



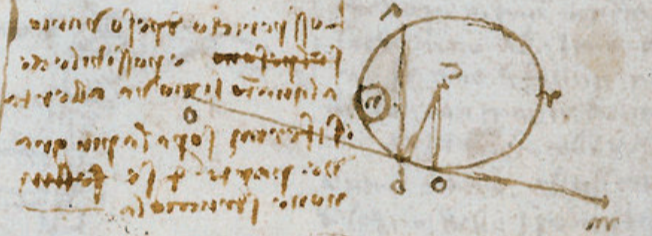
MOVIES: EXTREMELY WICKED, SHOCKINGLY EVIL, AND VILE

BOOKS: CAPE MAY BY CHIP CHEEK

MUSIC: STAY AROUND BY J.J. CALE

SCIENCE: BLACK HOLES ARE COSMIC PRISONS

Macau Daily Times | Edition 3282 | 03 May 2019



Eight shades of Leonardo

Eight things you may not know about

AP PHOTO



Studies of hands for the Adoration of the Magi, by Leonardo da Vinci, as seen under ultraviolet light

This year marks the 500th anniversary of Leonardo da Vinci's death. Widely considered one of the greatest polymaths in human history, Leonardo was an inventor, artist, musician, architect, engineer, anatomist, botanist, geologist, historian and cartographer. Though his artistic output was small, Leonardo's impact was great, reflecting his deep knowledge of the body, his extensive studies of light and the human face, and his sfumato (Italian for "smoky") technique, which allowed for incredibly lifelike images. Leonardo regarded artists as divine apprentices, writing "We, by our arts, may be called the grandsons of God." Twenty-first-century scholars at MIT ranked him the sixth most influential person who ever lived. Like Rembrandt and Michelangelo, he is so renowned that he is known by only his first name. Yet despite his fame, there are things about Leonardo that many people today find surprising.

SHADY PARENTAGE
Leonardo was born out of

wedlock on April 15, 1452. His father, Piero, was a wealthy notary, and his mother, Caterina, was a local peasant girl. Although the circumstances of his birth would place Leonardo at a disadvantage in terms of education and inheritance, biographer Walter Isaacson regards it as a terrific stroke of luck. Rather than being expected to become a notary like his father, Leonardo was instead free to develop the full range of his genius. People surmise that it also imbued him with a special sense of urgency to establish his own identity and prove himself.

PHYSICAL BEAUTY
Leonardo created some of the world's most beautiful works of art, including the "Last Supper" and the "Mona Lisa." In his own day, he was known as an exceptionally attractive person. One of Leonardo's biographers describes him as a person of "outstanding physical beauty who displayed infinite grace in everything he did." A contemporary described him as a "well proportioned, graceful, and good-looking

man" who "wore a rose-pink tunic" and had "beautiful curling hair, carefully styled, which came down to the middle of his chest." Leonardo is thought to have entered into long-term and possibly sexual relationships with two of his pupils, both artists in their own right.

FROM SCRAPS TO NOTEBOOKS
The paintings generally attributed to Leonardo number fewer than 20, while his notebooks contain over 7,000 pages. They're the best source of knowledge about Leonardo, housed today in locations such as Windsor Castle, the Louvre and the Spanish National Library in Madrid. Their diverse content ranges across drawings — most famously, Vitruvian Man — notes of things he wanted to investigate, scientific and technical diagrams and shopping lists. They comprise perhaps the most remarkable monument to human curiosity and creativity ever produced by a single person. Yet when Leonardo penned them, they were just loose pieces of paper of different types

and sizes. His friends bound them into "notebooks" only after his death.

OUTSIDER'S EDUCATION
As a result of his illegitimacy, Leonardo received a rather rudimentary formal education consisting primarily of business arithmetic. He never attended university and sometimes referred to himself as an "unlettered man." Yet his lack of formal schooling also freed him from the constraints of tradition, helping to instill in him a determination to question authority and place greater reliance on his own experience than opinions expressed in books. As a result, he became a firsthand observer and experimenter, uninterested in serving as a mouthpiece for the classics.

PROLIFIC PROCRASTINATOR
Although Leonardo's mind was extraordinarily fertile, he was also an inveterate procrastinator and even quitter. He frequently took months or years to begin work on commissions, sometimes keeping patrons

DRIVE IN

Jocelyn Noveck, AP

A STRONG EFRON, BUT LITTLE ELSE NEW IN BUNDY BIOPIC

When Ted Bundy died in the electric chair 30 years ago in Florida, a witness to the execution — a prosecutor in the case of a 12-year-old girl Bundy murdered — told the New York Times: "He probably could have done anything he set his mind to do, but something happened to him and we still don't know what it was." Three decades later, we still don't, and the aptly named "Extremely Wicked, Shockingly Evil, and Vile" doesn't provide any new answers. Instead, Joe Berlinger's film, starring an impressively scary Zac Efron, tries with mixed success to address a different issue, namely how Bundy not only used his good looks and boyish demeanor to fool those closest to him, especially his longtime girlfriend, but how he managed to seduce some in the media and public — to the point where, revoltingly, he had actual groupies at his murder trial. Berlinger's film, based on Liz

