ARBiT
it happens here...

Gift Of Sight Month

Gift Of Sight month has been designed to help and raise awareness regarding the importance of eye health. A lot of people realize that routine yearly physicals are imperative, in terms of detecting or preventing a lot of conditions. However, very few people appreciate, just how important a yearly eye exam is, when it comes to preventing disorders and diagnosing diseases, at the earliest stage. It does not matter whether you are seven-years-old or you will soon be celebrating your 70th birthday, an annual eye exam is something we should all have!

राष्ट्रदूत
SATURDAY
02 December 2023
A-B

#ENVIRONMENT

Why World's Biggest Iceberg is on the Move

The mass of ice is four times the size of New York and 'essentially' an island

The planet's biggest iceberg is on the move after being stuck to the ocean floor, for three decades.

The uprooting of the colossal chunk of ice, which is slowly moving northwards into the Southern Ocean, has been a "long time coming", but some experts are baffled as to why it is suddenly moving now.

What is it?

Known as A23a, the iceberg split from the Antarctic coastline in 1986 and soon became grounded in the Weddell Sea, "becoming essentially, an ice island".

At almost 4,000 square km (1,500 square miles) in area, it is more than twice the size of Greater London and more than four times as big as New York. It is a "true colossus" and it's not just its width that impresses - the iceberg is 400 metres (1,300 ft) thick.

Why is A23a moving now?

It is not clear why it is making a run for it now. But British Antarctic Survey glaciologist, Oliver Marsh says, "Over time, it's probably just thinned slightly and got that little bit of extra buoyancy that's allowed it to lift off the ocean floor and get pushed by ocean currents."

Dr. Andrew Fleming, a remote sensing expert from the British Antarctic Survey, told that he had "asked a couple of colleagues" whether there was "any possible change in shelf water temperatures that might have provoked" the change. But "the consensus is the time had just come", he said.

Despite "growing concerns about the behaviour of ice in Antarctica amid global temperature record", the "escape" of A23a is not considered climate change related.

However, Chad Greene, from Nasa's Jet Propulsion Laboratory in California, says that icebergs are breaking off Antarctica at a faster rate than snow is adding mass to the ice, meaning that climate change is causing the Antarctic Ice Sheet to lose mass at a significant rate.

What might happen next?

As it "gains steam", the "colossal iceberg will probably be launched into the Antarctic Circumpolar Current" and "this will funnel it towards the Southern Ocean, on a path known as 'iceberg alley' where others of its kind can be found bobbing in dark waters".

But it's possible it could again become grounded at South Georgia island, which would "pose a problem for Antarctica's wildlife", as "millions of seals, penguins and seabirds breed on the island and forage in the surrounding waters". There is also the danger that it could break apart and create thousands of smaller icebergs that become a danger to ships as well as blocking access to islands for animals and humans.

It's "not all bad news for nature though". Within the ice are snap-frozen nutrients, which will be "injected back into the cold Southern Ocean waters as the berg continues its journey, north". This development "benefits these complex ecosystems and tiny plankton and other organisms living within them".

Or it could move even further away. An iceberg "of this scale has the potential to survive for quite a long time in the Southern Ocean, even though it's much warmer and it could make its way farther north, up towards South Africa, where it can disrupt shipping".

Battle for the Beetle

In 1945, a rare and curious Volkswagen car was shipped from its bomb-damaged German factory to England. Here, a commission of leading British motor manufacturers, chaired by Sir William Rootes, inspected the small, streamlined saloon. It would be "quite unattractive to the average motorcar buyer", the commission reported. "It is too ugly and noisy", while "to build the car commercially would be a completely uneconomic enterprise." This damning judgement proved as ill-founded, as that of Decca Records, bosses, who, in 1962, declared "The Beatles have no future in show business" and turned the mop-tops down. Since then, global sales of highly lucrative Beatles' albums topped two billion. The Volkswagen Beetle, meanwhile, with its friendly styling by the Austrian designer, Erwin Komenda and innovative engineering by Ferdinand Porsche, became the best-selling car of all times.

Shruti Kothari

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Two men, one huge project: Adolf Hitler and Ferdinand Porsche are the people behind the Volkswagen Beetle. Porsche was a genius engineer, Hitler, a sly politician. "These two were made for each other".

He, along with historians, Nils Havemann and Jutta Braun, have written 'Porsche: From design office to global brand.' The book traces the company from its foundation, in Stuttgart on April 25, 1931.

Porsche's Volkswagen project could never have been realized without Hitler's support. Hitler needed a creative mind to produce his compact car suitable for mass production and Porsche needed political backing to enable him to build it without financial pressure.

