

# 新英文杂志

每周精选

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新英文杂志公众号



## Culture

May 22, 2015 | 819 words &gt;

美容行业

# How the beauty industry convinced women to shave their legs

a. 确信的；有坚定信仰的

vi. 剃、刮脸

vt. 剃、修面

In the 1900s, most women didn't care about armpit or leg hair

n. 腋窝、腋肢窝；丑陋的地方、肮脏的角落

In 1908, fashion around the world was generally very concealing.

conceal : vt. 隐藏、隐瞒

As the 20th century began, women didn't care if they had leg or underarm hair, and it shows in the beauty guides, ads, and fashion of the time. Clothes were so concealing that it was rare to see bare legs or underarms, so removing hair there wasn't an issue. Before the 1910s, depilatories for those areas were used primarily by actresses or dancers, or for surgery.

n. 脱毛药  
depilatory : a. 脱毛的，有脱毛作用的

Women did worry about hair other places. Christine Hope did the definitive research on women's hair removal in her 1982 paper "Caucasian Female Body Hair and American

n. 高加索人，白种人；  
a. 高加索人的，白种人的

Culture," and her survey of ads in old **Harper's Bazaar**  
麦考尔杂志  
and **McCall's magazines** shows that they targeted facial,  
neck, and **forearm** hair. The legs and underarm were  
n. 前臂  
nowhere to be seen. But new trends started to change  
everything within a few years.

### Advertisers target the armpit

According to Hope, a shift began in 1915 when  
advertisers in Harper's Bazaar started to target underarm hair (usually for various  
depilatory creams). A new trend in **sleeveless** dresses, often inspired by Greek and Roman  
a. 无袖的  
clothing, exposed women's previously covered arms. Shaving legs: national news.  
That, of course, led the depilatory industry to conclude  
that underarm hair was undesirable.



This typical quote from a **contemporaneous** ad campaign **says it all**: "The Woman of Fashion  
a. 同时期的，同时代的清楚地说明事实  
Says the underarm must be as smooth as the face." The appeals were largely based on  
fashion, but they also told women what they should do to look fashionable (remove their  
剃须刀护理品牌  
underarm hair). Safety razors also got into the mix. As **Gillette** claimed in a typical 1917 ad:  
Gillette专门为女性制作的第一把剃须刀  
**Milady Decolette** is the **dainty** little Gillette used by the **well-groomed** woman to keep the  
a. 精致的，优雅的  
a. 干净整洁的，衣冠楚楚的  
a. 修饰的，打扮的  
underarm white and smooth."

To some degree, the shift to increased shaving  
was made possible by technology, such as the  
the 1901 invention of a safety razor with  
disposable **blades** and the 1919 packaging of  
n. 刀刃，刀片  
instant shaving cream. But that technology also  
needed to expand its market.

During the 1920s, knee-high skirts made legs  
more visible, and depilatory companies  
**wasted no time** claiming that their products  
当即 = immediately  
a. 不穿长筒女袜的  
enabled "a woman to bathe stockingless, without self-consciousness."  
v. (到河、海等中) 游泳、消遣



This 1922 ad from Harper's Bazaar is typical of  
the genre that emerged

Hope's analysis shows that a relatively small percentage of ads focused on leg hair removal: in Harper's Bazar, for example, 66 percent of the ads mentioned it, but only 10 percent made it their sole focus.

Briefly, it even seemed like depilatories might just be a passing **fad**. From 1924 to 1926, ads for them disappeared from the **Sears catalog** 西尔斯, 19世纪美国百货业巨头 and McCall's. And most of the ads were seasonal, **running** from around April to September — timing that suggests women mostly **v. 表发, 刊登** **relegated** hair removal to summer, when their underarms and legs were exposed. That **vt. 把降低到; 归入; 提交** didn't last.



Women shaving their legs in 1927 (these women were on **Broadway**, so they were **百老汇** slightly **atypical** for the time).  
a. 非典型的, 反常的

### In the '50s, bare legs become the norm

By the 1940s, leg hair removal had become standard. **By this point**, all of the hair removal ads in Harper's Bazar mentioned leg hair, and 56 percent focused on the legs alone, according to Hope.