Kloepfer's memoir "The Phantom Prince: My Life with Ted Bundy," happens to have coincided this year with his own docuseries on Bundy, also on Netflix. It's clear that the feature film benefits from a documentarian's eye; in fact it's the frequent snippets of real-life footage that give the movie some of its most interesting moments, and make for a chilling credits sequence in which we see Bundy in real-life scenes that we've just watched Efron perform. By telling the story from the perspective of Kloepfer, who for years refused to believe that her handsome, law-student boyfriend could be a savage killer, Berlinger necessarily has to refrain from depicting Bundy's crimes, so that perhaps we can fall under the same spell she does. We don't witness his sickening violence until the film is nearly over. The problem is that by then, the approach is distracting. We all know what Bundy did — he

AP PHOTO



Zac Efron (left) and Lily Collins in a scene from "Extremely Wicked, Shockingly Evil, and Vile"

confessed to some 30 murders right before his death, blaming pornography for his demented fantasies, and is believed to have committed many more. Yes, Berlinger is interested in telling us more about Bundy the serial deceiver than Bundy the serial killer. But we don't learn much revealing about the deception, either. Except that women might be drawn to a guy who looks like, well, Zac Efron. Speaking of Efron: The actor, with his ultra-clean "High School Musical" image still engraved in our pop-culture memories, might seem a coun-

ter-intuitive choice, but some of his later films in which he's pure abs and sexy smiles, in the frat house or on the beach, are more apt. The actor makes a fine career leap into the dark side here, acquitting himself nicely in a role that could have veered into caricature. Lily Collins, too, gives a sensitive and sympathetic turn as Liz, the vulnerable single mom who fell in love with Bundy and almost married him. But the actor who steals the show here is the dry and witty John Malkovich as Judge Edward Cowart, who uttered the words "extremely

wicked, shockingly evil and vile" in describing the crimes for which he was sentencing Bundy to death — but also was disturbingly friendly, calling him a "bright young man" and promising lawyer, and telling him to "take care of yourself." By this time, the film has become a courtroom drama, and we've almost forgotten about Liz. But it starts out as the story of a lonely young woman who meets a flirtatious guy in a bar. She thinks he may run away when he sees she's got a toddler daughter, but he stays — and makes breakfast.

Meanwhile, news reports are surfacing of terrible crimes. We toggle between sweet and sexy domestic scenes and sobering news footage. As events close in on Bundy, we see him make not one but two dramatic escapes from jail. Then comes his famous murder trial in front of TV cameras. In just one of its bizarre moments, Bundy asks his friend Carole Ann to marry him right there in the courtroom as she's testifying on his behalf. All these events are fascinating — but they're public record. Suddenly our narrative film seems to lose its original focus and turn into a documentary — polished and absorbing, but telling us nothing new. Some have argued that the film glorifies its subject. It doesn't, really. But it doesn't explain him, either. And that leads to another question, which is, if there's nothing really new to say about Ted Bundy, need we be saying anything?

"Extremely Wicked, Shockingly Evil, and Vile," a Netflix release, is rated R by the Motion Picture Association of America "for disturbing/violent content, some sexuality, nudity and language." Running time: 110 minutes. ★★☆☆

Leonardo da Vinci

at bay with lofty pronouncements regarding his creative process. A giant equestrian statue for the duke of Milan, requiring 70 tons of bronze to cast, might have been his grandest work – if it had ever been completed. Yet a decade after the 1482 commission, Leonardo had produced only a clay model which was subsequently destroyed when invading French soldiers used it for target practice.

RIVALROUS MOTIVATIONS

Leonardo's life overlapped those of two other Renaissance giants – Michelangelo and Raphael – but it was Michelangelo who stoked an intense rivalry. The contrast between the two men could hardly have been sharper. Leonardo was elegant and evinced little interest in matters religious, while Michelangelo was deeply pious yet neglectful of his appearance and hygiene. Michelangelo created some of the greatest paintings in history, including the ceiling of the Sistine Chapel, and many considered his "David" the greatest sculpture ever produced, a triumph he lorded over his older rival.

ROYAL ADMIRER

Soon after King Francis I of France captured Milan in 1516, Leonardo entered his service, spending the last years of his life in a house near the royal residence. When death came to Leonardo on May 2, 1519 at the age of 67, it is said that the king, who loved to listen to Leonardo talk so much that he was hardly ever apart from him, cradled his head as he breathed his last. Years later, reflecting on his friendship with the great man, King Francis said, "No man possessed such a knowledge of painting, sculpture, or architecture as Leonardo, but the same goes for philosophy. He was a great philosopher."

SKYROCKETING VALUE

In November 2017, one of the paintings attributed to Leonardo, "Salvator Mundi" ("Savior of the World"), set the record for the most expensive painting ever sold, fetching USD450 million. Painted in oil on walnut in about 1500, it depicts Jesus offering a benediction with his right hand while holding a crystalline orb that appears to represent the cosmos in

his left. The painting had suffered from neglect and poor restorations and was long assumed to be the work of one of Leonardo's students, selling as recently as 2005 as part of the estate of a Baton Rouge businessman for less than USD10,000. Its current whereabouts are unknown.

ONE OF A KIND

Just a half-century after Leonardo's death, the biographer Vasari beautifully summed up his enduring significance: "In the normal course of events many men and women are born with remarkable talents; but occasionally, in a way that transcends nature, a single person is marvelously endowed by heaven with beauty, grace, and talent in such abundance that he leaves other men far behind, all his actions seem inspired, and indeed everything he does clearly comes from God rather than from human skill." Five hundred years after Leonardo's death, these words still ring true.