The Star Vehicle

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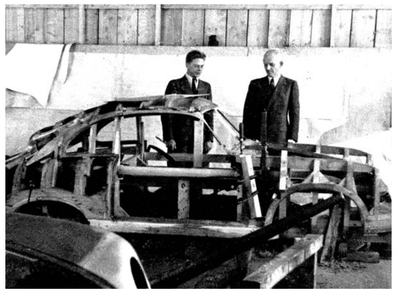
Production of the Beetle outstripped that of Henry Ford's Model-T, when the 15,007,034th car rolled off the line at Wolfsburg in 1972. The very last Beetles were made in Mexico in 2003, when more than 21.5 million had been built worldwide. As its name made clear, the Volkswagen was truly a 'People's Car' and although, many modifications were made between 1945 and 2003, the first and last Beetles were clearly 'peas in the same mechanical pod'.

Ultimately, the sheer quality, along with the affordability, reliability, economy and distinct look and feel of the Beetle, ensured its success. It had, though, been 'touch and go' for Volkswagen in 1945.

#AUTO-EVOLUTION

Henry Ford's Model-T.



Erwin Komenda, Porsche Designer.

Although the car had been on the drawing board since 1934, following a meeting between Hitler and Porsche, the Volkswagen failed to get into production before the war.

The idea had been for a small saloon that could carry a German family of five, flat-out at 100 kph, along the country's new autobahns. It was to have cost 990 Reich Marks, which represented 31 weeks' pay for the average German worker in 1936, making it cheaper than the £100 Fords being made in England (31 weeks' pay for the average British worker in 1936 was about £100). To buy one, however, members of the Volk had to join a special savings scheme run by the organisation KdF (Kraft durch Freude or Strength through Joy). From 1938, the Volkswagen was officially named the KdFWagen. There was little joy, though, in rival engineering camps. The Czech car company, Tatra, claimed that Porsche had infringed several design patents, notably those by Hans Ledwinka, an Austrian engineer, much admired by Hitler. Tatra took legal action but Hitler invaded Austria, seized its factory and banned Ledwinka's VW-like prototypes from public show. In 1961, however, VW made a substantial payment to Tatra through an out-of-court settlement. By then, though, Volkswagen had conquered the world.

In 1945, factory and car had been saved by Major Ivan Hirst, a British army officer and engineer. Hirst had witnessed first-hand the sheer quality of VW-based military vehicles during the war and believed that, once in production, a peacetime Beetle would have an appeal, well beyond Germany.

> Hitler announced a "people's motorization" at the auto show in February 1933, just weeks after he was named, Reich Chancellor. In summer 1934, the Reich Association of the German Automobile Industry gave Porsche, the task of coming up with a car under the motto "strength through pleasure", after the same name as the Nazi's Organization for Leisure Activities.

Motorization and Mobilization

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Hitler, who did not have a driver's license, personally approved the prototype of "his Volkswagen" on December 29, 1935. Not much more than two years later, on May 26, 1938, the cornerstone was laid for the Volkswagen factory in Wolfsburg, with the Führer in attendance. However, the car built for "strength through pleasure" was foremost intended for the German army, not the "people's motorization." It was put to military and all-terrain use on the front. This surprised few. A Porsche brochure in 1934 said that a "car must be suitable, not only for personal use but also for transport and particular military purposes."

A French Volkswagen?

The success of a small car for the people began only after the war. It was rebranded as the "Beetle" to distance it from the Nazi period. The first one rolled off the assembly line in December 1945. The one-millionth Beetle came to be, 10 years later. The hunchbacked car with a boxer engine became a symbol of the German economic miracle and a global success. In all, nearly 22 million Beetles were produced and sold.

The Beetle was able to shake off its Nazi past, immediately following the war. Notably, France's socialist-led ministry for Industrial Production contacted Porsche in October 1945. Nowhere is the successful distancing from National Socialism, clearer, than in the French government's effort to win the Volkswagen designing, for itself.

Deal with the Devil

The French competition knew how to stop a German "voiture populaire." "Renault and Peugeot conspired" against it. "Porsche and his son-in-law, Anton Piech, were accused of participating in war crimes."

Despite the Beetle's global success, Porsche was taken into surprise custody by French military authorities in December 1945, remaining in jail until August 1947. Hitler and Porsche's cooperation, however, was not all that unusual. Authoritarian rulers can lure apolitical actors with the prospect of major projects. Porsche was not the only one to push aside moral considerations when presented with unlimited opportunism. Business leaders interested solely in their company's success or in implementing ambitious technical projects often have no qualms in doing deals with the devil.'

Size Matters

Sold to the United States in a brilliant 'Think Small' advertising campaign, launched in 1959 and devised by the New York Agency Doyle Dane Bernbach, the Beetle became the biggest selling foreign-made car in America throughout the 60s. It went on to sell in various guises, as a soft-top, a sports car - the svelte, unhurried VW Karmann Ghia, and as an interminably fashionable Camper van. A 'New Beetle', based on the floor-plan of the VW Golf, the Beetle's replacement, went on sale in 1998, although, this was always something of a mechanical dress-up doll rather than the real thing.

