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Telangana Today

Wed, 15 Jan 2020

Carry on Tejas

The program to design a naval variant of the TEJAS was initiated in 2003

It is a moment of pride for Indian defence researchers when the naval version of Tejas achieved a key milestone by successfully undertaking the maiden ski-jump take-off from INS Vikramaditya. The landing as well as take-off by the indigenously-built Tejas Light Combat Aircraft (LCA) has put India among a select group of five nations in the world having the capability to design such a jet, which can operate from an aircraft carrier. The landmark event was a tribute to the professional commitment and synergy among various agencies involved in the project, including Defence Research and Development Organisation (DRDO), Aeronautical Development Agency (ADA), Aircraft Research and Design Centre of Hindustan Aeronautics Ltd, Centre for Military Airworthiness and Certification (CEMILAC) and CSIR. It has been a long and arduous journey for defence scientists and engineers in bringing the fighter aircraft development programme to fruition. The Indian Air Force has already inducted a batch of Tejas aircraft. Initially, the IAF had placed an order with the Hindustan Aeronautics Limited (HAL) for 40 Tejas aircraft. In 2018, the IAF issued the request for a proposal (RFP) to HAL for the procurement of another batch of 83 Tejas at a cost of over Rs 50,000 crore. Despite the latest achievement that demonstrated technological talent, design expertise and engineering competence, India still remains an underperformer in the military-industry field with the DRDO lagging behind the delivery schedules on many key projects. Even seven decades after independence, India is yet to attain self-reliance in military hardware and is heavily dependent on import of defence equipment. This certainly makes national security vulnerable.

India needs to develop the capability for design and serial production of its own weapon systems, particularly in the wake of Pakistan acquiring a steady stream of weapon systems from its all-weather friend China. Despite having the world's fourth-largest armed forces, India has to depend on imports for everything, ranging from tanks, submarines, fighters, missiles and artillery to small arms and ammunition. Even a prestigious project like LCA was bogged down by inordinate delays due to bureaucratic indifference and lethargy. Similarly, uncertainty has surrounded the turbojet 'Kaveri' engine project. India could have gained massive strategic advantage if there was a sustained focus on indigenous military industry. Starting from a similar base in the 1950s, the defence industries of China, Brazil, South Korea and Turkey have left India miles behind. Self-sufficiency in military hardware has not received due attention from the political leadership, with successive defence ministers failing to appreciate the need for enhancing investments in defence research and development and providing impetus to vital indigenous projects. As a result, there has been a mismatch between the combat requirements of armed forces and the delivery schedules of the DRDO.

https://telanganatoday.com/carry-on-tejas

The Indian EXPRESS

Wed, 15 Jan 2020

BRAHMOS has reinforced Indian Army's combat potential

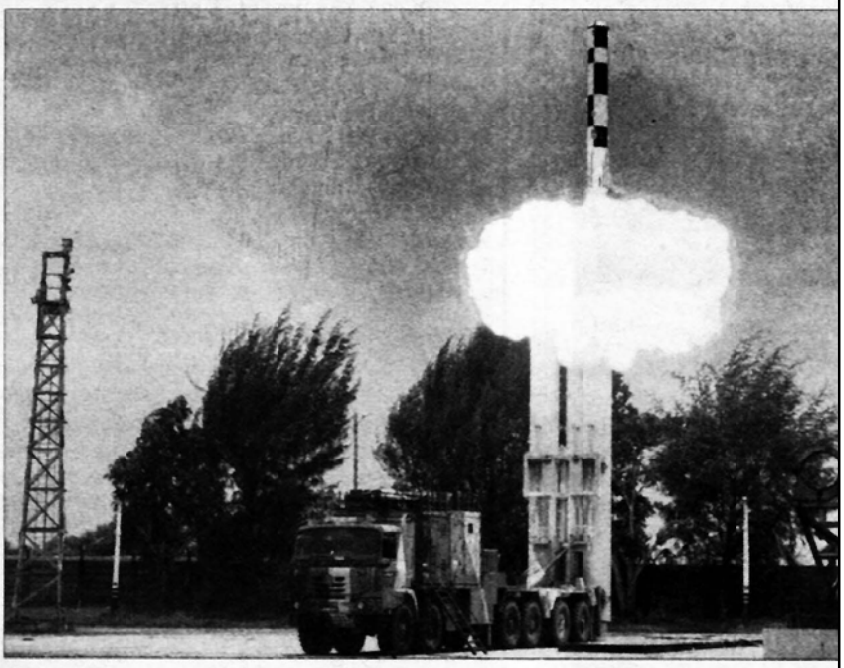
INDIAN ARMY, one of the largest land forces in the world, has fortified its strength and stature by fielding a unique, state-of-the-art precision attack weapon – BRAHMOS. Being the only land force in the world to deploy the fastest and deadliest cruise missile, Indian Army has enchanced its artillery firepower manifold.

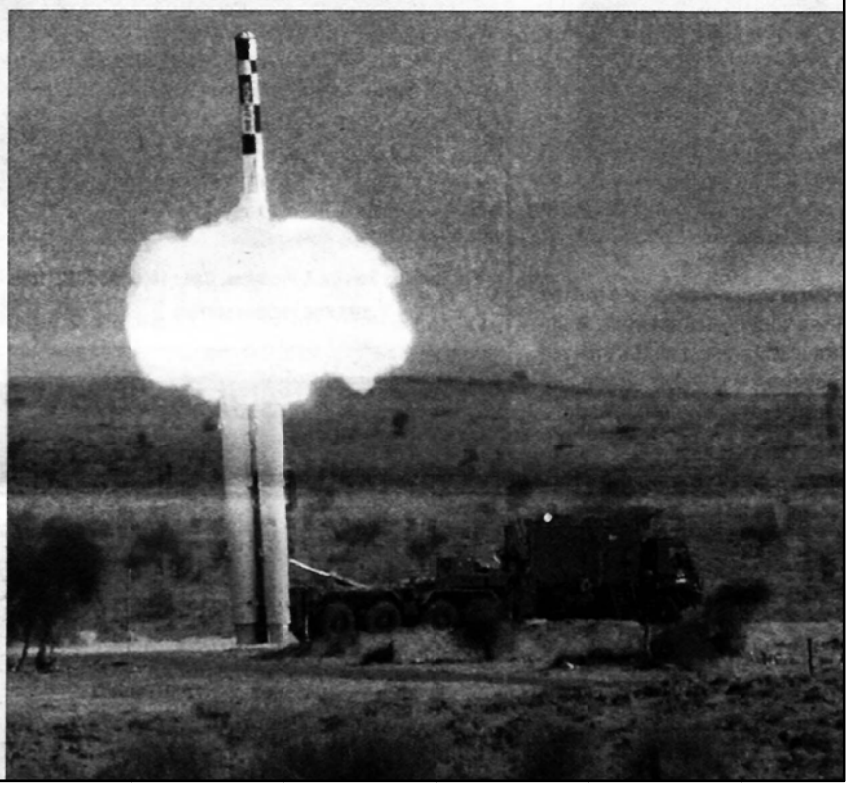
The land-attack BRAHMOS has validated its impeccable strike power with ultimate precision in divergent operational modes such as "top attack", "target discrimination" and "deep penetration" from varied and most difficult land terrains in the country, during a number of flight tests conducted till date. The Army has raised a number of BRAHMOS LACM (and attack cruise missile) regiments to conduct modern-day complex land warfare missions.