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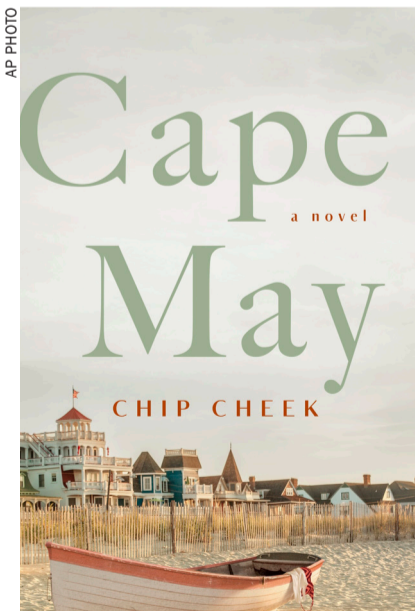


A portrait of Leonardo Da Vinci which forms part of the Royal Collection, at Windsor Castle

BOOK IT

'CAPE MAY' NOVEL IS FULL OF DRINK AND LUST TO A FAULT

It is early fall of 1957 when the young newlyweds arrive at Cape May for their honeymoon. This is the offseason, and the New Jersey beach with its aging Victorian homes facing a choppy sea is mostly deserted. But not entirely. The newlyweds – Henry and Effie, arriving from rural Georgia to stay in a relative's cottage – soon find that a beach house down the street is lit up for a party. As Chip Cheek describes it in "Cape May," his first novel, the party is worthy of a Jay Gatsby soiree, jumping with music and drenched in gin. The party is also the beginning of the end of the honeymoon and the start of the novel's descent. From a well-crafted opening and smoothly written scenes, the narrative turns increasingly to its primary subject – the



"Cape May" (Celadon Books) by Chip Cheek

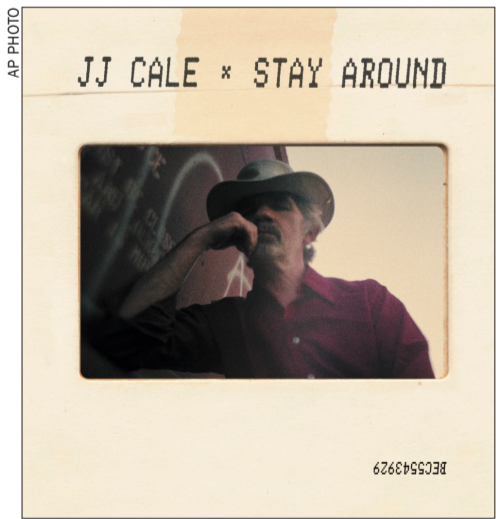
pull of eros and its consequences, explicitly described. While Cheek can be deft with these scenes, the book too often sinks into erotic schlock. Henry, the novel's priapic protagonist, is 20 years old. He would be a sophomore in college, if he had gone to college. His bride, Effie, is just 18, the same age as Alma, the footloose young lady who draws Henry from his honeymoon bed. There are two older, wealthy, heavy-drinking, questionable characters – Clara and Max – who are hard to like from the start. By the end, this debut novel has no main character – not even the youthful, alcohol-fueled honeymooners – who is genuinely likable.

Kendal Weaver, AP

TTUNES

J.J. CALE'S POSTHUMOUS ALBUM IS VITAL AND INVITING

J.J. Cale's "Stay Around" is a posthumous collection of 15 previously unreleased tracks that is as authentic as any of the original and compilation albums he's released over his long career. Cale, who passed away in 2013, was held in very special esteem by many illustrious musicians, the kind of admiration that led to a 2014 tribute album recorded by Eric Clapton, whose early cover of Cale's "After Midnight" was fundamental to both their careers. Tom Petty, Willie Nelson and Mark Knopfler were also part of the tribute album. It took the Oklahoma native well over a decade to release his first solo album, in 1972, and whatever changed by the slightest of degrees over the following decades, some things stayed quite the same – his relaxed but precise sound, a devotion to his trademark country-blues shuffle and the seemingly effortless atmosphere of his voice and grooves. Compiled from a huge accumulation of recording



J.J. Cale, "Stay Around" (Because Music)

gs by longtime manager Mike Kappus and Christine Lakeland – Cale's wife and occasional collaborator – one of the pleasures of "Stay Around" is its judicious song selection, which stretches from Cale's legendary one-man studio creations and gentle acoustic songs to full-band takes and even some banjo playing. There's excellence at both ends of the spectrum – and everything in between. Recorded in the kitchen, the persevering "If We Try" is just voice and guitar and squeaky chair, while "Chasing You" benefits from the live drums and group sound. The Latin-tinged "Maria" could be a lost Drifters tune and the restlessness on "Winter Snow" is accompanied by audible and claustrophobic buzz. "Stay Around" may be, strictly speaking, an archival release, but it feels as vital and inviting as Cale usually did.

Pablo Gorondi, AP

SEEING IS BELIEVING: BLACK HOLES ARE COSMIC PRISONS

Black holes are cosmic prisons, where nothing escapes, not light or even data. But lots did come out of last month’s first image of the shadowy edge of a supermassive black hole. Scientists have known for decades that black holes exist, but only indirectly. Three years ago, they essentially heard the sound of two smaller black holes crashing together to form a gravitational wave. The image revealed on April 11 showed the edges of the black hole — called the “event horizon” — for the first time. There actually were a few academic holdouts who denied black holes existed, but now they can’t, said Boston University astronomer Alan Marscher, who was on one of four imaging teams. The new image shows a glowing ring that was obviously a black hole and its surroundings,

said Harvard’s Sheperd Doeleman, director of the Event Horizon Telescope team. “We saw something so true,” Doeleman said. “We saw something that really had a ring to it if you can use that phrase.” He said the team “uncovered part of the universe that was off-limits to us.”

