Half of China’s black carbon comes from residential kitchens and heaters, but solar cookers in Dezhou want to change the paradigm.
Humor has never been the forte of Forster (“Finding Neverland,” “Quantum of Solace”), so don’t come to “Christopher Robin” expecting hijinks from Tigger or a single overstuffed bear stuck in a doorway. Instead Forster has fashioned a meticulously handsome post-WWII period drama — perhaps one more for adults than children — leaning much closer to “The Velveteen Rabbit” than Saturday morning cartoon.

There’s a degree of atonement in the stylistic shift; the real Christopher Robin (never a fan of the books) lamented the Disneyfication of his father’s characters and never accepted royalties. And as with Disney’s 2016’s “Pete’s Dragon,” there’s an unlikely, largely indie collection of filmmakers behind a relatively modest live-action revival. Alex Ross Perry (“Listen Up Philip”) and Tom McCarthy (“Spotlight”) and Allison Schroeder (“Hidden Figures”) wrote the script.

In the opening scenes in the fictional land of the Hundred Acre Wood, Pooh and the rest are giving young Christopher Robin a farewell party. “Don’t you get all grow-ed up on us,” Tigger tells him. But after a page-turning montage, Christopher Robin has indeed done just that. He’s now a working, married man in London and wonders: “How come nobody’s bouncin’?”

Though the form is a little novel, the other characters, Pooh looks more a glassy-eyed teddy bear than he has before, and more frizzy than E.H. Shepard’s illustrations. The digital effects impressively double for tangible, hand-hewn felt creations, but (aside from Owl) they crucially lack lively eyes.

That keeps the gang (there’s also Piglet, Rabbit, Kanga and Roo) always secondary on the screen to McGregor. Naturally, Christopher is pulled back into Hundred Acre Wood where his priorities are straightened out. He releases Pooh’s wise advice that “doing nothing often leads to the very best something” — a message that proves surprisingly relevant to the midcentury workplace policies of Christopher’s luggage company, even if Pooh mishears his job as “a fish-in-the-sea manager.”

It all fits together a little too well, too predictably and, well, too Disney. Pooh and company have always been a wonderfully neurotic bunch, but in Forster’s polished film, they’re a little suffocated, a little lifeless. Any semblance of authentic childhood glees remains purely theoretical. It’s surely not a good sign when Eeyore (voiced by Adam Fitgerald), whose mopey mutterings land nearly all the film’s laughs.

T he savoury aromas of roasting hot dogs and chicken kebabs wafted out of metal and glass vacuum tubes heated by mirrors curved to capture the sun’s heat.

Two dozen chefs with white aprons and hats prepared soups, baked “baozi” pork buns, and boiled rice porridge at a festival designed to demonstrate the potential of solar cookers that organizers claim can help reduce climate-changing greenhouse gas emissions.

“We aim to enable half of the world’s population to use solar cooking within 10 years,” said Huang Ming, founder of Himin Solar Energy Group, the solar cooker’s main backer.

As hundreds of people strolled by, chefs armed with oven mitts scaled ladders to uncover piping-hot cooking tubes arrayed on nearly 2-meter-tall industrial racks. Smaller-scale vendors used 1-meter-long solar cookers designed to fold up for picnics. Temperatures can top 400°C inside the black “BBQ” tubes of metal and glass with turnip-tipped bottoms and sealable tops. On a bright day, they can boil water within 30 minutes and roast a fish in half that time, according to Himin.

“It is clean and smoke-free — better than cooking with pots and other things,” said Yu Lipu, 22, a chef, who just began cooking with solar two days earlier.

Dezhou, a sprawling city of 5 million in eastern China, has spent millions since 2005 on transforming itself into an aspiring renewable energy hub called the “Solar Valley.”

Public art displays at town bus stops and murals use solar panels. Stone statues of sun-related Chinese legends squat in parks.

China is the world’s biggest consumer and producer of solar technologies. Many homes outside the largest cities are equipped with solar water heaters.

But roughly 600 million of China’s 1.4 billion people still cook with coal, wood or other biomass despite decades of government-led initiatives to curtail soot from such burning, according to a 2016 report by the Global Alliance for Clean Cookstoves.

