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The cooking lab 美食實驗

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Some of the world's leading culinary innovators spill the beans on the techniques and philosophies that shape their approach to modernist cuisine. 帶領創意烹調潮流的國際頂級廚藝先鋒分享他們對現代主義烹調的看法，以及有關的技術和理念。 **By Rachel Read**

The 美食實驗 cooking lab

The likes of Ferran Adrià and Heston Blumenthal brought modernist gastronomy to public attention, before Nathan Myhrvold and Francisco Migoya examined it in their encyclopedic cookbook *Modernist Cuisine: The Art and Science of Cooking*. Cutting-edge equipment and progressive techniques are now part and parcel of the fine-dining world, but the methodical, considered approach of most 21st century chefs might surprise those hoping for the “mad scientist” theatrics popularised by cooking shows.

“It may seem counterintuitive, but our use of new techniques and technologies has led to intense interest in the purity of flavours,” says Joshua Hermias, head chef at two-Michelin-starred restaurant Minibar by José Andrés, in Washington, DC. “We strive to represent flavours that can stand as exemplars or archetypes of a particular item – the most kiwi-flavoured kiwi, the most chicken-flavoured chicken glace, and so on – and we will use any tool, old or new, that helps us celebrate a product for our guests.”

Minibar's Spanish-born founder, José Andrés, recipient of the James Beard Foundation's Outstanding Chef award in 2011, has long been one of the world's foremost culinary innovators, and Hermias continues that tradition. “In gastronomy, modernist philosophies and equipment arguably have the most impact on the creative process,” Hermias says. “In terms of philosophy, when creating a dish, we are not looking to modify a dish we ate somewhere else. Instead, we hope to find new singularities – dishes that produce an ‘Aha!’ moment for ourselves and our guests.”

Modern equipment, Hermias adds, is simply another weapon in the culinary arsenal. “If we find an amazing apple, we can try it using all the traditional cooking methods, and we can also try manipulating it using all the crazy gadgets we have,” he explains. “Combining these two elements – philosophy and equipment – yields a creative process that is driven by intense study and note-taking. The notes create a library-like painter's palette when it comes time to assemble a dish.”

早在Nathan Myhrvold和Francisco Migoya在他們的烹飪巨著《Modernist Cuisine: The Art and Science of Cooking》探討現代主義烹調之前，Ferran Adrià和Heston Blumenthal等廚藝先驅已成功引起大眾關注這股潮流。現時，各式先進的烹調工具和不斷創新的廚藝技法，已成為高級美食世界不可或缺的一環，但正當我們熱切期待烹飪節目渲染的「瘋狂科學家」式的誇張烹飪場面時，大部分21世紀廚師講求精心計算、謹慎的烹調態度或許讓大家感到意外。

Joshua Hermias是位於美國首都華盛頓的米芝蓮二星餐廳Minibar by José Andrés的大廚，他表示：「這樣說或許有點自相矛盾，但我們採用新技巧和技術的結果，反而讓人更熱切追求純正的味道。我們的目的是帶出能代表各食品的典型味道，如最有奇異果味的奇異果、最富雞味的雞汁等等。我們會使用任何工具，不論新舊，務求為客人呈獻每種食物最極致的味道。」

Minibar老闆José Andrés生於西班牙，2011年獲美國享譽甚隆的James Beard基金會頒發傑出廚師獎，一直以來都是全球首屈一指的烹飪先鋒。Hermias也一脈相承，他說：「在烹飪世界，現代主義烹調的理念與工具無疑對創作過程有著重大影響。先說理念方面，在創作一道菜式時，我們志不在改良一道菜餚，而是要發掘它新的特點，讓自己和客人吃到菜式時會發出『哦！』的驚歎聲。」

Hermias補充，現代化的儀器只不過是烹飪工具的一種。他解釋：「當找到一個味道無與倫比的蘋果時，我們可以嘗試用各種傳統烹調方法炮製它，自然也可以利用各種不可思議的工具從事各種實驗。理念和設備結合的創作過程，由深入的研究和大量的筆記所推動。這些筆記就像畫家調色板上豐富的顏料一樣，會成為廚師下次創作新菜式時的資源。」