With India's increasing thrust on "Jointness" in defence operations wherein the Indian Army is getting ready to deploy its Integrated Battle Groups in the near future, a highly versatile and formidable weapon like BRAHMOS promises to provide necessary impetus in this direction. The "fire & forget", "quick-reaction" missile has proved its capability to be swiftly deployed in a possible conflict zone at very short notice and can be activated without any delay.

The versatile BRAHMOS has been deployed with the Indian Navy since 2005. The weapon's advanced air-launched version which has undergone a number of successful test-firings so far, is also getting ready for induction in the Indian Air Force.

THE "FIRE & FORGET", "QUICK-REACTION" MISSILE HAS PROVED ITS CAPABILITY TO BE DEPLOYED IN A POSSIBLE CONFLICT ZONE AT SHORT NOTICE





The multi-role, multi-platform, multi-mission missile has thus emerged as India's ultimate "force multiplier" in a modern, network-centric warfare scenario.

Meanwhile, BrahMos Aerospace, the India-Russia JV entity engaged in the design, development and production of the powerful BRAHMOS for the Indian Armed Forces, has been making persistent efforts to incorporate major indigenous components in the weapon system to bolster India's national security even while providing a major fillip to the Government's "Make-In-India" efforts. The successful test-firings of land-attack BRAHMOS carried out on September 30, 2019 and December 17, 2019 have validated some of those indigenous technologies and systems including the seeker, airframe and propulsion system.

After developing and delivering BRAHMOS land-attack weapon to the Army in Block I, II and III configurations, BrahMos Aerospace is steadily progressing in its efforts to develop yet another advanced version, Block IV, having "near vertical dive and surround attack" capability to knock off ground-based targets at an angle of 90-degree directly from the top. Together with range extension, these capabilities would give the Army an unparalleled edge in mounting surprise attacks on hidden enemy positions in the hinterland. The timely destruction of the enemy's war-waging resources and logistic strongholds by precision strikes of BRAHMOS would ensure out-of-proportion dividends for the Indian Army.

By making BRAHMOS the mainstay of its artillery firepower, the Indian Army has not only reinforced its combat potential, but also strengthened India's defence preparedness against the backdrop of a rapidly evolving security environment.

BrahMos Aerospace congratulates the Indian Army on the 72nd Army Day.

THE FINANCIAL EXPRESS

Wed, 15 Jan 2020

Captain appointed for the IAC-1, efforts on to put it in water by 2021

The Indigenous Aircraft Carrier (IAC), under construction at Cochin Shipyard, Kochi is already running behind schedule

By Huma Siddiqui

For projecting the country's sea-borne airpower requirements, work on Indigenous Aircraft Carrier (IAC)-1 is moving at a fast pace and it will be going in for basin trials in the next couple of months. This will be followed by a series of sea trials before it gets commissioned in the Indian Navy.

A top Indian Navy officer speaking on condition of anonymity explained that "the IAC-1 which is under construction will enter the waters like a ship in 2021 before it gets inducted in the navy as an aircraft carrier. The efforts are going on in the right direction. The first batch of the crew is ready and the second and the third batch of the crew have been identified and awaiting final orders."

"The most important thing is that the name of the Capt has been cleared and that means that everything is on track now," the officer quoted above said.

The Indigenous Aircraft Carrier (IAC), under construction at Cochin Shipyard, Kochi is already running behind schedule. "The major challenge for the shipyard and the Indian Navy is to make sure that the ship meets all the milestones as planned and to put her out to sea for trials as per the revised plans."

What is Basin Trial?

It involves the testing of machinery and equipment on board the ship in floating conditions before it goes in for sea trials.

The flight trials for the IAC-1 are going to start only when the IAC-1 which is named INS Vikrant is delivered to the Indian Navy. Before the flight trials the aviation facility complex and making the ships ready for flight trials.

In December Naval Chief Admiral Karmbir Singh had said that all issues related to ship build issues were all addressed and soon the trials would start and that the Indian Navy will take the delivery by February-March 2021." Adding "the IAC-1 Vikrant will be fully operational by 2022."

Indigenous Steel used in the IAC-1

The steel used in the building of the aircraft carrier has been specially developed after extensive research and collaboration between Defence Research and Development Organisation (DRDO) and Steel Authority of India Ltd (SAIL) and the navy's Directorate of Naval Design.

This is special military-grade steel created for the indigenously designed for the IAC-1 and the submarines for the Indian Navy. According to officials, it is sturdier than the ordinary type and has the capability of being used in temperatures as low as minus (-) 40°C. It is not breakable and can be bent to suit the requirements of the design.

https://www.financialexpress.com/defence/captain-appointed-for-the-iac-1-efforts-on-to-put-it-in-water-by-2021/1823044/

The Indian EXPRESS

Wed, 15 Jan 2020

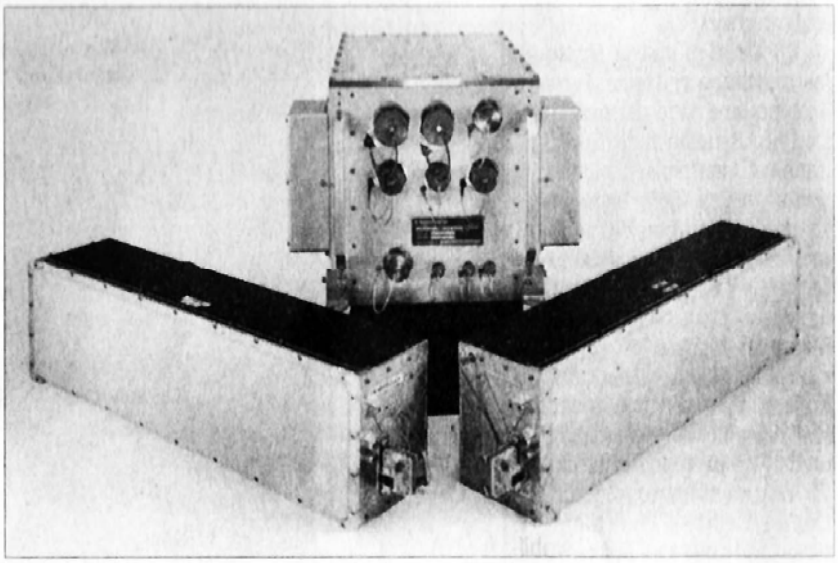
MQ-9B SkyGuardian: Meeting the Indian Army's ISR and Mission Requirements