The more conservative McCall's didn't completely **follow suit**, but it also shifted toward leg hair, with **salacious** ad **taglines** like "Let's Look at Your Legs — Everyone Else Does."  
a. 淫秽的, 色情的 n. 广告口号, 时髦用语

And around this time, the media joined the ads in condemning leg hair. In 1939, Harper's Bazar wrote: "**Ankle socks** on the campus are a fine, old institution and all very well, but not **翻口短袜 (只及踝关节处)** on furry legs." There are hints that unshaved legs were still **around** at the time, but fading — in 1941, the magazine says, "If we were **dean** of women, we'd levy a **demerit** on every hairy leg on campus."  
n. 院长, 系主任 n. (学校给学生记的) 过失分

As the '50s ended, the transformation of American hair was complete. By 1964, 98 percent of American women ages 15 to 44 reported that they removed some body hair.

## Did ads pressure women into removing their armpit and leg hair?

Can ads be blamed for the transformation? It's tough to know — a universal phenomenon like leg shaving that happens over decades is tough to pin down to a few ad campaigns. There was a. 确切说明 (或理解) clearly a preexisting prejudice against body hair, too — that's shown by the ads in the 1900s that targeted face, neck, and arm hair. Changing fashion may have simply revealed a new area that needed to be groomed according to v. 使 (某人) 整洁; 打扮 preexisting standards.



A leg hair removal ad from 1939.

On the other hand, the advertising record hints that a lot of leg and underarm shaving was originally situational — women only shaved if they knew their underarms or legs would be exposed, and even then, it wasn't necessarily the norm yet.

In addition, as Hope notes, the instructional nature of many of the ads makes it seem like a. 教育的, 指导的 the ads were telling women what was appropriate instead of reenforcing existing trends.

This ad from 1945 has to state exactly why a woman "needs" to shave her armpits.

One thing, however, we can know with certainty: in 1920 it was a story when a woman shaved her legs, and just a few decades later it was considered a story when she didn't. ■

considered as : 被认为是



Climate

JULY 17, 2022 | 813 words &gt;

## Heat Waves Sparked by Climate Change Are Getting Worse

It's getting hotter in places that aren't supposed to be hot, and our bodies are starting

to **pay the price.**

(因犯错等而) 吃苦头/付出代价



Agriculture isn't **being spared**, either.

幸免遇难

Extreme heat has **engulfed** parts of Europe, the US and China. By early last week, at least 86 Chinese cities had **issued** heat alerts. A so-called **heat dome** has formed over the Southwest and central US, breaking long-standing temperature records and intensifying what had already been an extremely hot summer. In Europe, the heat wave has been described as the worst in over 200 years, causing **wildfires** across Spain, Portugal and France. The situation in France and the UK is expected to be particularly intense until Tuesday, with the first-ever

v. 完全包围；遮住

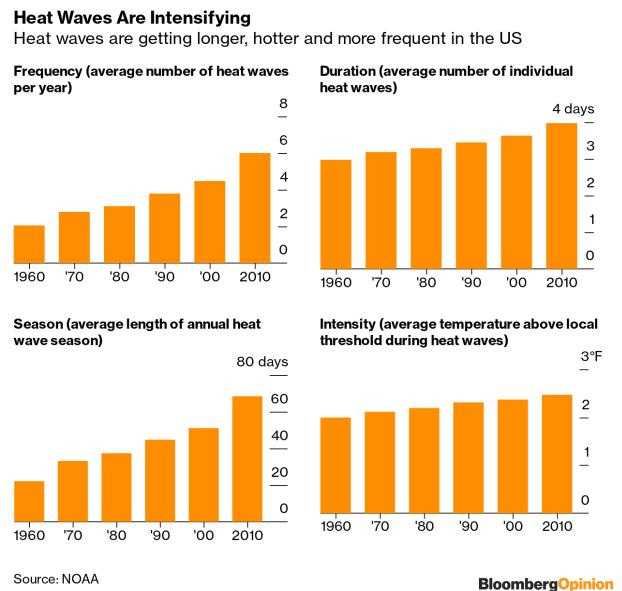
热盖、热穹顶

v. 发表（声明），颁布（命令、警告等）

n. 野火，火灾；散布极快的事

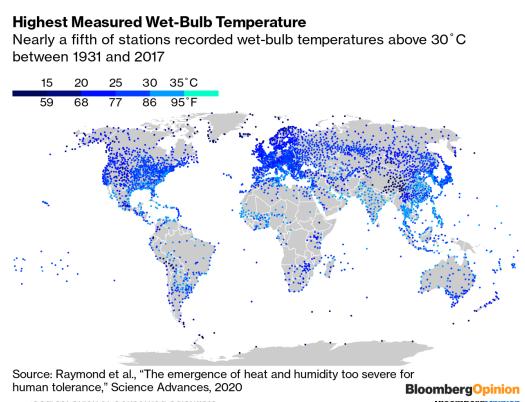
**“Red Extreme” heat alert issued by Britain’s  
英国国家气象局  
Met Office.**

