BEYOND

BY LEXUS

CITY OF CRAFT

Jaipur, capital of Rajasthan, India, is a center for some of the world's most talented craftsmen. We take a tour in a Lexus RX.

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ON THE CREST

Lexus has spent a quarter century developing some of the most technologically progressive cars in the world. Now it's heading out to sea.

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INTO THE FUTURE

Legendary director Luc Besson is behind this year's biggest sci-fi adventure, which features a special 28th-century spacecraft. We take a look.

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ISSUE N°
10
SPRING 2017

INTRODUCTION

The mindset around luxury is changing. While we continue to acquire objects that reflect the qualities of design, innovation, and craftsmanship, we are developing an even greater interest in acquiring experiences. Those experiences vary. Some will travel halfway around the world to be one of a handful of people to be served by a master chef. Others, to whom speed and exhilaration are an important marker of quality of life, will take to the racing track. Extraordinary, and often unusual, experiences now help define who we are and how we live. They hold genuine long-term value.

At Lexus, we also believe in the value of the experience, whether it's a moment experienced in one of our cars – like hearing the roar of an LC 500 at full throttle – or one that is facilitated by one of our vehicles. Our cars can take you to some of the most remote corners of the world, places in which we hope you'll have amazing experiences.

In this issue of BEYOND BY LEXUS, a milestone 10th issue, we share and explore stories and experiences around design, craftsmanship, and innovation. In a large visual essay, we introduce the all-new LS 500, our flagship model, which has been completely redesigned. We travel with designer Carlo Massoud to Jaipur, India, in search of the master craftsmen who will inspire his next project. We make waves with the introduction of the Lexus Sport Yacht concept, a nod to our future luxury lifestyle endeavors. And finally we hear from renowned movie director Luc Besson about how new technology has allowed him to create this year's biggest sci-fi adventure – and to collaborate with Lexus to produce the SKYJET, a single-seat pursuit craft featured in the movie.

As peak experiences begin to define the new luxury lifestyle, Lexus is honing in on facilitating as many as possible, whether that is through the stories we tell or the products we make. We want to provide experiences that stay with people for as long as they live, in their hearts and minds.

TOKUO FUKUICHI

PRESIDENT
LEXUS INTERNATIONAL

LEXUS
EXPERIENCE AMAZING

BEYOND BY LEXUS

ISSUE N°

10

SPRING 2017

PUBLISHED BY LEXUS

EDITED AND PRODUCED BY WINKREATIVE

WINKREATIVE AG
NORDSTRASSE 18
8006 ZURICH
SWITZERLAND
WINKREATIVE.COM

BEYOND@WINKREATIVE.COM

CREATIVE DIRECTOR
MAURUS FRASER

EDITOR
ALEX MOSHAKIS

DESIGN DIRECTOR
HANK PARK

ART DIRECTOR
MATT LE GALLEZ

PHOTO EDITORS
PAOLA CIMMINO
JULIEN BEAUPRÉ STE-MARIE

ASSISTANT EDITOR
PAULA WIK

DESIGNER
FREDDY WILLIAMS

SUB EDITOR
JONATHAN TODD

PRODUCTION DIRECTOR
JACQUELINE DEACON

PROJECT DIRECTOR
LINA KUNIMOTO

PROJECT MANAGER
GARRETT DUNCAN

COVER IMAGE: JESSE CHEHAK

CONTRIBUTORS

ANGELA MOORE
PHOTOGRAPHER

London-based Angela Moore has worked with brands and publications such as Vitra and Christie's magazine. She translated fabrics into art for our Material Gains shoot.

MICHAEL KIRKHAM
ILLUSTRATOR

Michael Kirkham is an award-winning illustrator with international commissions. The Edinburgh-based artist interpreted our Future Forum panel's predictions for 2050.

ALFREDO PIOLA
PHOTOGRAPHER

Alfredo Piola studied architecture in his native Venezuela before pursuing photography. For this issue of BEYOND he documented Lexus' concept design process.

DANIELLE DEMETRIOU
WRITER

Danielle Demetriou swapped London for Tokyo in 2007 and has since covered most things Japan-related. We follow her to Sabae City, Japan's eyewear hub.

SAM MITANI
WRITER

Few people can match Sam Mitani's expertise in Japanese automobiles. In this issue, the Japanese-American writer introduces Lexus' new flagship car, the LS 500.

GO ITAMI
PHOTOGRAPHER

For this issue of BEYOND, award-winning Tokyo-based photographer Go Itami explored the Japanese biomaterial company Spiber Inc.'s facilities in Yamagata.

ILLUSTRATIONS BY CLARA LACY

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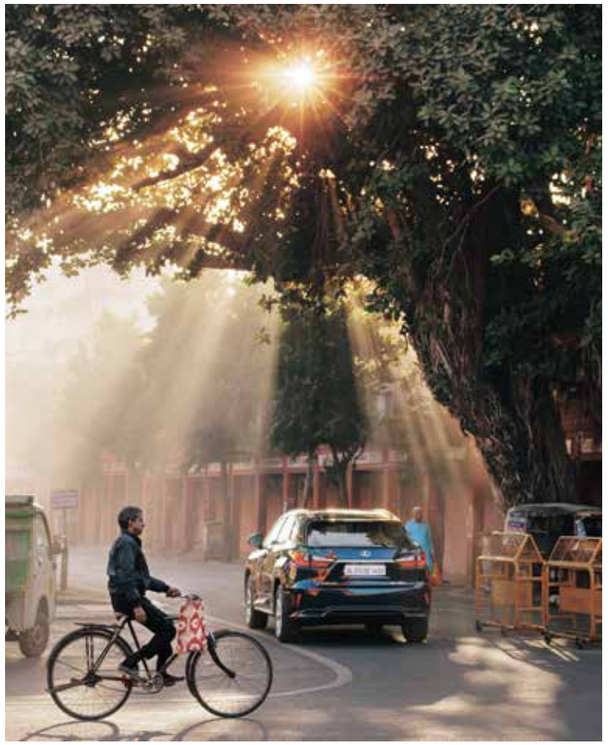


AHEAD OF THE PACK

A new generation of designers is emerging on the world stage, bringing processes, techniques, and philosophies that are changing the way we use and experience high-quality objects. From Amsterdam and Copenhagen to Sydney and Tokyo, we introduce eight of the best

GERMANS ERMIČS

AMSTERDAM, THE NETHERLANDS

> “Mistakes can lead to stimulating discoveries, like an unexpected color in an acid-etched mirror”

Germans Ermičs in an Amsterdam glass factory preparing the shipment of a very special commission headed for Miami – a four-meter-long glass dining table

“I think like a graphic designer and learned how to use materials to make my two-dimensional ideas come to life,” says Latvian polymath Germans Ermičs, who worked as an art director in Copenhagen before retraining in product design at the prestigious Design Academy Eindhoven.

Ermičs now creates simple glass and mirrored furniture, using gradations of color to create striking, sculptural effects. “There are so many ways to express the interlinked relationship between color and shape,” he says. The Amsterdam-based designer is doing just that beautifully and unconventionally. Whereas most designers use pigment to give a decorative layer to finished products, Ermičs considers what a color could look like if it was stretched, turned, or folded into a three-dimensional shape.

In 2016 he unveiled a series of mirrors that combine wood, glass, and ombré color washes to produce the optical illusion that the solid surfaces are disappearing. “I wanted to create a unique visual experience and distort the perception of the object,” he explains. “I was interested in the contrast between these two opposite materials: dense, warm wood and cold, sharp glass. Color was the perfect answer to combine them.”

Ermičs graduated in 2011 and his final project caught the discerning eye of influential Milanese design gallerist Rossana Orlandi. He then spent two years working on interior and graphic design projects for international companies before establishing his own studio in late 2014. His work is themed around how people interact with their environment and how design can influence this.

“I’ve produced many, many material samples – some nice and some terrible ones,” he says. “But the mistakes can lead to stimulating discoveries, like an unexpected color in an acid-etched mirror. Each day brings something new.”

Text: Talib Choudhry

Photo: Jussi Puikkonen

DIMITRI BÄHLER

BIEL, SWITZERLAND

> “I think that is the strength of designers – we know a little bit of everything, we have an overall view, but we aren’t expert in anything”

Dimitri Bähler with his collection of irregular ceramic vessels that earned him the grand prize at the 2016 Biennale Interieur Awards

Dimitri Bähler says he practically lives in his studio in Biel, a city straddling the border between the French- and German-speaking sides of Switzerland. “I only sleep and shower in my room, which is 200 meters from the studio,” he says.

Circumstances have played a large part in Bähler’s career. “My family had no clue about design,” he says. “Before starting at ECAL [École cantonale d’art de Lausanne] I had no idea about it either.” Although Bähler was interested in art and fashion, he thought that he would end up studying biology or chemistry. “At the end of high school, my art teachers encouraged me to apply for ECAL, which I had never heard of.”

Fast-forward to the present day and Bähler’s CV reads like an aspiring creative’s dream with commissions including the Volet Hook for Danish brand HAY and ceramics sold by WallpaperStore*. Not to mention work as varied as the Blausee Bench – inspired by his grandfather’s foraging for the stones he used to build his cabin – and Légendes Urbaines, a clothing collection created with local craftsmen in Ouagadougou, Burkina Faso.

Although distinctly modern, Bähler’s designs are underpinned by an appreciation for the handcrafted, resulting in pieces that are both versatile and playful.

“I like the idea that I am constantly learning. That is why it is difficult for me to say no to a project, even if I am not sure whether I really can do it,” he says. “I think that is the strength of designers – we know a little bit of everything, we have an overall view, but we aren’t expert in anything.”

Text: Charlotte Philby

Photo: Laurent Burst

KRISTINA DAM

COPENHAGEN, DENMARK

> “Every piece has the ability to add attitude to a space with a sculptural and graphic touch”

Kristina Dam grew up in the picturesque village of Rekkende in the Danish countryside. From an early age she loved art and sculpture and always knew she would end up being a maker of some description. But the journey that led her to form internationally acclaimed interiors business Kristina Dam Studio was somewhat circuitous.

Having started out studying architecture, Dam ended up graduating as a graphic designer. “I just love beautiful design objects,” she says. “I moved into interior design initially because I wanted to create sculptures and prints, but now I do all types of accessories and furniture.” The career move was a wise choice, as Dam exhibited her work at the world-renowned International Contemporary Furniture Fair in New York while still at university.

Dam’s work is a testimony to the simple, practical beauty of Scandinavian design principles. Defined by well-produced, lasting materials and a clean, natural color palette, products by Kristina Dam Studio are now stocked worldwide.

“Every piece has thoroughly designed details and the ability to add attitude to a space with a sculptural and graphic touch,” says Dam. Highlights include furniture pieces such as the versatile Cube Table with a square-shaped oak frame topped with marble or mirror, and objets d’art including a series of unglazed, perfectly smooth domed stoneware vases and the Dash Candlestick – a graphic Bauhaus-inspired candlestick sculpted in black-painted metal.

Copenhagen-based Dam is proud of her sculptures and especially enjoys the diversity of her work. “I love making things happen. When a sketch comes alive and I get the first prototypes, it’s always so exciting.”

Kristina Dam in her studio surrounded by her designs: the Marble Circles sculpture, Cube Table, and Graphic Coat Rack

Text: Charlotte Philby

Photo: Jan Søndergaard

DAISUKE KITAGAWA

TOKYO, JAPAN

> “Naturally, to create fresh designs you must be innovative, but it’s better to focus on things that create new value and are able to integrate into our current lifestyle without any awkwardness”

Daisuke Kitagawa’s Tokyo studio is full of unconventional materials, such as this glass with a polarized coating that he incorporates into his Layer display cabinet

It is difficult for a young designer to stand out among the thousands of exhibitors during Milan Design Week, yet Tokyo-based designer Daisuke Kitagawa of Design for Industry managed to create an enviable buzz during the 2016 fair thanks to his thoughtful, quietly innovative designs.

“I find inspiration from observing the casual, ordinary actions and behaviors of people who I see when I take a stroll or ride on the train, then critically examine and contemplate them,” says Kitagawa. “This is how I discover new designs.”

The concept for the Corner armchair, for example, came from one such observation. Kitagawa designed it with a large seat pad and an L-shaped backrest so people can sit whichever way they prefer whether it is facing left or right. Meanwhile the Moon light can be used as a table or floor lamp, with the flat, gold top functioning as storage space when it is not in use.

As well as considering contemporary needs, Kitagawa looks to the work of great masters from divergent fields and develops new designs by “abstracting and diverging from them”. The Layer display cabinet is infused with historical narrative, combining the age-old Japanese building technique of chigai-dana with sleek glass doors featuring a polarized coating more commonly used for sunglasses.

Kitagawa graduated from Kanazawa College of Art in 2005 and started working under his own name in 2011 before launching Design for Industry four years later. He describes his design style as “comfortable innovation” and believes that there is no need to either innovate more than is necessary or focus entirely on novelty. “Naturally, to create fresh designs you must be innovative, but it’s better to focus on things that create new value and are able to integrate into our current lifestyle,” he says.

Text: Talib Choudhry

Photo: Yasuyuki Takagi

WONMIN PARK

PARIS, FRANCE

> “My interest is in putting my own aesthetic and identity into a functional object”

Furniture designer Wonmin Park grew up in Seoul, South Korea before moving to The Netherlands to study at Design Academy Eindhoven. His preoccupation with design was triggered by wanting to create a space in the world for himself and for his work that lies somewhere between practicality and art. “My interest is in putting my own aesthetic and identity into a functional object,” he says.

Inspired by nature and travel, Park is most proud of his Haze series – a collection of sculptural pieces, including a chair and several tables, built in blocks of resin in subtle pigments that best represent the sense of lightness and purity in his work as a whole.

Park set up Wonmin Park Studio in 2012 to create his ethereal, dream-like, and sometimes surreal pieces. His furniture often appears without fixed contours, as if bound together by light and air, functioning as much as pieces of fine art as practical commodities.

The 34-year-old artist recently established a production facility in Rotterdam as well as a creative studio in Paris where he lives. He has exhibited at major fairs around the world including Design Days Dubai, and in museum shows at the Musée des Arts Décoratifs in Paris, the Triennale Design Museum in Milan, and the National Museum of Modern and Contemporary Art in Seoul.

Although it is easy to spot a compelling common thread in many of his creations, be it the geometric acid-hued Miami Shelf or the curved marble reception desk for Hotel Wallpaper*, Park refuses to be pinned down and has big ambitions. “I like to have freedom in my work,” he says. “I like to play and experiment and to find new ideas and ways of thinking. It is my dream to one day design a whole chapel from scratch.”

Wonmin Park aims to communicate a sense of lightness in his work. And here, in his Paris studio and warehouse

Text: Charlotte Philby

Photo: Thomas Chéné

ERIC LANDON

COPENHAGEN, DENMARK

> “Handmade ceramics are humble, honest, and seemingly exempt from the forces that have led to a throwaway culture”

Not since that scene in the film Ghost, where Demi Moore connects with the spirit of her deceased husband via the medium of clay, has a potter’s wheel been so fetishized in moving image. The wheel in question is situated in the central Copenhagen studio of potter Eric Landon, who has gained a growing global online fan base for the mesmeric videos he posts of himself at work.

Landon grew up in the American Midwest and moved to Copenhagen in the late 1990s to study at the Royal Danish Art Academy’s School of Design. In 2012 he co-founded ceramics firm Tortus with fellow potter Karin Blach Nielsen who is responsible for the glazings. The duo and their team skillfully combine traditional techniques with a contemporary design sensibility, and work in a picturesque 18th-century truss-style building.

Named craftsman of the year at the 2015 Danish Design Awards, Landon has amassed more than 630,000 followers on Instagram. The irony that a renewed appreciation for craft is being powered by digital platforms isn’t lost on him.

“The internet and social media give small holistic producers like us a louder voice,” he says. “Our audience is global rather than local like it was in the past.”

Business is brisk and the studio is finding it difficult to keep up with demand. “Like the noble creature we derive our name from, we move at our own humble pace,” says Landon. He recognizes that the care and consideration that goes into handcrafted goods is a big part of their appeal. “Handmade ceramics fill a growing need that people have for furnishing their lives with possessions of timeless value,” he says. “They are humble, honest, and seemingly exempt from the forces that have led to a throwaway culture.”

Pottery master Eric Landon in his welcoming Copenhagen studio where he hand throws his clean-lined ceramics

Text: Talib Choudhry

Photo: Jan Søndergaard

MAX LAMB

LONDON, UK

> “For me the excitement comes from exploring things I haven’t already explored. It is that innate curiosity that ultimately defines my work”

Lexus Design Award mentor Max Lamb in his North London studio that speaks of his hands-on approach to creating functional pieces with raw materials and craft at their core

“I’m not a woodworker or a metalworker,” says celebrated British multidisciplinary designer Max Lamb. “I don’t focus on synthetic materials or natural materials. I don’t really focus or dedicate myself to any medium or process. For me the excitement comes from exploring things I haven’t already explored. It is that innate curiosity in how I direct my practice that defines my work.”