EINSTEIN IS RIGHT AGAIN
Each major astrophysics discovery of the last few decades tends to confirm Albert Einstein’s general theory of relativity. It’s a comprehensive explanation of gravity that the former patent clerk thought of in 1915 before computers and with much weaker telescopes. Last month, Einstein’s predictions about the shape and glow of a big black hole proved right, and astronomer after astronomer paid homage to the master. “Today [April 11] gen-



An image captured by the Event Horizon Telescope showing a black hole

eral relativity passed another crucial test,” said University of Waterloo astronomer Avery Broderick, a co-discoverer. “The Einstein equations are beautiful. So often in my experience, nature wants to be beautiful.” It sounds strange to

keep saying Einstein is right, but every time his general relativity theory is confirmed, “we kill a cloud of alternative theories” and gain better understanding how to create an even more comprehensive theory of physics, said

Ethan Vishniac of Johns Hopkins University. He wasn’t part of the discovery team.

GRAVITY IS POWERFUL
The black hole that scientists took a picture of is in the center

of a galaxy called M87 and it is far bigger than anything in the Milky Way. Its mass — the chief measurement of a black hole — is 6.5 billion times as much as our sun’s. The event horizon stretches about the breadth

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SHANGHAI

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Estrada da Vitoria
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11am – 12midnight
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Grande Praça, MGM MACAU



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06:30 – 22:00

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Dinner: 5:30 pm - 11:00 pm
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AP PHOTO



The Submillimeter Array, part of the Event Horizon Telescope network on the summit of Mauna Kea, Hawaii

of our solar system. “M87’s huge black hole mass makes it really a monster even by supermassive black hole standards,” said Sera Markoff, a discovery team member at the University of Amsterdam.

Some black holes are inactive, but not this one, she said. And that means it converts nearby gas and matter into energy with 100 times more efficiency than the nuclear fusion that powers the stars.

Black holes like these “temporarily become the most powerful engines in the universe,” Markoff said.

WORKING TOGETHER WORKS

The project succeeded

because of international cooperation among 20 countries and about 200 scientists at a cost of USD50 million to \$60 million, according to the National Science Foundation.

To get an image of a

faraway black hole, scientists had to get eight radio telescopes on several continents, including Antarctica, to look at the same place at the same time. In getting the instruments connected, they essentially created one

Earth-size connected telescope.

The amount of data generated was so massive that it could not be transmitted over the internet, so it was flown to data centers by jet.

The data collected was equivalent to a lifetime collection of selfies from 40,000 people, said discovery team member Daniel Marone of the University of Arizona.

And just to start to take pictures the weather had to be good at all eight telescopes on the same days in April 2017. The scientists had only 10 days to look and got four perfect weather days, three of them at the start.

It then took more than a year for that data to be processed into the first glimpse of images that scientists saw in the summer of 2018. Those images were so good that scientists at first worried that it was just too good to be true, Boston University’s Marscher said.



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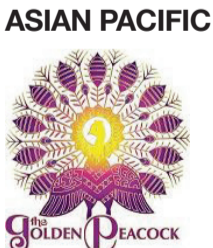


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Setting: Refined, Inviting
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2/F, Avenida Dr. Sun Yat Sen, NAPE
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Friday: 12:00 - 01:00
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Sunday: 14:00 - 00:00

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Sunday: 18:00 - 24:00

WHAT'S ON



TODAY (MAY 3)

FAM: GRAND OPENING – VERTIKAL

From a device proposed by Fabrice Guillot, Artistic Director of Retouramont, a company specialising in aerial techniques, the choreographer Mourad Merzouki leaves the ground. After confronting the third dimension with his previous show Pixel, Merzouki opens hip hop to a new field of possibilities.

In the vertical, then, finding new support, ten dancers dash in the air. “The relationship with the ground, which is essential for the hip hop dancer,” says Merzouki, “is fundamentally modified. The games of contact between the performers are jostled: the dancer is in turn base and carrier or on the contrary flyer, puppet animated by the counterweight of his partners on the ground.”

TIME: 8pm (May 3-4)

VENUE: Grand Auditorium, Macau CULTURAL Centre

ADMISSION: MOP120, MOP180, MOP250, MOP300

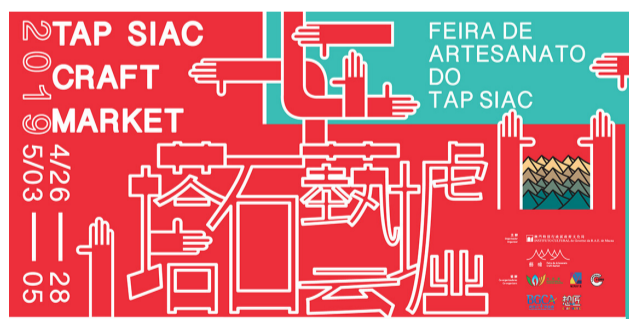
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ENQUIRIES: (853) 2836 6866

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TICKETING SERVICE: (853) 2855 5555

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TAP SIAC CRAFT MARKET

The Tap Siac Craft Market was first held in 2008, and has become an important platform for local and overseas practitioners of cultural and creative artifacts to showcase their products. This year's edition features a total of 220 stalls, with brands and companies from Macau and Asian regions. There are also creative handicraft workshops and stage performances; the latter providing opportunities for Macau singer-songwriters and musicians to show their talents.