MQ-9B SkyGuardian is a variant of the Predator B RPA that meets airworthiness certification standards domestically and around the world

ON THE occasion of the 72nd Indian Army Day, General Atomics Aeronautical Systems, Inc. (GA-ASI) salutes the courage and spirit of the Indian Army. GA-ASI is proud to be associated with the Indian Army towards meeting its growing Intelligence, Surveillance and Reconnaissance (ISR) and multi-mission requirements.

At the forefront of the unmanned revolution, GA-ASI continues to grow and develop new 'game-changing' capabilities for its Remotely Piloted Aircraft Systems (RPAS). GA-ASI is the world's pre-eminent manufacturer of innovative RPAS that provide connected solutions over land, sea, space and cyber domains.

MQ-9B SkyGuardian is a next-generation RPAS designed with civil airspace integration in mind, not to mention its multi-mission capabilities built upon GA-ASI's distinguished legacy of RPAS.



The GA-ASI-developed Detect and Avoid (DAA) system is made up of an Air-to-Air Radar, TCAS II, ADS-B IN/OUT, and a Conflict Prediction and Display System

Demand for MQ-9B throughout the world is growing. The Protector RG Mk1 is being delivered to the UK Royal Air Force in the early 2020s, while the Government of Belgium has allowed Belgian Defense to negotiate the acquisition of MQ-9B SkyGuardian to meet the nation's RPAS requirements. More recently, the Australian Defence Force selected the MQ-9B RPA System for their Project Air 7003.

As the scope of the HALE RPAS Project under the Ministry of Defence (MoD) has been expanded to include the Indian Army and Indian Air Force, this will ensure maximum interoperability and seamless mission networking capability across the three domains of land, air and water. This acquisition will allow the already low cost of the unmanned platform to be maximised by economies of scale. There will also be economies when the areas of personnel and sustainment are considered, particularly among the three services.

For the Indian Air Force specifically, sources say the procurement of the MQ-9B aircraft will accelerate the sale of the GA-ASI jet powered Avenger, bringing yet another 'game-changing' capability to India.

The MoD's decision will also allow for the Services customising the aircraft to suit their particular requirements. MQ-9B SkyGuardian is a highly modular aircraft and is rapidly configurable with a variety of payloads and weapons. With the signing of COMCASA in 2018, the aircraft will also include US communication systems that will allow the Indian Armed Services to be truly interoperable.

MQ-9B SkyGuardian provides persistent situational awareness across vast land based, open ocean and littoral domains without putting aircrew at risk and more cost effectively than manned aircraft alternatives. Interoperable with NATO, coalition and US Forces, the MQ-9B's multi-mission capability makes it a valued asset in all scenarios—from environmental protection, disaster relief, combat search and rescue, close-in support to ground troops, multi-spectrum domain awareness to armed military surveillance and targeting.

GA-ASI has delivered over 900 aircraft, more than 400 GCS, and its aircraft operate worldwide. To date, GA-ASI aircraft have accumulated over six million flight hours, with 90% of these flight hours achieved during deployed operations. GA-ASI stands shoulder to shoulder with the Indian Army in ensuring it can meet its stated mission objectives.

the pioneer

Wed, 15 Jan 2020

Take the bull by the horns

The architecture under which the newly-appointed CDS has been placed and the charter given to him is commendable, provided the system lets him do his work

By Ashok K Mehta

As the first Chief of Defence Staff (CDS), Gen Bipin Rawat has hit the ground running. He has been tasked with — or is expected to achieve — in three years what the country could not in 70. With all its fire and fury, the office of the CDS has finally arrived. The Bharatiya Janata Party (BJP)-led Government has fulfilled one more electoral pledge. The despatch with which 40 bureaucrats are being sidestepped from the Ministry of Defence (MoD) to its own newly-created Department of Military Affairs (DMA) is breath-taking. As a founder member of the Defence Planning Staff, which was revamped into the existing Integrated Defence Staff (IDS), I am familiar with the colossal teething problems and bottlenecks in creating a new institution in spite of the goodwill of the three Service Chiefs. In this instance, the civilian bureaucracy is relocating for the first time under a military head. Unique to India, the DMA will correct the aberration of the three Service headquarters being outliers. It will become integral to the MoD, thus facilitating, absent so far, the military's role in decision-making. Wisely, this re-location in MoD has mandated existing single-service structures; their charters should remain undisturbed.

The CDS is multi-hatted. He is the Permanent Chairman of the Chiefs of Staff Committee (PC-CoSC), the head of IDS, Secretary to the DMA, Principal Advisor to the Defence Minister on tri-service matters, Advisor to the Prime Minister in the Nuclear National Command Authority (under which comes the Strategic Forces Command, which will be administered by the CDS), member of the Defence Acquisition Council and the Defence Planning Committee. The CDS' charter is monumental. Essentially, he will prepare for the conversion of existing military commands in a phased manner (three years) to theatre commands; facilitate synergy and jointness in defence planning, operations, training and logistics, including prioritisation in inter-service arms procurement. Equally and importantly, the CDS will not exercise any military command, including over the three Service Chiefs, thus reducing him into the ultimate Chief of General Staff. He is clubbed with other Service Chiefs at Number 12 in warrant of precedence below Cabinet Secretary at Number 11.

The pivotal change has come in the MoD. That means grafting the extracted components from MoD that were dealing with service headquarters and other military agencies back into the MoD under the new DMA. The Defence Secretary, who is the principal secretary in MoD, has lost most of his military turf to the CDS. He is, thus, left with organisations like the Defence Estates, the National Defence College, the Institute of Defence Studies and Analyses and, of course, the functional coordination of four other departments of defence. Curiously, the presumably amended Government rules of business still leave him responsible for defence of India, defence policy and war preparedness. The DMA will ensure that the CDS replaces the Defence Secretary, who acted as the de facto CDS in determining priorities in arms acquisition of services and other tri-service issues. At long last, the CoSC, which historically had a rotating chairman from among the longest serving Service Chiefs, will now have a permanent incumbent, the CDS, to address tri-service matters and engender jointness more effectively.

