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Sat, 16 Sept, 2017

Astra Missile Trials Successful Off Chandipur

The final flight trials of Astra, a Beyond Visual Range Air to Air Missile (BVRAAM), were successfully conducted off Chandipur coast between September 11 and 14. A total of seven trials were conducted against Pilotless Target Aircrafts (PTA).

“The missions included engagement of target at very long range, engagement of high manoeuvring target at medium range and multiple launches of missiles in salvo to engage multiple targets. All the sub-systems performed accurately, meeting all the mission parameters and objectives. Two missiles were also launched in the combat configuration with warhead and the targets were neutralised,” a defence Press release said.

The effort for building a state-of-the-art BVRAAM by the Defence Research and Development Organisation (DRDO), together with the Indian Air Force (IAF) has completed the development phase of the weapon system successfully. The Hindustan Aeronautics Limited (HAL) has played a role in modifying the aircraft for weapon integration. More than 50 public and private industries have contributed in building the Astra weapon system.

Programme Director Dr S Venugopal led the launch operations and flight trials along with the teams from multiple organisations.

Defence Minister Nirmala Sitharaman congratulated the DRDO, the IAF Air Force, the Defence Public Sector Undertaking (DPSU) and the industries for the successful trials of the Astra missile.

DRDO Chairman and Department of Defence (R&D) Secretary Dr S Christopher congratulated the ‘Team Astra’ for developing and flight-testing such a formidable class of weapon system.

Director General, Missiles and Strategic Systems Dr G Satheesh Reddy said the technologies developed under the programme will pave way for development of more variants of air-to-air and surface-to-air missiles.



Sat, 16 Sept, 2017

Indigenous artillery gun sets new record in range

By Dinakar Peri

New Delhi: An indigenous artillery gun, Advanced Towed Artillery Gun System (ATAGS), being jointly developed by the Defence Research and Development Organisation (DRDO) and the private sector has set a new world record in range by hitting targets at a distance of 48 km.

“During trial firings at Pokhran ranges last week, ATAGS registered the longest ever distance of 48.074 kms, surpassing the maximum ranges of 35-40 kms fired by any artillery gun system in this category,” an industry source told *The Hindu*.

ATAGS is a 155mm, 52 calibre towed artillery gun being developed in mission mode by DRDO as a part of the Army’s artillery modernisation programme. The record was achieved with special ammunition, “high explosive – base bleed” (HE – BB) by the ATAGS variant developed by Kalyani Group.

The development is being done through a consortium based model, similar to that adopted for the Pinaka multi-barrel rocket launch system. It was designed by DRDO’s Armament Research and Development Establishment (ARDE) in Pune. In addition, Bharat Forge Limited of Kalyani Group, Tata Power Strategic Engineering Division and Mahindra Defence Naval System from the private sector are involved in a big way

along with the Ordnance Factory Board (OFB). For instance, the barrel and breech mechanism, on both variants of ATAGS, was developed at Kalyani Group.

Summer trials are currently underway and the next round of trials are likely to held in Sikkim in December.

“The trials are progressing well. Additional prototypes are being made to speed trials,” one official said.

The gun has several significant features including an all-electric drive, high mobility, quick deployability, auxiliary power mode, advanced communication system, automated command and control system. It has a six round magazine instead of a standard three round magazine. Also, the gun weighs slightly more than normal due to the larger chamber.

The Army has not inducted any new artillery gun since the Bofors in the 1980's. After decades of failed attempts, the service is gearing up to induct the Dhanush artillery gun which is an indigenously upgraded variant of the Bofors gun. In addition, last November India signed a contract for 145 M-777 Ultra-Light Howitzers from the US.



Sat, 16 Sept, 2017

What Sitharaman needs to do to reform India's defence sector

Instead of focusing on acquisitions, she must reorganise the civilian military hierarchy

Let's not worry too much about Nirmala Sitharaman's lacking in experience to be the defence minister. For all their experience former defence ministers AK Antony and Manohar Parrikar were failures. In our system, no minister is expected to have expert knowledge of the subject he/she is allotted. A good minister is someone who sets goals, takes decisions, has sound judgment, listens, learns from experience, and has authority within the government.

Sitharaman shone as a BJP spokesperson, is an articulate, hard working and dogged person. However, she is a political lightweight and her authority stems from the trust of Prime Minister Narendra Modi.