Affordable yet durable solar cookers have long intrigued those seeking to cut emissions. Frank Haugwitz, director of Asia Europe Clean Energy Solar Advisory Company.

“There’s certainly a need for a cleaner option,” he said.

Eastern China is a “global hotspot” for black carbon emissions — soot particulates more damaging to health and the environment than typical greenhouses gases — according to a 2007 report in the China Academy of Engineering.

On a particularly crucial work site, Xue, 68, a grandmother, has indeed done just that. She’s now a working, married man in London and wonders: “How come nobody’s bouncin’?”

“The demands of his work have drained all the fun out of Christopher Robin, whose middle name has been upgraded to surname. He hasn’t so much as smiled in years, Evelyn says. But on a particularly crucial work weekend, out pops Pooh from the Hundred Acre Wood portal from the trunk of a tree outside Christopher’s town house.

The voice is instantly recognizable (Pooh veteran Jim Cummings voices him, as well as Tigger) though the form is a little novel. The other characters, Pooh looks more a glassy-eyed teddy bear than he has before, and more frizzy than E.H. Shepard’s illustrations. The digital effects impressively double for tangible, hand-hewn felt creations, but (aside from Owl) they crucially lack lively eyes. That keeps the gang (there’s also Piglet, Rabbit, Kanga and Roo) always secondary on the screen to McGregor. Naturally, Christopher is pulled back into Hundred Acre Wood where his priorities are straightened out. He releases Pooh’s wise advice that “doing nothing often leads to the very best something” — a message that proves surprisingly relevant to the midcentury workplace policies of Christopher’s luggage company, even if Pooh mishears his job as “a fish-in-the-sea manager.”

It all fits together a little too well, too predictably and, well, too Disney. Pooh and company have always been a wonderfully neurotic bunch, but in Forster’s polished film, they’re a little suffocated, a little lifeless. Any semblance of authentic childhood glees remains purely theoretical. It’s surely not a good sign when Eeyore is the one stealing the show. Watching “Christopher Robin,” I couldn’t help feeling a bit like Tigger when he arrives in London and wonders: “How come nobody’s bouncin’?”

“Christopher Robin,” a Walt Disney Co. release, is rated PG by the Motion Picture Association of America for “some action.” Running time: 104 minutes.
Solar cookout aims to woo traditional chefs, cut carbon

"When I started as a solar chef, I used to bring home in his work clothes. He doesn't complain about the smell doesn't even seem to know how to shower," Sun said after roasting clothes. He used to bring home in his work clothes. "I was impressed by the taste of pig feet cooked by solar, it was soft and yummy, I could not believe it was cooked by solar," she said.

Solar cooker technology has just yet matured. While cheap types are available, more reliable ones are still too expensive for rural communities. "It’s kind of a chicken and egg thing," Haugwitz said.

Some experts fear solar is too big a break from traditional Chinese cooking. "It is good to have some innovation, but it’s impossible to change people’s dietary habits," said Xu Qinhua, deputy director of National Academy of Development and Strategy under Renmin University of China. "People used to say China’s fire-fried dish culture would be replaced by induction cookers, but no, it was not."

Himin has yet to produce a retail version of the cooker or sell it outside of Dezhou but the company claims chefs in the city are already adapting cookers gifted to them to a variety of regional Chinese cuisines in new solar restaurants opening up across the city.

Hotel, next to the field where the festival was staged and down an air-conditioned hall past portraits of Al Gore and other climate advocates, Huang and other festival goers toasted the vacuum-tube solar cookers with glasses of fiery baijiu, red wine and beer.

Next came a marathon banquet of courses, including turtle soup and pancakes served on platters with foot-tall figurines of Chinese legends like the mythical archer Houyi. According to legend, he shot dead nine suns before harnessing fire for humanity’s benefit.

Ren Yanbo, vice secretary general of the Efficient Stove Division of the China Association of Rural Energy Industry, appeared to be adapting fire for humanity’s benefit. But instead of solitude, Eden is sharing the rest of the year with six strangers — college friends who don’t even seem to know how to shower. Her new perspective on her life, and get her away from her Chicago home. "I was impressed by the taste of pig feet cooked by solar, it was soft and yummy, I could not believe it was cooked by solar," she said.