These days and despite global recession, there is a lot more money in the world, so the elemental nature of the honest-to-goodness Beetle will seem a little too severe for those who dream of buying, let's say, a Bentley. But, in an almost comic turn of events, Volkswagen now owns Bentley. However impressive, an elite Bentley can never be a 'People's Car'. Few cars since have ever really lived up to the name, one devised by a brilliant Bohemian engineer and a brutal Austrian-born German dictator, seventy years and more than twenty million air-cooled cars, ago.

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Building VW Beetles, the 'People's Car' of Germany.

#ANALYSIS

Brain 'Fingerprint'

"This study is quite exciting as it shows the promise of using advanced machine learning to identify brain patterns which might help us intervene early in children who are at most risk of cognitive or psychiatric problems", says Calhoun

Researchers report new ways to accurately identify possible biomarkers in adolescent brains that can reliably predict cognitive developments and psychiatric issues.

Their new study represents the first large-scale analysis of its kind in which researchers analysed Functional Network Connectivity (FNC) across scans and identified associations with a diverse range of health measures in children. Researchers believe that inferences about early cognitive and psychiatric behaviours in children may be made, using these intra-subject variabilities, as a useful biomarker.

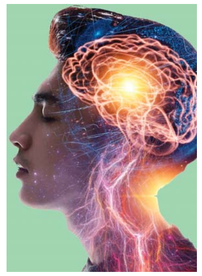
Researchers studied four scans of more than 9,000 subjects, from ages 9 to 11.

Vince Calhoun, head of the Translational Research in Neuroimaging and Data Science (TReNDs) Center at Georgia State University, worked with the research team to develop the study. He says that the research demonstrates that, independent of brain growth and development, a child's FNC is robust and stable with high similarity across scans and can serve as a fingerprint to identify an individual child from a large group.

"This study is quite exciting as it shows the promise of using advanced machine learning to identify brain patterns which might help us intervene early in children, who are at most risk of cognitive or psychiatric problems", says Calhoun, senior author of the study.

Researchers say that brain functional connectivity derived from functional Magnetic Resonance Imaging (fMRI), is commonly used as a potential blueprint for adults. They believe that intra-subject variation of FNC can carry biologically meaningful information, especially during adolescence, which is a time of significant change in the brain.

Principal investigator, Zening Fu says the study demonstrates that functional connectivity variability can predict a wide range of children's behaviour, including cognition, mental health and sleep conditions. "Most previous fMRI studies believe that resting-state functional connectivity can provide a fingerprint of an individual and that variability in connectivity is due to noise or other confounding effects", says Fu. "However, we found that the variations of individualized FNC across scans are notable and convey psychological and physiological information underlying distinct behavioural phenotypes in children."



The research team was able to predict, with surprising accuracy, a number of conditions or outcomes, including cognitive performance and psychiatric problems. Researchers were also able to predict sleep conditions and screen usage, based on FNC stability.

Fu explains how they are able to read the results and in many cases, predict outcomes in children, based on the scans, over time.

"FNC stability in our present work is defined as the variability or changes in the resting-state functional connectivity across scans (measurements)", Fu says. "That is, if a subject has been collected using resting-state fMRI scans multiple times, the functional connectivity estimated using each fMRI scan should be different, even if they are from the same subject. Such difference or variability is not trivial, but biologically meaningful. Subjects with larger FNC variability (smaller stability) tend to have lower cognitive performance and more mental health problems."

In a second study, published in Biological Psychiatry, research conducted at the TReNDs Center and led by Weizheng Yan, finds that functional network connectivity, which steadily reconfigures over time, potentially contains abundant information to assess psychiatric risks.

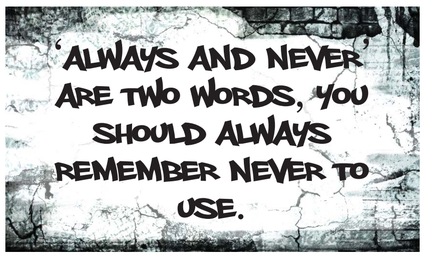
As part of the study, researchers developed a brain-wide risk score (BRS), a novel FNC-based metric that contrasts the relative distances of an individual's FNC to that of psychiatric disorders versus healthy control references.

The research team discovered that the BRS revealed a distinct, repeatable gradient of FNC patterns for each psychiatric disorder in over 8,000 unaffected teenagers, ranging from low to high risk. The BRS could also identify people with early psychosis from healthy controls and predict psychosis scores.

To generate group-level disorder and healthy control references, researchers used a large brain imaging dataset containing more than 5,000 individuals diagnosed with schizophrenia, autism spectrum, major depressive and bipolar disorders and their corresponding healthy controls. The findings show that the BRS could be a new image-based tool for assessing psychiatric vulnerability over time and in unaffected individuals could also serve as a potential biomarker, facilitating early screening and monitoring interventions.

The dataset contains a wide range of measurements of mental health, cognition and other health-related factors that have been found to be helpful in examining the connection between teenage behaviours and brain function.

THE WALL



BABY BLUES

By Rick Kirkman & Jerry Scott

ZITS

By Jerry Scott & Jim Borgman