And these qualities will not be enough in dealing with the major portfolio she has been entrusted with in the recent Cabinet reshuffle. As a commerce minister, Sitharaman's task was to supervise well-established policies of a ministry that ran reasonably well. Outcomes in trade policies and foreign direct investment were not within the control of the minister or the government of India anyway; external factors played a key role.

But as defence minister, Sitharaman's task is larger. Not only does she have to run a ministry, which deals with more than a million people and whose budget is nearly Rs 360,000 crore, but to run it well, she needs to carry out deep reforms and restructuring of the ministry.

The Indian ministry of defence is obsolete, its public sector units and ordnance factories dysfunctional, it runs a military whose organisation is outdated. Worse is the barely concealed hostility between the civilians who run it and the military personnel who have to implement its policies without having an effective role in formulating them.

The agenda for reform is vast and has been outlined by several committees since 1990. Unfortunately, it has been subverted by the bureaucracy. Sadly, as Antony and Parrikar showed, the political heads of the ministry, responsible to the Cabinet Committee on Security, have failed in their job to discipline them. The Group of Ministers of the BJP-led National Democratic Alliance -I government recommended a range of measures to integrate the civilian and military parts of the ministry of defence.

The babus simply changed the nomenclature and declared that the decision had been implemented. So, today, the head quarter of the Indian Army is the Integrated Headquarters of the Ministry of Defence (Army). As for their main recommendation, seconded in 2012 by the Naresh Chandra Committee, to appoint a Chief of Defence Staff (CDS), it has got lost.

The generalist bureaucracy lacks the expertise to advise the government, so they spend their time in preventing those who can, the uniformed military from doing so. Only if the problem of the inexpert bureaucracy is fixed can we move to the stage of reforming the ministry and restructuring the armed forces. Efforts to do so otherwise are doomed.

India has been trying to reform the ministry of defence since the constitution of the Arun Singh committee on Defence Expenditure in 1990. This has been through two key reforms -- the integration of the civil and military components of the ministry of defence and the appointment of a Chief of Defence Staff — which would, in turn unlock a whole slew of reforms including the creation of theatre commands.

The new defence minister's initial remarks suggest that she, like Manohar Parrikar, will be more focused on acquisitions and will seek to promote Indian manufacture of weapons systems.

This is all for the good, but it cannot be achieved overnight. Also it requires systematic and deep reform in the way defence planning, acquisitions, R&D and manufacturing are linked.

Fixing manufacturing and acquisitions alone will not work. She needs to urgently tackle the need to reorganise India's sprawling military to make them an effective fighting unit for 21st century warfare, where challenges range from nuclear armed adversaries to proxy jihadis. This means shedding flab of the armed forces, integrating commands, getting them to work as a single unit with the civilians and so on. She will confront a wall of vested interests who do not want any reform because, like all bureaucratic organisations, they are afraid they will lose out on change. It's the task of the political boss to knock their heads and change things.

Sitharaman needs to first understand the nature of the challenge, get the support of her boss and push the reforms through irrespective of who is on board or not in her ministry. Manoj Joshi is a distinguished fellow, Observer Research Foundation, New Delhi The views expressed are personal

The logo for The Economic Times newspaper, featuring the text "THE ECONOMIC TIMES" in a large, bold, serif font. Above the text, the website address "WWW.ECONOMICTIMES.COM" is written in a smaller, red font.

Sat, 16 Sept, 2017

Clean Energy may Light Up Military Stations at Peaks

By Shaurya Gurung

Army looks to tap renewables to supply power to jawans deployed at high altitudes

The Army is looking for durable power supply in high altitudes to enhance the living conditions of its personnel. The plan is to have renewable energy in place of fossil fuels that are unreliable and face transportation and maintenance hassles.

The project has been placed under the Technology Development Fund scheme and the Army is discussing the project with the industry and subject experts.

The scheme envisages funding the industry that can develop technologies or prototypes for potential use with the help of scientists.

The first option is fuel cell, which would convert chemical energy from a fuel into electricity through a reaction of hydrogen-containing fuel with oxygen or another oxidising agent.

To start with, the power to be generated would be pegged at around 5 KW. Solar and wind energy, in abundance at high altitudes, are also under consideration.

According to a study report, Ladakh is a region where such renewable energy can be easily harnessed. The region is not connected to the national grid.