TIME: 5pm-10pm (May 3)

3pm-10pm (May 4-5)

VENUE: Tap Seac Square

ADMISSION: Free

ORGANIZER: Cultural Affairs Bureau

ENQUIRIES: (853) 2836 6866

WWW.ICM.GOV.MO



TOMORROW (MAY 4)

FAM: MU GUIYING BREAKS THROUGH THE TIANMEN GATE

The Liao troops invade the land of Song Dynasty by setting up a formidable formation at Tianmen Gate, which can only be cracked by the Dragon-Taming Wood from Muke Fortress. Yang Zongbao is ordered to investigate undercover. The chief of Muke Fortress Mu Guiying admires Yang Zongbao and hopes to marry him. But the arrogant Yang Zongbao despises and makes fun of this country girl because of his noble blood. After a series of funny twists and turns, they finally break through the Tianmen Gate and become a couple. Mu Guiying even becomes a legendary heroine in the war against the Liao Dynasty.

Members of the Cantonese Opera Juvenile's Troupe of General Union of Neighbors' Association of Macau lead the cast of this performance with powerful singing, acting and fighting scenes. Their previous performances Hanjiang Gate, Yang's Female Warriors, and The Legend of the White Snake have won the hearts of many audiences. The troupe brought their Hanjiang Gate to the stage in Beijing during the National Chinese Drama Performance of Regional Theatres and Troupes and received great acclaim.

TIME: 7:30pm

VENUE: Cinema Alegria

ADMISSION: MOP100, MOP120

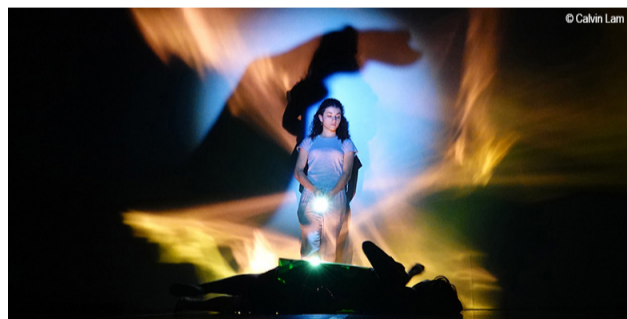
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SUNDAY (MAY 5)

FAM: WONDER.LAND

Welcome to “Wonder.Land”, where you will get popular themed performances. The boisterousness – so wonderful, exciting, whimsical and reveling – will relieve your body and mind, while your senses will spin continuously in the flowing of light, shadows and sounds.

Wonder.Land is the incubation result of Artificial Roses. The original work was launched at the BOK Festival in 2017 and continued its experimentation as a dance theatre and an installation in the Macau City Fringe Festival in 2018. After two years' development, it is now de-structuring and re-shaping the ambiguous relationship between illusion and reality in a brand-new approach.

TIME: 3pm & 8pm (May 4)

3pm (May 5)

VENUE: Old Court Building, 2nd floor (no elevator)

ADMISSION: MOP180

ORGANIZER: Cultural Affairs Bureau

ENQUIRIES: (853) 2836 6866

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MONDAY (MAY 6)

EXHIBITION BY SEASON LAO AND HAGURI SATO

Albergue SCM has invited local designer Season Lao and Japanese sculptor Haguri Sato to hold a joint exhibition. Season Lao was born in Macau in 1987 and studied design at the Macau Polytechnic Institute. He moved to Japan when he was 23. Season Lao has taken part in design projects for luxury consumer goods brand Louis Vuitton and his works are included in its collections worldwide. Haguri Sato studied sculpture at what is now Aichi University of the Arts, and has held nine solo exhibitions in Japan featuring her Japanese traditional wood sculpture. She won an award at UNKNOWN ASIA Art Exchange Osaka 2018.

TIME: 3pm-8pm (Mondays)

12pm-8pm (Tuesdays to Sundays)

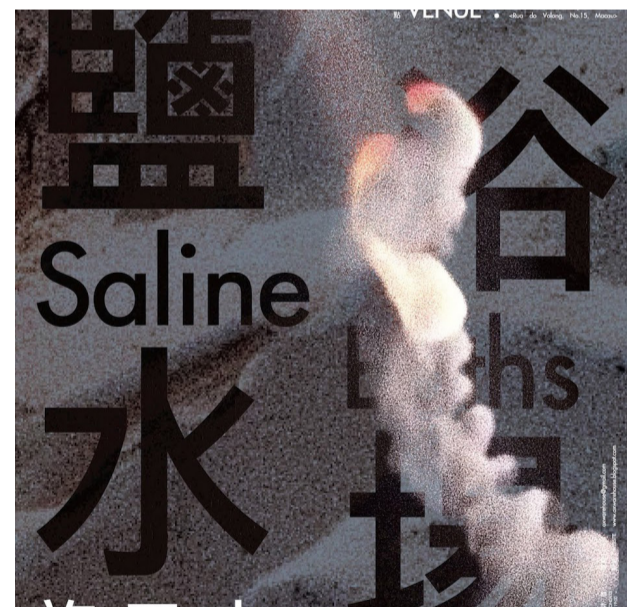
UNTIL: May 8, 2019

VENUE: A2 Gallery, Albergue SCM

ADMISSION: Free

ORGANIZER: Albergue SCM

ENQUIRY: (853) 2852 2550



TUESDAY (MAY 7)

SALINE BATHS

Local art association Ox Warehouse invited Shi Samben - a video artist hailing from a seaside town in Fujian Province, Mainland China - to participate in a residency project in Macau. He chose the theme “Saline Baths” for it, and drew on animated videos he had created previously. The effort has culminated in this solo exhibition, which features four animations - “Su Cao”, “Bathroom”, “Candy” and “Flow” - with four different stories. The curator for the show is local artist Noah Ng Fong Chao.