If you judged by the tabloids, you’d think that a heat wave was fun. Pictures show people sunbathing in the park or relaxing at the beach, and headlines draw comparisons with tropical paradises: “UK warmer than parts of the Maldives.” One 2021 study showed how climate change was almost entirely absent from newspaper coverage of the 2018 heat wave. But this is dangerous — and only going to get worse.



What’s particularly concerning is the rise of dangerous humid-heat temperatures, as explored by David Fickling and Ruth Pollard in this feature. It was thought that the fatal 35 degrees Celsius (95 degrees Fahrenheit) wet-bulb threshold — the point at which the human body can’t cool itself down and even healthy people with unlimited shade and water will die of heatstroke — almost never occurred in the current climate. But as a 2020 study (and the map below) reveals, humid heat above 35 degrees C has already been happening — from the Persian Gulf and the Red Sea to Pakistan, India, Australia, Venezuela and both Mexican coasts. Wet-bulb temperatures above 31 degrees C have turned up in dozens of places across tropical South and Southeast Asia, China, West Africa, southern Europe, and the Americas, extending to the suburbs of New York and Naples, Italy.

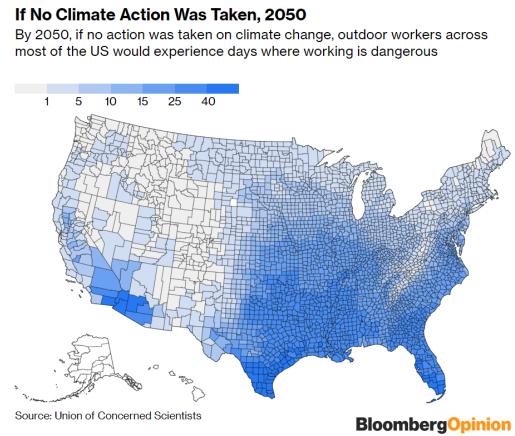
Writing this from an air-conditioned office, it’s easy to forget that there’s no escape from the heat for some. Outdoor workers, for example, are particularly at risk of heat-related illnesses. This map shows how many workdays per year have been unsafe historically due to the combination of temperature and humidity exceeding 100 degrees F.



And here's how many workdays might be at risk, and where, in 2050, if no action was taken on climate change:

Only two states have permanent, enforceable heat-protection standards for outdoor workers: California and Washington. That means most are unprotected, including those in Texas and Florida, where the heat is most extreme.

Meanwhile, in the UK and other typically temperate parts of Europe, even being inside your own home might not be enough to escape dangerously high temperatures. Homes in these regions are designed to keep the heat in during winter and don't come with air conditioning. In the UK, a fifth of all homes are said to overheat in the summer, meaning indoor temperatures exceed 28 degrees C (82.4 degrees F) more than 1% of the time the space is occupied, or 26 degrees C (78.8 degrees F) in bedrooms.



Europe's heat wave is making its energy crisis even more critical. As households and businesses turn on their air conditioners, electricity demand has jumped and wholesale power prices have surged. But what's worse than the heat wave is the little-discussed drought spreading from Germany to Portugal. Javier Blas explains that the lack of rain is making Europe even more reliant on Russian gas by reducing hydropower generation, interrupting the flow of fuel along the Rhine to Germany's coal-fired power stations and making it harder to cool nuclear plants.

For a visual on the drought, check out the levels on the Rhine right now. During July, it typically flows through the town of Kaub at a depth of about 2.5 meters (8.2 feet). Right

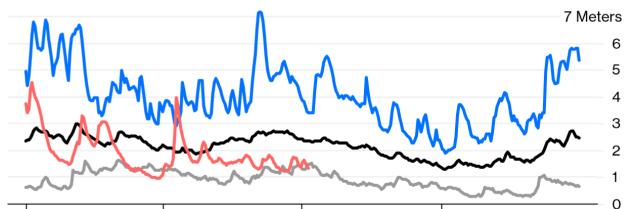
now, it's only 89 centimeters (35 inches) deep.