There are hydel power projects here but freezing of water in winter sees considerable fall in production. Solar power projects are few in number and are unable to meet the peak power demand for 21 military stations in winter. “There is a requirement to integrate all renewable energy sources to create a micro grid, to balance the requirement of military stations. The hybrid sources which need to be integrated are solar, wind, geothermal and micro hydel power stations,” the study report said.

“These sources of energy are not susceptible to mechanical breakdown. There are also no transportation issues. Some of these technologies are more durable to withstand vagaries of nature. As they are quiet, they will also not give away your location to the adversary,” an officer said.

Jawans deployed at altitudes as high as 22,000 feet in the northern and eastern sectors have to deal with sub-zero conditions almost throughout the year. Uninterrupted electricity supply, hence, becomes essential for cooking, heating, boiling water and recharging batteries of communication and surveillance devices. Due to the absence of regular electric, generators are used at present. Apart from the huge amounts of fuel consumption, transporting diesel and kerosene is a logistic challenge and costly proposition. Fuel is often carried by soldiers and mules.

Oil pipelines are susceptible to breakages due to landslides and avalanches. Stoves and generators often break down during winters and sending a generator for repairs is a transportation nightmare.



Sat, 16 Sept, 2017

Ceasefire violation by Pak kills BSF jawan

By Sanjay Khajuria

A BSF jawan was killed and a civilian injured when Pakistan rangers resorted to unprovoked firing along the International Border in Jammu's Arnia sector on Friday morning.

“Pakistan opened fire on forward posts of BSF in Arnia sector early morning,” a BSF spokesperson said, adding that the Indian side retaliated “strongly and effectively to the violation”.

The slain soldier was identified as constable Bijender Bahadur of Uttar Pradesh's Balia district. He is survived by his wife Sushmita Singh.

Ajay Kumar, the civilian who sustained injuries in the cross border firing, was admitted to Jammu government medical college.

Incidents of ceasefire violations by Pakistani troops have increased sharply this year. Till August 1, there have been 285 such actions by the Pakistan army.



Sat, 16 Sept, 2017

Beijing displays its first unmanned attack helicopter

China has put on display its first unmanned combat helicopter AV500W for foreign buyers in the northeastern Tianjin city in a bid to enlarge scope to market its military drones abroad, a media report said today. Aviation Industry Corp of China (AVIC), the state-owned aircraft manufacturer, has put the

reconnaissance cum combat helicopter on display at the fourth China Helicopter Expo, the largest of its kind in China. The 7.2-meter-long aircraft, developed and produced at the AVIC Helicopter Research and Development Institute in Jingdezhen, Jiangxi province, has a maximum take-off weight of 450 kilogrammes, a maximum speed of 170 kilometres per hour and a flight ceiling of 4,000 meters, state-run China Daily reported. The helicopter is capable of carrying 120 kilogrammes of weapons and equipment.

Its reconnaissance version can remain aloft for eight hours while the reconnaissance/combat model is able to fly for four hours. All of the military drones China has offered to the international market have been fixed-wing models, making the AV500W the first Chinese unmanned military helicopter available in that market, experts were quoted as saying. Jiang Taiyu, one of the chief designers of AV500W, said the aircraft fired weapons during its maiden flight test in August.

“The helicopter is able to take off and land on almost any landform including plateaus and canyons. It can operate in cold and tropical environments. It will be useful in border patrols, counterterrorism operations and low-intensity conflicts because it can carry out very-low-altitude penetration and keep hovering for a while,” he said. Jiang said that all of the helicopter's tests will be finished before the end of this year and it will be ready for mass-production in 2018. “Several nations have told us that they are interested in this aircraft. This is because there are a very small number of unmanned helicopters in the world that can perform strikes, while demand for such types is not small,” Jiang said. He said only the US and Israel have developed unmanned armed helicopters such as the Northrop Grumman MQ-8B Fire Scout in the US. An armed AV500W typically carries four air-to-ground missiles, which use radar homing technology for guidance.

Each missile weighs 8 kilogrammes and can hit a target 5 kilometres away, the report quoted AVIC officials as saying.



Sat, 16 Sept, 2017

China warns ‘any ‘third party’ from meddling in dispute

We hope India and various parties should respect such aspects and any third party should not be involved in our efforts to solve (boundary) disputes. Hua Chunying, China’s foreign ministry spokesperson

BEIJING : China on Friday warned no third party should meddle in the Sino-India boundary dispute, specifically mentioning the “eastern section” of the border where Beijing claims Arunachal Pradesh as part of southern Tibet.