TIME: 12pm-7pm (closed on Mondays)

UNTIL: May 26, 2019

VENUE: Post-Ox Warehouse Experimental Site

ADMISSION: Free

ORGANIZER: Ox Warehouse

ENQUIRIES: (853) 2853 0026

OXWAREHOUSE.BLOGSPOT.COM



WEDNESDAY (MAY 8)
PHOTO-SCRIPTS

After a long career as a lawyer, Macau-based João Miguel Barros has only recently begun to exhibit his work as a photographer. Last year alone he won two international awards. After a six-month run at Portugal's Museu Coleção Berardo, João Miguel Barros is now bringing his "Photo-Scripts" exhibition to town. The showcase features 14 images that tell short stories, ranging from landscapes to portraits, all independent from each other, but which can be read like a book.

TIME: 10am-7pm (closed on Mondays)
UNTIL: June 2, 2019
VENUE: Macau Contemporary Art Center - Navy Yard No.1
ADMISSION: Free
ENQUIRIES: (853) 8988 4000
ORGANIZER: Cultural Affairs Bureau
WWW.ICM.GOV.MO



THURSDAY (MAY 9)
FAM: AN ALPINE SYMPHONY

Describing the vicissitudes of the world with music, conveying life experiences and carrying the philosophy of life – one may say that Richard Strauss had reached the pinnacle in this aspect. His An Alpine Symphony was skillfully and uniquely conceived, making it not just a description and recollection of his own mountain-climbing experience, but is also a symbolic metaphor of a person's life. In this concert, Macau Orchestra will join hands with the Shenzhen Symphony Orchestra and take you to the top of the Alps.

TIME: 8pm
VENUE: Grand Auditorium, Macau Cultural Centre
ADMISSION: MOP150, MOP200, MOP250
ORGANIZER: Cultural Affairs Bureau
ENQUIRIES: (853) 2836 6866
WWW.ICM.GOV.MO/FAM
TICKETING SERVICE: (853) 2855 5555
WWW.MACAUTICKET.COM

Sands WEEKEND

SAVOUR AL FRESCO DINING AT THE PARISIAN GOURMET FESTIVAL
Until 9 June
Level 7, Eiffel Tower, The Parisian Macao
Join us in celebration of France with friends and family at The Parisian Gourmet Festival, where you can enjoy French food, wine and live entertainment in a vibrant, al fresco atmosphere and more – all on Level 7 of the Eiffel Tower at The Parisian Macao.
Times: 4pm-10pm(Wednesday-Thursday & Sunday)
4pm-12 midnight(Friday-Saturday)
Admission Free
SandsResortsMacao.com/Parisian-gourmet

LE FRENCH GOURMAY AT BRASSERIE
Until 31 May
Brasserie, The Parisian Macao
Brasserie presents a Loire Valley four-course set menu, with wine-pairing options, showcasing Executive French Chef Daniel Brolese's authentic dishes from the region. Menu highlights include warm white asparagus and Vendée cured ham, sautéed black mussels in white wine, butter and parsley, slow-braised challans duck leg in Muscadet white wine with green peas, and a selection of cheeses from the Loire Valley.
Times: 11am - 2:30pm(Lunch) | 6pm - 11pm(Dinner)
Price per person: MOP 530* (May 1-5) | MOP 498* (May 6-31)
Reservations: +853 8111 9200 or brasserie.reservation@sands.com.mo
*Subject to 10 % service charge

SHOP, SAIL AND SAVE UP TO 50% ON COTAI WATER JET TICKETS
Shoppers who spend MOP250 or above in a single transaction in any shop at Sands Shoppes can enjoy discounted Cotai Water Jet full fare adult ticket, both Cotai Class and Cotai First, on the same day as the date of the transaction. Spend MOP250-499 for a 15% discount on Cotai Class and 30% discount for Cotai First; spend MOP500-999 for a 30% discount on both classes and MOP1,000 or above for a 50% discount on Cotai Class and Cotai First.
Further details: www.cotaiwaterjet.com/ferry-promotion/2019-retail-new.html

THOMAS FRIENDSHIP PARTY WITH THE LITTLE BIG CLUB ALL STARS
Until 30 June 2019
Urumqi Ballroom, Level 4, Sands Cotai Central
Don't miss the ultimate fun kids' party! Kids are transported to The Little Big Club character stories by the immersive room décor, see their dreams come to life. Dress up in fabulous colourful costumes with Mike the Knight and Angelina Ballerina. No party is complete without an awesome and delicious array of snacks prepared just for you.
Time: 3:30pm - 5:00pm daily
Admission: MOP100*(Adult) | MOP80*(Child)
Tel: +853 8113 7915 / +853 8113 7916
*Child admission prices apply to children 5 – 12 years of age only. *Terms and Conditions apply.

