



Celebrating the Spirit of Single Working Women

When did you last celebrate the superwomen juggling work and life solo? Yes, it is all about the single working women out there! Single Working Women's Day falls on August 4th, a day set aside to cheer for these amazing individuals. It's a day packed with gratitude for their hard work, dedication, and the unique challenges they tackle head-on. This day is a big shout-out to the contributions single working women make every day. Their achievements are monumental from empowering through their careers to managing life's curveballs solo. The day highlights the need for gender equality, supports single moms, and focus on the sheer grit and grace of single women everywhere.

#DID YOU KNOW

Manmade Fruits

How humans engineered these amazing fruits!

Fruits often seem like nature's perfect gifts, but many of the ones we eat today are the result of centuries of human ingenuity and selective breeding, and, more recently, genetic engineering. From the vibrant

pink pineapple to the juicy tangelo, these fruits have been shaped, enhanced, and sometimes even created by humans to improve flavour, appearance, and resilience. Here's how five popular fruits owe much of their characteristics to human intervention!

1. Pink Pineapples

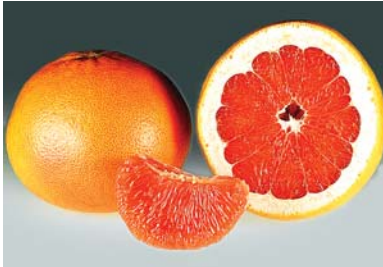


Pink pineapples are a relatively recent development made possible through genetic modification. Unlike traditional pineapples with yellow flesh, pink pineapples have a naturally pink interior due to higher levels of lycopene, the antioxidant

that also gives tomatoes and watermelons their red colour. Scientists genetically engineered pink pineapples by suppressing an enzyme that breaks down lycopene during ripening. The result is a sweeter, juicier pineapple with a unique pink hue.

2. Grapefruits

Grapefruits are believed to have originated in the 18th century as a natural hybrid between sweet orange and pomelo, two other citrus fruits. Humans quickly recognized their potential and began selectively breeding them for larger size, sweeter taste, and less bitterness. Modern grapefruit varieties have been developed to reduce the sharp bitterness and improve juiciness, making them a breakfast staple worldwide.



Some modern grapefruit cultivars are also bred to be seedless or have thinner rinds for easier consumption.

3. Lemons

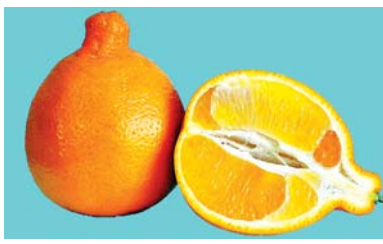
Lemons are thought to be a hybrid between bitter orange and citron, likely originating in Asia. Early growers selectively bred lemons to improve their sourness, juice content, and size. Unlike many wild citrus fruits that are quite bitter or seedy, cultivated lemons have been engineered to provide the perfect balance of tartness and fragrance. In recent decades, breeders have also worked to develop varieties



resistant to diseases and pests, ensuring that lemon crops remain productive.

4. Tangelos

Tangelos are a man-made hybrid fruit created by crossing tangerines and pomelos (or sometimes grapefruits). The goal was to combine the sweetness and thin skin of tangerines with the size and juiciness of pomelos. This hybridization resulted in tangelos, known for their juicy, tangy flavor and easy-to-peel skin. Tangelos are a great example of human-driven



hybrid fruits designed to offer the best of two worlds.

5. Oranges

Oranges, especially the sweet orange varieties, are themselves a product of natural and human-driven hybridization, believed to have originated from crosses between pomelos and mandarins. Over thousands of years, humans have selectively bred oranges to enhance sweetness, juice content, and peel thickness. The vast array of orange varieties, from navel to blood oranges, have been developed through crossbreeding and grafting techniques.

These fruits showcase how human intervention, from ancient hybridization to modern genetic engineering, has transformed nature's wild offerings into the flavourful, beautiful, and convenient fruits on our tables today. Whether bred oranges to enhance sweetness, juice content, or biotechnological innovations, human ingenuity continues to shape the fruits we love, ensuring that they meet our tastes and agricultural challenges.