'Shred, REALISTIC CHARACTERS

The darkness that permeates the park’s environs also works as an imaginative metaphor for murky history, the group has an odd relationship to the myriad personalities and concealing secrets, even from those to whom one is closest. A shrouded plot and realistic characters also sour in "Under a Dark Sky."

Mired in grief since her husband, Bix, died nine months ago, Eden Wallace decides to keep a research at a Stravinsky International Dark Sky Park in Michigan. Before he died, Bix planned the park visit as a surprise for their 10th-anniversary, and she has just found the reservation while cleaning out a drawer. It’s an unusual gift because Eden’s fear of the dark is pathological, but she hopes the visit will give her a new perspective on her life, and get her away from her Chicago home. But instead of solitude, Eden is sharing the rest of the year with six strangers — college friends who booked the cottage for a reunion. Her immediate reaction is to leave, but Eden has been doing a lot of hiding lately, avoiding people and alternating friends who are too tired of hearing about Bix’s death. Besides, the park will not refund Bix’s payment. Although the friends make Eden uncomfortable, she is drawn to the myriad personalities and their complex relationships. Despite their shared history, the group has an odd dynamic. [...] these people didn’t even seem to know how to enjoy one another’s company,” Eden observes. Complicated jealousies, past actions and devastating secrets are revealed when one of the six is murdered.

Rader-Day expertly plots an ingenious mystery in "Under a Dark Sky." Eden greives for her husband but also questions what her marriage was and what the relationship with Bix could have been. Grief and regret have turned her into a woman she doesn’t recognize, simultaneously overly emotional, coldhearted and judgmental. Although only 34, Eden feels so much older than the friends who are even more unsettled in their mid-20s.

Set in a fictional park, "Under a Dark Sky" captures the beauty of the dozens of similar nocturnal environments that thrive at such recreation areas throughout the world.

'Otunes

But the band also knows how to change a pace when it comes down to it. "Conflicted" is an ode to indecision, set by a grinding mood in a slower tempo while emphasizing the cleaner, roosty-rock guitars. Lizzy gets outwardly sensual on "Do Not Disturb," while the final track, "The Silence," ends the album on an auditorily lighter note as an acoustic ballad to a love lost.

On "Vicious," HALESTORM RIDES ON ELEVATED THRASH-Pop

"Under a Dark Sky" (Morrow) by Lori Rader-Day

'Shred, REALISTIC CHARACTERS

"Under a Dark Sky" (Morrow) by Lori Rader-Day

"Vicious" comes five years after Halestorm’s Grammy-winning hit “Love Bites (So Do I)” became the group’s standing claim to mainstream fame. Produced by Nick Raskulinecz, who has worked with bands like Foo Fighters and Alice in Chains, “Vicious” is a jump in sonic variety since the band’s third full-length album, “Into the Wild Life,” topped the rock charts in 2015.

The new album stays true to the band’s long-standing creative elements. The cryptic but assertive attitude of Lizzy Hale’s diverse vocal range and raunchy guitar riffs team up well with her brother Arejay’s locomotive percussion, Joe Hottinger’s sharp guitar work and Josh Smith’s thumping bass walk. On “Vicious,” the group takes their raw and abrasive guitar sound up a notch with more polished, virtuoso axe-playing.

It’s also worth noting that Lizzy’s vocals really dazzle on this one. The frontwoman’s ferocity seems to embody the vocal stylings of metal legends like Ronnie James Dio and Lemmy from Motorhead only with her truly distinct Halestorm touch. The four-piece starts out even-handed by summoning the forces of nature in “Black Vultures,” painting a sonic picture of flying scavengers circling the sky. The song rotates between its flashy modes of thrash to more melodic sensibilities while Lizzy unabashedly wails words of survival. "Uncomfortable may be one of the album’s strongest tracks. The song starts out as a shredder with a rhythm that chugs behind chunky guitar riffs before Lizzy spits her spiky like fire following an illuminated bridge that adds nuance to a catchy chorus. It’s as easy head-banger that doesn’t lose intensity even during its more pop-heavy parts.
YANGSAN ANDONG SOJU

Andong is to soju what Champagne is to sparkling wine. Immaculately clean and perfectly transparent, the aromatically intense nose effuses mochi, cardamom, paperywhite, fermented black soybeans and sea waves. With a sauce-like mouthfeel, the profoundly flavourful palate emulates daikon, white pepper, grassland, chili bean sauce and brine. Full-bodied at 45%, the focussed entry continues through an umami-rich mid-palate, leading to a very long finish. If tasted blind, one could well mistake it for an expensive Chinese baiju. A very fine soju to savour.