Minibar招牌菜Magnolia Dew Drop，便是理念與技巧完美結合的一道菜式，其靈感源自晚春時分綻放的玉蘭花。Hermias和助手用玉蘭的花瓣和香艾酒製成糖漿，

Examining the traditional pot roast in *Modernist Cuisine: The Art & Science of Cooking* by Nathan Myhrvold and Francisco Migoya

Nathan Myhrvold和Francisco Migoya在新書《Modernist Cuisine: The Art & Science of Cooking》裡探討傳統燉肉的原理

PHOTO BY RYAN MATTHEW SMITH / MODERNIST CUISINE LLC

The marriage of philosophy and technique is aptly demonstrated by Minibar dish Magnolia Dew Drop, inspired by late-spring flowers. Hermias and his team craft a syrup made of magnolia petals and vermouth, which is then subject to spherification – a process in which a liquid is dripped into a bath of calcium or sodium alginate solution, causing it to form into a sphere, held together only by a thin gel membrane. The syrup sphere is then presented on a magnolia petal, like a dewdrop, and bursts in the diner’s mouth. The dish evokes springtime in both its appearance and flavour.

Modernist techniques and technologies “have allowed us to create more textures, different appearances and different temperatures in food, adding a new element to gastronomy that was never achievable before”, says Ryan Clift, chef-owner of Singapore’s Tippling Club, a mainstay of Asia’s 50 Best Restaurants list that’s renowned for its avant-garde approach.

“For me, it’s always about the ingredient,” Clift says of his dishes. “I don’t like it if you can see a technique in my dish. I like people to appreciate the flavours, textures, aroma and taste of a single ingredient that’s been worked into four or five different components on the same plate. I want people to experience what is being made, not how we did it. I prefer my equipment and my techniques to be hidden. They are tools to be used to excite customers, not bore them.”

This approach can be evidenced in one of Tippling Club’s signature dishes: Foie Gras, Textures of Apple, Cucumber, Date and Walnut. In addition to fresh apple, it features a slice of dehydrated apple, a wedge of freeze-dried apple, a translucent cube of cold confit apple and paste of apple purée. The techniques involved are manifold and include two bouts of freeze-drying before the apple is dehydrated under vacuum (creating a polystyrene-like texture that “melts on your palate”), cooking under vacuum, juicing the fruit while frozen (to keep the apple green without bruising) and thickening the purée with modified starch. But all are designed to showcase the apple’s natural flavours. Clift says these techniques are nothing new, but “it had only dawned upon chefs in the last 20 years that they were available for us to use”.

Alvin Leung, the chef behind Hong Kong’s three-Michelin-starred Bo Innovation, agrees. “I don’t think there have been any major breakthroughs in cooking,” he argues. “It’s now in our ability to control things at a much closer level, and this enables us to use certain products that we couldn’t use before. It makes things interesting for chefs as we can give people a different experience.”

It is this “different experience” that led Leung to brand his cooking style as “X-treme cuisine”, which he defines as “something exciting, exotic and new”. He continues, “I think what molecular gastronomy has taught me is that there is no limit. “You can do so many things and people will eat it – things that used to be completely unacceptable many moons ago have become the new things on the market. We have gone back to old ingredients we didn’t use, and old dishes, and made them new.”