Spending much of his childhood on his grandfather’s farm in Yorkshire in the North of England, Lamb whiled away school vacations helping with a variety of hands-on jobs, from sowing and harvesting to building and construction. He believes it is these experiences as much as his formal training that have informed his career as a maker.

Past projects range from creating the interiors of an Opening Ceremony pop-up shop in London out of Welsh border stone, to a series of misshapen rubberized furniture pieces for Albania’s pavilion at the Venice Biennale 2016. He has also created a line of tiles and furniture from Marmoreal in his own form of engineered marble, as well as a 3D jigsaw of a tree – felled from his grandfather’s farm and cut into 130 logs that were then seasoned for eight years – where each log is a “semi-domestic” piece of furniture that could theoretically be reassembled back into its natural state.

As well as working on projects for Bitossi ceramics in Italy; Kvadrat in Denmark; and Acne in New York, LA, Berlin, and Seoul (alongside more self-directed work for galleries), Lamb is currently preparing himself for his most important new role to date – as a father. “I enjoy what I do so much that I can punish myself through doing it,” he says. “That will need to change.” Lamb is ready for his new challenge and says that he is looking forward to becoming a parent. “I’m sure it will be a bit frustrating and exhausting, but I feel like my work has trained me quite well to be resistant to a lack of pattern – and to a lack of sleep!”

Text: Charlotte Philby

Photo: Sophie Green

HENRY WILSON

SYDNEY, AUSTRALIA

> “I think if you understand something on any level you will have a deeper connection with it. A piece or an idea has to be intriguing but also something you can engage with and understand”

Henry Wilson in his workshop where he creates his understated products – with two supportive studio dogs for company

Henry Wilson is something of a polymath. Sometimes described as an industrial designer, the Australian force behind the globally revered Henry Wilson Studio says he is part of the “new guard of designers” who refuse to isolate aspects of creativity.

It was while studying at Design Academy Eindhoven in Holland that he learned to approach the work of a designer as something that could transcend traditional boundaries. His work now ranges from set design and interior spaces for the likes of Aesop, to products and furniture.

What connects all aspects of his practice is a preoccupation with functionality but also feelings. “I’m inspired by travel and seeing how people live with things,” says Wilson. “And then I try to distill what makes some things great – then see how those ideas might fit into other projects.”

Conceived in 2011, Henry Wilson Studio has been producing in earnest since 2013. The A-Joint range, a series comprising six components of beautifully crafted metalwork that have been used in large-scale fit-outs, from commercial work-stations through to restaurants and residential homes, is what Wilson considers his most cherished work.

He aims to create products that encourage attachment. Working with partners across the world who create components that can then be assembled by distributors worldwide, Wilson believes that the shapes in his work tend to be somewhat obvious. “This idea resonates with me because I think if you understand something on any level you will have a deeper connection with it,” he says. “On the other hand, you don’t want it to be so obvious that people forget it. A piece or an idea has to be intriguing but also something you can engage with and understand.” ◢

Text: Talib Choudhry

Photo: Sean Fennessy

Lexus' groundbreaking Kinetic seat could revolutionize the driving experience through an innovative structure and futuristic materials. Here are five reasons why

TAKE A SEAT

1
PILLAR OF STRENGTH

Our heads stay stable due to the spine's ability to move – that's why we can keep a level head during physical activity. The Kinetic seat moves to follow the natural motion of the human spine, thus stabilizing the head and steadying the driver's field of vision.

2
IN THE NET

The flexible net-like design of the seat's structure and upholstery fits closely around the driver's body and evenly disperses the weight. This achieves a more comfortable drive, even when sitting for prolonged periods.

3
LIGHT WORK

The lightweight frame of the Kinetic seat reduces the overall weight of the car, which leads to lower fuel consumption and increased agility. Its slim design also improves visibility and leg room for rear passengers.

4
STRONG AS SILK

Inspired by spider silk's extraordinary strength (it is stronger than steel on a per-weight basis) and elasticity, the innovative synthetic material supporting the Kinetic seat offers superior shock absorbance and comfort.

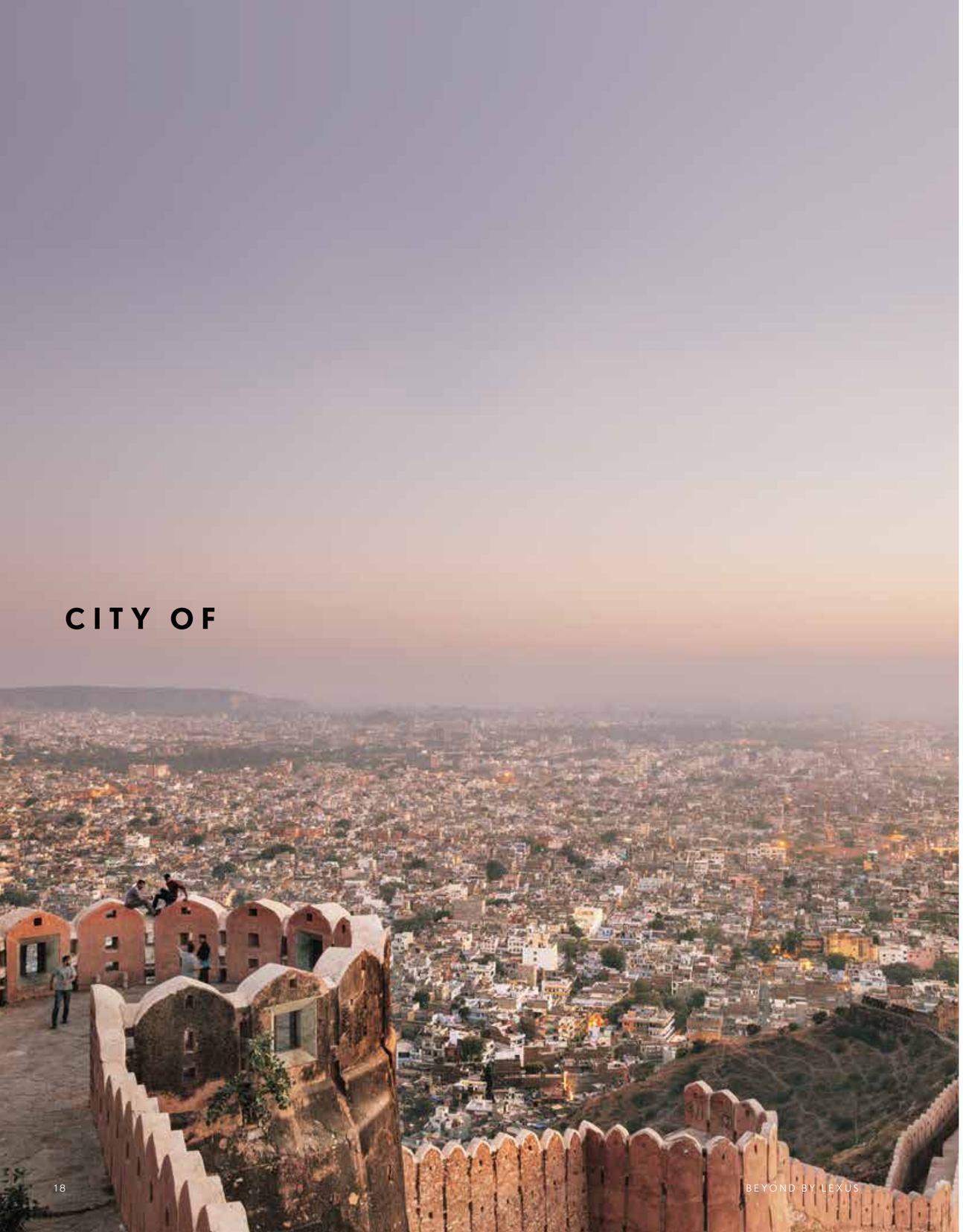
5
NATURAL ATTRIBUTES

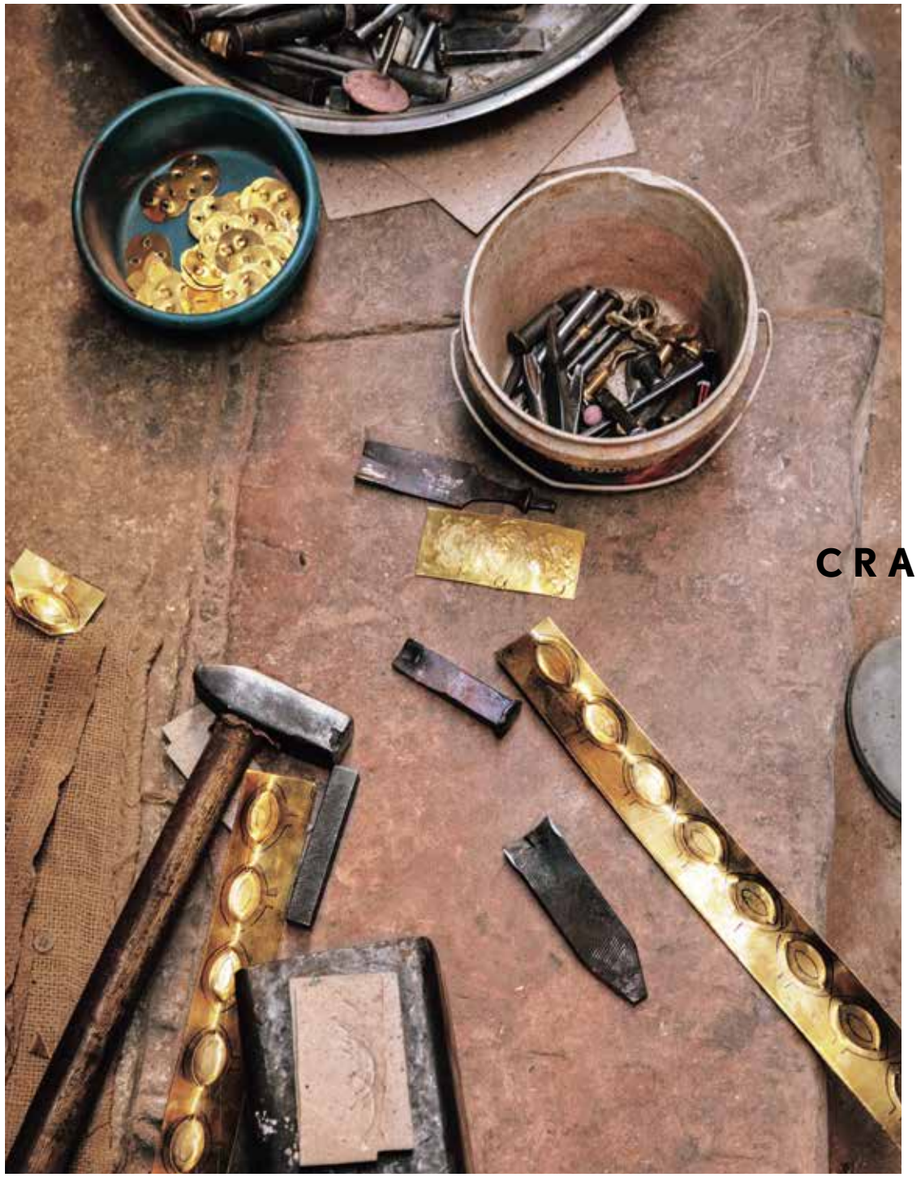
The protein-based synthetic spider silk is created through the natural process of microbial fermentation, making it an environmentally friendly alternative to more frequently used materials. ◢

TEXT: PAULA WIK PHOTO: ADRIAN SAMSON

CITY OF CRAFT

Lebanese designer Carlo Massoud is on a one-man mission to share with the world the beauty of regional craft. We joined him in Jaipur, India on a tour of the city's most talented artisans





TEXT: ALEX MOSHAKIS PHOTOS: JESSE CHEHAK

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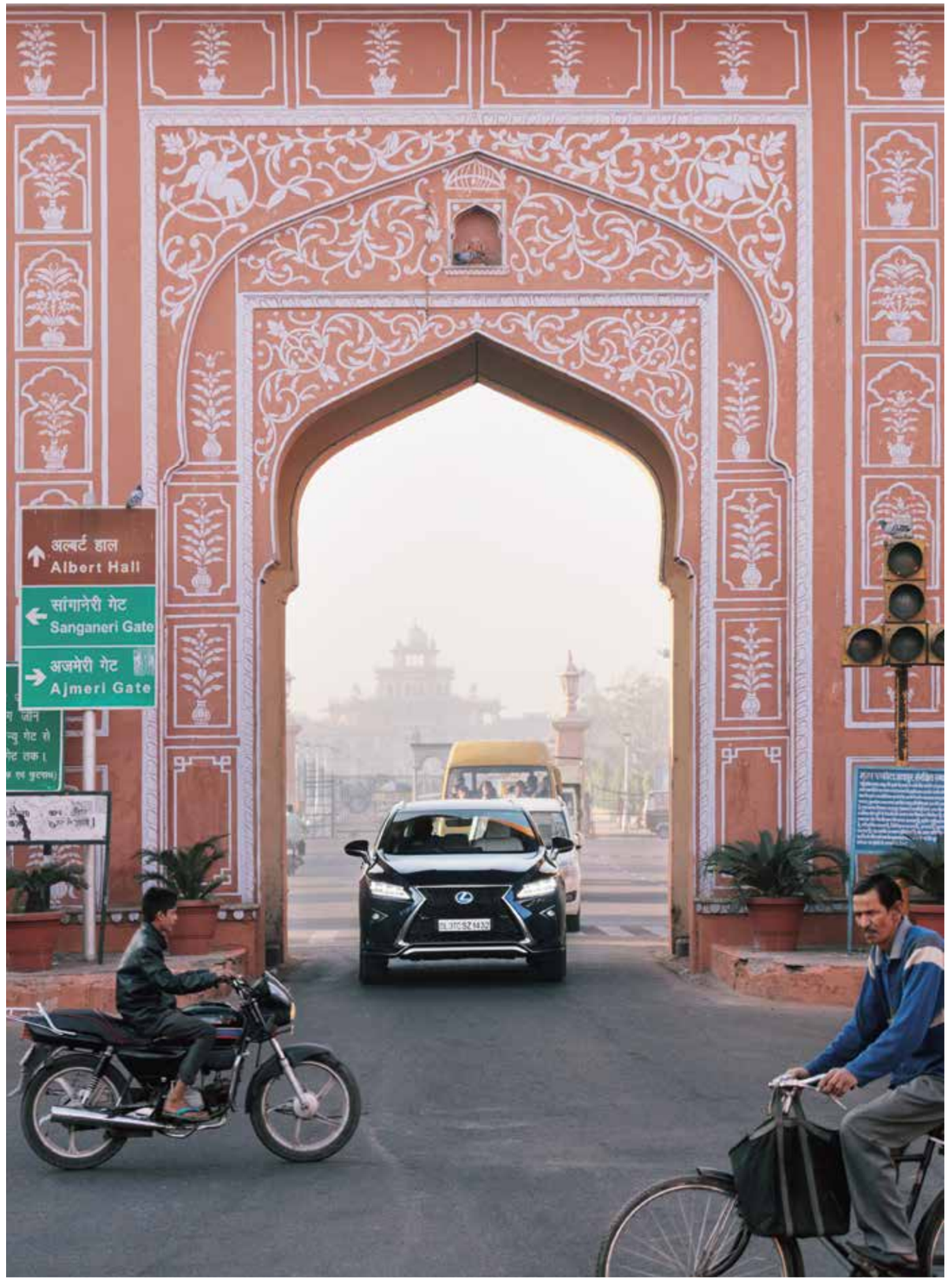

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In order to visit the workshops of some of the most talented brass craftsmen in India, you must fly to Jaipur, the capital of Rajasthan; take a hair-raising car journey to the city's dilapidated old town; and wander through a series of alleyways so narrow it is at certain points a struggle to walk with another person side by side. Few people will make the discovery, although certain sounds, if you happen to get close enough and listen carefully above the blare of vehicle horns, are instant giveaways. A near-constant tinny hammering. Urgent shouts for shared tools. The screeching white noise of hand sanders against raw, unpolished metal.

The workshops are, in fact, the doorways and shared courtyards of the craftsmen's homes, and they are filled with pieces of semi-industrial machinery, crudely made smelting furnaces, and discarded utensils. They are also littered with decorative pots. Some, those that are only partway through the production process, are brown, dull, and dusty. Others, those that are complete and ready for sale, are bright and arresting, a lustrous yellow. On a warm Wednesday morning in November, finished pieces sat in piles in stark contrast to their surroundings. Amid decrepit once-white walls, great tangles of snarled wire, buckling door frames, and cool, damp rubble, they appeared not unlike pieces of misplaced treasure.