Submarines Too Need Looking Up



Submarines derive their strength from their ability to stay underwater and surprise the enemy. Both, air independent propulsion and lithium-ion battery technology are set to transform the existing paradigm of SSK operations and offer far greater capability to the Commanding Officer on board to shape the maritime battlespace.



Commodore Anil Jai Singh (Retd)

Submarines constitute the cutting edge of a Navy's offensive capability. They operate below the surface of the sea, stealthy and concealed, and wait for the right moment to spring a devastating attack on the enemy with their lethal weapons. However, that is not all that submarines do. They are ideally suited to cover a wide spectrum of roles from nuclear deterrence at the strategic level in the open ocean to clandestine operations in low intensity scenarios in restricted and shallow waters. Submarines are basically of three types.

Nuclear Powered, Nuclear Armed Ballistic Missile Submarines (SSBN)

SSBNs are large platforms, driven by nuclear propulsion and carrying ballistic missiles, armed with nuclear MIRV warheads. Their principal role is strategic nuclear deterrence and it is their ability to annihilate the world several times over with their nuclear MIRV armed intercontinental ballistic missiles (ICBM), with ranges upto 12000 kms, that has made them the ultimate deterrent against a nuclear strike. They are the most credible platforms to either launch a first strike or retaliate with a

debilitating second strike on the enemy. During the four decade long cold war, which 'ragged' for over four decades, it was the presence of SSBNs on both sides that ensured it remained 'cold' despite numerous provocations. SSBNs are presently operated by six countries, which include the five permanent members of the UN Security Council (US, UK, Russia, China, France) and India.

Nuclear Powered, Conventionally Armed Attack Submarines (SSN)

SSNs are nuclear powered submarines, but unlike SSBNs, they are armed with conventional land attack capable cruise missiles and heavyweight torpedoes. In the contemporary battlespace, SSNs are perhaps the most lethal weapons in a navy's arsenal, and an essential and integral to any blue water navy. SSNs can do high speeds underwater, are not limited either in endurance or range and can deliver effect at sea or on land from long stand-off ranges. They are perfectly suited for open ocean operations; the presence of even a couple of SSNs can effectively constrain the options available to the enemy's surface forces, including an aircraft carrier battle group. Like SSBNs, SSNs too are the preserve of the five permanent members of the UN Security Council. India, which has periodically operated SSNs taken on lease from Russia, is working on developing an indigenous SSN. (CCS approval has been accorded for two, though a figure of six is part of the long-term plan.) Other medium powers like Australia (AUKUS programme) and Brazil (in