Bo Innovation’s Organic Long-Jiang Chicken with Nine-Year Aged Acquerello Rice is just one example, and a reinvention of traditional Asian chicken rice dishes like Hainan chicken or chicken-pot rice, which typically use steamed



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這樣說或許有點自相矛盾，但我們採用新技巧和技術的結果，反而讓人更熱切追求純正的味道。

– Joshua Hermias

再將糖漿滴進海藻酸鈣或海藻酸鈉的溶液中，令糖漿周圍形成一層薄膜，這個過程稱為球體化。上桌時，球狀的糖漿躺在玉蘭花瓣上，像露珠一樣，但一放進嘴裡就會爆開。這道菜式在視覺和味覺上均散發濃濃的春天氣息。

新加坡餐廳Tippling Club是「亞洲50最佳餐廳」的榜上常客，以大膽創新見稱。餐廳大廚兼老闆Ryan Clift認為，現代主義烹調的技巧和技術「容許廚師創造出更多不同口感、賣相和溫度的食物，為美食世界帶來從前無法實現的新元素。」

談到自己的菜式，Clift表示：「最重要始終是食材。我不希望客人在我的菜式裡看到任何技巧。在我的菜式裡，一種食材可能有四、五種變化，我希望他們欣賞當中的風味、口感、香氣和單一食材的味道。我希望大家去體驗食物本身，而不是它的烹調方法。我寧願將烹調設備和技術隱藏起來，因為使用這些工具只是為了給顧客驚喜，而不是要他們費神研究。」

Tippling Club其中一道招牌菜式Foie Gras, Textures of Apple, Cucumber, Date and Walnut，就是餐廳理念的最佳寫照。這道雲集新鮮蘋果、脫水蘋果、凍乾蘋果、半透明的蘋果凍和蘋果蓉的菜式，用上多種技術，包括兩次凍乾後再放進真空容器脫水以製造「溶於嘴巴」的果凍質感，還有真空烹調及在結冰狀態下榨汁以免蘋果發黑，以至用化製澱粉將蘋果蓉弄稠等。不過，這一切只是為了突顯蘋果的天然味道。Clift指出，這些技巧並非新鮮事物，只是「廚師們近20年才發現可以用在烹飪上面」。

香港米芝蓮三星餐廳廚魔的大廚梁經倫也深有同感，他說：「我不認為近年的烹調方法有什麼重大突破，只不過是現今的廚師更懂得控制各種技巧，以致我們能夠採用一些以往不能用的產品。這令烹調變得更有意思，因為我們可以為顧客帶來不同的體驗。」

因為這種「不同的體驗」，梁經倫將自己的烹調風格稱為「極限菜式」，並以「刺激、奇異和新鮮」來形容這些菜式。

梁經倫興致勃勃地說：「分子料理讓我知道烹飪其實沒有任何限制，你可以創作各種各樣的東西，而大家會樂於品嚐。一些以往令人完全無法接受的東西，現在卻成為市場上的新產品。我們可以重新發掘以前不會碰的古老食材和菜式，給它們換上全新的面貌。」

廚魔以有機龍崗雞配陳年九年的意大利米煮成的燴飯，就是其中的好例子，它可說是海南雞飯和煲仔蒸雞飯等傳統亞洲菜式的革新版本。梁經倫的做法是將雞放在真空袋封好，然後浸於熱水中慢慢煮熟，令雞肉保持鮮嫩，再將煮好的雞肉捲成肉卷。米飯方面，則用上金黃色的雞湯，以煮意大利燴飯的方式炮製。這道菜雖然仍屬傳統的中式風味，但烹調方法卻完全不同。

專門製作創新食物和飲品裝置的倫敦製作室Bompas & Parr，也不喜歡為自己的實驗設限。創辦人之一Sam Bompas說：「我們喜歡當世界第一，帶領創新技術和食物發展。」憑著這種態度，公司創造了世界第一個有香味的煙花、第一陣可以用鼻子吸入的氈湯力煙霧、第一塊用熔岩煮的牛扒，以及全球最大的蛋糕。他又說：「隨著現代主義烹調技術的興起，知識在飲食界扮演著前所未見的重要角色。以前鮮有提及的食物學也越受重視，科學也正為整個餐飲業帶來巨大的影響。」