To the Lebanese product designer Carlo Massoud, the discovery of both the pots and their makers was a revelation. Massoud, who is 32 years old, had been introduced to the craftsmen by Sakshi Gupta, a production manager employed by a small-scale manufacturer that recruits local makers to create collectible design objects that are later sold online. He had recently arrived in Jaipur from Beirut, where he lives and works, and Gupta had immediately instigated a tour to visit some of the city's most talented artists. The pair talked about craftsmen via references to the material with which they worked. "We've got ceramics, brass, marble," said Gupta of her contacts when the pair first met. Massoud wanted to meet all three.

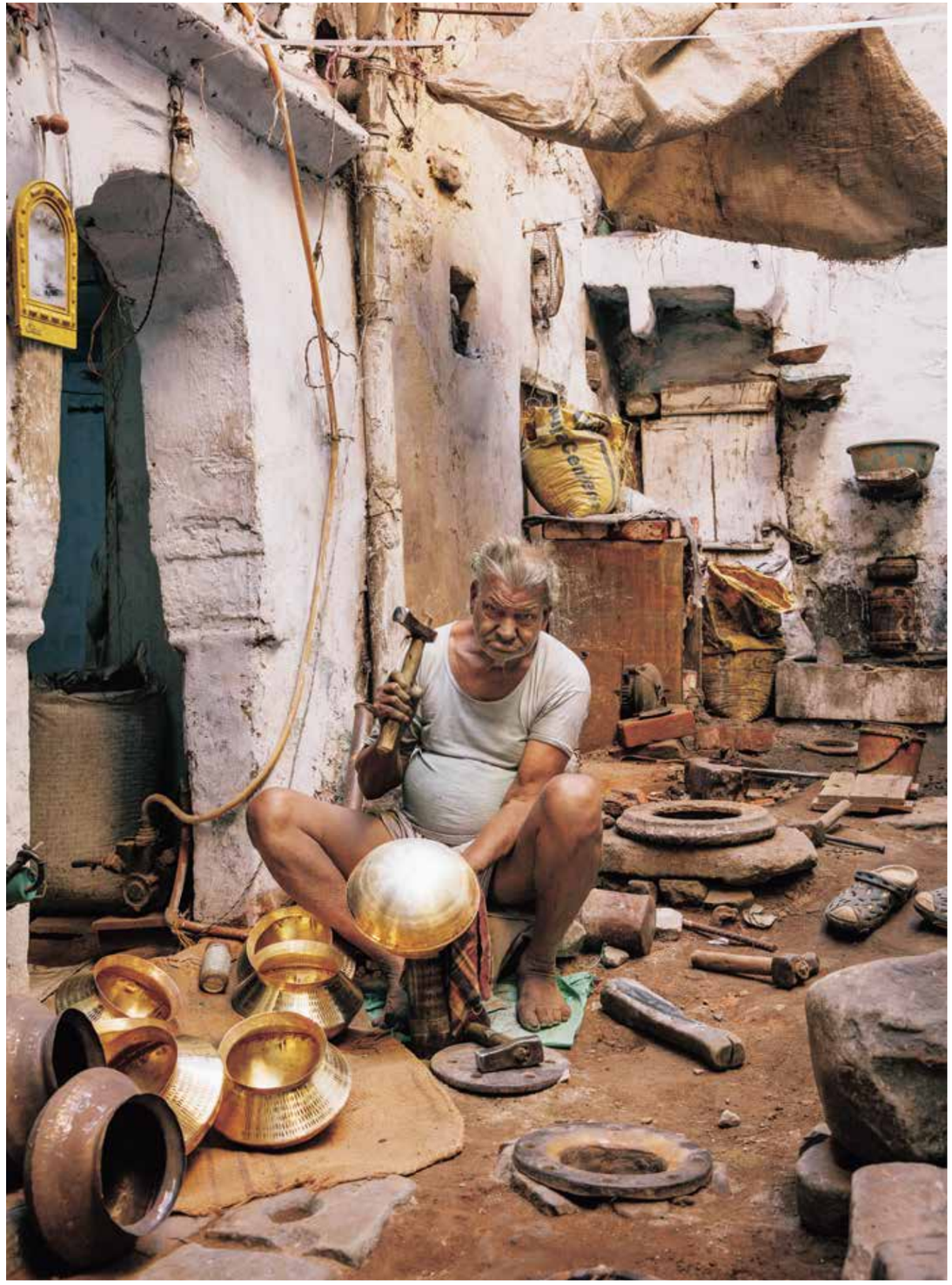
Massoud was in Jaipur for research. Last year, the designer embarked on an ambitious project to share with the public the cultures and crafts of little-known design communities. His visit to Jaipur will eventually result in a collaboration with local artisans; they will create objects that will be exhibited in galleries around the world, thus raising the awareness of highly skilled, but under-appreciated, makers. Jaipur, a city that is synonymous with art and design (craft is the second-largest employment provider in India), is one of several targeted locations. He recently teamed up with craftspeople in Cape Town on a series of handmade cast-bronze stools that by this time next year will have been exhibited in New York, Athens, Dubai, and Beirut, and seen by thousands of people. (In Beirut he works regularly with Nicolas Bellavance-Lecompte, whose gallery, Carwan, shows and facilitates much of his work.) He has also worked in Abu Dhabi, and has plans to collaborate with artisans in Afghanistan, China, Cuba, Ethiopia, Iceland, Iran, Japan, Thailand,

> "To the Lebanese product designer Carlo Massoud, the discovery of these makers was a revelation"

1. Massoud toured Jaipur and the surrounding areas in a Lexus RX. Here he turns into the city's busy market

2. Throughout his journey, Massoud was fascinated by the objects he encountered, most of which were made by hand, including this marble bowl

1



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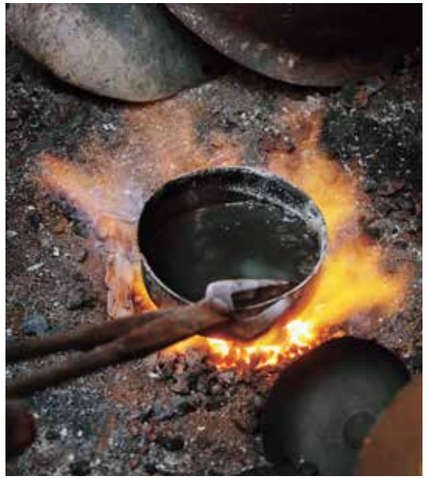


1. In a narrow alleyway close to Jaipur's central market, brass craftsmen like the man pictured make astonishing decorative pots

2. The brass the craftsmen use is local to Jaipur and is smelted in handmade furnaces set up on site

3

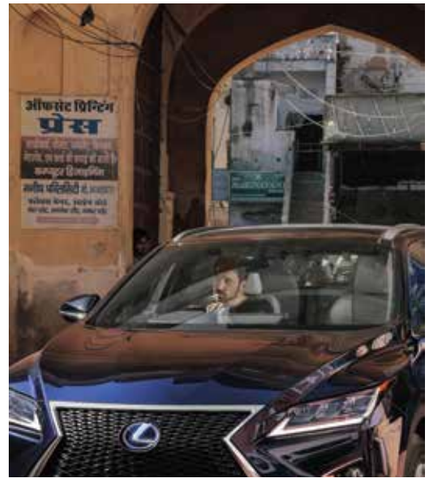
3. Massoud passes food vendors as he leaves Jaipur's market on the way out of the city

4

4. At a marble workshop on the outskirts of central Jaipur, two craftsmen spend hours hand-finishing a decorative door

5. Much of Massoud's trip was a leap into the unknown. Here he leaves a rug makers having learned about the looming process

5



and Venezuela. He hopes to visit a total of 15 countries, all regions in which form remains secondary to function. So far, collaborations have taken upward of three months. The whole project could take years.

This does not seem to deter Massoud, whose enthusiasm for the idea outweighs its potential pitfalls and which seems most acute when meeting craftspeople for the first time. His eagerness is affecting – he has a salesman's charm – and can be measured by the number of questions he asks and the speed with which he asks them. (Artisans who Massoud meets rightly read his enthusiasm as a sign of genuine curiosity in process and technique.) At the brass workshops, while the craftsmen hammered and sanded, Massoud's questions came so quickly that at times Gupta, who was playing translator, had trouble keeping up.

What material are you using? Rajasthani brass.

How long have you been doing this? All of our lives.

Did you make this all by hand? Nods, yes.

Exactly how big could you make something? No immediate answers, then shrugs.

Through questioning, Massoud, who works at various scales depending on who he is collaborating with and the effect he is hoping to elicit, was attempting to understand the craftsmen's limits, in case he might later want to persuade them to collaborate but had an idea that would only be successful on a grand scale. He was not disappointed. The answer, it emerged, was in fact another question: Well, how big do you want it? It was the kind of positive, no-limits response Massoud was hoping for, and one he heard frequently over the course of his trip, testament to the craftsmen's skills as well as their temperaments. When Massoud left

1

the workshops, an hour and many questions later, he was smiling.

Massoud was born in Beirut to Lebanese-French parents. His father ran an import-export firm and now oversees a farm. His mother looked after four children. He speaks three languages: French, to his family; Arabic, to his friends; and English, to everyone else. He studied design in Beirut before enrolling as a design post-graduate at ECAL, a respected art school in Lausanne, Switzerland, that has a reputation for producing alumnus willing to test the boundaries of a historically rigid approach to design.

In that sense, it is easy to imagine Massoud fitting in at ECAL – he has developed a portfolio that is, at times, politically challenging – although it is difficult to think of him fitting in in Lausanne, a typically conservative city. Massoud is energetic and endearing. He is also more than a little mischievous, which comes across in his work, and he did not enjoy Lausanne's sobriety. Halfway through his course, he organized for his classmates to embark on a group trip to Beirut so he could share with them what he considers to be a truly great city. As soon as the post-graduate year ended, he returned home.

> "Massoud has made great efforts to become an expert in local craft from around the world"

Still, Massoud was in Lausanne when he happened upon the ultimate direction of his work. Partway through his course, he read a newspaper story that illuminated the value of craft in the Middle East and placed emphasis on its heritage. It is an aspect of the region's history that the mainstream media in the West, Massoud believes, has until recently largely ignored. His response was immediate. "I wanted to change perceptions of that part of the world," he said in Jaipur. "I wanted [the conversation] to be less about current affairs" – less about war and terrorism – "and more about art and design."

Massoud has since made great efforts to become an expert in local craft from around the world, and an advocate for the craftspeople he has visited and learned from. Following a brief stint in New York, where he worked at the offices of architect Nasser Nakib, he has been in what he describes as "a persistent search for new spaces, ideas, cultures, and destinations." It is that search that took him to Cape Town, and it is what brought him to Jaipur. For Massoud, the sooner we all realize where much of the world's craft comes from, the better. "I know the techniques," Massoud said of the brass craftsmen later that day. "But seeing it… Understanding it… To see how something that is sold for so much money in the West is made here, in this alleyway, by a man that is 65 and has been doing this his whole life…" His line tailed off, but the point had been made.

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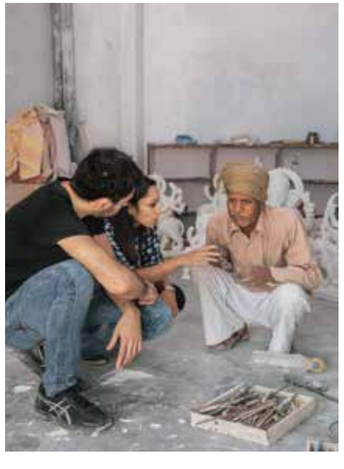

1. Gupta and Massoud discuss the work of a local marble craftsman with whom Gupta collaborates regularly

2. Throughout the trip, Gupta acted as Massoud's translator, directing his questions at the craftsmen the pair encountered

3. Having met craftsmen in brass and marble, Massoud continues on his journey

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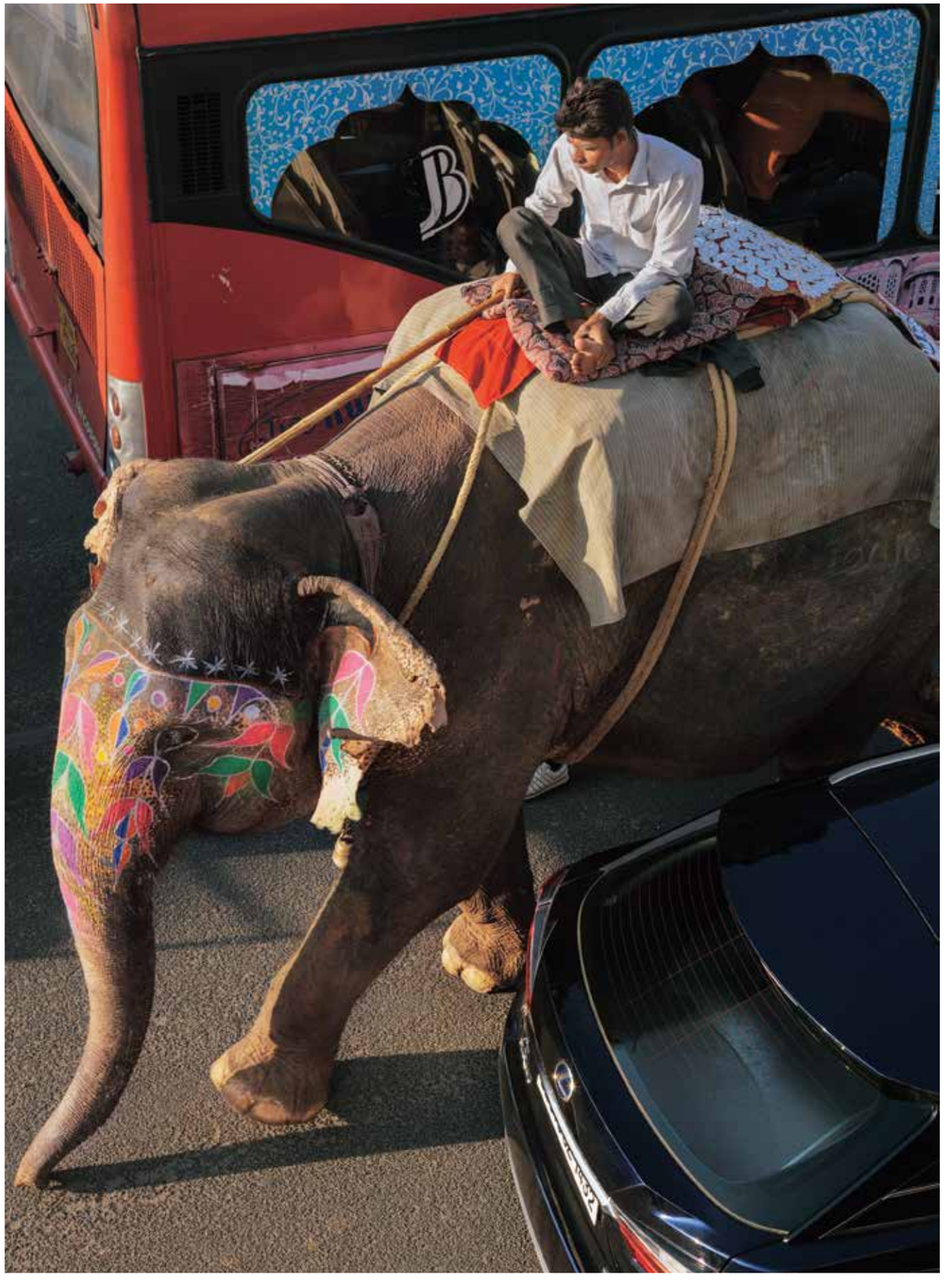

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1. Even in inauspicious places, Massoud discovered Indian craftspeople. Here he loads his car with rugs discovered in the town of Abhaneri

2. A rug maker works on a handmade loom in her front yard

3. Quarry workers pose in their workplace – a large open-pit mine 90 minutes east of Jaipur

4. Massoud captures a selfie with one of the marble workers. He captures much of his journey on his phone to share with others

5. Work proceeds in a large open-pit mine. Its marble is transported locally

The next day, Massoud drove 90 minutes east to visit a number of open-pit marble quarries at Jaipur's outer limits. A firm understanding of local craft techniques is central to his work, but so too is an extended knowledge of the provenance of the materials with which local craftspeople work. Indigenous materials, particularly their individual forms and qualities, even their aromas, fascinate Massoud. When Gupta shared with him a tray made of Indian mango wood on the first day of his trip, Massoud immediately brought it to his nose, inhaling deeply in an attempt to ascertain its origin. (There was no smell. Massoud looked disappointed.) Later, at the brass workshops, he ran his fingers across raw material scattered on the floor to get a better sense of its potential. While visiting a marble workshop, he smoothed his hands across blocks of the soft, chalky substance craftsmen were transforming into sculptures of Hindu deities. He later requested that Gupta show him from where the marble was sourced in order to better understand its possibilities as a finished product.