For the CDS, the major challenge will be to implement the five-year defence acquisition and two-year annual roll plan based on "anticipated budget." Without any financial commitment, defence planning will enter the realm of wishful planning. Unless this is grounded and realistic yardsticks are provided, the planning process will remain stymied. The second challenge is to integrate single-service plans into a synergised tri-service plan. Till joint theatre commands are introduced — based on

national security doctrine and national security strategy — the CDS will at best be able to fine-tune services plans into an optimally effective joint plan. This should be done better than was done till today.

The MoD will now have one more Secretary (fifth) rank officer, the CDS, but in the pay-band of a Cabinet Secretary heading the DMA. The CDS elevated from among the Service Chiefs will be head and shoulders above the Defence Secretary. Until now, all matters relating to defence were channelled through the Defence Secretary to the Raksha Mantri. Will the CDS have direct access to the Defence Minister as he should, or will the existing system of "routing" prevail?

Similarly, relations between the CDS and the three Service Chiefs are one of primus inter pares among Generals who are equal and yet unequal. A Government statement read: "The CDS will not exercise any military command, including over the three Service Chiefs so as to be able to provide impartial advice to political leadership." This directive is badly drafted. Simply stated, the CDS will not ride roughshod over single-Service chiefs. But how this plays out on the ground only time and personalities of the Chiefs will tell. In the Army, three-star Lt Gen-rank Corps Commanders are subordinate to three-star Army Commanders of the same rank and pay-band. In the reporting channel, too, there is an implied problem. Would the Service Chiefs report to the Defence Minister through the CDS or access him directly, or via the Defence Secretary? Some of these wrinkles will no doubt get ironed out in the times to come.

Stripping the CDS of all military command has been done to serve a political purpose and requires re-thinking. He should at least "command" and not "administer" the tri-service commands like the Andaman and Nicobar Command that was established in 2001, the cyber-space and Special Forces Commands, when raised. As for the SFC, he should command it but without operational control. All tri-service military organisations and institutions (including the dormant National Defence University) that have been retained with the Defence Secretary should gradually be transferred to the DMA.

The CDS should over time improve civil-military relations. Equally, the exaggerated fear of the military acting unconstitutionally should go. Baring one or two past aberrations, including one with an Army Chief who is now a Minister in the Union Government, the military has behaved impeccably, displaying unique, apolitical, professional and secular credentials while maintaining allegiance to civilian control. Reducing tension between civilian and military bureaucracies will require unbiased political intervention. The choices for theaterisation are either the British or American models. Both require to be studied for their relevance to the Indian geo-strategic environment. Defence Minister Rajnath Singh should order the winding up of the National Security Advisor Ajit Doval-led high-powered Defence Planning Committee. It has contributed little to defence planning and sharpening higher defence management.

Whether the CDS, bereft of all command, will be a paper tiger and his advice binding on Service Chiefs, as is doing the rounds of South Block, only the future will tell. The biggest handicap for the CDS in streamlining military robustness will be the continuing paucity of funds for defence modernisation due to a shrinking economy. Overall, the architecture under which the CDS has been placed and the charter given to him is commendable, provided the system lets him do his work. Still for a change, the Government has hit the bull's eye.

(The writer, a retired Major General, was Commander IPKF South, Sri Lanka and founder member of the Defence Planning Staff, currently the Integrated Defence Staff.)

https://www.dailypioneer.com/2020/columnists/take-the-bull-by-the-horns.html

The Tribune
VOICE OF THE PEOPLE

Wed, 15 Jan 2020

Army must reorient itself for future challenges

Blurring the distinction between the state of war and peace, non-military means are being increasingly employed to achieve political and strategic goals in the 'hybrid' conflicts of the 21st century. Consequently, the force transformation trend-line among the modern armies is to move from threat-based forces to capability-based forces that provide a set of capabilities to deal with a range of unexpected situations

By Gurmeet Kanwal

The new Indian Army Chief, General MM Naravane, has said the Army would act on government orders to take back PoK (Pakistan-occupied Kashmir, including Gilgit and Baltistan) if such instructions were received. In order to achieve such an objective, the Indian Army, among the most battle-hardened in the world, must gradually shake off its defensive orientation and transform itself into a modern fighting force that is ready to act proactively and undertake large-scale offensive operations if necessary.

While future threats and challenges, as well as vulnerabilities, will increase steadily and become more complex and diverse, many of the weapons and equipment in service with the Army are either obsolete or bordering on obsolescence. Also, the current state of defence preparedness leaves much to be desired, particularly large-scale shortages in the stock levels of tank and gun ammunition.

Besides, the need to transform the army into a 'light, lethal and wired' force in consonance with developments in weapons technology (including the exploitation of offensive cyber warfare, artificial intelligence and killer robots — unmanned or autonomous combat vehicles), the Army's preparation for the future will be influenced by the changes in the strategic environment. In this era of strategic uncertainty, the character of conflict is constantly changing and evolving. From the state versus state conventional conflict — mainly for territorial gains — the pendulum is gradually swinging towards sub-conventional conflict between the states and disaffected non-state actors.

Blurring the distinction between the state of war and peace, non-military means are being increasingly employed to achieve political and strategic goals in the 'hybrid' conflicts of the 21st century. Consequently, the force transformation trend-line among the modern armies is to move from threat-based forces that were designed to meet known threats to capability-based forces that provide a set of capabilities to deal with a range of unexpected situations; for example, a rapid reaction division with air assault and amphibious capabilities. Similarly, the Army's warfighting doctrine needs to be reviewed and the training regimes re-configured to train officers and other ranks to face certainty (predictable threats) and to educate them to face uncertainty (unforeseen challenges).

There is a very high probability that the next major land conflict on the Indian sub-continent will again break out in the mountains because that is where the unresolved territorial disputes lie. As it is not in India's interest to enlarge a conflict with Pakistan to the plains sector south of Ravi river due to the possibility of escalation to nuclear exchanges, there is a fairly high probability that the next conflict, having broken out in the mountains, will remain confined to mountainous terrain. While the three strike corps are necessary for conventional deterrence and have served their purpose well, the Army must enhance its capability to launch offensive operations to deter and, if necessary, fight and win future wars in the mountains.

A strategic defensive posture runs the risk of losing some territory to the adversary if capabilities do not exist to seize large portions of the adversary's territory to stabilise the situation. The first requirement is to upgrade India's military strategy of dissuasion and deterrence by denial against

China to that of credible conventional and nuclear deterrence by punishment and pro-active border management. Genuine deterrence can come only from the ability to take the fight deep into the adversary's territory by launching major offensive operations.