#MODERN WARFARE

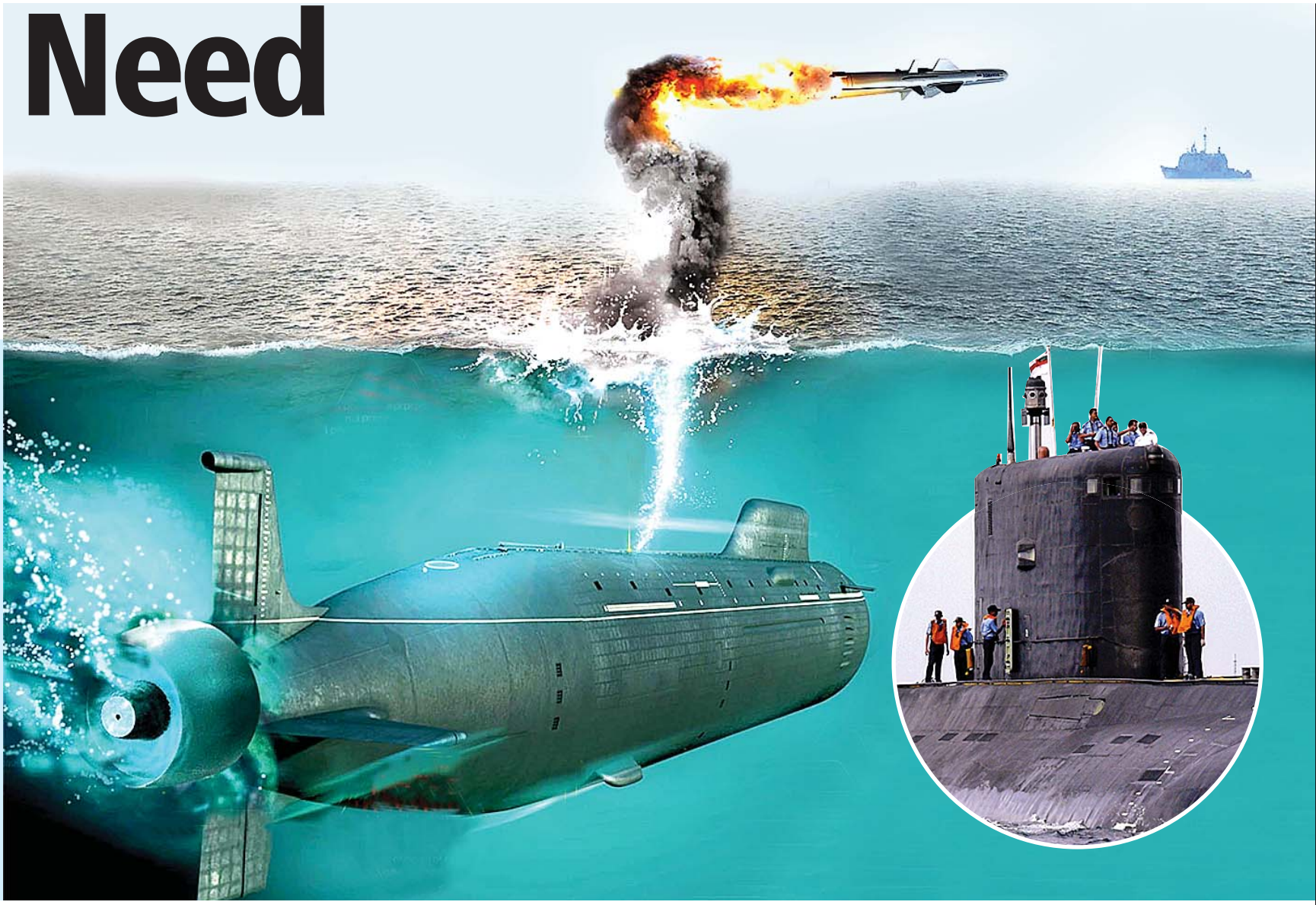


collaboration with the French) are also planning to acquire SSNs. Countries like Japan and South Korea, which have the technology, may also venture down this path if their security imperatives so dictate.

Conventional Diesel-Electric Attack Submarines (SSK)

Non-nuclear submarines, which form the bulk of the global numbers, are powered by a diesel-electric propulsion system and are therefore commonly referred to as conventional submarines or SSKs. These are operated by more than forty navies worldwide. Submarines are an aspirational capability, and therefore, on the wish list of many small navies. In the Indo-Pacific region itself, sixteen navies operate SSKs. These include India, Pakistan, Bangladesh, Myanmar, Iran, Thailand, Singapore, Malaysia, Indonesia, Australia, South Korea, Japan, Vietnam, China, Taiwan and South Africa. In a littoral battlespace, SSKs are powerful instruments of 'sea denial,' and can also exercise limited sea control.

However, their dependence on battery power limits their endurance and range of operations and necessitates their planning from the deep to periscope depth to raise a snorkel mast, for taking in fresh air



AIP systems have more than trebled the average dived endurance of conventional submarines, thus addressing a major operational limitation. While non-AIP submarines are required to charge their batteries by exposing their masts above the surface at least once every two-three days, AIP fitted submarines could continue without a charge for upto 15 days at a stretch. Almost 100 submarines or so worldwide are fitted with AIP systems.

innovation in submarine propulsion technologies, two of which will shape submarine operations in the next decade or so. These are Air Independent Propulsion (AIP) systems and lithium-ion batteries. Both these technologies have reduced a submarine's vulnerability to detection by improving its dived endurance, its range of operation and its ability to sustain high speeds underwater for longer durations than at present.