Massoud works solely with the materials he discovers on research trips, whatever they might be. He has made stools in cast bronze, figurines in lacquered wood, and sculpture in brushed brass – all sourced locally. This approach is rare. It is also what in part makes Massoud's work unique. Whereas other designers might first develop a product and later choose an appropriate material from which to make it, Massoud's production decisions are dictated by what is available at source. "I'm not here to impose," he said while driving out of the city. "I'm here to collaborate."

That approach extends through materials and processes to subject matter, all of which is identified on location. At the quarries, Massoud introduced himself to local workers and immediately launched into a series of questions about the material they were excavating. He also asked questions about their lives, as he is apt to do, in order to better understand the social and political context in which the men were working. Marble surrounded them. Boulders lay in haphazard piles. Smaller rocks sat at the foot of trucks, ready to be transported elsewhere. As the men worked, great plumes of dust flew into the air. The quarries, and everyone who worked within them, were blanketed by a layer of thin, white chalk.

Between questions, Massoud held pieces of marble up to the sky in order to illuminate their various qualities. Some rocks were white and pure; others a dull gray, filled with veins. At various points throughout the quarry, the marble shifted from the almost-flawless bright white rock for which the region is known – marble from the nearby town of Makrana, to the west of Jaipur, was used to construct the Taj Mahal – to a harder rock in a deep, dark-green color. To

> "I'm not here to impose, Massoud said. I'm here to collaborate"

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En route back to central Jaipur, Massoud passes a procession of elephants that carry tourists from one spot to another

Massoud, the marble was of interest. But more so, it seems, were the lives and stories of the men who had just excavated it.

The objects Massoud makes, whether a typically pragmatic item, like a stool, or a sculptural piece, like a series of small-scale trucks he made in Abu Dhabi – a comment on the city's ongoing love affair with construction – are motivated in subject matter by regional cultures and politics. Ideas spring from local context. He has made objects inspired by history and tradition (fertility dolls in South Africa) and by modernity and ongoing societal issues (those Abu Dhabi trucks). "Anything can be inspiring," Massoud said at the quarries. "Architecture, people, what people eat, how people dress." In subject matter, the results of his collaborations are at once political commentary and representations of personal experience.

On the drive back to Jaipur, Massoud began to turn his attention away from who he might work with and toward the story he might like to tell. His research trip, he said, had allowed him to create "a database" of local handicraft, to the extent that he was confident of a high-quality outcome no matter which craftsmen he eventually worked with.

"Now," he said, with deliberate urgency, "it's time to do."

A few days before Massoud arrived in Jaipur, India's prime minister, Narendra Modi, had enforced a nationwide currency ban that in an attempt to stem the prevalence of counterfeiting and tax evasion took out of circulation popularly used 500- and 1,000-rupee notes. Throughout Massoud's trip, banks were heaving with Jaipur locals hoping to exchange the targeted bills with smaller notes. Long queues regularly breached out into streets. People waited in lines for hours, often under the watch of armed guards. Television news anchors described Modi's decision as a colossal mistake, with particularly sore repercussions for India's lower classes, whose lives are reliant on a flourishing cash system. As Massoud reentered the city, he began to point out the queues he passed; in his mind, these events were beginning to amount to something of a conceptual starting point. "These people standing in line," he said, taking photographs of a group of tired-looking men sat next to a closed cash machine, "it's an idea." ◢

When Lexus opened its first brand space, INTERSECT BY LEXUS, in Tokyo in 2013, it decided to do things a little differently. And the brand hasn't stopped there

THE HOUSE THAT LEXUS BUILT

ILLUSTRATIONS: CLARA LACY

When INTERSECT BY LEXUS opened in the creative Tokyo neighborhood of Aoyama in 2013, it redefined the notion of what an automobile manufacturer could do with a physical space. INTERSECT displayed no cars for sale and employed no salesman. Instead, it offered locals and international visitors an immersive representation of the Lexus philosophy. The brand's commitment to design and service was present throughout: the high-quality food and the charming behavior of the space's staff, the fine materials, and the decorative design details. (Three walls of the bathrooms were covered entirely in Matchbox cars, creating a playful design feature that drew in curious visitors.) Such was the Aoyama space's success that a second outpost opened in the Dubai International Financial Center and, later this year, a third space will open in New York. In this series of interviews, we talk food, design, place, service, and the Lexus philosophy with the people who work hard every day to make Lexus' INTERSECT spaces what they are.

KENJI KOJIMA ON GREAT COFFEE

Q&A

KENJI KOJIMA

Kenji Kojima is head of the Tokyo branch of the revered coffee shop Fuglen, which provides coffee at INTERSECT BY LEXUS in Tokyo.

Q How did the collaboration between Fuglen and Lexus come about?
A Fuglen in Oslo has been around since 1963 and the Tokyo branch opened in 2012. We opened the café in Tokyo in order to share Norwegian coffee culture and lifestyle – we wanted to offer a Scandinavian coffee flavor that typically brings out the fruitiness of the beans. I remember people from Lexus paid a visit to our café in Yoyogi and ordered coffee. They seemed to be impressed by the taste but, more importantly, they showed a keen interest in our coffee-making style. Shortly after that, they proposed we work together.

Q What made you say yes?
A They said they wanted to make the best café in the neighborhood. Our philosophy is that coffee is not the focal point of a café but a facilitator, where people meet and new things happen. We saw a correlation between our philosophy and Lexus'. We share the same values.

Q Why coffee?
A It's the trigger that makes things happen. Coffee can have a positive impact on people's brains, and new things can happen because of that.

DAICHI TAJIMA ON LUXURY FOOD

Q&A

DAICHI TAJIMA

Daichi Tajima, a respected Japanese chef, is the food director at INTERSECT BY LEXUS in Tokyo.

Q What is the role of food at INTERSECT BY LEXUS?
A Food is one of the space's elements, and, of course, the most important aspect of the dining experience. But I regard it as just one of a range of key facets that intersect with other elements. Interior design, for example, can contribute to how food tastes, and good music can make food taste better.

Q How does your food represent the luxury of the space?
A The choice of ingredients and their quality is of course important but, before everything else, the food has to be tasty, and equally important is to maintain a feeling of luxury through style. We collaborated with Japanese designer SuyRo to create plates that were specially made to complement the presentation of the food, which, because my background is in French cooking, is influenced by the elegance of classic French cuisine.

Q French cuisine is important at INTERSECT?
A Yes, but I didn't want to create typically luxurious French food. I wanted to create a kind of mismatch by mixing various elements – high-quality ingredients, thoughtful recipes – to create a new kind of luxury.

Q Where do these ingredients come from?
A We work with suppliers we've met and cook dishes to best represent the freshness of their ingredients, including organic farmers in Hokkaido. We want to continue working with local farmers like them. That is healthy and it is luxury.

The restaurant of the original INTERSECT BY LEXUS space in Tokyo (Photo: Go Itami)

OTEISHOKU

The INTERSECT lunch special covers various cuisines including French and Italian. Seasonal ingredients are used and main courses are accompanied by *zakkokumai*, a Japanese rice with mixed grains.

CHICKEN CURRY RICE WITH DAISEN CHICKEN

An original recipe inspired by Anglo-Indian cuisines specially created for INTERSECT. This is "a typical kind of comfort food made into a stylish dish," says Tajima.

PEAR & CHOCOLATE POT PIE WITH VANILLA ICE CREAM

For dessert, this is "a delicious contrast of cold ice cream and warm pear," says Tajima, with a special treat – an aromatic chocolate sauce enclosed in the crust. A must-order.

BENJAMIN NICHOLAS ON HIGH-QUALITY SERVICE

The Masamichi Katayama-designed restaurant at INTERSECT BY LEXUS Dubai (Photo: Christophe Viseux)

DESIGN IN SHORTS

Design plays a hugely important part in the INTERSECT BY LEXUS project as an extension of Lexus' focus on creating progressive forms and environments. Here are three of the Dubai space's key design features, designed by renowned Japanese interior designer Masamichi Katayama.

THE GARAGE

In Dubai, Katayama created a floor called The Garage that functions as a gallery. The space, which is bright and dynamic to look at, is furnished with design elements that take inspiration from Lexus' design philosophy, such as the spindle grille.

THE CAR PARTS

Up the ground-to-first-floor staircase in Tokyo, Katayama created a wall of whitewashed Lexus car parts to create a feature that intrigues guests and pays homage to the brand. This approach was repeated in Dubai, although here the car parts lie beneath a dramatic glass floor.

THE DUNES

Katayama was keen to reflect the local environment in his design decisions. In Dubai, that is particularly notable in the undulating first-floor ceiling, which references the sand dunes prevalent throughout the United Arab Emirates.

Q&A

BENJAMIN NICHOLAS

Benjamin Nicholas is head of INTERSECT BY LEXUS in Dubai, Lexus' second brand space. Nicholas leads a team that ensures guests receive the best service in a city that is synonymous with excellence in hospitality.

Q How does service at INTERSECT BY LEXUS Dubai reflect the Lexus brand?

A Lexus has always been well known when it comes to the level of service for its cars. That has always been the challenge for me, but we have been fortunate. When we opened the space, we spent 40 days training the team. What I found was that when you have people with interesting personalities and characters, they make a space feel homey. They have interactions with guests that make the space feel like their second homes. It is those details – that omotenashii – that Lexus stands for and what we've really focused on.

Q How is INTERSECT different to any other space in Dubai, where service levels are very high?

A We don't focus on being just a fine-dining venue. Rather, we aim to be a premium venue that offers a premium experience through the touchpoints we have. We provide service through our atmosphere.

Q What is that atmosphere?

A It boils down to the feeling you get when you're in your own home. Our focus is not about selling that extra glass of wine or that extra side order. Ours is about creating an experience for those who come in so they keep coming back. It's about the interaction – the whole experience.

KIRK EDMONDSON ON THE IMPORTANCE OF PLACE

INTERSECT BY LEXUS is due to open its third space in New York's Meatpacking District (Photo: Ryan Lowry)

Q&A

KIRK EDMONDSON

Kirk Edmondson is general manager of INTERSECT BY LEXUS in New York, Lexus' third brand space, which is due to launch later this year.

Q INTERSECT BY LEXUS New York will open later this year in the city's Meatpacking District. Why there?

A It's cutting edge in term's of what's happening in New York. It's a trendsetting area. You have cultural institutions, you have parks, you have technology… New York is such a vibrant city, and we have a real passion for all that New York has to offer: the best of cuisine, the best of culture, the best of entertainment, architecture, design.

Q What's going to be in the New York INTERSECT space?

A There will be a café and a gallery space. Upstairs we'll have a cocktail lounge and a restaurant. From a cuisine standpoint, it will be elevated. And on the third floor there will be an events space large enough to accommodate 125 people.

Q How important is INTERSECT's location to its success?

A Meatpacking is at the intersection of everything going on in New York. It's interesting to think about that in relation to our name. It's a microcosm of New York itself. ◢

AMAM AND THE FUTURE OF PACKAGING

In a small studio in Tokyo, Japan, a three-man design team has created a material that has the potential to replace plastic and change the world. We pay them a visit

TEXT: DANIELLE DEMETRIOU PHOTOS: MASAHIRO SANBE

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1. Agar, a seaweed commonly used as a solidifying agent, can be bought in any Japanese supermarket

2 & 3. AMAM at work developing an agar-based alternative to plastic packaging

It comes from the sea, resembles a clear jelly, sits in the kitchen cupboards of countless Japanese homes, and is now at the forefront of a potential revolution in packaging design.

The "it" in question is a seaweed called agar. More precisely, it is a gelatinous substance obtained from marine algae, which has long been used in Japan as a key ingredient in traditional sweets.

Agar, however, has recently been reinvented as a new biodegradable packaging material that has the potential to rival the prominence of petroleum-based plastics. The innovative new material was created by Japanese design studio AMAM, which has fused a fascination with agar's adaptability with a desire to create a natural alternative to synthetic plastics.

The end result is a pure and super-light material with surprising versatility: depending on the quantity of water it contains, it can be hard, soft, springy, crumbly, feathery, or clear and film-like. And in addition to being eco-friendly, the material has a natural beauty that feels quintessentially Japanese, with its imperfect wabi-sabi-esque curves in organic shades of off-white.

This is embodied in an eclectic array of prototypes that have been produced by the designers, ranging from protective moulds for glass perfume bottles and thin sheets resembling washi rice paper wrapped around wine bottles to individual pieces of cushioning for placing inside boxes containing fragile goods.

Its potential is even more wide-reaching, with its trio of creators believing it will eventually be possible to replicate anything currently available in plastic in biodegradable Agar Plasticity, including toothbrushes, supermarket shopping bags, ballpoint pens, and cutlery.

The material is already attracting growing global attention. After winning the prestigious Grand Prix prize in the 2016 Lexus Design Award, AMAM's first range of prototype materials have been exhibited in shows in Milan, Poland, Switzerland, and Germany, as well as across Tokyo over the past year.

"When you touch agar, you can feel its softness, the way it crumbles, and its lightness," says designer and one-third of AMAM's founders Kosuke Araki. "We thought that this quality could be applied to packaging or cushioning. And there is so much plastic waste in the ocean. This waste is not biodegradable. It just stays in the ocean and is broken into pieces, which enter the ecosystem. But if packaging is made out of agar, there would not be this kind of problem because it is a sea product and it's biodegradable."

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> "When you touch agar, you can feel its softness, the way it crumbles, and its lightness – we thought that quality could be applied to packaging or cushioning"

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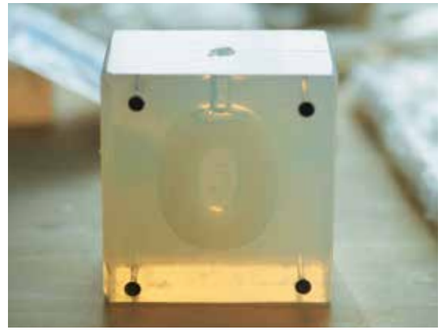

4. Melted agar is poured into a bespoke mold where it is set and then frozen

5. Although the mold is currently made from silicone, AMAM envisions a more eco-friendly material for future manufacturing

The designers' fascination with agar dates back three years, when everyday packets of dried agar unexpectedly caught the eye – and imagination – of AMAM's Akira Muraoka while shopping in his local supermarket.

Agar, known as kanten in Japanese, is typically available in supermarkets and convenience stores in dried form, either as a fine white powder or in solid dried blocks, before water is added to create a jelly-like consistency for sweets such as red bean paste mizu yokan or New Year dishes. "I realized that it was quite weird in form but also very beautiful," says Muraoka. "I have wanted to make something using it ever since."

It was not until September 2015 that his dreams became a reality, when he joined forces with Araki and a third designer, Noriaki Maetani. The trio, who met while studying product design at Tokyo's Tama University, decided to form AMAM – an amalgam of their initials – to focus on exploring the material as a potential alternative to mainstream packaging.

The next step was a flurry of home experiments in their respective kitchens to explore the range of qualities that could be created. First they melted the agar in heated water, before pouring it into bespoke silicon molds where it set into its familiar clear jelly form, and then freezing it before letting it dry in the open air.

It was a steep – and not always very scientific – learning curve, according to Araki, who describes how they quickly realized that the end result varied considerably depending on the water–agar ratio and the freezing times and temperatures.

Standing in the light-filled kitchen of Muraoka's home in Kita-Kamakura, a pretty coastal town just outside Tokyo, the three designers demonstrate the procedure at a table filled with an array of white

6

sample prototype materials. "We experimented from scratch," says Araki. "In the beginning, while we were experimenting, we couldn't control the state of the agar we made."

Araki pours the melted agar into a mold – mentioning how in an ideal manufacturing process, it would be made from a more eco-friendly metal rather than silicone – before it is left for 30 minutes to set into a jelly.

To create individual pieces of curved foam-like cushioning, which can be used to protect fragile items, the next step involves about a day in the freezer in the corner of the room, before it is air-dried for two to three days.

AMAM has also experimented with mixing the simple agar and water ingredients with either extracted red algae, in order to create a darker, stronger material, or crushed sea shells, which results in a solid chalky white substance.

6 . Agar is incredibly versatile for a range of applications depending on the amount of water it contains

7 . AMAM designers Noriaki Maetani, Kosuke Araki and Akira Muraoka

> "I would hope that in 10 years' time, everyone will know about Agar Plasticity"

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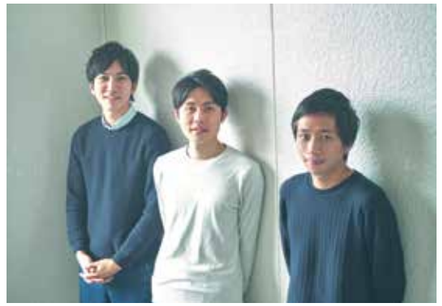

After a month of experiments, the trio submitted their proposal to the Lexus Design Award, tapping into the event's theme of "anticipation" by highlighting the potential of agar as a natural packaging material for the future.