The ministry of foreign affairs (MFA) response was in apparent context of Japan’s interest in investing in Arunachal Pradesh.

“You must be very clear that boundary of India China border area has not been totally delimited and we have disputes in the eastern section of the boundary. We are now trying to seek a solution through negotiation that is acceptable to both sides,” Hua Chunying, deputy director, foreign ministry information department of the People’s Republic of China, said.

“In such circumstances, we hope India and various parties should respect such aspects and any third party should not be involved in our efforts to solve disputes,” she added.

Hua responded to questions about Japanese Prime Minister Shinzo Abe’s high-profile twoday visit to India, saying Beijing had closely tracked it.

“To be frank, we are closely following Japan PM’s visit to India,” Hua said.

India and Japan said in the joint statement that they were for freedom of navigation and following the United Nations Convention on the Law of the Sea (UNCLOS) in Indo-Pacific regions which includes the South China Sea.

Talking about the India-Japan joint statement, she said: “The statement mentioned resolving disputes through negotiation & dialogue. We know that resolving disputes by directly concerned parties to uphold freedom of navigation and over flight is China’s position. We also hope various parties can uphold the rights to freedom of navigation and over flight by countries in various waters,” she said.

Hua brought up the Belt and Road Initiative (BRI) as well.

“You mentioned that there are may be some innuendos on the Belt and Road initiative.

“In terms of improvement on our connectivity, we always do it... We should uphold the wide consultation, joint contribution and benefits to strengthen the infrastructure and connectivity in this region,” Hua added.

“India and Japan are both important countries in Asia. We hope normal development of relations can be conducive to regional stability and development and play a constructive role in this process,” she said.

Business Standard

Sat, 16 Sept, 2017

North Korea fires another missile over Japan

The missile flew over Japan and landed in the Pacific about 2,000 km (1,240 miles) east of Hokkaido

North Korea fired a missile that flew over Japan’s northern Hokkaido far out into the Pacific Ocean on Friday, South Korean and Japanese officials said, deepening tension after Pyongyang’s recent test of its most powerful nuclear bomb.

The missile flew over Japan and landed in the Pacific about 2,000 km (1,240 miles) east of Hokkaido, Japanese Chief Cabinet Secretary Yoshihide Suga told reporters.

The missile reached an altitude of about 770 km (480 miles) and flew for about 19 minutes over a distance of about 3,700 km (2,300 miles), according to South Korea’s military —far enough to reach the US Pacific territory of Guam.

On August 29, North Korea launched an intermediate-range ballistic missile, the Hwasong-12, which travelled 2,700 km (1,700 miles), also over Japan. “The range of this test was significant since North Korea demonstrated that it could reach Guam with this missile,” the Union of Concerned Scientists said in a statement. However, it said the accuracy of the missile, still at an early stage of development, was low, so it would be difficult to destroy the US Andersen Air Force Base on Guam.

Warning announcements about the missile blared around 10:00 pm GMT Thursday in parts of northern Japan, while many residents received alerts on their mobile phones or saw warnings on TV telling them to seek refuge.

US Secretary of Defense Jim Mattis said the launch “put millions of Japanese into duck and cover”, although residents of northern Japan appeared calm and went about their business as normal after the second such launch in less than a month.

The US military said soon after the launch it had detected a single intermediate range ballistic missile but the missile did not pose a threat to North America or the US Pacific territory of Guam.

ISRO to be back with launches in Nov.-Dec.

Report on failure soon: Kiran Kumar

The Indian Space Research Organisation expects to resume launch of satellites in a couple of months once its failure analysis committee releases its report. The committee is conducting tests on why the PSLV-C39 mission of August 31 failed to release a back-up navigation satellite into space.

ISRO Chairman A.S. Kiran Kumar on Friday said the committee would release its report "very soon". The launches would be resumed in November or December after necessary steps are taken. He was speaking on the sidelines of an event to mark 25 years of the formation of Antrix Corporation, which markets ISRO's products and services.

On the loss of IRNSS-1H in the launch, Mr. Kiran Kumar said the existing fleet of six spacecraft met all required specifications and there was no urgency for a replacement. "The overall performance of the [navigation] system is not affected," he said.