To achieve this objective, it is necessary to raise and position one additional mountain Strike Corps in J&K for offensive operations against both China and Pakistan, besides 17 Corps that has been raised for operations in the North-East against China. In addition, as a Strike Corps can be employed only in one particular sector and cannot be easily redeployed in the mountains, the defensive (ground-holding) corps must be provided limited capability to launch offensive operations with integral resources.

As deep manoeuvre is not possible in a mountainous terrain and is not advisable in the plains against Pakistan due to the risk of escalation to nuclear exchanges, it is necessary to substantially upgrade the capability of the Army to inflict punishment and indeed achieve victory through the orchestration of overwhelming firepower. Unless firepower capabilities are upgraded by an order of magnitude, India will have to be content with a stalemate. The required capabilities include conventionally-armed short-range ballistic missiles (SRBMs) to attack high-value targets deep inside the adversary's territory. Air-to-ground and helicopter-to-ground attack capabilities need to be modernised, particularly those enabling deep-ground penetration and accurate night strikes. Artillery rockets, guns and mortars must also be modernised. Lighter and more mobile equipment is required so that these can be rapidly moved and deployed in the neighbouring sectors. India's holdings of precision-guided munitions (PGMs) must go up progressively to at least 20 to 30 per cent of the total ammunition in order to achieve high levels of operational asymmetries.

India's increasing responsibilities as a net provider of security in the Indo-Pacific region will require the creation of tri-service capabilities for military intervention singly or in conjunction with its strategic partners. Two rapid reaction-cum-air assault divisions (with an amphibious brigade each) need to be raised over the 2020-30 time frame for employment during conventional operations as well as for military intervention if India's vital national interests in the Indo-Pacific are threatened.

The expenditure on these divisions and other capacity-building initiatives outlined here will undoubtedly be highly capital-intensive and, therefore, require substantially higher budgetary support. At about 1.5 per cent of the GDP, this year's defence budget is the lowest since the 1962 war with China. The defence budget must be gradually raised to 2.0 to 2.5 per cent of India's GDP if the country is to maintain an Army that it needs. The weapons and equipment acquisition process must also be streamlined. Only then will the Indian Army be able to undertake the transformation necessary to deter future wars and, if necessary, fight and win.

(The writer is a Former Director, Centre for Land Warfare Studies, New Delhi)

https://www.tribuneindia.com/news/army-must-reorient-itself-for-future-challenges-26291

The Tribune
VOICE OF THE PEOPLE

Wed, 15 Jan 2020

Woman officer from Hoshiarpur to lead R-Day contingent

New Delhi: A woman officer of the Indian Army, Capt Tania Shergill, will have the honour of being the parade adjutant of the Republic Day parade on January 26.

Capt Shergill's family hails from Gardhiwala in Hoshiarpur and she is the fourth generation officer from her family.

She will lead the Army's marching contingent at the parade. In the past, the Army has had women officers leading one contingent out of the half a dozen or so which participate.

Capt Shergill will also be the first woman to lead an all-men contingent at the Army Day parade tomorrow.

Commissioned into the Signals Regiment, Capt Shergill is BTech in electronics and communications. She was commissioned in 2017 from the Officers Training Academy at Chennai.

He father Capt Surat Singh Shergill was a short service commissioned officer in the Artillery Regiment and then went on to serve in the CRPF and was awarded the President's Police Medal for Gallantry. (PPMG)

Her grandfather served in the Scinde Horse Regiment, while here great grandfather was in the Sikh Regiment. The officer loves photography, is keen on animal welfare and an avid music buff.

Punjab connect

- Capt Tania Shergill's family hails from Gardhiwala in Hoshiarpur and she is the fourth generation officer from her family
- Commissioned into the Signals Regiment, Capt Shergill is BTech in electronics and communications. She was commissioned in 2017 from Officers Training Academy at Chennai
- She will also be the first woman to lead an all-men contingent at the Army Day parade today

https://www.tribuneindia.com/news/woman-officer-to-lead-r-day-contingent-26349

THE TIMES OF INDIA

Wed, 15 Jan 2020

Navy's 4 under-construction destroyers to get lethal weapons, sensors package

By Rajat Pandit

New Delhi: The Cabinet Committee on Security has cleared a deadly weapons and sensors package for the four guided-missile destroyers under construction at Mazagon Docks in Mumbai, which will take the overall project cost of the four stealth warships to around Rs 35,800 crore.

Sources said the CCS last week cleared the over Rs 6,150 crore acquisition cost of a wide range of advanced weapon systems and sensors for the four 7,300-tonne destroyers being constructed under 'Project-15B' . The first of the destroyers, INS Visakhapatnam, is likely to be commissioned in 2021-2022 after some delay. It will be followed by her sister warships, INS Mormugao and INS Imphal, while the fourth is yet to be named.

All four will be armed with precision-strike BrahMos supersonic cruise missiles as well as the next-generation Barak surface-toair missile systems, among other weapons like 127 mm main guns and rocket launchers. While BrahMos has been developed jointly with Russia, the Barak-NG is a collaboration between Israeli Aerospace Industries-Rafael and the Indian Defence Research and Development Organisation.

"While the Rs 29,644-crore fixed cost component for construction of the destroyers was inked in 2011, the variable cost component, which includes the weapons and sensors, has now been cleared by the CCS, " a source said.

The stealth destroyers, which will be propelled by four gas turbines to achieve speeds of over 30 knots, will pack a formidable punch. With their weapons and sensors, like the vertically launched missile systems and MF-STARs (multi-function surveillance and threat alert radars), the warships will be capable of long-distance engagement of shore, sea-based and air targets.

The interception range of the supersonic Barak-NG missile systems, for instance, has been increased from the earlier 70 km to around 100 km to provide an all-weather 'defence shield' against incoming enemy fighters, drones, helicopters, missiles and other munitions. The strike range of the 290-km BrahMos is also now being extended, as earlier reported by TOI.

The destroyers, which span 163 metres in length and 17.4 metres at the beam, have been indigenously designed and constructed. The P-15B destroyers, each of which can carry two multi-role helicopters, incorporate cutting-edge design concepts for improved survivability, sea-keeping stealth and manoeuvrability.

Once these warships are commissioned, they will join the ranks of operational destroyers named INS Delhi, INS Mumbai, INS Mysore, INS Kolkata, INS Kochi and INS Chennai. The naval tradition is to name indigenously constructed destroyers, which are second only to aircraft carriers in size and combat power, after a state capital or big city.