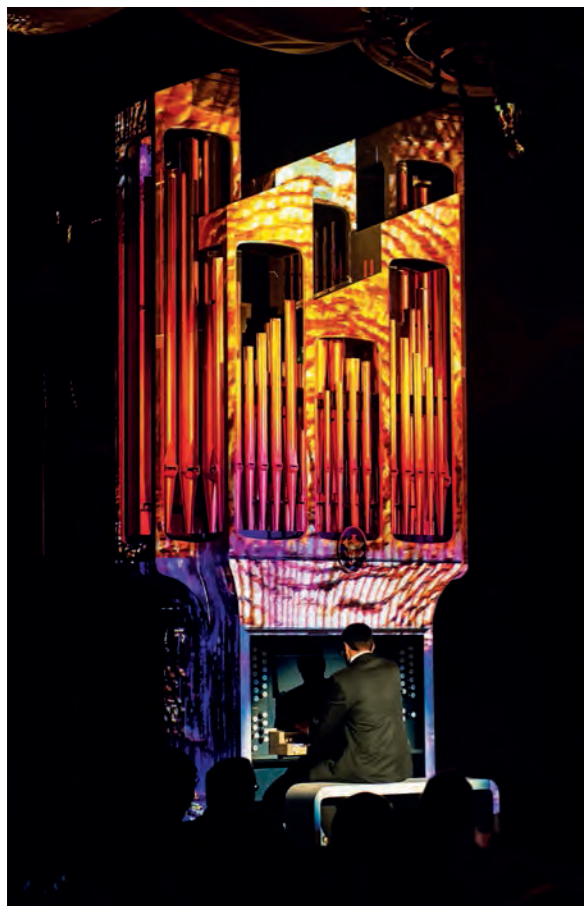
Opposite: Chef Joshua Hermias of Minibar by José Andrés

This page, clockwise from top right: Foie Gras, Textures of Apple, Cucumber, Date and Walnut at Tippling Club; its creator Ryan Clift; the dining experience at Minibar by José Andrés; Magnolia Dew Drop at Minibar by José Andrés.

對頁：Minibar by José Andrés的廚師Joshua Hermias

本頁右上圖起順時針：Tippling Club名菜Foie Gras, Textures of Apple, Cucumber, Date and Walnut及大廚Ryan Clift；在Minibar by José Andrés享用美食的情境；Minibar by José Andrés的招牌菜Magnolia Dew Drop





This page, clockwise from left: Giving taste to music with Bompas & Parr's Flavour Conductor; Sam Bompas (left) and Harry Parr (right) at their Jelly Parlour of Wonders in Harrods, London; Red Fish, Sous Vide Potato, Artichoke Puree, Dehydrated Shiitake

Mushroom, Chinese Mandarin Dust and Yunnan Ham Cream Sauce at Bo Innovation; Alcoholic Architecture, the venue for Bompas & Parr's breathable cocktails

Opposite: Chef Alvin Leung of Bo Innovation

本頁左圖起順時針：Bompas & Parr的「味道指揮家」裝置將味道變成音樂；Sam Bompas及Harry Parr (右) 在倫敦Harrods百貨公司的Jelly Parlour of Wonders食物裝置前留影；廚魔的紅魚、慢煮薯仔、洋蔥蓉、乾花菇、柑粉及雲南火腿忌廉醬；Bompas &

Parr聞得到的雞尾酒活動場地「酒精建築」對頁：廚魔主廚梁經倫



chicken. Instead, Leung makes a roulade from the meat, which is prepared sous vide (sealed in a vacuum bag, then slow-cooked in a water bath, so the meat better retains moisture and texture). The rice, meanwhile, is cooked more like a Western-style risotto, in yellow chicken stock. So, whilst the flavours might be traditionally Chinese, the preparation is anything but.

Over at Bompas & Parr, the London-based studio that creates inventive food and drink installations and is also expert in jelly-making, the sky is the limit when it comes to experimentation. "We love creating world firsts and being pioneers in innovative technologies and food developments," says co-founder Sam Bompas. This attitude has led to the team's greatest successes, including the world's first flavoured fireworks, a walk-in cloud of breathable gin and tonic, the world's biggest cake, and the cooking of steaks over molten lava.