Extreme heat and drought is also bad news for another essential: food. In India, for example, unusually hot weather in May has caused the nation to cut its wheat production forecast by 6 million metric tons. There is a solution Amanda Little says we should embrace. As the world warms, genetically modified crops — such as a new strain of drought-resistant wheat — are going to be essential to sustainable agriculture's future.

#### Drying Up

The water level at the Kaub gauge on the Rhine river has dropped to its lowest level for the time of year since at least 2007

High [2007-2021] Average [2007-2021] Low [2007-2021] 2022



Source: German Federal Waterways and Shipping Administration

If you're enjoying the sunshine this weekend, remember to take the heat seriously. Drink plenty of water, seek shade, wear sunscreen. Some climate activists have suggested that we name our heat waves in a nudge to get people to take proper precautions. Would it work? Stephen Carter is skeptical. We don't, for example, know much about what naming hurricanes does practically. What we do know is a little concerning: A 2014 paper found that hurricanes with "feminine" names result in greater damage than those with "masculine" names. Why? The authors suggest that those in the storm's path take fewer precautions because they expect feminine-named storms to be less severe. ■



Britain

Jul 21 2022 | 562 words >

Unmanned aviation

## A motorway for drones

New freedom to fly between cities



Since they began to whirr and hover over a decade ago, small autonomous drones have turned from the plaything of hobbyists into the stuff of venture capitalists' dreams. Drones now carry out many commercial tasks: inspecting infrastructure, surveying crops, filming videos, transporting medical supplies and, in some places, dropping off shopping and delivering pizzas. But such flights are strictly limited by aviation regulators in order to prevent accidents, especially collisions with manned aircraft. The British government has decided that it is time to give drones the freedom of the sky with the world's biggest "superhighway".

The scheme was announced by Kwasi Kwarteng, the business secretary, at the opening of the Farnborough air show on July 18th, as part of a series of measures to boost aerospace innovations. Known as Project Skyway, the 265km (165-mile) drone superhighway will connect airspace above Reading, Oxford, Milton Keynes, Cambridge, Coventry and Rugby over the course of the next two years. This corridor could later be expanded down to Southampton and east to Ipswich.

As useful as they are, commercial drones are currently not supposed to be flown beyond an operator's visual line-of-sight, or bvlos as it is known. For long flights this pushes up costs, since ground pilots and observers are required along the route. Britain's Civil Aviation Authority (CAA) has authorised some bvlos flights without such restrictions, but the procedures can be tortuous and may involve the closing of nearby airspace. In recent trials the Royal Mail has carried letters to the Isles of Scilly and the Orkney Islands, and the NHS has flown chemotherapy drugs from Portsmouth to the Isle of Wight.

As in other countries, the CAA takes the line that if firms want to operate regular bvlos flights, their drones must be able to detect and avoid both planes and each other, just as crewed aircraft do. Specialist gear is being developed to equip drones to do this, but it will add cost and weight to what are often small machines. The idea of a designated superhighway is that instead of putting such kit in the drones, it can be installed on the ground; this equipment would monitor and communicate with the machines, and automate flights so that they are completed safely.

Project Skyway is backed by a consortium of firms, including Altitude Angel, a specialist in automated air-traffic management, which has been testing the idea with an 8km drone corridor in the Thames Valley. Another partner is bt, which aims to use its telecoms network to link the superhighway to drone operators, who often use apps on mobile devices to fly their machines. bt will also fit the ground sensors to some of its mobile-phone masts.

Drone operators would need to be registered to use the superhighway. It would be set at low altitude, below Britain's busy flight corridors where airliners zoom. But it would be designed to detect general aviation, so that light aircraft and helicopters could pass through the superhighway safely. If a potential conflict is detected, the drone would be instructed to

change its flight path or even land. Operators would be notified and would be able to take manual control of their drone if required. On some estimates, nearly 900,000 commercial drones could be buzzing around Britain by 2030; if so, the superhighway could be as busy as the m25 on a Friday afternoon. Without the queues. ■