"When we were thinking about what future we would like to live in, we thought we should not ignore the environmental problems we have today," says Araki. "We need to deal with these issues. What we are dreaming of is using agar as a true substitute for synthetic plastics."

After making the 12-strong shortlist, AMAM received a further boost when it was selected as one of four proposals to be supported by Lexus in creating a range of prototypes.

Working under the guidance of an officially designated mentor – in AMAM's case UK-based designer Max Lamb – the team created a string of prototype goods that were subsequently exhibited at Milan Design Week.

The icing on the cake, however, was being awarded the top Lexus Design Award Grand Prix prize by a panel of judges including Japanese architect Toyo Ito and acclaimed British design critic Alice Rawsthorn.

"This is a bold and ambitious experiment that aims to address one of the biggest pollution problems of our time," said Rawsthorn when announcing the winner. "The designers have made tremendous progress during the award cycle, particularly in devising a wide range of possible practical applications for the material. Their success in doing so gives us confidence in their ability to tackle the many challenges and complexities they will face in continuing the development of the project."

AMAM is now more than aware of the challenges that lie ahead. The three designers still hold down full-time design jobs alongside their agar-related work: Araki freelancing, Muraoka at Shiseido, and Maetani at Mitsubishi Electric.

The biggest obstacle at this stage is transforming the project from kitchen-top experiments to a more scientific and industrial setting, with professional researchers conducting in-depth laboratory experiments to fully explore the potential of agar.

8 . A prototype of the finished product. Biodegradable and lightweight, agar addresses the pollution problems of our time

Funding and technological know-how are other key issues, with AMAM seeking investors and partnerships with companies that are open to experimenting with agar-based packaging – although Lexus will provide significant support.

"I hope that in 10 years' time, everyone will know about Agar Plasticity and it will become a market within the plastic industry," says Maetani. "But right now, we need to do more experiments and find investors and researchers to make these products a reality."

If all goes to plan, it might not be long before agar is prominent in homes across the globe – rather than sitting in the kitchens of the sweets-loving Japanese. ◢

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INTO THE LIGHT: IN 1989 LEXUS REVEALED ITS INAUGURAL MODEL, THE LEXUS LS, AN EXECUTIVE SEDAN THAT IMPRESSED WITH ITS DESIGN AND REPRESENTED THE BRAND'S SIGNIFICANT INTENTIONS IN AN ESTABLISHED MARKET. TWENTY-EIGHT YEARS LATER, LEXUS HAS UNVEILED THE FIFTH GENERATION OF ITS FLAGSHIP MODEL, AND IT'S AS GROUNDBREAKING AS THE FIRST

TEXT: SAM MITANI

PHOTOS: MIKIO HASUI

SITTING LOW AND WIDE, THE NEW LS PROVIDES
A DRIVER-CENTRIC PERFORMANCE FEEL

THE STYLING OF THE REAR CONTINUES TO LEVERAGE THE NEW LEXUS DESIGN LANGUAGE
WITH ACCENTUATED CURVES AND CREASES, INCLUDING THE "L" MOTIF IN THE TAIL LIGHTS

AN ENLARGED AND SPORTY INTERPRETATION OF THE SIGNATURE SPINDLE GRILLE HIGHLIGHTS THE FRONT OF THE NEW LS

INSPIRED BY THE LEXUS OMOTENASHI PRINCIPLE, THE NEW LS CABIN COMPRISES LUXURY THAT WELCOMES AND ENVELOPS THE OCCUPANTS WHILE TREATING THE DRIVER LIKE A PARTNER

THE LS'S SLEEK AND SPORTY PROFILE, DESIGNED WITH A COUPE-LIKE SILHOUETTE PUNCTUATED BY THE NEW LEXUS DESIGN LANGUAGE

"OUR NEW FLAGSHIP RETAINS ALL THE VIRTUES OF PAST VERSIONS OF THE LS," SAYS TOSHIO ASAHI. "BUT THIS ONE WILL PROVIDE EVEN MORE DRIVING PLEASURE"

In 2012, with the introduction of the new GS sedan, Lexus embraced an exciting new design identity. The GS's "spindle" grille, a now-instantly recognizable feature in the industry, has defined the face of every Lexus vehicle since, but it only represents one facet of much larger change: thanks to the company's new design language and focus on driving dynamics, Lexus' image has been transformed into a purveyor of exhilarating vehicles. Now, in 2017, Lexus is evolving once again, taking its line-up a giant step further. The car anchoring this movement is the company's flagship – the all-new fifth-generation LS sedan.

LS 500

Overall length	5,235 mm
Height	1,450 mm
Width	1,900 mm
Wheelbase	3,125 mm
Engine	3.5-liter V6 D4-S, twin turbochargers
Transmission	10-speed automatic

The role of a flagship is to establish an identity and brand image, setting the bar for all other cars in the line-up. Although the current LS has performed well in this role, the time has come for a replacement. Lexus engineers knew they needed something fresh and something far more impressive. The results of their efforts are obvious in what you see here.

One look at the new LS and it's clear it is unlike most other luxury flagships in the marketplace. The car's exterior is no longer characterized by the traditional sedan shape of previous models; instead it boasts the stylish silhouette of a four-door coupe. The unique styling of the new LS appropriately conveys the car's innovative nature and fresh values.

"We desire to move the heart of the customer," says LS chief engineer Toshio Asahi. "So we needed to create a sophisticated, dynamic design for the new LS that offers a driving experience to match."

Power comes quickly and seamlessly through a V6 twin turbo attached to a new front-engine, rear-wheel-drive platform. It has increased body rigidity compared to the current model. The driving experience is nothing like you would expect from a car with such a spacious and comfortable interior, and has excellent engine response and power, with handling befitting a sports coupe. The LS's new platform has been designed with a low center of gravity and near-neutral weight balance. For those who prefer to be driven, the new LS's cabin is a marvel of luxury and convenience. Inside, its rear seats are like those experienced in a private jet.

"The one word that I feel aptly describes all Lexus vehicles to follow is 'emotion'," says Asahi. "Everything from the styling to the way it drives is intended to stir the soul of the customer. As the flagship, the new LS needs to anchor the Lexus brand, and I feel this car will accomplish that with style and excitement." ◢

LIFE OF AN IDEA

At a modern, purpose-built facility on the south coast of France, an international team of designers creates some of Lexus' most visionary concept models. We take a peek

TEXT: GUY DIMOND PHOTOS: ALFREDO PIOLA

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From the vast rooftop balcony of ED2, a purpose-built Lexus design studio on the outskirts of Nice, visitors can admire the scenery of the city's great vistas. On the horizon is the Côte d'Azur; on the coast is the billionaires' playground of Antibes. Below a clear blue sky, the studio building looks like a Bond villain's lair. A huge outdoor turntable allows parked cars to be turned incrementally for a better view – of the automobile, it turns out, and not of the landscape.

Security is tight: visitors are invitation-only and vetted, passes are needed at nearly every door, and cameras can only be used with permission. The interiors are bright and spacious. In the airy office space of Stephan Jubt Rasmussen, one of several designers here, high-tech equipment, gadgets, and prototypes are carefully arranged; many are hidden from the view of visitors.

Rasmussen's story is not atypical at ED2. The 30-year-old is articulate and upbeat, brought up in Denmark by a German mother and Danish father. He's trilingual: Danish, German, and English. "Danish is my preferred tongue," he says, "but I don't get to use it much here." He's worked at the studio for five years. His English is fluent but he barely speaks French because "the team is so international". Lying on his desk are a few scale-model cars; die-cast classics though, not Lexus prototypes. His desk is remarkably neat and clear, and so is the one next to his. No junk, no clutter. If it wasn't for the azure skies outside the window, this could be a particularly spacious yet relatively minimalistic set from a science-fiction movie.

Rasmussen specializes in designing the exteriors of concept cars. He typically works with two other designers: one who specializes in interiors and another who works on color and trim. "What we create is a relative fantasy," he says. "It's not like dreaming of the future where everything is possible – we have to work with certain dimensions, so not everything is freeform. But our work gives the public a glimpse into what we are dreaming about. Maybe it is for the next model, or it might be even further out. Lexus is a young brand and we need to show that we are still dreaming, we are not just focused on the next production model."

A designer's starting point might simply be a loose idea. In the case of the Lexus UX Concept, the car that Rasmussen and the team worked on for nearly a year during 2015-16, it came from a brief that specified the need for an automobile that was 'inside-outside', where the exterior and interior were not separate entities, but were integrated.

On a tour of the facility, Simon Humphries, the new president of ED2, elaborates on the Japanese design brief. Although he's a tall Englishman with a northern accent, he has lived in Japan since 1989 – nearly all his adult life – and speaks fluent Japanese. He has worked for the same company, in the Japanese way, for decades. Humphries can perfectly bridge and interpret the two cultures. "The Japanese love the transition between two worlds, this ambiguous zone," he says. "The name for the part of the house that is neither in nor out is the engawa. These days it means the wooden deck that is outside a traditional Japanese house. Like the genkan (the porch) the engawa is an important transition between one place and the other."

A design brief for a car as cryptic as 'inside-outside' is a challenge but also an opportunity for the Lexus designers, who are used to thinking outside the metal box. With a brief like this, the interior and exterior designers need to work very closely. The interior designer who Rasmussen often works with is Alexandre Gommier. A 32-year-old Frenchman, Gommier studied car design in Paris before moving to Lexus five years ago. "You have to be good – and lucky – to succeed," he says. "Stephan and I work together a lot. We have different ideas but that's a good thing."

Gommier starts a project by collating abstract ideas to reflect a larger concept. "The idea at the beginning is not to make a car, it is to provide a philosophy," he says. It was the opportunity to work for a Japanese company that attracted him. "In Japanese culture there is room for imagination." In the case of an 'inside-outside' brief, this philosophy might be as abstract as using wood as a material; boat designs; a floating leaf; or architectural designs. "We pitched three main ideas," says Gommier, "but we wanted the axis in the center of the car so that everything comes to you."

The two designers go from concept to drawings and back to concept. "Stephan wanted these really big fenders for the UX Concept, like an 'X' from above," says Gommier. "So then we had to define

1. The UX Concept in the clay prototype stage

2. Interior designer Alexandre Gommier inspects the UX Concept's passenger door

3. When designers are halfway through the development of a new concept car, drawings and renderings fill their sketchbooks and walls

> "The idea at the beginning of this process is not to make a car. It is to provide a philosophy"

A designer uses virtual-reality software to better understand how a concept car design might look in real life

SCALE MODEL

Prototypes are made throughout the concept development process to help designers realize ideas they've created on paper. Most are made in clay, like the one above, although they are wrapped in film to create the illusion of a finished product.

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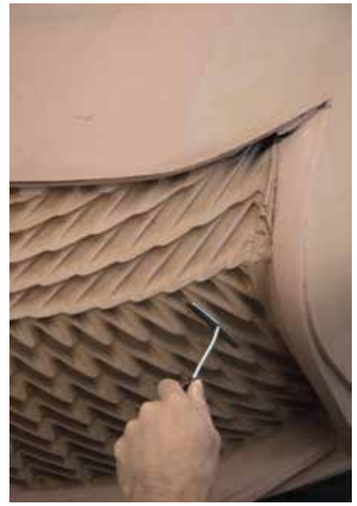

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1. The modeled interior of a clay UX Concept made at full scale

2. Billets of clay are heated in one of ED2's industrial ovens prior to use

3. A clay modeler handcrafts the UX Concept's grille. Usually three modelers will work on a car at any one time, each concentrating on separate parts of the vehicle

4. The modeled steering wheel in clay. A layer of paint has been applied to make the element appear more real

5. An ED2 team member cleans a UX Concept part with air

what to do inside, to bring the outside in." He starts with sketches – he's a skilled draftsman – then moves on to drawing on his computer screen, using illustration software with a touchscreen tablet that allows him to draw as if on paper. "These drawings are 20 percent of the work," says Gommier. "I do these in 2D. Then we give these designs to a digital modeler, whose job is to work with the designer to realize them in 3D." CAD (computer-aided design) software is used for this 3D stage, with many renderings looking like sci-fi grid patterns.

If the designers want to see the 3D design full size, they can use virtual-reality headsets. These give an impression of the volume and form of a car design, but not as well as a model does.

The next stage takes up to four months. "We create a model in 40 percent scale, which we mill from clay," says Gommier. In the soundproofed milling room, the clay is cut to shape. The 3D measurements are fed into a huge, custom-built machine installed in a vast room the size of a small aircraft hangar. The doors are closed to keep dust contained; the program is started and off it goes. A huge arm, like an automobile assembly plant robot, then drills and chips away at the block of plastic.

A full-sized chassis and metal frame are then built by the modeling team, created to the measurements of the new car design. Lightweight polystyrene panels are cut to fit large areas, whereas smaller and more complex areas are cut from acrylonitrile butadiene styrene (ABS) and fitted over the frame. The model is starting to look like a car, complete with working doors and other moving parts.

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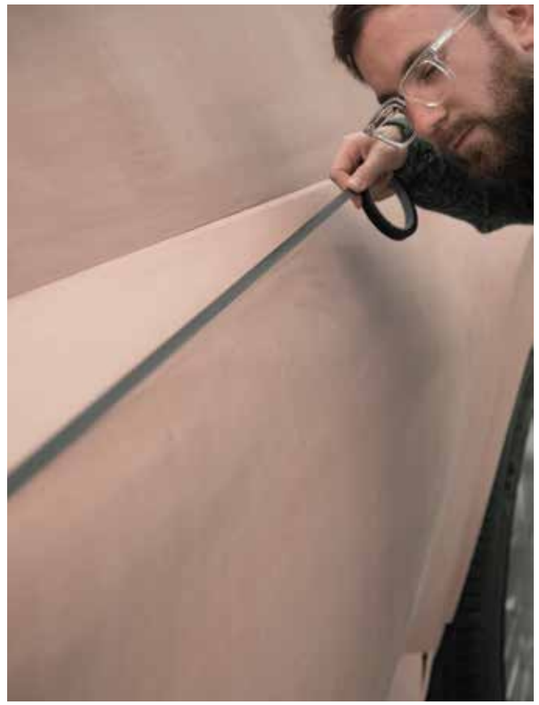

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1 . Members of ED2's clay modeling team apply the finishing touches to a 1:1 scale clay model of the UX Concept

2 . The UX Concept's designers, Stephan Jubt Rasmussen and Alexandre Gommier, assess a 40 percent prototype with ED2's general manager, Lance Scott

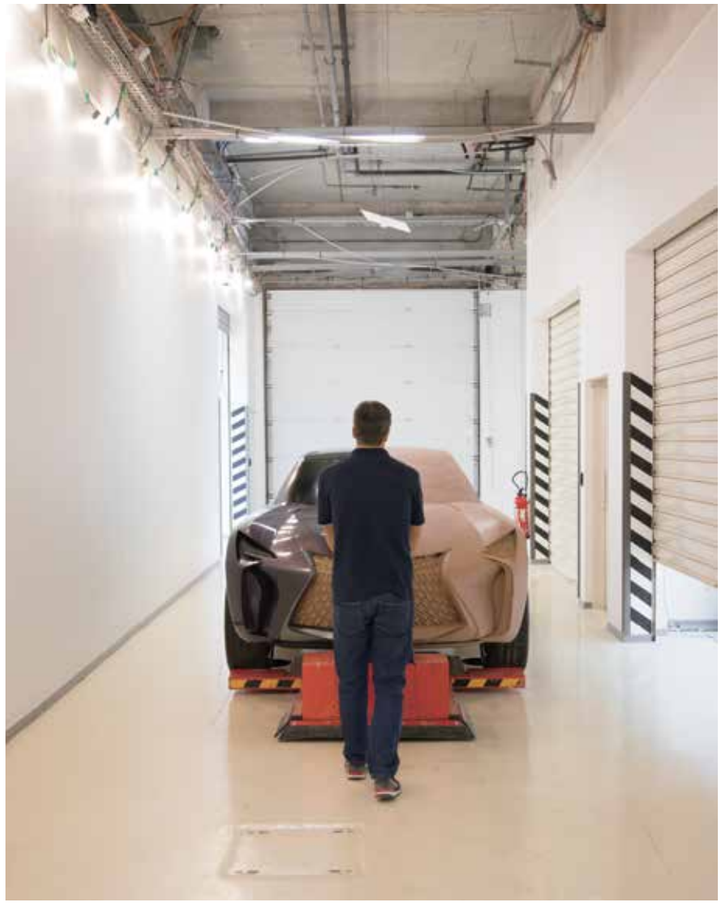
3 . Rasmussen tapes one of the UX Concept's profile lines

4 . The UX Concept clay model, having fulfilled its role as a 1:1 guide for the designers, is carefully stored for future reference

> Concept cars are a visual statement, sometimes over and above what they could be as a product. If you do it well, you provide seeds for the future

Clay – not clay as we know it, but a synthetic polymer that looks and acts similar – is hard at room temperature but malleable when heated to 60°C. Clay modelers work as a team to mold this dry clay over the skeleton, to a depth of about 25mm, using tools similar to those used by plasterers. At this stage it looks like a car made of clay and weighs nearly a ton. "We spend months doing this modeling stage," says Gommier. "It's huge work."