"The food scene is more intellectually engaged than it ever has been, with the introduction of modernist technology, and there is a new academia to food now that wasn't apparent before," Bompas says. "Science is having a big impact on the industry."

Bompas mentions the studio's Flavour Conductor, a musical instrument that gives taste to music, as something that would have been impossible without scientific advances. Created in collaboration with drinks brand Johnnie Walker, the one-of-a-kind "flavour organ" was designed to amplify the flavours of whisky as part of a multi-sensory performance. "New developments from Charles Spence at the University of Oxford, and his revelations in cross-modal science, made it possible," Bompas says. "The combination of craft organ building from Mander Organs [one of the UK's oldest organ specialists] and the latest neuro-scientific knowledge from Spence created the ultimate multi-sensory installation."

Whilst Bompas' company is currently working on "a whole host of brilliant developments, such as edible bubbles, hologram food, unmeltable ice lollies, and AI and mixed-reality in food", he sounds one note of caution to modernist chefs. "Novelty is always interesting, but you should remember that you need to provide your guests with a meal, and that is why they are there," Bompas advises. "You shouldn't be giving people an experiment. It should be a finished and polished product."

The application of scientific knowledge and skills allows for the crafting of individual, refined and creative dishes, but is also used extensively in the food manufacturing industry for research and development. A new Higher Diploma programme in Culinary Science at ICI seeks to combine science, food technology and culinary arts to equip students for such careers.

This is important for Hermias as well as Bompas, who says that a common misconception about modernist cuisine "is that we strive for creating tricks and gimmicks; instead, we are most interested in flavour and creating memorable experiences".

Ultimately, it seems, hi-tech culinary bells and whistles are much like the old-fashioned icing on the cake. "At the end of the day," adds Leung, "I always say people come back for the taste."

BOMPAS & PARR IMAGES BY ANNY CHARLOTT OMMEDAL



I don't think there have been any major breakthroughs in cooking. It's now in our ability to control things at a much closer level

我不認為近年的烹調方法有什麼重大突破，只不過是現今的廚師更懂得控制各種技巧

- Alvin Leung

Bompas以其製作室的「味道指揮家」為例。這是能帶出音樂的味道的樂器，如果沒有先進的科學幫忙，是完全不可能實現的。「味道管風琴」是製作室為著名酒廠 Johnnie Walker設計的多感官表演項目，藉此突出威士忌的味道。Bompas說：「沒有牛津大學教授Charles Spence的新發現，以及他在跨感官科學上的研究結果，就不可能做出這個樂器。英國歷史悠久的樂器製造商Mander Organs的精湛技藝，結合Spence最新的神經科學知識，才能成功製造出這個極致的多感官裝置。」

Bompas表示，公司正忙於一系列精采創作，譬如可食用的泡沫、3D全息食物投影、不會融化的雪條，還有結合人工智能的半真實食品。他向現代主義烹調廚師提出一點忠告：「創新永遠是有趣的，但必須謹記，廚師提供的始終是一頓美食，客人是為了食物本身而來，千萬不要把未完成的實驗品端上桌，只有經過反覆試驗的完成品才能拿出來給客人品嚐。」

科技知識和技術的應用，不僅有助廚師創作獨特、精緻及充滿創意的菜式，更受到食品生產及研發行業的廣泛採用。有見及此，國際廚藝學院新推出的廚藝科學高級文憑課程，內容將涵蓋科學、食品科技及烹飪藝術，讓上述課程的學員裝備自己。

Hermias附和說，一般人對現代主義烹調都有同樣的誤解：「大家以為我們努力創新的目的是賣弄花巧和噱頭，但其實，我們最感興趣的始終是味道，以及創造令人難忘的美食體驗。」

說到底，眩目的高科技烹調方法跟昔日在蛋糕上灑上糖霜裝飾並無太大分別，正如梁經倫所說：「歸根究柢，味道才是吸引客人回頭的主因。」