Air Independent Propulsion

AIP systems have been in operation since the late 1980s, but have become far more common on-board submarines. Most of the leading European submarine manufacturers began developing AIP systems using different technologies. These included the Sterling Engine system, the fuel cell systems and the MESMA system. Of these, the Swedish Navy was the first to adopt the Stirling engine system and continues to use it on their current submarines as well. China and Japan have also adopted this technology on their submarines. The MESMA system, developed by Naval Group France, has been less successful and is being used only on the three Agosta 90B submarines of the Pakistan Navy.

By far, the most successful technology has been the fuel cell AIP

pioneered by the German submarine manufacturer, Thyssenkrupp Marine Systems (TKMS). The German fuel cell AIP system has been in operation for over 25 years and is presently installed on 52 submarines worldwide. In addition, the South Korea also uses a fuel cell AIP derived from the German one.

Navantia, the Spanish submarine manufacturer, has also developed a fuel cell system using bio-ethanol instead of hydrogen. Called 'BEST' (Bio-Ethanol Stealth Technology), it is yet to be installed on a submarine. The Spanish Navy hopes to operationalise it by 2028-29 on its third and fourth S-80 class submarines.

Russia also claims to have successfully developed a fuel cell AIP system called the Kristall 27-R. This has been fitted on one of its Lada class submarines, but its efficacy still remains in doubt and it has not yet become a standard fitment on its operational submarines.

Whither India The Indian Navy does not have an AIP fitted submarine in its inventory as yet. The absence of this capability, especially on the six new Kalvari class (Scorpene) submarines, is a major operational constraint which needs to be addressed. These submarines, built indigenously in Mumbai in collaboration with Naval Group of France, are scheduled to be retrofitted with an indigenously designed and built fuel cell AIP system in the future. Hopefully, the installation of this system on board the Kalvari class submarines will begin in a couple of years from now. Its successful operationalisation may take another few

years. Fortunately, one of the criterias for the foreign partner in the P75 (I) submarine programme for the indigenous construction of six SSKs is then availability of a proven fuel cell AIP system.

AIP systems have more than trebled the average dived endurance of conventional submarines, thus addressing a major operational limitation. While non-AIP submarines are required to charge their batteries by exposing their masts above the surface at least once every two-three days, AIP fitted submarines could continue without a charge for upto 15 days at a stretch. Almost 100 submarines or so worldwide are fitted with AIP systems.

Lithium-Ion Batteries

The second major breakthrough has been the successful development of lithium-ion batteries as a replacement for the traditional lead-acid batteries on board SSKs. Connected to AIP systems, these too can be charged while dived. A SSK's dived endurance limiting factor. Perhaps, as the development progresses and this technology gains wider acceptance, the costs will reduce.

Conclusion

Submarines derive their strength from their ability to stay underwater and surprise the enemy. Both, air independent propulsion and lithium-ion battery technology are set to transform the existing paradigm of SSK operations and offer far greater capability to the Commanding Officer on board to shape the maritime battlespace.

rajeshsharma1049@gmail.com



Our second Ballistic Missile.

#FAIRFIELD BY MARRIOTT

PahadiFare @ Fairfield

The ten day long Pahadi Zaika food festival, currently on at Fairfield by Marriott, serves the best of Garhwal, Uttarakhand and Himachal.



There is a Pahadi saying, "Parmatme jitna swas likhira titna grass likhira." Translated, it means, "God allocated food until your life ends." Yet, it seems that one life is too short to savour the rich variety of Pahadi cuisine, which comes from Himachal, Garhwal or Kumaon.

Designed to give energy during the bone chilling winter, it is not oil or fat drenched nor is it heavy duty stuff like the North Indian food of the plains, specially the winter spread.

Sourced from the local produce which is vegetables, herbs, lentils and micro greens as also the meats. It is flavoursome, fresh, nutritious and the mild use of spices impart a natural flavour, each dish different from the other.

The ten day long Pahadi Zaika food festival, currently on at Fairfield by Marriott, serves the best of Garhwal, Uttarakhand and Himachal and it is a little like discovering the mountainous region, bite by bite.

The Pahadi Thali had iconic dishes of all three regions. BHATT KI CHURKANI: Kale Bhatt means black soybean

dal, which is cultivated only in Uttarakhand. Kale Bhatt Ki Churkani is the main dish of the people of Kumaon region. Made on special occasions, "God allocated food until your life ends."