Literally meaning “two branches”, the name Yangban refers to the traditional ruling class of Confucian scholar-officials in Korea from the 14th to 19th centuries. Different from noblesse de robe (nobles of the robe) and noblesse d’époque (nobles of the sword) of the Ancien Régime in France, the status of civil officials and military officers in Korea was not hereditary, but attained via imperial examinations modelled after China.

(Continued from “The Emblem of Korea” on 3 August 2018)

Situated in eastern South Korea and the capital of North Gyeongsang Province, Andong is indubitably the spiritual home of soju. In the minds of purists and traditionalists, Andong soju remains the only real soju: it is exclusively made from three ingredients, namely grains (mostly rice), monk (the cake-like traditional Korean fermentation starter) and water. Due to its painstaking production process and limited production volume, Andong soju is way more expensive than commercial soju.

In many regards, the clear divide between Andong soju and its evil twin is easily similar to Aceto Balsamico Tradizionale di Modena / Reggio Emilia DOP vs Aceto Balsamico di Modena IGP. Renowned for its culture, history and traditions, Andong used to be a centre of Korean Confucianism. In the 15th century, the Mongols under Ögedei Khan and Möngke Khan repeatedly invaded the Korean Peninsula. Owing to its strategic location, Andong became the key supply base of the Mongols. Distillation was probably introduced for the first time to the Korean Peninsula by the Mongol invaders, and Andong has been synonymous fine soju ever since.

During much of the 1st millennium AD, alcoholic beverages in China, Japan and Korea shared numerous similarities, in that they were generally made from grains (particularly rice), brewed rather than distilled, and could be filtered or unfiltered. Whether distillation was invented by the Arabs or China is still subject to debate, and some sources indicate that ancient Mesopotamians and Egyptians had accidentally stumbled upon the technique in the 2nd and 1st millennia BC. What can be safely ascertained, nonetheless, is that distillation was propagated across much of Eurasia by the Mongols during the 13th century. It would appear that Chinese, Japanese and Korean alcoholic beverages began to go separate ways in the 13th century. In China, distilled baijiu took hold in the north and never relinquished its dominance, whereas brewed huaqin remains prevalent in the south. Between Japan and Korea, brewed and filtered clear rice wine became more popular in Japan (sake), than Korea (cheongju); but distilled liquor is less popular in Japan (shochu) than Korea (soju).

To be continued on the next day.

Special thanks to Jacqueline P. L. Chan for supplying the sample.

Jacky L.F. Cheong is a legal professional by day and columnist by night. Having spent his formative years in Britain, France, and Germany, he regularly writes about wine, fine arts, classical music, and politics in several languages.
Even though fresh tomatoes start popping up at the market in July, they don’t really hit their peak until August — and that’s when I get happy. The tomato is absolutely my favorite vegetable (even if it’s technically a berry). This crispy tomato salad combines cooked tomatoes and raw tomatoes, the large guys and the small guys. You can call it a medley but I think of it as a party. Before we start to cook these fellows, let’s take a minute to talk about buying and storing them. How do you know if a tomato is worth buying? Fragrance is everything. Out-of-season supermarket tomatoes have zero aroma. If you put your nose to the stem of a given specimen and it smells like a tomato, you’re home free. As for color, a tomato doesn’t have to be red from top to bottom to be good to go; it continues to ripen after it’s been picked from the vine. How to store them? Put your tomatoes on the counter out of the sun. Don’t refrigerate them. It will kill their taste. I like to maximize the flavor of a ripe tomato by using a salt soak. After you’ve sliced your tomato, sprinkle it with salt and let it drain for at least 20 minutes. Salt not only pulls out excess water; it also intensifies the tomato essence. I salt my tomatoes this way before adding them to any salad. This recipe is my take on Fried Green Tomatoes, a classic of Southern cuisine. The standard recipe features unripe tomatoes coated in cornmeal and deep-fried. Here we’re working with ripe tomatoes, not green ones, and sautéing them, not frying them. How ripe is ripe? Not so ripe that they’ve gone soft. You want them to be firm. The ripe ones hold together better when cooked. The salad is finished with a simple buttermilk dressing made with mayonnaise, buttermilk, garlic and fresh herbs. Which herbs? I’ve suggested a mix of tarragon, parsley and chives, but the tomato goes equally well with just about any herb under the sun, so feel free to sub in your own favorites.