The next stage after this is manufacturing the auto-show prototype, complete with working parts that include an electric engine to move the vehicle. Then it is unveiled at motor shows around the world, to expectant onlookers. As Humphries puts it: "Concept cars are a visual statement, sometimes over and above what they could be as a product. It's a lot of work, but if you do it well, you provide seeds for the future." ◢



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UX CONCEPT

Beginning with a loose brief, ED2's design team has created a concept car that both retains key Lexus design hallmarks and has a unique, standalone character. Revealed last year in Paris, the UX Concept is a new variety of four-seat crossover that combines a coupe-like driving position with the muscular appearance of a 4x4. At the heart of this car lies the 'inside-outside' philosophy – ED2's design team has created a concept that merges interiors with exteriors.

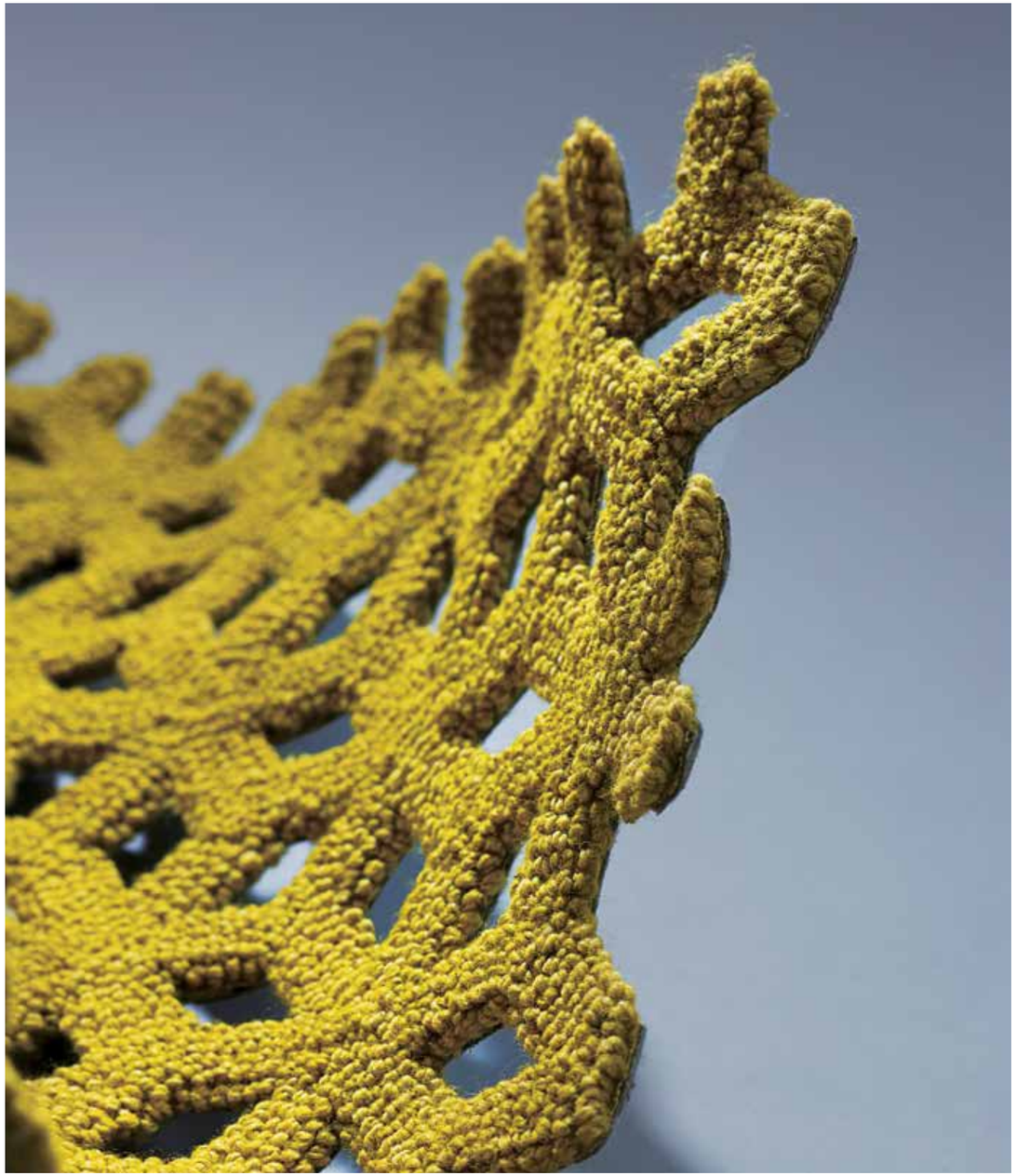
MATERIAL GAINS

Integral to the world's most acclaimed design and architectural projects is the way material manufacturers continuously refine their products. We spotlight five of the best

TEXT: PAULA WIK & RACHEL WARD PHOTOS: ANGELA MOORE STYLIST: GEORGINA PRAGNELL

MAHARAM

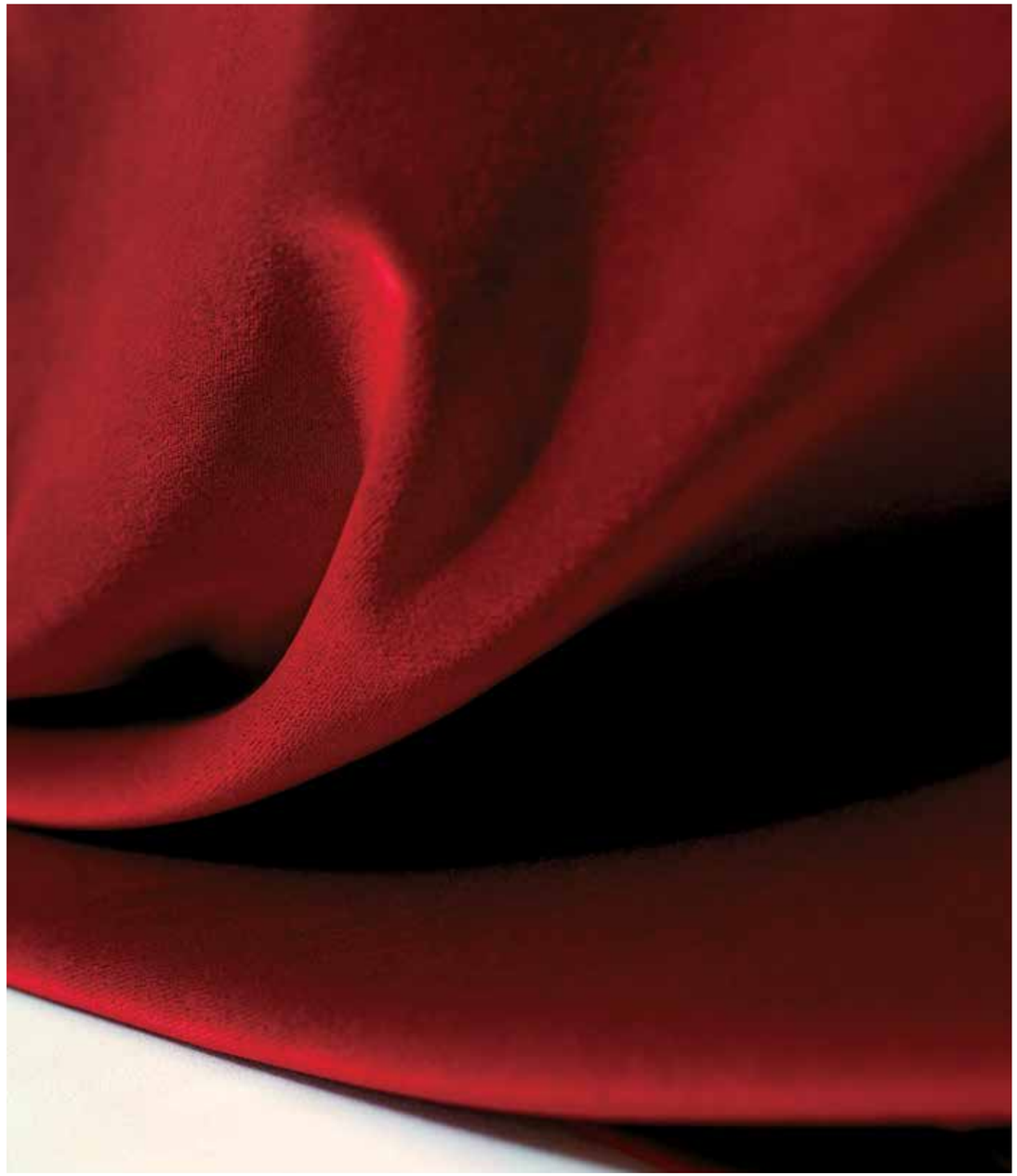
Maharam is the number-one creator of textiles for residential and commercial interiors in North America; 64 of its designs sit in the permanent collections of museums including New York's MoMA and Amsterdam's Stedelijk. The brand continues to innovate by collaborating with pioneering designers such as Hella Jongerius and Konstantin Grcic.



Made in association with Dutch manufacturer Danskina, this Cross Cut rug is hand-tufted in India. Each piece is unique, with finished rugs varying slightly depending on their maker

PIERRE FREY

Luxury French fabric house Pierre Frey has been at the forefront of fabric and wallpaper design since it was established in 1935. Still owned and run by the Frey family, it continues to skillfully balance its pursuit of quality and creativity with a desire to preserve age-old techniques and French cultural heritage.



Velvet, a traditional tufted fabric that is regaining traction among contemporary designers, has always been integral to Pierre Frey's collection. One of the brand's best-sellers, Viggo was developed to be both delicate and enduring and captures the light to reveal the depth of its 28 colourways

TÄRNSJÖ GARVERI

Tärnsjö Garveri belongs to an exclusive five percent of the world's tanneries that employ the traditional method of vegetable tanning, using tree bark instead of the more cost-effective but harmful chrome. With a reputation for its expertise and high quality, the small Swedish tannery's leather is increasingly used by the world's luxury lifestyle brands.

This vegetable-tanned leather is a natural product that develops a patina and becomes darker over time. Tärnsjö Garveri is working to develop a tanning method using local Swedish fir instead of the commonly used South American mimosa

KVADRAT

No other textile brand has helped shape our concept of the modern interior as much as Kvadrat. Now the foremost European maker of high-quality contemporary textiles, the Danish company's innovatively engineered textiles can be found everywhere from London's Tate Modern to Milan's Salone Internazionale del Mobile.

Kvadrat has developed three collections in collaboration with acclaimed fashion designer Raf Simons. Long-pile glossy mohair fabric Argo recalls mid-century upholstery aesthetics, and the bouclé yarn of Sonar is inspired by fine suiting tweeds

HOLLAND & SHERRY

Holland & Sherry has provided some of the world's finest cloth for 180 years. Originally specializing in wool for men's tailoring, the British heritage brand has since extended into interiors and earned acclaim for its exquisite embroidery. Its customizable products are repeatedly chosen for use in luxury international hotels, private homes, and yachts. ◢

Holland & Sherry's embroidery is made with high-precision-engineered computer programs as well as exceedingly skilled handwork. Velvet appliqués, as used in the Canasta design, are technically difficult as they start to disintegrate once cut and an intricate technique is used to lock the edges

PROTEIN REVOLUTION

A forward-thinking tech company in Japan might just have created one of humankind's most important new materials – from spider silk. We take a laboratory tour at Spiber Inc.

TEXT: DANIELLE DEMETRIOU PHOTOS: GO ITAMI

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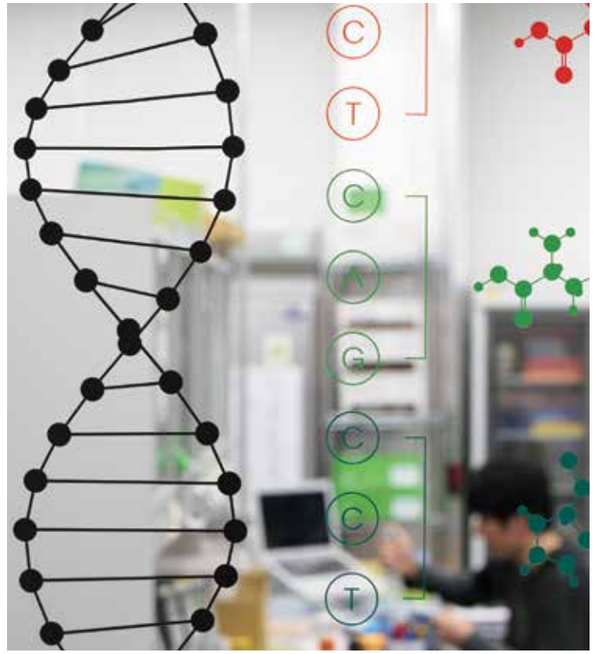

Electric blue. Deep pink. Burnt orange. The coils of threads contained in a row of tubes sitting on the worktop are vivid and hair-like in form. But despite appearances, these are not strands of cotton threads used in conventional clothing. Instead they are samples of a futuristic new nature-inspired material that aims to revolutionize the textile industry – synthetic spider silk.

The tubes contain some of the world's first samples of synthetic spider silk as created by Spiber Inc., an ambitious Japanese biotech start-up that is exploring possibilities associated with its large-scale production. Key to Spiber's concept is the belief that materials made from proteins – be it a web spun by a spider or a flutter-triggering component in a butterfly wing – are among the planet's greatest untapped resources.

Spiber's first step has been to pioneer an environmentally sustainable way to make its own synthetic spider silk, creating a new fabric called QMONOS™ (kumonosu means spiderweb in Japanese).

The allure of emulating spider silk lies in its surprisingly robust and versatile qualities: it is stronger than steel, tougher than bone, and twice as flexible as nylon. The company has pioneered a high-tech method of genetically engineering its futuristic threads – using a mix of molecular design, gene synthesizing, fermentation, spinning, and prototyping – a process that, unlike polluting petroleum-derived nylon and polyester, has no impact on the environment.

1. An employee in the gene-synthesis team checks for genetic sequence errors

2. Microbes multiplying – or fermenting – inside Spiber's cultivation equipment after being fed with sugar

The end result is already making manufacturing waves. Spiber made the world's first synthetic spider silk dress in 2013, complete with a sleeveless silhouette made from handspun cobalt-blue QMONOS™. Its prototype MOON PARKA™, a gold-tinged outdoor spider silk jacket developed in collaboration with sportswear company Goldwin – distributor for The North Face in Japan and South Korea – was also unveiled in 2015.

"We think it's possible to replace about 15 percent of demand of the fiber market with our synthetic protein materials – instead of using materials based on petroleum – within the next 20 to 40 years," says Kazuhide Sekiyama, Spiber's director and representative executive officer.

"We are looking at many examples in life – and in the biological world – of creatures using protein materials: our hair, our nails, the wool of sheep, and of course the silk of spiders," says director and executive officer Junichi Sugahara.

Spiber is headquartered in Tsuruoka, a small city famed for rice farming, fishing, and, coincidentally, silk weaving, in Japan's Yamagata prefecture. It was in 2004, while studying in Tsuruoka's Keio University Institute for Advanced Biosciences, that Sekiyama, 33, and Sugahara, 32 – friends since primary school – dreamed up the idea of Spiber.

More precisely, its genesis was a late-night debate at a student party as to whether a spider silk web measuring one centimeter in diameter would theoretically be strong enough to stop a mid-flight jumbo jet (the answer: a surprising yes).

It took three years of research before Spiber's first breakthrough: Sekiyama created a small quantity of fiber-like synthetic spider silk after designing technology to synthesize the DNA sequence of natural silk. The first thread measured a miniscule two millimeters – but was a catalyst for Spiber's official establishment in 2007. Its first venture-capital funding of Y300 million (US$2.6 million) followed two years later.

Today, the company is located in two large, contemporary buildings on a windswept plain surrounded by rice fields and mountains, next door to the Keio University department where it all began. Funding has soared to Y14.6 billion (US$126 million) and staff numbers have risen to 153, with about 10 percent from overseas, including India, Ecuador, and Saudi Arabia.

Its growth has been fueled by technological progress. Since 2007, Spiber has established a database of more than 800 gene models of spider silk, empowering the potential creation of "limitless" quantities of synthetic materials.

The heartbeat of the company is its first-floor office space in the main building, with expanses

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of windows framing green views. The interior, however, is more Silicon Valley than rural Japan: there are hot desks; a relaxed window-side space filled with sofas, hammocks, and Fritz Hansen-style Egg chairs; and two modern café areas.