The Navy has a force level of 125 warships as well as 15 diesel-electric and two nuclear submarines, along with around 235 aircraft, helicopters and drones, to guard India's strategic interests from the Persian Gulf to Malacca Strait as well as deter Pakistan and counter China's expanding footprint in the Indian Ocean Region. The force also has 48 warships under construction in India, including aircraft carrier INS Vikrant, four Scorpene submarines and the four destroyers, while it will also get two frigates from Russia.

https://timesofindia.indiatimes.com/india/navys-4-under-construction-destroyers-to-get-lethal-weapons-sensors-package/articleshow/73259960.cms

The Tribune
VOICE OF THE PEOPLE

Wed, 15 Jan 2020

Forces await Israeli tech to tackle high-speed drones

By Jupinderjit Singh

Chandigarh: Security agencies don't have more than a few minutes to intercept drones being frequently used by narco-terror gangs to smuggle drugs or weapons in Punjab.

The two drones recovered from a gang of narcotics smugglers, including an Army jawan, recently were sophisticated DJI Inspire 2 and DJI Matrice quadcopters, which are known for their fast speed (90 kmph) and quiet operation. These drones attain this speed within seconds of their launch.

THE SEIZED MODELS

	DJI INSPIRE	DJI MATRICE
Airtime	27 min	35 to 38 min
Payload	5 kg	7 to 9 kg
Price	₹3 lakh	₹6 lakh

Rahul Chauhan from Ambala, Naik with Army, was caught along with two Amritsar residents and smugglers Dharminder Singh and Balkar Singh on Friday. The police have arrested four others also, but the alleged kingpin Ajay Pal, is absconding.

The Inspire model, available online for around Rs 3 lakh per piece, is a Chinese manufactured product which is better used by filmmakers in Hollywood and elsewhere due to its excellent video camera and still photography results.

Its use for fetching drugs from across the border by Punjab smugglers has thrown up a new challenge for the security forces. The battery of Inspire drones allows around 27-minute airtime during which these can fly up to 7 km. The Matrice model has an airtime of 35-38 minutes. While DJI Inspire drone can carry a payload of up to 5 kg, the Matrice model can carry 7-9 kg payload.

These drones are fitted with intelligent return software that allows them to return to the base even when the contact with them is lost.

According to police officials, the payload is usually made to hang from the drone using a string. This obviates the need to land the drone for delivering a payload, thus considerably reducing the risk of a crash or seizure.

Sources said one drone sortie carrying 5 kg heroin can fetch anything between Rs 5 crore to Rs 25 crore for smugglers in local and international market, respectively. The police and BSF look forward to acquiring equipment developed by Israel to check such sorties. Till then, interception depends on manual surveillance as drones being low fliers are not caught by radars.

https://www.tribuneindia.com/news/forces-await-israeli-tech-to-tackle-high-speed-drones-26333

THE HINDU

Wed, 15 Jan 2020

Iran nuclear deal: EU launches dispute mechanism

Britain, France and Germany charge Tehran over 'transgressions' that could ultimately lead to reimposition of UN sanctions

Britain, France and Germany ratcheted up pressure on Iran on Tuesday to cease its violations of a landmark nuclear deal, stressing that they want to resolve differences through talks while starting the clock on a process that could result in a so-called "snapback" of United Nations sanctions.

The three countries, which signed the international agreement in 2015 along with the U.S., Russia and China**,** said in a letter to the European Union's foreign policy chief that they had no choice but to trigger the deal's "dispute mechanism," given Iran's ongoing transgressions.

Limited options

The three said they rejected Tehran's argument that Iran was justified in violating the deal because the U.S. broke the agreement by pulling out unilaterally in 2018.

"We have therefore been left with no choice, given Iran's actions, but to register today our concerns that Iran is not meeting its commitments," the countries said in a joint statement.

EU foreign policy chief Josep Borrell, who coordinates the agreement, said the pressure on Iran from Europe does not mean sanctions will automatically be slapped on the Islamic Republic.

'Maximum pressure'

The Europeans stressed that they want to "resolve the impasse through constructive diplomatic dialogue" and made no threat of sanctions in their statement. They also specifically distanced themselves from sanctions imposed by the U.S., which Washington has said is part of a "maximum pressure" campaign against Tehran.

"Our three countries are not joining a campaign to implement maximum pressure against Iran," they said. "Our hope is to bring Iran back into full compliance with its commitments."

The 2015 nuclear deal, known as the Joint Comprehensive Plan of Action, or JCPOA, seeks to prevent Iran from producing a nuclear weapon — something Iran insists it does not want to do — by putting curbs on its atomic programme in exchange for economic incentives.

Under its dispute resolution mechanism, countries have 30 days to resolve their problem, though that can be extended. If it cannot be solved, the matter could be brought before the U.N. Security Council and could then result in the snapback of sanctions that had been lifted under the deal.

Iran's Foreign Ministry spokesman Abbas Mousavi dismissed the "completely passive action" of the three countries and said Iran would support any act of "goodwill and constructive effort" to save the deal.

https://www.thehindu.com/news/international/iran-nuclear-deal-eu-launches-dispute-mechanism/article30569438.ece

नवभारत टाइम्स

Wed, 15 Jan 2020

सिवन ने बताया प्लान, गगनयान के बाद भारत के स्पेस स्टेशन पर इसरो की नजर

इंडियन स्पेस रिसर्च ऑर्गनाइजेशन अपना पहला स्पेस मिशन गगनयान भेजने की तैयारियों में जुटा है। इसके बाद और कई मिशन भेजने के साथ ही भारत का स्पेस स्टेशन तैयार करने का इरादा है।

By अयान प्रमाणिक / रघु कृष्णन

हाइलाइट्स

- ***इसरो 2022 तक अपना पहला स्पेस मिशन गगनयान भेजने की तैयारियों में जुटा है लेकिन उसकी नजर उससे कहीं आगे है***
- ***इसरो के चेयरमैन के. सिवन का कहना है कि गगनयान के बाद और मिशन भेजे जाएंगे, अंतरिक्ष में होगा अपना स्पेस स्टेशन***
- ***भारत के पास स्पेस मिशन लॉन्च करने वाला चौथा देश बनने का मौका और इसके लिए पायलट्स का चयन भी कर लिया गया***

बेंगलुरु: इंडियन स्पेस रिसर्च ऑर्गनाइजेशन 2022 तक अपना पहला स्पेस मिशन गगनयान भेजने की तैयारियों में जुटा है लेकिन उसकी नजर उससे कहीं आगे है। इसरो के चेयरमैन के. सिवन का कहना है कि गगनयान के बाद और भी मिशन भेजे जाएंगे और उसके बाद अंतरिक्ष में भारत का स्पेस स्टेशन भी बनाया जाएगा। बता दें कि भारत के पास स्पेस मिशन लॉन्च करने वाला चौथा देश बनने का मौका है और इसके लिए पायलट्स का चयन भी कर लिया गया है जिन्हें ट्रेनिंग दी जाएगी।