Addressing a large gathering of ISRO officials and industry associates, Mr. Kiran Kumar said Antrix Corporation had made the PSLV rocket a globally famous and reliable space launch vehicle; it had lifted more than 200 small foreign satellites over years. It could now help Indian industry gain credibility in the \$339 billion world space market. The market had evolved fast to challenge established government-run agencies.

Rakesh Sasibhushan, CMD of Antrix, said the company had grown from a turnover of ₹52 lakh in its first year to nearly ₹2,000 crore in 2016-17. It had launch orders worth ₹800 crore from various satellite operations for the next three to five years.

Early associates and former members of the Antrix board — Jamshyd Godrej, MD of Godrej & Boyce; N. Rangachary, former Additional Secretary in the Department of Space, and the late U.R. Rao, former ISRO Chairman, were honoured.

Business Standard

Sat, 16 Sept, 2017

Locks to space: Godrej to join Isro's private rocket mission

The space agency has set 2020 as deadline for the first privately built rocket to be launched into space

By Raghu Krishnan

Godrej & Boyce confirmed on Friday it would join an industry consortium being formed by the Indian Space Research Organisation (Isro) to build workhorse rocket Polar Satellite Launch Vehicles (PSLVs) to send local and global satellites into space.

The space agency has set 2020 as the deadline for the first privately built rocket to be launched into space.

"It is at a nascent stage right now. The discussions are going on how to form a consortium and who will do what," said Jamshyd N Godrej, chairman, Godrej & Boyce, on Friday.

So far, Isro has built PSLV rockets used for the Moon and Mars missions on its own but has been constrained in scaling up to meet the growing global demand for launch services of smaller satellites. Besides, it also has to devote resources to build heavier rockets, satellites and launch deep space missions. This has prompted the space agency to look at private firms to build PSLV rockets under its guidance.

Godrej produces Vikas, the rocket engine that powers both the PSLV and the heavier Geo-synchronous Satellite Launch Vehicle (GSLV), besides various systems such as antennae and thrusters for Isro.

“If you have to really develop a major aerospace industry in India you need all these building blocks. Companies with different expertise have to come together,” said Godrej.

Globally, there has been an explosion of companies that are building small and mini satellites but there is a shortage of launchers. Firms such as PlanetLabs and Spire Global have used the PSLV to hurl their satellites into space and the opportunity is only growing. Isro is restructuring Antrix Corporation, its commercial arm, so that it can work in partnership with the private sector and promote homegrown space technology for global markets. Godrej is also investing in building its aerospace capabilities to service both the local and global markets.

“Companies such as Rolls Royce and Boeing want components from India. They want in large numbers, not on a small scale,” said Godrej.

He also concurred with a Boeing executive’s assessment that India’s private sector lacked the capability to manufacture complex military aircraft under transfer of technology. In September, Boeing India chief Pratyush Kumar had said only Hindustan Aeronautics had such capability, which Godrej said “is a fact”.



Sat, 16 Sept, 2017

NASA's Cassini ends 20-year-long journey

NASA's USD 3.9 billion Cassini spacecraft today ended its 20-year-long groundbreaking journey with a fiery plunge into the Saturn's crushing atmosphere, beaming back neverbefore-seen images of the ringed planet and its mysterious moons until the last moment. Operators deliberately made Cassini, the first spacecraft to orbit Saturn, dive into the gas giant to ensure that the planet's moons - in particular Enceladus, with its subsurface ocean and signs of hydrothermal activity - remain pristine for future exploration.

“Our spacecraft has entered Saturn's atmosphere, and we have received its final transmission,” NASA said in a tweet. “Every time we see Saturn in the night sky, we'll remember. We'll smile. And we'll want to go back,” the US space agency said. The spacecraft's fateful dive was the final beat in the mission's Grand Finale, 22 weekly dives, which began in late April, through the gap between Saturn and its rings. No spacecraft has ever ventured so close to the planet before, NASA said. “I hope you are all as deeply proud of this amazing accomplishment. Congratulations to you all. This has been an incredible mission, incredible spacecraft and you were all incredible team,” Earl Maize, Cassini mission manager, said while announcing the end of the mission at IST 5:25 pm. The USD 3.9 billion mission continued to transmit data back to the Earth till the last minute before it came apart and was burned up like a meteor in Saturn's atmosphere.