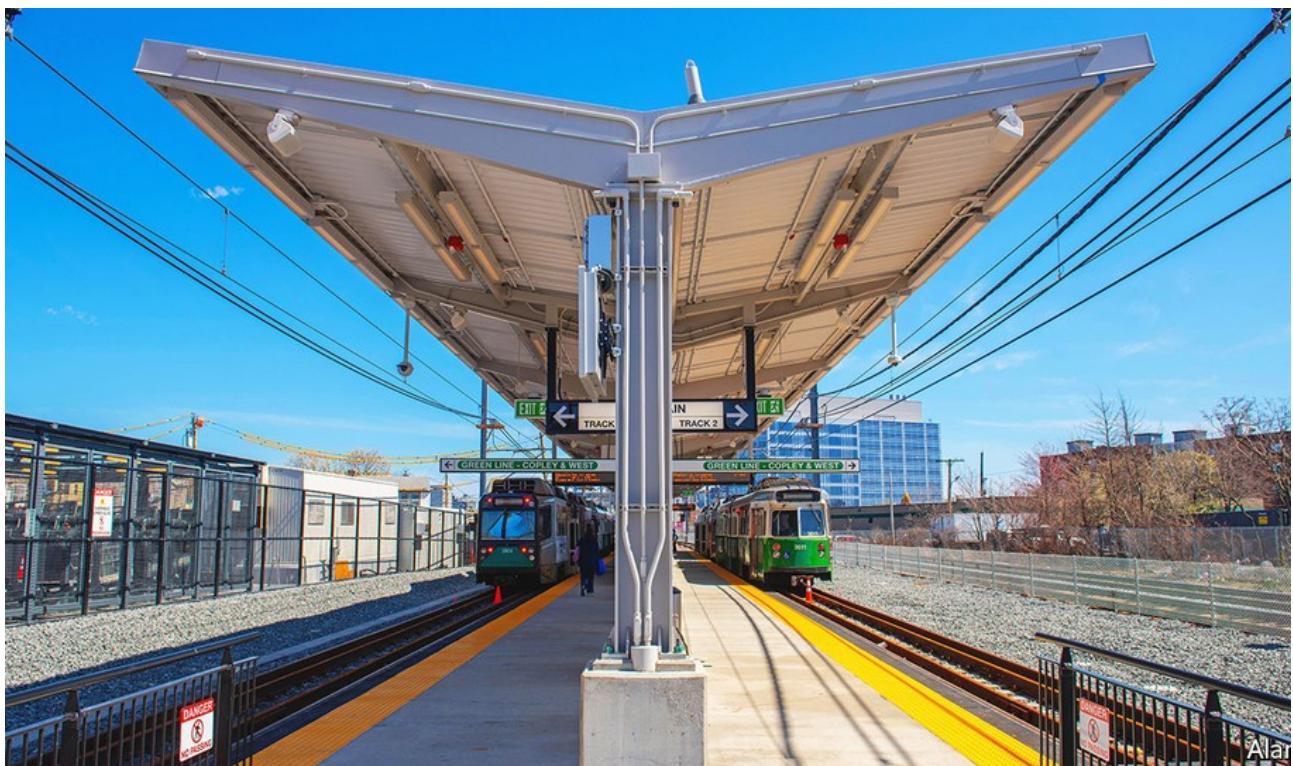
United States

JULY 21, 2022 | 906 words &gt;

Public transport

## Derailed

American public transport is facing a post-pandemic reckoning.



For most of the past decade, Doug Anderson, a bartender, has commuted the 40 minutes from his home in Logan Square in north-western Chicago to his workplace in Streeterville, in the centre, on the city's L train. When his shift ends at 4am he shuts up and heads home. But increasingly, he says, getting back is "a nightmare". At those hours, trains run infrequently; these days they often fail to show up at all, meaning lengthy waits. Mr Anderson's journey often takes twice as long. He does not always feel safe on empty platforms in the early hours, so he sometimes carries a knife.

Chicago's public-transport system is just one of many across America that have been badly damaged by the pandemic. When covid-19 hit America, passenger numbers collapsed. Nationwide, in the second quarter of 2020, they fell to a quarter of what they had been in the same period in 2019. But though bars are now open again, planes packed and roads busier than ever, trains and buses remain relatively quiet. According to the American Public Transportation Association (APTA), passenger numbers in early July were still around half their level before the pandemic. New York City's have climbed back to only around 60% of what they were. In Washington the number of average daily boardings on its Metro so far this year is less than a third of what it was in 2019.