'होगा हमारा अपना स्पेस स्टेशन'

हमारे सहयोगी अखबार इकनॉमिक टाइम्स से बातचीत में सिवन ने बताया, 'स्वतंत्रता दिवस 2022 से पहले हम पहला मिशन भेजेंगे जिसमें इंसान होंगे। उसके बाद और मिशन भेजे जाएंगे और फिर हमारा अपना स्पेस स्टेशन होगा।' इसरो ने तीन सदस्यों वाले क्रू को ले जाने के लिए 3.7 टन का स्पेसक्राफ्ट डिजाइन किया है लेकिन पहली फ्लाइट में सिर्फ एक ऐस्ट्रनॉट को भेजे जाने की संभावना है।

रूस से ली जाएगी मदद

सिवन ने बताया है कि ऐस्ट्रनॉट्स को ट्रेन करने के लिए और क्रू कैप्सूल में लाइफ सपॉर्ट सिस्टम बनाने के लिए रूस की मदद ली गई है। ऐस्ट्रनॉट्स के स्पेस सूट भी रूस में सिले जाएंगे। इससे पहले भारत इस साल एक ह्यूमनॉइड भेजेगा जिसका रॉकेट इंसानों के लिहाज से बनाया जाएगा। सिवन ने बताया कि इसमें ऐसे सिस्टम होंगे जो इंसानों के हिसाब से काम करेंगे।

https://navbharattimes.indiatimes.com/state/other-states/bangalore/chennai/isro-chairman-k-sivan-says-isro-eyes-on-indian-space-station-after-gaganyaan-mission/articleshow/73238038.cms

DefenceNews

Wed, 15 Jan 2020

Meet 7 Indian women scientists whose inventions and experiments have helped in the progress of science and technology

Women in science from being a minority are now occupying the most important positions, in realms one thought were unachievable before. From winning Nobel Prizes to heading NASA, women scientists have etched their names in history.

In India, science and tech remains a male-dominated field like much of the world. However, women like Ritu Karidhal, Chandrima Saha and others have taken on leading roles in organisations like ISRO and INSA, initiated new projects with far-reaching results.

Here is a list of women whose scientific endeavours have broadened the horizons of science on earth and beyond.

Tessy Thomas ::

Tessy Thomas, known as the 'Missile Woman' of India is the Director General of Aeronautical Systems and the former Project Director for Agni-IV missile in Defence Research and Development Organisation (DRDO). She is the first woman scientist to head a missile project in India.

The 56-year-old has a doctorate in missile guidance and has worked in the field for over three decades. She has contributed in guidance, trajectory simulation and mission design at the DRDO. She designed the guidance scheme for long-range missile systems, which is used in all Agni missiles. She was conferred with Agni Self-reliance award in 2001. She is a recipient of multiple fellowships and honorary doctorates.

Ritu Karidhal ::

As Mission Director of the Chandrayaan-2 mission, Ritu Karidhal was feted for role in helming one of India’s most ambitious lunar projects. She was responsible for detailing and the execution of the craft's onward autonomy system, that independently operated the satellite’s functions in space and responded appropriately to malfunctions.

Dubbed as the ‘Rocket Woman of India’ Ritu joined ISRO in 2007 and was also the Deputy Operations Director to India’s Mars Orbiter mission, Mangalyaan.

An aerospace engineer, she was born and raised in Lucknow in a middle-class family. She has a BSc in physics from the University of Lucknow and ME degree in aerospace engineering from the Indian Institute of Science.

In 2007, she also received the ISRO Young Scientist Award from APJ Abdul Kalam, then President of India.

Muthayya Vanitha ::

Muthayya Vanitha is the Project Director of Chandrayaan-2. She is the first woman to lead the interplanetary mission at ISRO. She was promoted from Associate Director to Project Director of the mission. She hails from Chennai and is an electronics system engineer from the College of Engineering, Guindy.

She has worked at ISRO for over three decades. She started as a junior engineer in hardware testing and development and has risen up the ladder steadily. She has occupied several roles such as leading the Telemetry and Telecommand Divisions in the Digital Systems Group of ISRO Satellite Centre, and

has been the Deputy Project Director for several satellites including Cartosat-1, Oceansat-2, and Megha-Tropiques. . Previously she has also managed data operations for remote sensing satellites.

In 2006, she received the Best Woman Scientist Award.

Gagandeep Kang ::

Gagandeep Kang, a virologist and scientist, is known for her interdisciplinary research in transmission, development, and prevention of enteric infections and their sequelae in children in India.

She has been elected as a Fellow of the Royal Society (FRS), the first Indian woman scientist to receive this honour. The FRS is the oldest scientific institution in the world, and is dedicated to promoting excellence in science.

Gagandeep is the Executive Director of the Translational Health Science and Technology Institute (THSTI), Faridabad, and is the Chairperson of the World Health Organisation (WHO) Southeast-Asia's Immunisation Technical Advisory Group.

To develop practical approaches to support public health, she also built national rotavirus and typhoid surveillance networks, established laboratories to support vaccine trials, and conducted phase one-three- clinical trials of vaccines, a comprehensive approach that has supported two WHO prequalified vaccines made by two Indian companies. She is also investigating the complex relationships between infection, gut function, and physical and cognitive development, and seeking to build a stronger human immunology research in India.

Mangala Mani ::

The ‘polar woman of ISRO’, Mangala Mani is ISRO’s first woman scientist to spend more than a year in the icy landscape of Antarctica. The 56-year-old had never experienced snowfall before she was selected for the mission. In November 2016, she was part of the 23-member team that went on an expedition to Bharati, India’s research station in Antarctica. She spent 403 days at the southernmost continent operating and maintaining ISRO’s ground station.

She will soon be featured in a BBC series about women in science. In a newspaper article, she is quoted as saying, “Women are venturing into every field. Women just need to be willing, ready and take that opportunity when it comes. With the knowledge explosion, the sky is not the limit, there is much more beyond.”

Kamakshi Sivaramakrishnan ::

Kamakshi Sivaramakrishnan technology is onboard NASA's New Horizon mission, which is probing Pluto. It is NASA’s farthest space mission. She is responsible for building the algorithm and the chip that is responsible for bringing information from Pluto, whose existence as a planet was being questioned. The chip on board the spacecraft collects signals and sends them back to the space station which is three billion miles away.

After completing her undergraduate degree in Mumbai, Kamakshi went on to study information theory at Stanford. Later, explored the idea of machine learning stack as lead scientist at AdMob, after which she began research where her technology led her to work closely with the cosmos.