CHAINSUS: Chainsu is primarily made with black urad dal. Its tangy flavor served with badli, a type of steamed rice, is almost like meal in a dish. An energy booster and rich in nutrients too.

GAHAT KI DAL (Kulthi dal) (Horse gram): Gahat ki dal, also known as kulthi dal, is a very tasty and nutritious dal from Uttarakhand.

KAFULI: It is a happy mix of spinach and fenugreek leaves cooked in an iron vessel. It derives a unique flavour, and indeed, is finger licking.

ARBI KE GUTKE: Arbi Ke gutke is primarily made by pahadi Arbi. Eating Taro root can cure many diseases, especially problems related to digestion and heart. It is rich in fiber, which helps relieve constipation and improve digestion. Additionally, the fiber present in Taro is also helpful in reducing cholesterol levels and reducing the risk of heart diseases, somewhat similar to Aloo ke

Gutke, both were pan stirred, soft from inside and crispy from outside, also left a farm fresh effect which comes only from a rainfed vegetation from a mountainous region.

PAHADI SALAD: Pahadi salad normally uses pahadi cucumber carrot tomato cut in finger shape, and topped with pahadi salt and is consumed regularly.

KAUDO KI ROTI: Farmed in mountain areas and is known by different names MANDUA, RAGI, KAUDO ROTI. A must have for all weight watchers and was a great shift from the usual gluten-loaded wheat roti.

PAHADI RAITA: The use of grated cucumber with Pahadi masalas and the generous use of mint and coriander was a real treat.

JHANGORA FIRNI: A variety of millet. In English, 'Jhangora' is known as Baniyam Millet. It's a type of millet grain that's cultivated in the Himalayan region of Uttarakhand. It's also referred to as 'Samak' in some regions. Its low glycemic index makes it a go-to dessert. It also enjoys the status of one of the most popular Garhwali dishes.

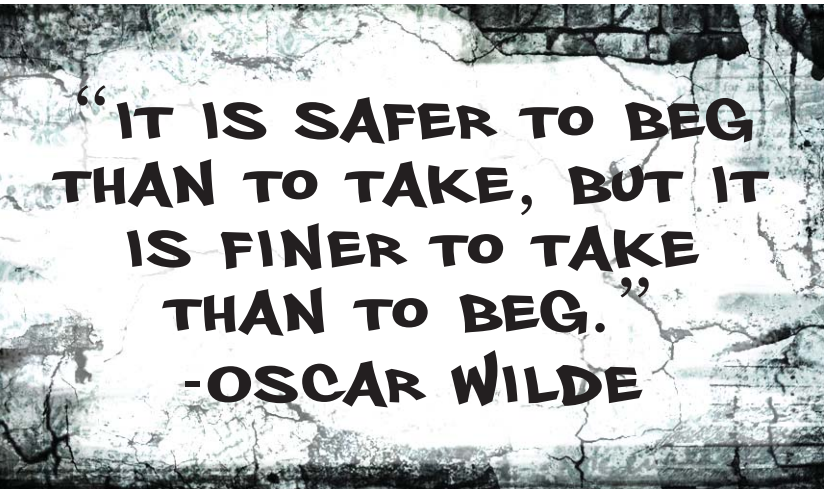
SINGORA: Made from khoya wrapped in a Maalu leaf, it is served in a conical shape as a delight. It is famous as an Almora speciality from the Kumaon region.

Rishikesh and Haridwar may not permit non-vegetarian, but slow cooked mutton with local spices, as included in the 'Thali, is a very popular dish in Pahadi cuisine. The Pahadi chicken finger food, stir fried in a paste of mint and coriander, needs special mention.

The Chamba style freshwater fish done in a mix of ginger, garlic, coriander leaves, turmeric and red chillies was relished as much as the Kullu Trout. What tops everyone's list of must haves is a wonderful non-veg treat, a Himachali style starter, Jakhya kukkad, and was 'too good' as most opined.



THE WALL



BABY BLUES



By Rick Kirkman & Jerry Scott

ZITS



By Jerry Scott & Jim Borgman