**USE FRESH TOMATOES FOR CRISPY TOMATO SALAD**

**RECIPE**

**START TO FINISH:**
- 1 hour (40 minutes active)
- Servings: 4

For the dressing:
- 1/2 cup low-fat buttermilk
- 1/3 cup mayonnaise
- 2 tablespoons finely chopped mixed fresh herbs (such as tarragon, chives and parsley)
- 1 tablespoon fresh lemon juice
- 1 teaspoon minced garlic
- Kosher salt and black pepper

**HOW TO MAKE IT**

Make the dressing: In a medium bowl whisk together all the ingredients and add salt and pepper to taste.

Make the crispy tomatoes: Slice the beefsteak tomatoes crosswise, 1/3-inch thick. (You should get 4 slices from each tomato.) Sprinkle both sides of each slice with salt and let drain on a cake rack for at least 20 minutes. Halve the cherry tomatoes. Place in a bowl and sprinkle them with salt. Let them stand for at least 20 minutes. Meanwhile, in a shallow bowl or pie plate beat the egg; add the buttermilk and whisk until combined well. In a separate shallow bowl stir together the cornmeal, flour, cheese and 1/4 teaspoon salt.

Pat the large tomatoes dry with paper towels. Coat half of them with the buttermilk mixture, letting the excess drip off and then dip them in the cornmeal mixture making sure they are coated all over. In a large nonstick skillet heat 2 tablespoons of the oil over medium-high heat. Add the coated tomatoes and cook them until golden, about 2 minutes a side. Transfer 2 slices to each of two plates. Repeat the procedure with the remaining tomato slices, buttermilk mixture, cornmeal and oil and transfer those slices to two more plates. Spread the cherry tomatoes on paper towels and quickly pat dry. Mound one-fourth of the cherry tomatoes on top of each portion and drizzle with the buttermilk dressing.
South Korean boy band Exo returns to Macau, with its “Exo Planet #4 – The EℓyXiOn” tour. The name EℓyXiOn is inspired by “elysium”, a word from ancient Latin meaning a place or state of perfect happiness. In the band’s case, it is a place where audiences can enjoy a spectacular show combining sound, colour and Exo’s talent. Fans can expect the group to perform hits such as “Ko Ko Bop”, “The Eve”, “Growl”, “Call Me Baby”, “Lotto” and “Monster”. Exo made its debut in 2012 and the group’s four full-length albums have each sold more than a million copies. The “Exo Planet #4 – The EℓyXiOn” tour started in November 2017 in Seoul, South Korea, and has visited Japan, the Taiwan region, Singapore, Thailand, the Philippines and Hong Kong.

**Time:** 8pm (August 10, 2018)

**Venue:** Cotai Arena, Venetian Macao

**Admission:** MOP2088

**Organizer:** Venetian Macao

**Enquiries:** (853) 2982 8818

www.cotaiticketing.com

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**TODAY (AUG 10)**

**EXO Planet #4 – The EℓyXiOn [dot] – in Macau**

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**TODAY (AUG 10)**

**BEATLES FOR BABIES**

**Time:** 8pm (August 10)

**Venue:** Black Box Theatre, Old Court Building

**Admission:** MOP150, available at https://goo.gl/forms/dqDrCuJjgRQ3wig1j2

**Organizer:** Stella & Artists

**Enquiries:** (853) 6300 6009

stellanartists.com

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**TODAY (AUG 10)**

**TO EACH HIS OWN CITY**

**Time:** 3:30pm & 8pm (August 11)

**Venue:** Grand Auditorium, Macau Cultural Centre

**Admission:** MOP180

**Organizer:** Macau Cultural Centre

**Enquiries:** (853) 2870 0699

www.ccm.gov.mo

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**TOMORROW (AUG 11)**

**JEFF RETRO**

Over the past five years, Florida native Jeff Retro has been making a name for himself on the dance floors of Las Vegas. He has held residencies in some of the top nightclubs in the United States, and is currently the resident DJ of Hakkasan Nightclub at MGM Grand in Las Vegas. Jeff Retro has played opening and supporting sets for some of the electronic dance music scene’s biggest names such as Tiesto, Calvin Harris and Steve Aoki. This month he is taking his turn in Macau, playing at Club Cubic.