Meanwhile, the ground floor is home to its ultra-modern laboratories, where shoes are swapped for slippers and white coats at the entrance. In the first laboratory, scientists huddle over computers, analyzing amino-acid sequences as part of the molecular-design process. In the second, scientists focus on gene synthesis. The next lab is the setting for the third part of the process: microbial fermentation. A sweet smell lingers in the air as tailor-made DNA formations are inserted into microorganisms and fed sugar to grow in industrial machines bubbling with brown liquids. The fourth step involves spinning – silk proteins are removed from fermented microorganisms and spun into refined threads – before the final part of the process: prototyping products, Spiber's most commercially sensitive activity.

There may not be a real spider in sight in Spiber's gleaming white laboratories, but it's a

"Since 2007, Spiber has established a database of more than 800 gene models of spider silk, empowering the potential creation of "limitless" quantities of synthetic materials"

A miniature of the world's first dress made from synthetic spider silk fabric

> Spiber's founders are convinced that with lowered costs, its new-generation materials will revolutionize manufacturing

One of the hundreds of arachnids in the care of Spiber's spider-research team

different story in one small room rented from Keio University in an adjacent building. Here, Daniel Pedrazzoli, a self-confessed spider lover from Ecuador, is surrounded by countless arachnids – from large long-legged varieties spinning webs in big frames (mainly golden orb weavers, famed for their strong webs) to rows of small clear containers teeming with hundreds of tiny baby spiders.

Pedrazzoli works in Spiber's spider-research team, meticulously analyzing the habits and webs of arachnids, with regular forays into woods across Japan to hunt different species. "I have been fascinated with spiders since I collected them in my mother's garden as a kid – they are the world's best natural architects – and I had been wondering how I could work with them somehow," he says.

1. Hot-pink synthetic spider silk in a laboratory tube, ready to be spun into QMONOS™ fabric

2. The interior of Spiber's office, which features comfortable break-out spaces

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"When I was working on my PhD in marine biochemistry at Tokyo University, I read an article in the Asahi Shimbun about Spiber's electric-blue dress," continues Pedrazzoli. "Spider silk is a natural resource – we don't have to exploit a petroleum field in order to make it – so this is work that is very important for future generations."

The apparel industry is a major target market for Spiber (Goldwin is a key stockholder), and other potential opportunities range from medical devices to lightweight automobiles.

"Cars are currently made up of a lot of metal and iron, which is strong but very heavy," says Sugahara. He is as smartly dressed as he is articulate and focused, sitting at a communal table in a café at the end of the open-plan office, a large wall of windows framing green fields and mountains.

"If you were to add our fibers to plastic, you end up with a very light material that still has the toughness of traditional metal parts," says Sugahara. "Our dream is that cars all over the world will one day contain synthetic spider silk."

The biggest obstacle since day one has been in relation to mass-production costs. Spiber has cut costs to an undisclosed level below Y10,000 (US$86) per kilo – roughly the same as some cashmere materials – and aims to reduce this even further to make sure it is commercially competitive.

"Since the beginning of our research, we've increased productivity 4,500 times and simultaneously decreased the cost of materials," says Sugahara. "The next steps are to collaborate with various manufacturers to bring these materials into their products and into the world."

Spiber's corporate culture is also resolutely innovative: in addition to a "flat" non-hierarchical structure, staff choose their own salary and work whenever they want outside one compulsory office hour between 9am and 10am. "Contributing to society is one of our core values," says Sugahara. "These structures within our company are aimed at not treating employees like children. We want people to think very carefully for themselves about what they are doing and why – not just because their boss told them to do it. We want to give them the freedom to grow."

Spiber's founders are convinced that with lowered costs, its new-generation materials will revolutionize manufacturing, while simultaneously reducing the industry's dependence on harmful petroleum-derived products.

Or, in simpler terms, as Sugahara says: "We are not of the mindset that we need to make 'this much' profit. We just want to focus on what we can do to make the world a better place." ◢

ON THE CREST

LEXUS HAS SPENT THE PAST 28 YEARS DEVELOPING A REPUTATION AS A MAKER OF LUXURY CARS. NOW IT HAS TURNED ITS ATTENTION TO THE WATER

PHOTOS: ALEX RANK

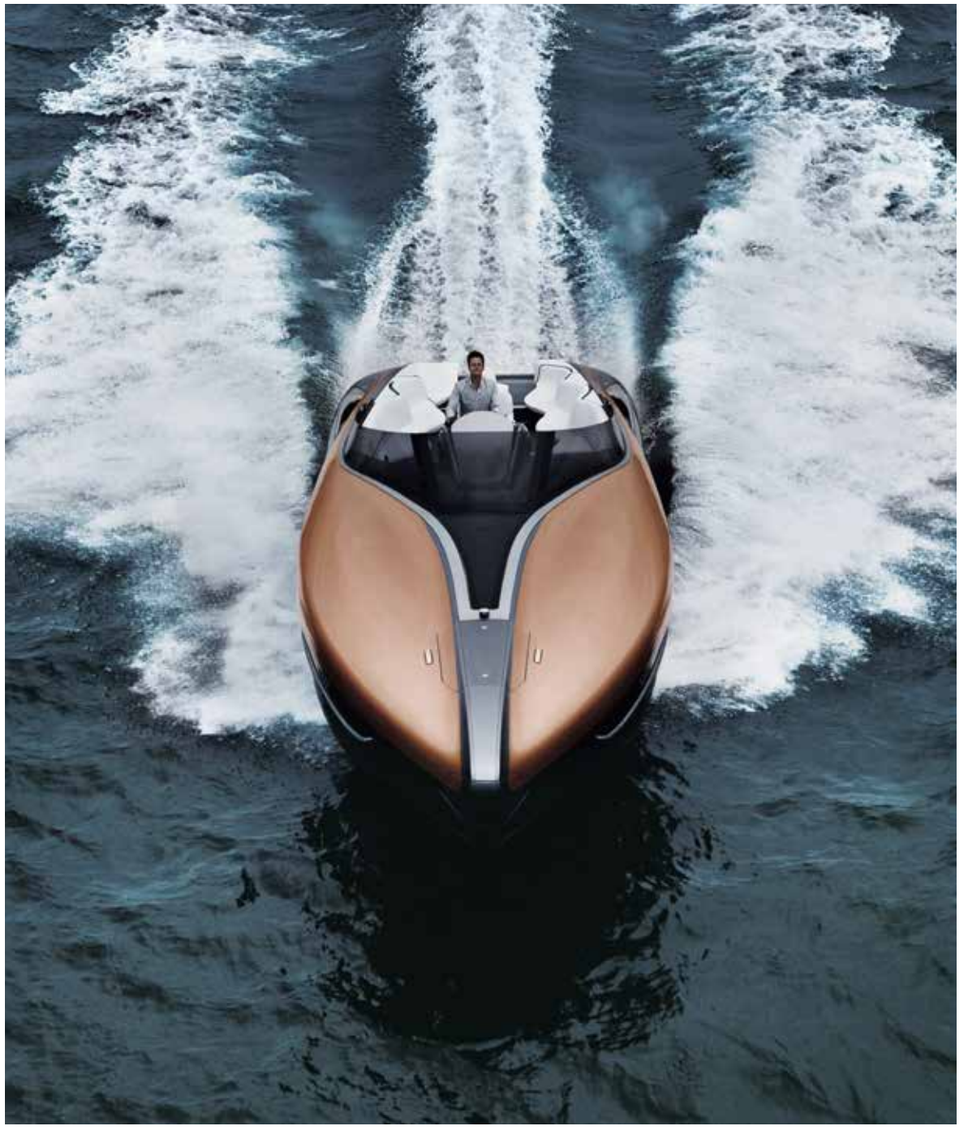
On a cold, wintry day in November, the Lexus Sport Yacht concept darts smoothly across choppy breakers, first left and then sharply right. A frothy white wake trails in deep blue-green water – a great sweeping pattern. This sport yacht concept is Lexus' first. Its hull is stepped, hydrodynamically designed to create as little friction at high speed as possible, thus increasing its velocity – and the number of stares it receives from onlookers. Its engines, muscular and commanding, allow the yacht's captain to push its speed to 43 knots, which puts it close to the top of its class, if not right at the summit. In other words, the Lexus Sport Yacht concept can move.

"This is the definition of high performance," says Ueda, group manager of the marine department, who, with a team of more than 50 designers, engineers, and manufacturers, developed the yacht across three continents.

Ueda began this process in July 2015. In the 27 years before the Lexus Sport Yacht concept's production, Lexus had created, and then maintained, a reputation as a maker of luxury automobiles. In recent years, those vehicles had become both increasingly design led and emotionally affecting. Now, says Ueda, the Lexus Sport Yacht concept offers the same luxurious experience that a Lexus car provides, only on water.

Evocative design features, many of which have been taken from or inspired by Lexus' L-finesse design philosophy, abound. A team of eight engineers concentrated on the yacht's engines, a couple of powerful V8s that were originally designed for the Lexus LC, Lexus' sporty coupe, and modified for use in the water. A specialized carbon material first developed for the LFA, the Lexus supercar, has been used throughout, making the yacht's exterior particularly lightweight, again increasing speed and performance. Detailed craftsmanship, which is evident in the yacht's high-quality stitchwork, has been used in the cabin. Elements of the brand's future-thinking in technology, notably a 24-inch touch panel from which the captain is today controlling the yacht's functional instruments, are also on display.

Ueda is excited by each individual element, but it is their cumulative impact that really thrills. The Lexus Sport Yacht concept has been designed and manufactured for uncomplicated, thrilling driving. In the water it is quick and rousing and easy to maneuver, even through choppy waters, and exemplifies the luxury experience Lexus aims to provide. As the captain opens the yacht's throttles to full power, the V8s roar, the wake lifts and trails, and off it goes, onward into deep water. ◢



The small city of Sabae, on the western coast of Japan, is home to 95 percent of the country's internationally renowned eyewear industry. We take a good look at why

OUT OF SIGHT

TEXT: DANIELLE DEMETRIOU PHOTOS: TAKESHI ABE

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When Akira Sawada wandered into a glasses shop in his hometown of Himeji in central Japan, he had little idea of the impact it would have on his life. Once inside, he quickly spotted a Kaneko Optical recruitment ad among the rows of chic glasses, and soon after moved across the country to begin a new life as an eyeglasses craftsman. "I had just left high school but didn't get into my university of choice and was wondering what to do next," says Sawada. "I was always interested in the fashion industry – and then I saw this ad. I knew this was something I really wanted to do. I thought it would be good to develop skills with my hands."

Today, one year on, 21-year-old Sawada is one of a dream team of craftsmen working at Kaneko Optical, an innovative glasses company based in Sabae city in Fukui Prefecture, southwest Japan. The small city – surrounded by forested mountains, green rice fields, and little else – has an impressive reputation that dwarfs its dot-on-the-map status: it is Japan's biggest optical hub, with 500 companies collectively producing 95 percent of the nation's glasses. There are clues to its optical pedigree throughout Sabae: from the low-rise industrial factories scattered among the curved tiled roofs of traditional homes and rice fields, to a large mountainside sign in the form of a cartoon-like pair of red glasses greeting arriving motorists.

1. Glasses waiting for the final touch along with the tool to complete the job

2. Sabae may be the center of Japan's eyewear industry, but it is a small rural city surrounded by green rice fields

As well as being home to a string of high-profile glasses companies – from Sabaeframe to Matsuda – an estimated one in five locals in a population just shy of 70,000 are involved in making glasses. (Other key industries include farming, lacquerware craftsmanship, and – an optical spin-off industry – medical-device production.)

One standout pioneer in a city of eyewear pros is Kaneko Optical. Whereas most businesses specialize in only one of the 200-plus parts of the glasses-making process – perhaps metal-rod insertion or precision-cutting frames – Kaneko Optical defies traditions by doing everything in-house. Since 2009, the company has carried out the entire process, from design to packaging, in a bright, modern factory space, making 2,000–3,000 eyeglasses a month that are then sold in its 46 shops (45 across Japan and one in Paris).

Its design credentials have been elevated through high-profile collaborations – including an avant-garde eyewear project with Issey Miyake as well as a series of handcrafted sunglasses for CRAFTED FOR LEXUS. But perhaps the company's biggest coup is the re-

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cruitment of young creatives such as Sawada, at a time when Sabae's optical industry – like many traditional businesses in Japan – is declining due to aging craftsmen and rural depopulation.

Defying demographic trends, the 30-strong manufacturing team at Kaneko Optical's Sabae factory is refreshingly young: the youngest is 21 and the oldest is 45. Many workers have relocated across Japan, hailing from Kagoshima, Osaka, Tokyo, and Shizuoka, as well as Himeji. "Most of Japan's optical companies are based here, but it's been difficult for Sabae, particularly since the [economic] bubble [of the late 1990s] burst," says Masaki Awata, Kaneko Optical's factory manager. "Small companies are closing and only the stronger, economically wealthy companies are doing well."

"One big challenge is the fact that there's no one to continue things to the next generation," continues Awata. "Workers are generally over 50, not young people. We wanted to change this."

It was the entrepreneurial efforts of two Fukui brothers – Gozaemon and Kohachi Masunaga – who first put the region on the glasses-making map. In 1905 they invited eyewear craftsmen from Osaka to teach locals the art of glasses production in order to help improve lives in the poverty-stricken farming region, particularly during months of wintertime snowfall. The volume of craftsmen grew slowly but steadily, with the post-war years fueling rapid growth due to high demand for quality glasses.

> "The biggest and boldest move made by Kaneko Optical was to undertake the entire manufacturing procedure in-house"

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1. Kaneko Optical's purpose-built facility Backstage opened in 2009 with its pioneering in-house production procedure

2. A young eyewear maker inspects a pair of glasses in Kaneko Optical's Backstage factory

3. A Kaneko Optical craftsperson carefully polishes a collection of glasses before they are packaged and distributed to one of the company's 27 retail stores

4. Glasses wait for final additions, notably their arms, before being checked and shipped across Japan and around the world

When Kaneko Optical opened as a wholesale company in 1958, optical businesses had spread across the region and Sabae was already resembling a living factory, with countless specialist optical businesses. The city's status as a global eyewear player was confirmed in the 1980s when Sabae craftsmen made optical history by creating the world's first titanium frames.

Kaneko Optical has always been a company that defied expectations. In 1987 it diversified from wholesale by designing an in-house brand that proved popular among Tokyo apparel boutiques, before moving into retail with its first store opening in 1998.

But the biggest and boldest change for Kaneko Optical – now run by second-generation Shinya Kaneko – came when it decided to undertake the entire manufacturing procedure in-house. In 2009 Kaneko opened a factory called Backstage, a striking

ILLUSTRATIONS BY CHRISTINE BERRIE

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contemporary two-level building with airy white industrial spaces, expanses of minimal concrete, walls of glass, green plants, and monochrome signage.

"Backstage is the only place in Sabae where glasses are made from start to finish," says Awata. "Everything is in one building, from design to manufacturing. Generally, the city's optical factories are quite old – both buildings and workers. We created this factory as a symbol of the future and to motivate our staff. It also means we can pass on the craftsmanship to future generations."

The atmosphere inside Backstage is light, contemporary, and functional. It all starts in a first-floor office where the design team are based. Among them is Yuji Yamada, a designer who left a job in Tokyo in the apparel industry to join Kaneko Optical two years ago. "Precision when designing glasses is so important. Just a few millimeters can make such a big difference to how well they work," says Yamada, pausing from drawing intricate 3D images of glasses frames on his computer. "Our designs are not ornate: they are quite simple and balanced. A good pair of glasses basically needs to be functional and not break easily."

Next, manufacturing begins in the main ground-floor factory space, where workers sit among an assortment of mint-green machines and a jumble of

NOW AND THEN

1905

Sabae's eyewear industry began in 1905, taking influence from glasses like these, made from brass and crystal in 19th-century China

2016

Kaneko Optical seamlessly blends traditional and modern materials and methods in these ultra-lightweight specs made in collaboration with Lexus

cords hanging from the ceiling, with a side-line row of small, specialist, glass-walled rooms. Craftsmen select the material (mainly acetate, or celluloid in 10 percent of cases) and cut it down to size, placing it in hot oil before it melts inside a gently curved press machine.

Another large machine – the heroic-sounding "Robodrill" – is then used to cut out the shape of the glasses, before hot metal cores are inserted into the arms. The in-house master of this particularly delicate step is Yu Kato, a 33-year-old in a baseball cap who carefully monitors five different temperatures while seated at a mad-scientist-esque machine creating a soundtrack of clicking, clanking, and popping sounds.