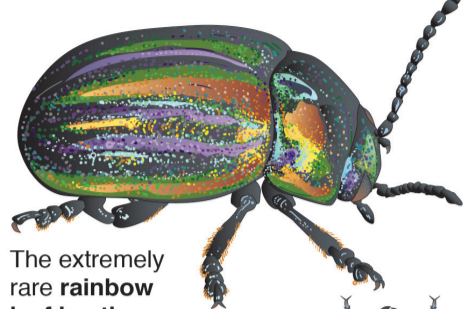
澳門金沙度假區
Sands
RESORTS MACAO

WORLD OF WONDER

Exploring the realms of history, science, nature and technology

BEEETLES

By Laurie Triefeldt



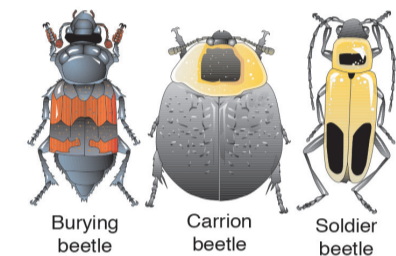
The extremely rare **rainbow leaf beetle**, or Snowdon beetle, belongs to the family Chrysomelidae.

Calosoma marginale



Species sampler

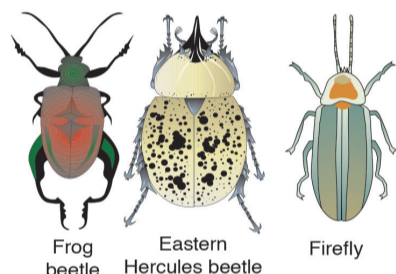
There are about 400,000 species of beetle. They come in all shapes and sizes and live almost everywhere. Note: The beetles on this page are not shown to scale.



Burying beetle

Carrion beetle

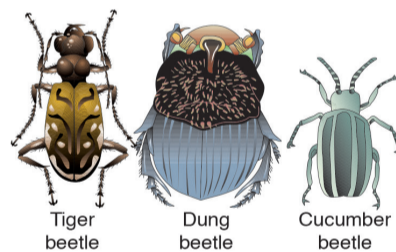
Soldier beetle



Frog beetle

Eastern Hercules beetle

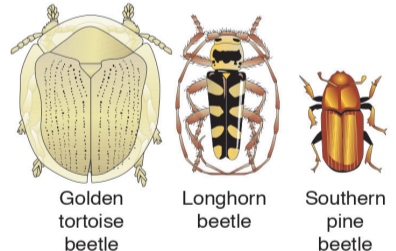
Firefly



Tiger beetle

Dung beetle

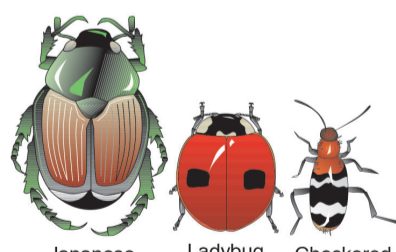
Cucumber beetle



Golden tortoise beetle

Longhorn beetle

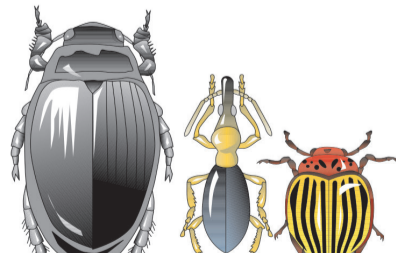
Southern pine beetle



Japanese beetle

Ladybug

Checkered beetle



Predaceous diving beetle

Sweet potato weevil

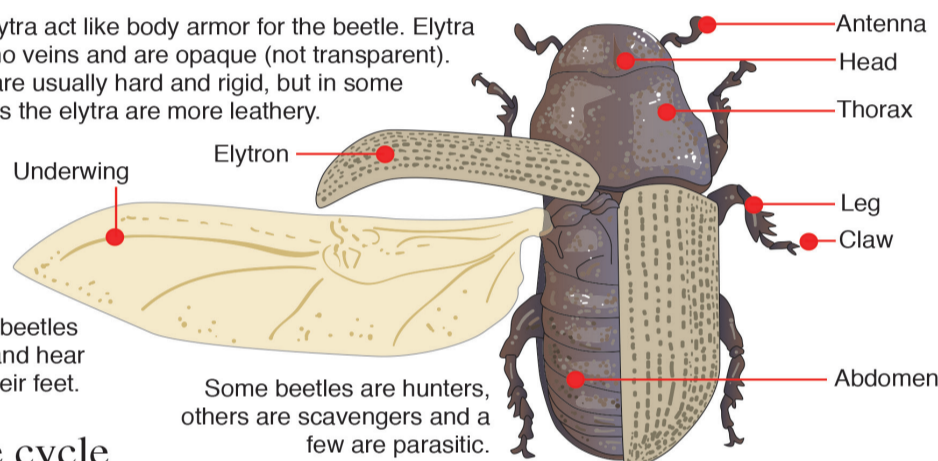
Colorado potato beetle

Already the largest group of animals on Earth, new beetle species are still being identified. Beetles come in a variety of sizes. Feather-winged beetles are so small that they are almost invisible, while species like the South American longhorn beetle are as large as a human hand.