The unmanned orbiter tore through the atmosphere at the speed of 113,000 kilometres per hour. Contact was lost with the Cassini spacecraft a minute after it reached an altitude of about 1,500 kilometres above the planet's estimated cloud tops. Within about 30 seconds following loss of signal, the spacecraft came apart; and within a couple of minutes, all remnants of the spacecraft were consumed in the atmosphere of Saturn, NASA said. “Earth received CassiniSaturn's final signal at 7:55 am ET.

Cassini is now part of the planet it studied. Thanks for the science,” NASA tweeted. The Cassini mission gave scientists an unprecedented view of the sixth planet from the Sun. The probe discovered seasonal changes on Saturn, a hexagon-shaped pattern on the north pole and the moon Titan's resemblance to a primordial Earth. Scientists found deep, liquid-filled canyons on Saturn's moon Titan for the first time.

They also found a global ocean on the moon Enceladus, with ice plumes spouting from its surface. Thanks to these observations, Enceladus has become a promising target in the search for life outside Earth. A

joint endeavour of NASA, the European Space Agency (ESA) and the Italian space agency, Agenzia Spaziale Italiana (ASI), Cassini was a sophisticated robotic spacecraft orbiting the ringed planet and studying the Saturnian system in detail. The spacecraft has produced 450,000 images and 635 gigabytes of data since it began probing Saturn and its 62 known moons in July 2004.



Sat, 16 Sept, 2017

Research on old men having big ears wins an Ig Nobel

Absurd scientific achievements awarded at Harvard University every year; some even have valid applications

Scientists who discovered that old men really do have big ears, that playing the didgeridoo helps relieve sleep apnea and that handling crocodiles can influence gambling decisions are among this year's recipients of the Ig Nobel, the prize for absurd scientific achievement.

The 27th annual awards were announced Thursday at Harvard University. The ceremony featured a traditional barrage of paper airplanes, a world premiere opera and real Nobel laureates handing out the 10 prizes.

"It's a strange honor to have, but I am thrilled," Dr. James Heathcote told The Associated Press. A British physician, Heathcote won the Ig Nobel for anatomy for his big-ear research.

The awards are sponsored by the science humour magazine *Annals of Improbable Research*, the Harvard-Radcliffe Science Fiction Association and the Harvard-Radcliffe Society of Physics Students.

This year's winners who each received \$10 trillion cash prizes in virtually worthless Zimbabwean money also included scientists who used fluid dynamics to determine whether cats are solid or liquid; researchers who tried to figure out why some people are disgusted by cheese; and psychologists who found that many identical twins cannot tell themselves apart in visual images. When he asked why old men have such big ears, half his colleagues agreed with his observation; the others scoffed.

Gender debate - For his study, Dr. Heathcote measured the ear length of more than 200 patients and discovered not only that old men have big ears but that ears grow about 2 mm per decade after age 30. Women's ears grow with age, too, but their ears are smaller to start with, and men's big ears may be more noticeable because they tend to have less hair, he found. "There's something magical about measuring the ears," he said.

Dr. Milo Puhan's Ig Nobel peace prize-winning discovery is a godsend for anyone who lives with an unbearably loud snorer. He found that playing the didgeridoo that tubular Australian aboriginal instrument that emits a deep, rhythmic drone helps relieve sleep apnea.

Dr. Puhan, director of the Institute for Epidemiology, Biostatistics and Prevention at the University of Zurich in Switzerland, studied didgeridoo playing after a patient with mild sleep apnea became convinced that it helped him. Dr. Puhan recruited volunteers who learned to play a plastic didgeridoo.

"Regular playing of a didgeridoo reduces daytime sleepiness and snoring in people with moderate obstructive sleep apnea syndrome and also improves the sleep quality of partners," his study concluded.

Why does it work? Dr. Puhan figures playing the didgeridoo helps people learn circular breathing (the technique of blowing out through the mouth while simultaneously inhaling through the nose) and strengthens the throat muscles used in breathing.

The economics prize went to a pair of Australians who found that if you want to limit your gambling losses, don't have a close encounter with a crocodile.

Matthew Rockloff, head of the Population Research Laboratory at Central Queensland University in Bundaberg, and research assistant Nancy Greer, plunked a saltwater crocodile its mouth safely taped into the arms of people about to gamble and watched what happened. The excitement caused by handling a dangerous reptile caused people with pre-existing problems to "gamble higher amounts, which over the long term will lead to greater gambling losses, Mr. Rockloff said.