"I moved here from Osaka eight years ago," says Kato. "Everything was very difficult at first. But it does get easier. Now it's really satisfying when I find a new way to do something and it becomes a standard procedure. That's very rewarding." Next, the tumbling process begins to smooth surfaces: six days inside three rotating machines filled with abrasive chips (either nylon or bamboo and wood), with hand-polishing with clay powder taking place between spins. Tumbling completed, hinge attachments are melted into the frames and arms are attached using a hand-operated machine before yet

A large neon sign using a cartoon eyewear motif overlooks the city. The hills that surround Sabae, which lies in a small valley, are populated by evergreens, which here are illuminated by the sign's light

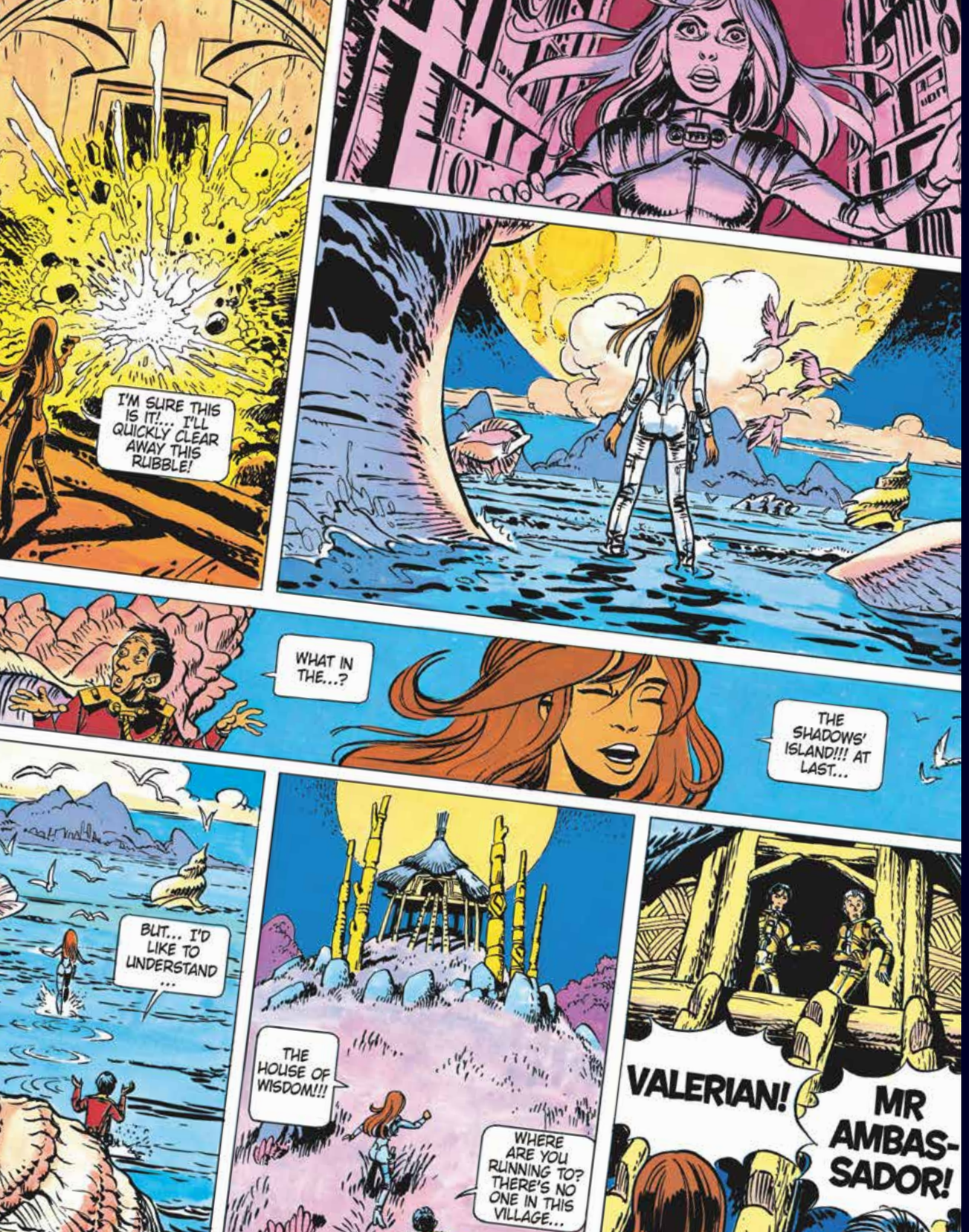
more polishing. (Each Kaneko Optical frame is hand-polished at least 10 times throughout the process for an ultra-smooth finish).

"The hardest part is probably the polishing," says Awata, who reveals that a single pair of glasses can be crafted in under an hour, in addition to six days tumbling. "It's not just a mechanical process, it's important to have a balance of skill and feeling. You can have the perfect material, color, and machines – but if your polishing is no good, the glasses will not work."

Finally, the glasses are sent upstairs to quality control – a minimal white space with a wall of windows overlooking green rice fields and mountains – where workers imprint the logo by hand with gold ribbon and check quality, alignment, and balance, before packing them. It is here where Sawada, their youngest craftsman, is based. "There is not much time to make a single pair of glasses – so you need to balance high-quality work with speed," he says.

Kaneko Optical's future strategy is as bold as it is clear: the new factory – combined with design collaborations, retail expansion, and the active recruitment of young workers – aims to secure Sabae's future as a globally competitive optical hub. "We created Backstage to pass on to future generations," says Awata.

It has not always been easy. "No one had ever brought all the manufacturing processes together before so no one could offer us advice," says Awata. "But now, through our work here, we hope that we can give the optical industry a new generation of craftsmen." ◢



INTO THE FUTURE

Renowned movie director Luc Besson has dreamed of creating the big-screen version of one of his favorite comics since childhood. With new filmmaking technology, it has become possible. We look at how

TEXT: NICK DE SEMLYEN

Creating a new world is no small matter. Before George Lucas made Star Wars back in 1976, he churned out endless drafts of the screenplay, which at one point was lumbered with the title Adventures Of Luke Starkiller, As Taken From The "Journal Of The Whills", Saga 1: The Star Wars. James Cameron's Avatar took 15 years to get from page to screen. As for Valerian and the City of a Thousand Planets, this summer's must-see sci-fi movie epic, it has been bubbling away in the mind of director Luc Besson since he was a kid.

"I was 10 years old when I discovered the comic book Valérian and Laureline," says Besson, the director behind The Fifth Element and Lucy. "I was immediately hooked by the story of two intergalactic agents who go through time and space. I fell in love with Laureline, and I wanted to be Valérian."

Written by Pierre Christin and illustrated by Jean-Claude Mézières, the French comic is so influential that many credit it with inspiring Star Wars. Those who read the comic rarely forget its surreal landscapes and peculiar creatures. But the idea of bringing it to the screen has always seemed impossible: it was just too big. Many believed it could not be done. Having the story on the page is one thing. Bringing it to life on screen is another.

Producer Virginie Besson-Silla maintains that Valerian and the City of a Thousand Planets could not have been made even 10 years ago. "Since it takes place 700 years from now, all the environments and creatures are unknown to us today," she says. "We had to invent everything. Every single scene involved visual effects, and we needed the technology to be at a place where it could support the epic type of visuals we required. Now that the technology has advanced even further, we finally felt ready to make it."

With approximately 2,500 VFX shots to create (The Fifth Element had 188), the Valerian team collaborated with an army of talent from heavyweight effects houses such as ILM, Weta Digital, and Rodeo. Although the team numbered almost 800, it still had its work cut out. "The difficulty was not simply in the number of shots and the amount of computer-generated imagery," says VFX supervisor Scott Stokdyk, "but in the complexity of design, and the scope and imagination of the worlds being created. The scale of the job was almost overwhelming, but we have been able to pull it off with a strong internal team, amazing vendors, and the director's planning." VFX producer Sophie Leclerc reveals more: "Luc has done things to set us up for success. He shot 'previs' on video with his students at La Cité du Cinéma, and gave VFX an edit extremely early in the schedule."

On set at La Cité du Cinéma, where Valerian and the City of a Thousand Planets was filmed, and where real elements are shot in combination with VFX ones

> "I was immediately hooked by the story of two intergalactic agents who go through time and space. I fell in love with Laureline, and I wanted to be Valérian"

Shooting at La Cité du Cinéma in Paris, the team wanted practical aliens on set to interact with stars Dane DeHaan and Cara Delevingne. But they also made serious use of motion-capture technology for the first time, taking tips from Avatar director Cameron. Throughout studio shooting, actors appeared in gray costumes covered in dots. At any given moment on set, there were 85 people behind the director on computers, tracking every movement.

Many of the aliens encountered by Valerian and Laureline have been achieved by a combination of practical and digital techniques. "One of the coolest species is the Martapuraï," says Leclerc. "They are like alien versions of astronauts, slimy aquatic creatures that must wear spacesuits to bring their own liquid environment with them to Earth." For those scenes, real actors wore suits that would later be filled with liquid and alien faces by the VFX team. Other memorable creations to look out for are the Doghan Daguis, three small and sneaky creatures whose brains are linked, and the K-Trons, sleekly intimidating robots that prowl the 35km-long Alpha Station.

But the incredible designs are not limited to the movie's otherworldly beings. The team has applied just as much thought to its locations – including Alpha's gaslands, oceans, and neon-drenched city sprawl, known as Paradise Alley – and its futuristic vehicles. One key sequence will see Valerian commandeering a 'SKYJET', an astonishing spacecraft. The movie's creative team collaborated with Lexus engineers to bring to life the single-seat pursuit craft, which is nimble enough

MEET THE ALIENS

There are almost 2,000 different types of alien in Valerian and the City of a Thousand Planets. Here, VFX supervisor Scott Stokdyk kneels with a Doghan Daguis

SKYJET

In one of the key sequences in Valerian and the City of a Thousand Planets, audiences will catch a glimpse of a new and astonishing spacecraft. Called SKYJET, the model is a single-seat pursuit craft that is nimble enough to maneuver through the intergalactic citadel of Alpha. Combining details from the Lexus design language, including the signature "spindle" grille, with imaginative technologies, SKYJET is a craft befitting the Valerian world, which is set 700 years in the future.

Lexus collaborated with the Valerian creative team to bring SKYJET to life. The creative team met with Lexus' chief engineer, Takeaki Kato, and the Lexus design team, to discuss incorporating believable, imaginative technologies and contemporary design cues into the final iteration.

to maneuver through Alpha's citadel. The final SKYJET combines details from the Lexus design language, including the signature "spindle" grille, with a few new futuristic bells and whistles. "It is fitted with some bonus James Bond-like attachments that Luc had us add!" says Stokdyk.

Topping the flying taxi from The Fifth Element is just one way in which this hugely ambitious intergalactic adventure is making cinematic history. "The philosophy of the VFX in this movie is about making a dedicated effort to bring Luc's imagination to the screen via any means necessary," says Leclerc. Besson himself has kept his eye on the most minute details of his passion project, even as he conjures entire planets into being. For him the experience has been incredibly satisfying. ◢

Actors play out a scene against a giant EuropaCorp blue screen. The action is captured by cameramen and will later be amended by the VFX team

THE FUTURE FORUM

TEXT: PAULA WIK ILLUSTRATION: MICHAEL KIRKHAM

Times are changing – and fast. We asked four experts to glimpse into the future of their respective industries and, as it turns out, by 2050 we might very well live underground, drive paper cars, brew our clothes, and cook with the press of a button

TRANSPORTATION

NEXT GEAR

Text: Guy Diamond

"Cars are currently made from steel: it makes safe cars. But if a car's not going to collide, we can make it out of paper"

Simon Humphries, president of Lexus' design facility ED2, believes that every single factor that affects how we conceive cars will experience a paradigm shift. "So far, car design has been based on mass trends, but it will become fragmented as cars become more specific: single seat commuters, high-efficiency cars, etc.," he says. "For the last hundred years we've had the internal combustion engine, but we're going to have fuel cells, electric, and whatever else within the next 30 years."

What we think of as a car might also change. "Autonomous driving will change things; with the processing power of computers getting greater, this will affect mobility," says Humphries. "Cars are currently made from steel: it makes safe cars. But if a car's not going to collide, we can make it out of paper."

Many of the paradigm shifts that Humphries predicts are not only about the design and production of cars but also how we use them. "Currently cars are conceived as something you own," he says. "People tend to pick up on electrification or autonomous cars being the biggest agents for change, but they won't be the only ones. I think the change in the way that people think will be just as big as that."

FASHION

SYNTHETIC BIOLOGY

"I can see how we could fairly easily start to brew silk in urban environments"

"The main shift when it comes to fashion will be in the way we manufacture," says Carole Collet, a professor and research leader in the future of design and textiles at Central Saint Martin's university.

Collet argues that we are in the middle of a groundbreaking revolution where we are moving away from manufacturing to biofabrication – a mode of production that she believes will soon become the most prevalent.

"Today, we can program a yeast to make silk and these genetically programmed biosynthetics will slowly replace both oil-based and naturally grown fibers," she says. "It's basically like brewing beer – you have these big vats of yeast – and if you look at the growing interest in vertical urban farming, I can see how we could fairly easily start to brew silk in urban environments."

If her speculations are right, this local concept would bypass the immense logistics involved in the creation of fashion, and ultimately decrease its environmental impact.

Also the director of research lab Design & Living Systems, Collet studies what the interaction of design and biology might bring for the future of fabrics as well as for our lives. "We will be able to genetically program natural materials with augmented characteristics and thus grow biosmart materials," says Collet. "We might have fabrics that respond better to the environment, such as clothing that cleans the air using nano coatings. Garments that perform, even if their performance is invisible, will become more mainstream. I think materials will become smarter in that sense – they will become sentient."

ARCHITECTURE

SUB-URBAN

"Cities will go underground. The next free territory is below"

Jing Liu, co-founder and principal of award-winning New York-based architecture firm So-Il, predicts that to deal with our globe's increasingly urban population, cities will have to become more three-dimensional. "I think that cities will go underground," she says. "Vertical expansion is good for efficient density, but I think that we might have plateaued above ground. The next free territory is below."

Although Liu believes that density is partly "a state of mind", she acknowledges that it comes with a range of complications. "Megalopolises have a lot of problems, mainly with mobility and infrastructure, but there are also social and psychological issues," she says. For this reason, she argues that green spaces will become ever more invaluable. "Scarcity of publicly accessible green spaces have such a large negative impact on our well-being that I think we will become more and more aware of the protection of these micro natures in our cities," says Liu. "Nature in the cities will still be there for our sanity but largely controlled and architectural."

FOOD

SEEDS OF CHANGE

"Cooking traditionally will be a matter of choice, like driving in automatic or manual mode"

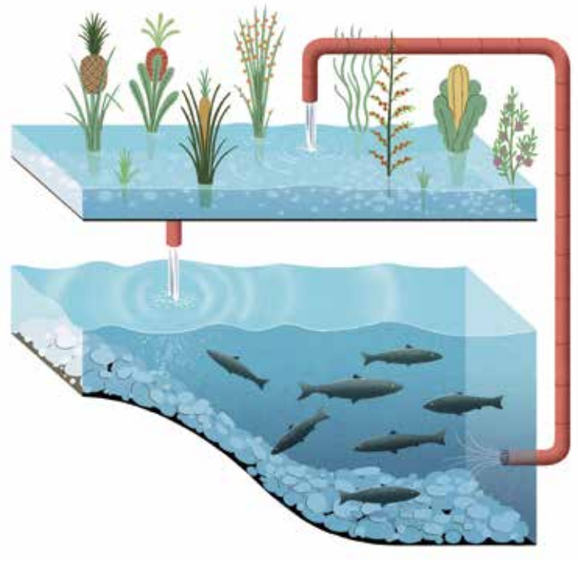
"Food production will undergo a severe change: the combination of our advancing knowledge of the seed genome and the development of precision farming will make the production even more sophisticated," says Daniel Lasa, head of research and development at Basque restaurant Mugaritz – one of the world's best restaurants and a pioneer in progressive cooking.

Lasa stresses the importance of rigorous management of our natural resources to prevent their collapse, and believes that we will be forced to adopt a mostly vegetarian diet due to its more resource-efficient production process. New forms of agriculture – such as sensor-controlled hydroponics and aeroponics – where the use of water, for example, is optimized to the extreme will be the norm.

"Choosing or growing local and small will probably become a luxury," he says about a future he believes will be increasingly mass-produced by a few large companies. He speculates that this will also be true about the preparation of our produce; fast food will only increase, he predicts.

"I have no doubt that home-cooking will also become a much more simple process with the use of technically advanced appliances," says Lasa. He asserts that the signs of this development can be easily detected as the vast majority of a polarized younger generation are progressively losing touch with traditional ways of preparing food. "Cooking traditionally will be a matter of choice, like driving in automatic or manual mode," he says. "This means that the global food heritage will be alarmingly impoverished."

Lasa does, however, believe that we will continue to eat cooked food, and not ingest it through tubes or pills. "We are talking about too short of a period to radically change the way humans enjoy consuming food," he says. "The opportunity to share a meal will be one of the counterpoints to a virtual future. Eating can help us stay together naturally and enjoy the pleasure of sharing." ◢



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