**Time:** 10pm

**Venue:** Club Cubic, City of Dreams Macau

**Admission:** MOP250

**Organizer:** Club Cubic

**Enquiries:** (853) 6638 4999

www.cubic-cod.com

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**TUESDAY (AUG 14)**

**CATALOGUE EXHIBITION IN CELEBRATION OF THE 20TH ANNIVERSARY OF MACAU MUSEUM**

In celebration of its 20th anniversary, the Macau Museum is displaying at the Kun Iam Ecumenical Centre 23 catalogues of past Macau Museum exhibitions. The museum officially opened to the public in April 1998 as a comprehensive facility for exhibits related to Macau’s history and culture. It has since held numerous exhibitions on a variety of themes, in the process generating an array of exhibition catalogues featuring details of each show and research related to them.

**Time:** 10am to 6pm (closed on Fridays)

**Until:** August 30, 2018

**Venue:** Kun Iam Ecumenical Centre

**Admission:** Free

**Organizer:** Macau Museum

**Enquiries:** (853) 2875 1516

www.museum.gov.mo

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**MONDAY (AUG 13)**

**ART IS PLAY**

MGM Macau’s “Art is Play” exhibition features art installations by five artists and designers from Macau, Hong Kong, Japan, France and Singapore respectively, offering a space for visitors to relax and indulge themselves. The showcase aims to inspire audiences to embark on a journey of self-awareness, self-discovery and social interaction, through play.

**Time:** 10:30am to 10pm (last entry at 9:30pm; closed on Aug 13th)

**Until:** September 9, 2018

**Venue:** MGM Art Space, MGM Macau

**Admission:** MOP120 (free admission for children aged two or under)

**Organizer:** MGM Macau

**Enquiries:** (853) 8802 3833

www.mgm.mo

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**SUNDAY (AUG 12)**

**BEATLES FOR BABIES**

Blending the chords of violin and saxophone with the deeper tones of cello and percussion, this sing-along feast is adorned by the cheerful moves of an energetic dancer. Beatles for Babies is a sophisticated, baby-bonding performance, taking the classics by the Fab Four into an enlightening experience of happy tunes for all. The show is conceived and staged by Spanish group La Petita Malumaluga, a company specialized in creating performances for the tiniest audiences. Let yourself go with the beat and take time to sing, dance and interact as your children discover the joys of the creative arts in a show that will rock us all!

**Time:** 3pm & 5pm (August 10, 2018)

**Venue:** Grand Auditorium, Macau Cultural Centre

**Admission:** MOP180

**Organizer:** Macau Cultural Centre

**Enquiries:** (853) 2870 0699

www.ccm.gov.mo

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WEDNESDAY (AUG 15)
MACAU’S FIRECRACKER INDUSTRY – NEW WORKS BY LIO MAN CHEONG

In the early 20th century, one of Macau’s most prosperous industries was firecracker manufacturing, with six major factories located in Taipa. Local painter Lio Man Cheong brings back memories of this bygone industry through this exhibition: his watercolour works are a visual narration of the traditional firecracker production process, and the way of life that used to surround it.

TIME: 12pm to 8pm
VENUE: Taipa Village Art Space
ADMISSION: Free
ORGANIZER: Taipa Village Cultural Association
ENQUIRIES: (853) 2857 6118
taipavillagemacau.org.mo

THURSDAY (AUG 16)
FASHION REJUVENATION – EXHIBITION OF ECO-FRIENDLY AND FUNCTIONAL FASHION

This exhibition aims to promote the use of recycled fabric, giving garments a new lease of life. Eight local fashion designers were invited each to present for this showcase two sets of garments using eco-friendly and performance fabrics. The organizer says the final outcome “fully exemplifies Macau designers’ diverse talent and boundless creativity”.