Yet the pandemic could have ravaged America's public transport systems. The number of fares collected plummeted as millions began to work from home. Sales-tax revenues, which in many cities also fund transport, fell sharply early on. But in fact, big cuts to service were avoided on the whole. In many cities fares already covered only a relatively small share of spending, and they could make up the rest from their budgets. Even big older cities, where fares cover a higher share of the costs, were able to benefit from a federal-government bailout of \$70bn through the CARES Act and other laws. As a result, says Yonah Freemark of the Urban Institute, a think-tank in Washington, most agencies did not have to cancel many bus or train services. The Los Angeles Metro system, among others, was even able to stop charging people to use its buses for almost two years.

Transport systems are nonetheless struggling to get back to normal. Earlier this month Dorval Carter junior, the president of the Chicago Transit Authority (CTA), wrote an article in the *Chicago Tribune* apologising for the city's continually sub-par service, which he put down to staff shortages. Many bus and train drivers have left to take more lucrative jobs driving delivery vans; others have retired. Mr Carter has promised to redouble recruitment efforts. Other cities have even bigger problems. In Washington in October, Metro pulled more than half of its trains from the network for safety checks after one derailed. Most of those are not yet back in service, with the result that trains are packed even though passengers are fewer.

Poor service makes it even more difficult to lure riders who have the option of working from home. In Chicago the CTA has experimented with cheaper fares and Metra, the city's suburban commuter rail system, has offered hefty discounts. But as with Mr Anderson, most passengers care as much about reliability, safety and speed as they do about cost. It does not help that systems that were set up to shuttle people in and out of downtowns at rush hour must now adjust to more irregular patterns of travel. Crime has risen, too. Chicago and New York have sent more officers to patrol trains after shootings and other violent incidents. In April, ten subway passengers were shot by a gunman in Brooklyn; remarkably, none died.

Funding is not the issue. More money than ever is available, thanks to the infrastructure act that President Joe Biden signed into law last year. Paul Skoutelas, president of the APTA, enthuses about the possibilities. But he admits that the sector is in its "most vulnerable moment". Knowing what to invest in is tricky. Before the pandemic, bus use had fallen in America for decades, as cars became more affordable for the relatively poorer people who most often travelled by bus. Networks were neglected. By contrast light-rail projects and subway systems thrived, as more white-collar workers commuted to city centres. But since the pandemic they have suffered as those workers have stayed at home, and mostly poorer folk are again filling buses. Bus passenger numbers fell the least among transport systems, and are now closest to pre-pandemic levels. This divergence is creating "existential questions" for public-transport providers, says Leanne Redden, executive director of Chicago's Regional Transportation Authority, such as whether downtown commuting will ever come back, and if transit agencies need to rethink their central purpose.

Another fear is that, even as new projects are drawn up, some passengers may already have disembarked for good. Americans are driving more than they were before the pandemic. That bodes badly for dense cities like Chicago or Washington. Earlier this year Chicago's mayor, Lori Lightfoot, called Chicago a "car city". In fact, before the pandemic, over half of its workers commuted to the Loop, its central business district, and the wider downtown area. Decent public transport helps explain why the city has thrived as competitors such as Detroit or Cleveland declined. If Chicago's is not restored, the city could get into trouble. ■



## Leaders

Jul 21 2022 | 1006 words >

Investment and sustainability

# Three letters that won't save the planet

ESG should be boiled down to one simple measure: emissions



If you are the type of person who is loth to invest in firms that pollute the planet, mistreat workers and stuff their boards with cronies, you will no doubt be aware of one of the hottest trends in finance: environmental, social and governance (ESG) investing. It is an attempt to make capitalism work better and deal with the grave threat posed by climate change. It has ballooned in recent years; the titans of investment management claim that more than a third of their assets, or \$35trn in total, are monitored through one ESG lens or another. It is on the lips of bosses and officials everywhere.

You might hope that big things would come from this. You would be wrong. Sadly those three letters have morphed into shorthand for hype and controversy. Right-wing American politicians blame a “climate cartel” for soaring prices at the petrol pump. Whistleblowers accuse the industry of “greenwashing” by deceiving its clients. Firms from Goldman Sachs to Deutsche Bank face regulatory probes. Although ESG is often well-meaning it is deeply flawed. It risks setting conflicting goals for firms, fleecing savers and distracting from the vital task of tackling climate change. It is an unholy mess that needs to be ruthlessly streamlined.

