships, the structure of the ship must be able to resist both global and local structural loads

OPERATIONS & MANNING



NAVIGATION
Receive information about ice conditions



CERTIFICATE & MANUAL
Required to have on board a Polar Ship Certificate and the ship's Polar Water Operational Manual



TRAINING
Masters, chief mates and officers in charge of a navigational watch must have completed appropriate basic training (for open-water operations), and advanced training for other waters, including ice

BACKGROUND INFO

❄️ THE INTERNATIONAL CODE FOR SHIPS OPERATING IN POLAR WATERS WAS ADOPTED NOVEMBER 2014 BY THE IMO MARITIME SAFETY COMMITTEE

❄️ IT APPLIES TO SHIPS OPERATING IN ARCTIC AND ANTARCTIC WATERS

❄️ THE AIM IS TO PROVIDE FOR SAFE SHIP OPERATION AND THE PROTECTION OF THE POLAR ENVIRONMENT BY ADDRESSING RISKS PRESENT IN POLAR WATERS AND NOT ADEQUATELY MITIGATED BY OTHER INSTRUMENTS



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