Now, she has gone back to learning stack and has created an ingenious technology of her own, in the form of Drawbridge – which went on to be America’s fastest-growing women-led companies.

Based in San Mateo, California, she has been building a complex algorithm to be more intuitive about how users interact with ads online, as well as across different interfaces – smartphones, tablets, laptops, etc.

Chandrima Shaha ::

Chandrima is a biologist and the first ever woman president of the Indian National Science Academy (INSA). She assumed office on January 1 this year. In 85 years of its existence, the Academy has never had a woman president until she took over.

Chandrimawas first elected to INSA in 2008, and served as its Vice President between 2016 and 2018. She specialises in cell biology, and has conducted extensive research about the 'Leishmania' parasite which causes Kala Azar. She has also authored over 80 research papers. She has received many awards like the Shakuntala Amirchand Award of ICMR (1992), and the Special Award for 50th Anniversary of DNA Double Helix Discovery (2003) for "significant contributions towards understanding of Cell Death Processes in different Model Organisms.

Being ignored by male colleagues in her early days as a scientist, who wouldn't even shake hands with a woman scientist, motivated her to keep going no matter what, and establish herself as a successful one.

https://www.defencenews.in/article/Meet-7-Indian-women-scientists-whose-inventions-and-experiments-have-helped-in-the-progress-of-science-and-technology-808862

नवभारत टाइम्स

Wed, 15 Jan 2020

धरती पर उल्कापिंड के भीतर अब तक की सबसे प्राचीन ठोस सामग्री मिली

वाशिंगटन: वैज्ञानिकों ने धरती पर अब तक की सबसे प्राचीन ठोस सामग्री का पता लगाया है जो ऑस्ट्रेलिया में 50 साल पहले गिरे एक उल्कापिंड के भीतर मिली। इसका निर्माण हमारे सौर मंडल से भी पहले हुआ। इस खोज से संबंधित चीजें 'पीएनएएस' पत्रिका में प्रकाशित हुई हैं। इससे ऐसे तारों का सबूत मिलता है जिनका निर्माण वर्तमान जानकारी के विपरीत सात अरब साल पहले हुआ। अमेरिका के शिकागो विश्वविद्यालय के एसोसिएट प्रोफेसर फिलिप हेक ने कहा, ''यह अब तक की सबसे प्राचीन ठोस सामग्री है और यह बताती है कि हमारी आकाशगंगा में तारों का निर्माण कैसे हुआ।'' वैज्ञानिकों द्वारा खोजी गई इस ठोस सामग्री को सौर पूर्व कण-खनिज कहा जाता है जिसका निर्माण सूर्य से भी पहले हुआ। हेक अमेरिका के फील्ड म्यूजियम के क्यूरेटर भी हैं। उन्होंने कहा, ''ये (सामग्री) तारों के ठोस नमूने हैं।'' अनुसंधानकर्ताओं ने कहा कि तारों की धूल के ये टुकड़े उल्कापिंड के भीतर फंस गए जहां ये अरबों वर्ष तक अपरिवर्तित रहे। उन्होंने कहा कि सौर पूर्व कण अत्यंत छोटे और दुर्लभ होते हैं। ये धरती पर गिरे उल्कापिंडों में से केवल पांच प्रतिशत के भीतर ही पाए जाते हैं।

(यह आर्टिकल एजेंसी फीड से ऑटो-अपलोड हुआ है। इसे नवभारतटाइम्स.कॉम की टीम ने एडिट नहीं किया है।)

https://navbharattimes.indiatimes.com/india/the-oldest-concrete-material-ever-found-on-earth-within-a-meteorite/articleshow/73251458.cms

THE FINANCIAL EXPRESS

Wed, 15 Jan 2020

Oldest solid material on Earth discovered inside meteorite in Australia

Scientists have discovered the oldest solid material ever found on the Earth, in the form of stardust trapped inside a meteorite that crashed into Australia 50 years ago and predates the formation of our solar system. This stardust provides evidence for a 'baby boom' of new stars that formed 7 billion years ago, contrary to the theory that star formation happens at a steady, constant rate, according to the study published in the journal PNAS. "These are the oldest solid materials ever found, and they tell us about how stars formed in our galaxy," said Philipp Heck, an associate professor at the University of Chicago in the US.

The materials the researchers examined are called presolar grains-minerals formed before the Sun was born. "They are solid samples of stars, real stardust," said Heck, who is also a curator at the Field Museum in the US. These bits of stardust became trapped in meteorites where they remained unchanged for billions of years, making them capsules of the cosmic time before the solar system, the researchers said. However, presolar grains are very tiny and rare, found only in about five per cent of meteorites that have fallen to the Earth, they said.

The Field Museum has the largest portion of the Murchison meteorite, a treasure trove of presolar grains that fell in Australia in 1969 and that the people of Murchison, Victoria, made available to science. "It starts with crushing fragments of the meteorite down into a powder," said Jennika Greer, a graduate student at the Field Museum and the University of Chicago, and co-author of the study. "Once all the pieces are segregated, it's a kind of paste, and it has a pungent characteristic — it smells like rotten peanut butter," said Greer. This "rotten-peanut-butter-meteorite paste" was then dissolved with acid, until only the presolar grains remained.

"It's like burning down the haystack to find the needle," said Heck. Once the presolar grains were isolated, the researchers figured out what types of stars they came from, and how old they were. "We used exposure age data, which basically measures their exposure to cosmic rays, which are high-energy particles that fly through our galaxy and penetrate solid matter," explained Heck.

"Some of these cosmic rays interact with the matter and form new elements. And the longer they get exposed, the more those elements form," he said. By measuring how many of these new cosmic-ray produced elements are present in a presolar grain, we can tell how long it was exposed to cosmic rays, which tells us how old it is, the researchers said. They learned that some of the presolar grains in their sample were the oldest ever discovered — based on how many cosmic rays they had soaked up. Most of the grains had to be 4.6 to 4.9 billion years old, and some grains were even older than 5.5 billion years, the researchers said. For context, our Sun is about 4.6 billion years old, and Earth is around 4.5 billion.

However, the age of the presolar grains was not the end of the discovery, the researchers said. Since presolar grains are formed when a star dies, they can tell us about the history of stars, they said. Seven billion years ago, there was apparently a bumper crop of new stars forming — a sort of astral baby boom, according to the researchers.

"We have more young grains that we expected," said Heck. "Our hypothesis is that the majority of those grains, which are 4.9 to 4.6 billion years old, formed in an episode of enhanced star formation. There was a time before the start of the Solar System when more stars formed than normal," he said.

https://www.financialexpress.com/lifestyle/science/oldest-solid-material-on-earth-discovered-inside-meteorite-in-australia/1822796/