The term ESG dates as far back as 2004. The idea is that investors should evaluate firms based not just on their commercial performance but also on their environmental and social record and their governance, typically using numerical scores. Several forces have thrust it into the mainstream. More people want to invest in a way that aligns with their concerns about global warming and injustice. More companies, including a sister firm of *The Economist*, offer ESG analysis. With governments often gridlocked, many people feel business should solve society’s problems and serve all stakeholders, including suppliers and workers, not just shareholders. And then there is the self-interest of an asset-management industry never known to look a gift horse in the mouth: selling sustainability products allows it to charge more, easing a long blight of falling fees.

Unfortunately ESG suffers from three fundamental problems. First, because it lumps together a dizzying array of objectives, it provides no coherent guide for investors and firms to make the trade-offs that are inevitable in any society. Elon Musk of Tesla is a corporate-governance nightmare, but by popularising electric cars he is helping tackle climate change. Closing down a coalmining firm is good for the climate but awful for its suppliers and workers. Is it really possible to build vast numbers of wind farms quickly without damaging local ecology? By suggesting that these conflicts do not exist or can be easily resolved, ESG fosters delusion.

The industry’s second problem is that it is not being straight about incentives. It claims that good behaviour is more lucrative for firms and investors. In fact, if you can stand the stigma,

it is often very profitable for a business to externalise costs, such as pollution, onto society rather than bear them directly. As a result the link between virtue and financial outperformance is suspect. Finally ESG has a measurement problem: the various scoring systems have gaping inconsistencies and are easily gamed. Credit ratings have a 99% correlation across rating agencies. By contrast, ESG ratings tally little more than half the time. Firms can improve their ESG score by selling assets to a different owner who keeps running them just as before.

As investors become wiser to such flim-flam, they are growing more sceptical. This, coupled with turmoil in financial markets, is slowing the influx of money into sustainable funds. It is surely time, then, for a rethink. The first step is to unbundle those three letters: E, S and G. The more targets there are to hit, the less chance of bullseye-ing any of them. Regarding S, in a dynamic, decentralised economy individual firms will make different decisions about their social conduct in the pursuit of long-run profits within the law. Tech firms may appeal to the values of young employees to retain them; firms in declining industries may have to lay people off. There is no one template. The art of management, or G, is too subtle to be captured by box-ticking. Britain's listed firms have an elaborate governance code—and dismal performance.

It is better to focus simply on the E. Yet even that is not precise enough. The environment is an all-encompassing term, including biodiversity, water scarcity and so on. By far the most significant danger is from emissions, particularly those generated by carbon-belching industries. Put simply, the e should stand not for environmental factors, but for emissions alone. Investors and regulators are already pushing to make disclosure by firms of their emissions more uniform and universal. The more standardised they are, the easier it will be to assess which companies are large carbon culprits—and which are doing most to reduce emissions. Fund managers and banks should be better able to track the carbon footprints of their portfolios and whether they shrink over time.

## **Unsustainable**

Better information alone will help in the struggle against global warming. By revealing more

accurately which firms pollute, it will help the public understand what really makes a difference to the climate. A growing number of altruistic consumers and investors may choose to favour clean firms even if it costs them financially. And even if they can get away with polluting today, many firms and investors expect that tighter regulation of carbon emissions will eventually come and want to measure their risks and adapt their business models.

Make no mistake, though: tougher government action is essential now. We have long argued for much higher carbon prices that would harness the market to save the planet. Today pricing schemes cover 23% of global emissions, about double the level of five years ago. But far more needs to be done, not least in America. It is government action, combined with clear and consistent disclosure, that can save the planet, not an abbreviation that is in danger of standing for exaggerated, superficial guff. ■



## Science and technology

JUL 22, 2022 | 898 words &gt;

Menstruation and athletics

## Cycle races

Menstrual-cycle coaching may help sportswomen improve their performances



Just 0.63 seconds separated first from fourth place in the women's 100 metres freestyle at the recent Tokyo Olympic Games—a race where the winning time was 51.96 seconds. In light of this and similar facts, it is not surprising that elite athletes are constantly searching for ways to get even 1% better. To that end, they hire strength coaches, nutritionists and sports psychologists. And lately, some female athletes have been trying a new tack: working with menstrual-cycle coaches.

Good data concerning the effects of menstruation on athletic performance are scant.