TIME: 10am to 8pm (closed on Mondays, open on public holidays)
UNTIL: September 30, 2018
VENUE: Macau Fashion Gallery
ORGANIZER: Macau Fashion Gallery
ADMISSION: Free
ENQUIRIES: (853) 2835 3341
www.macaufashiongallery.com
World of Wonder

CRABS

The masked crab is a burrowing crab from the North Atlantic.

Thumbnail crabs, the only member of the genus Thaum, are from the North Atlantic and North Sea.

Arthropods
Crabs are arthropods. Arthropods are the largest animal phylum — more than 75 percent of all the world’s animals are arthropods. Crabs, spiders, insects, centipedes, millipedes, ticks, lobsters, shrimp, crayfish, krill, barnacles, scorpions and many others belong to this phylum.

Arthropods have exoskeletons that they molt (shed) as they grow, and segmented bodies made up of more than one part with jointed appendages. Arthropods are cold-blooded—they body temperature depends on the temperature of their environment.

Where in the world?
There are about 4,500 known crab species, and crabs are found in all of the world’s oceans. Crabs are chiefly marine animals, but some can live on land for long periods.

Classification
Kingdom Animals
Phylum Arthropoda
Subphylum Crustacea
Class Malacostraca
Order Decapoda
Suborder Plecoptera
Infraorder Brachyura

Not crabs
Some animals that bear the name “crab” are not true crabs. Horseshoe crabs, for example, are not crustaceans. Hermit crabs are crustaceans, but not true crabs.

Soldier crabs excavate in the sand
Soldier crabs are named for their habit of moving in large groups at one time. They live on beaches and in estuaries. When disturbed, they burrow into the sand.

Soldier crabs build sand houses with air cavities that allow them to breathe when the tide comes in.

The crab pushes small bits of sand outward and upward.

As the crab works, a dome is created.

As the crab digs deeper, a ceiling is formed.

Did you know? A crab uses its two claws to hold things, tear food and fight. If a claw breaks off, a new one grows back! Crabs have no bones—they shell acts as their skin and their bones. Crabs have eyes on stalks. Their eyes can move in any direction.

Crabs can range from the 15-foot (4 m) Japanese spider crab to the pea crab that grows just 1/3 inch (1 cm). Males are usually larger than females.

Many crabs are edible. The blue crab is one of the most popular food crabs in the world.

Crabs are invertebrates (animals without a backbone).

Dactyl (movable finger)

Finger (fixed finger)

Antenna

Eye

Propodus

Coxa

Baseoischium

Morus

Propodus

Carcinus

Dactyl

Carpace

Anterolateral teeth

Swimming leg

The Sally Lightfoot crab is from the Pacific Ocean. It is black as a juvenile and turns bright reddish-orange as an adult.

Habits
Crabs typically walk sideways because the leg joints make a side-long gait easier. Some crabs walk forward or backward and can swim. They are active animals with complex behaviors, and they can communicate by drumming or waving their pinners. They are aggressive toward one another, and males often fight to gain access to females. On rocky seashores, they also may fight over protective crevices or holes.

Crabs are omnivores. They feed primarily on algae but will eat other food, including mollusks, worms, other crustaceans, fungi, bacteria and detritus. Because they eat mixed diets and can work together as a group for food and protection, many crabs survive harsh conditions. During mating season, male crabs help to find a comfortable spot for the female to molt and to release her eggs. He protects her from predators during this time.

The constellation Cancer depicts the crab and was important to early navigators.

Food for thought
Crabs make up 20 percent of all marine crustaceans caught, tumbled and consumed worldwide. About 1 million tons of crabs are eaten annually all over the world. Some species are eaten whole with the shell, such as the softshell crab (which is a blue crab that has just molted). For larger crabs, like the Alaskan snow crab, just the claws and/or legs are eaten. Crab cakes (a mix of crab meat and flour) are popular in North America. Some people are allergic to crab and should avoid eating it.


At a bookstore near you: Two full-color World of Wonder compilations: *Plants & Animals* and *People & Places*. For more information, please visit GuildsDriveBooks.com