Anatomy 101

Like all insects, beetles have six legs and three body parts: the head, thorax and abdomen. Most beetles can fly and have two pairs of wings — hard (often colorful) forewings called **elytra** and delicate, transparent hind wings that are kept folded under the forewings until needed for flight. Beetles use their antennae for touch and smell. Most beetles have excellent eyesight and can see color and motion. Although some beetles have long legs and others short legs, all have legs that consist of five segments with claws on the end.

The elytra act like body armor for the beetle. Elytra have no veins and are opaque (not transparent). They are usually hard and rigid, but in some species the elytra are more leathery.



Some beetles taste and hear with their feet.

Some beetles are hunters, others are scavengers and a few are parasitic.

Life cycle

Beetles have a complex life cycle in which they undergo a complete **metamorphosis**. Metamorphosis means “change of body form and appearance.” When beetle eggs hatch, **larvae** (grubs) are born. The larvae grow and shed their skin (molt) several times before turning into a **pupa**. The pupa may appear dormant, but the insect’s body is experiencing great changes inside. Muscles, nerves and tissue are dissolved, and new ones are formed. When the change is complete, an adult beetle emerges. It takes about 3 to 4 weeks for a ladybug egg to hatch and become an adult.

Ladybug eggs are tiny, pale yellow or orangish, and look like jelly beans. The female usually lays her eggs on the undersides of leaves to protect them from the elements and predators. She will choose a location close to lots of food (aphids).

Scientists think ladybugs lay fertile and infertile eggs so that the newly hatched larvae have something to eat if aphids are scarce.

Ladybug larvae are born hungry. A single larva can consume dozens of aphids and other soft-bodied insects per day.

The larva will eat until it grows large enough to **molt** (shed its skin).

Ladybug larvae will molt several times before preparing to pupate. The larva will attach itself to a leaf or other surface when it is ready to pupate.

The female will lay 10 to 50 eggs on a plant infested with aphids.

Adult ladybugs will gather in large aggregations to overwinter and hibernate. They will mate when they become active again in the spring.

Within four to six hours, the ladybug’s spots will appear, and its color will deepen to an orange or red hue.

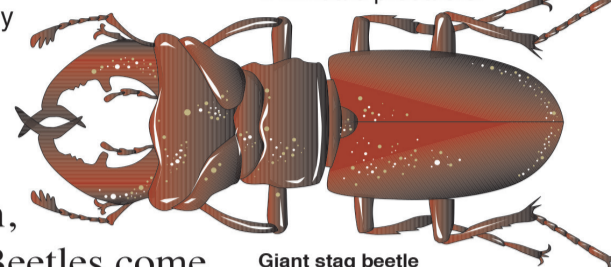
It takes about two weeks before the larvae turns into a pupa.

The pupal stage may last three to 12 days.

The pupa looks a bit like a tiny lobster. While in the pupal stage, the ladybug undergoes transformation (directed by special cells called **histoblasts**) and is reformed into an adult ladybug.

When the ladybug first emerges, its elytra (the outer shell) is wrinkled, spotless and yellow in color. It takes 10 to 15 minutes for the elytra to harden and become smooth.

The huge mandibles, or jaws, of the stag beetle are likely to intimidate predators.



Giant stag beetle

Good and bad

Beetles play an important role in the environment. Like other insects, they provide an important source of food for many animals. Scarabs and some other types of beetles are pollinators, while dung beetles reuse the dung of herbivores, thereby removing millions of tons of waste.

Some beetles are considered pests because they feed on crops, trees or stored food.

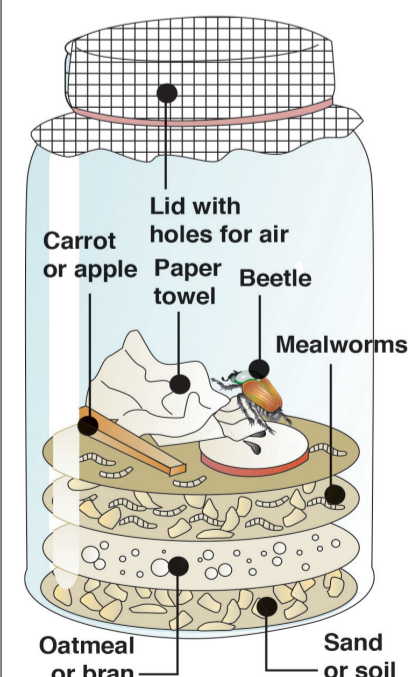
All in the family

Beetles are insects and belong to the order **Coleoptera**. Coleoptera is the largest insect order — about 40 percent of the world’s insects are beetles. Scientists have divided the Coleoptera order into more than 175 families of beetles.

Scientists (or zoologists) who study insects are called **entomologists**. Specialists who study only beetles are called **coleopterists**. Coleoptera are distinguished by hard forewings and thin, folded hindwings. They range greatly in size and have mouth parts that enable them to chew.

Pet beetles

You can learn a lot about insects by watching them. Beetles can be kept in a jar with some sand or soil at the bottom. Add layers of oatmeal or bran. Many beetles like mealworms. They may be hard to find, but add a layer of them if you can find any. Supply moisture with a fresh piece of apple or carrot every day. A crumpled paper towel makes a good place for the beetle to hide. Experiment with what they eat by giving them tiny bits of fruit, meat, cheese or bread. You should return your insects to the wild after a few days.



SOURCES: World Book Encyclopedia, World Book Inc.; Encyclopedia Americana, Smithsonian; <http://www.biokids.umich.edu>; <https://www.insectidentification.org>; <https://animalcorner.co.uk>

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