However, according to four studies conducted in 2020 on more than 250 athletes from a range of sports, more than half of sportswomen believe their performance fluctuates with the phase of their menstrual cycle. In particular, many said they suffered in the weeks immediately before and during menstruation. World-class performers like Fu Yuanhui, a Chinese swimmer, have spoken openly about this, too. And female athletes also report distraction and worry about bleeding while actively menstruating, a matter which made the news recently when a group of activists protested about the all-white dress code at the Wimbledon tennis championships.

There is, as well, the question of safety. Again, this is poorly researched. An exception, though, is damage to the anterior cruciate ligament (ACL) of the knee. Women are much more prone to ACL injuries than men and some studies suggest the level of risk is related to the menstrual cycle.

Given the wide physiological effects of that cycle, the neglect of its consequences for sport is stark. The intricate monthly tango of oestrogen and progesterone, the main hormones which regulate it, has consequences far beyond preparing the body to reproduce. The complexity of this dance, compared with the hormonal stability of men, is one reason for that neglect. But others are that sport is studied largely by male researchers, and male sport is currently more prominent and better paid.

### A dance to the music of time

The menstrual dance is, indeed, complex. For a start, oestrogen is anabolic, building up muscle, while progesterone is catabolic, breaking it down. Then, at the beginning of the cycle, body cells prefer to metabolise carbohydrates. Later on, they prefer fats. During the luteal phase, immediately after ovulation, when both hormones are high, the body is less resilient to stress and more prone to inflammation.

At this point women have increased appetites, higher internal temperatures, higher resting heart rates and higher respiratory drive. They also retain water and salt, causing them to put on weight. Their heat tolerance is reduced, too. And their moods and emotional

regulation suffer. Here, then, is fertile ground for quite a few of those percentage-point improvements. And that is where menstrual-cycle-savvy coaches come in.

One possible tactic is phase-based training, in which a coach adjusts the intensity, volume and type of an athlete's workouts based on where she is in her cycle. Stacy Sims, a researcher at Auckland University of Technology, in New Zealand, recommends athletes increase intensity in the low-hormone follicular phase of the cycle, when the body is primed to bear heavy loads. Later, during the luteal phase, when bodies are less able to adapt to stress, she recommends focusing on steady-state aerobic training to allow proper bodily recovery. This pattern of training, she believes, allows female athletes to push themselves in the most efficient manner.

Such a one-size-fits-all approach may, though, be overly simple. Kirsty Elliott-Sale, a professor at Manchester Metropolitan University, in Britain, thinks there is, as yet, no conclusive scientific evidence to back phase-based training. However, while wary of general guidelines, Dr Elliott-Sale sees the merits of an individualised approach which takes account both of monthly variation within an individual and inter-individual variability.

This latter source of variety may also help explain why conclusive population-level scientific evidence is hard to come by. A regular cycle can last between 21 and 40 days, and the hormonal details—how fast concentrations change, when they peak and how high they peak—vary. Also, different women experience different sensitivities to hormonal changes. Some have no symptoms. For others, the effects may include debilitating cramps, bloating, migraines and depression.

Maddy Cope, a professional climber and coach in Britain, emphasises the need to bridge the gap between where research stands and how athletes feel. She notes, for example, that most research does not translate well to her own discipline.

Climbing is a supremely technical matter, and the tests used in research compare poorly with the actual demands of the sport. Even here, though, a little menstruation-driven

thinking may help. Most good training plans for climbers include exercises of a range of intensities and incorporate a “de-load” week, to allow the body to recover. Menstrual-cycle-informed training in this case might be as simple as arranging for the de-load week to coincide with the stress-sensitive luteal phase.

Menstrual-cycle coaching is, then, in its infancy. But, as women’s sports jostle more and more with men’s for the limelight, and the sums of money involved increase, many more athletes are giving it a go. In this and other areas, female sports-science is a promising field of research, as the fiction that men are the baseline and women an anomaly—a rib, as it were, pulled from the chest of research on men—is put to rest. In sport, as in other areas, it is time for women to unlock their full potential. Period. ■



## Leaders

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The Life-sciences industry

# Growth cure

The lessons of life sciences for Britain's next prime minister.



And then there were two. On July 20th Tory MPs chose Rishi Sunak, a former chancellor of the exchequer, and Liz Truss, the foreign secretary, to battle it out to become their new leader and Britain's next prime minister. The candidates, who will campaign for the votes of Conservative Party members over the coming weeks, agree on at least one thing: Britain sorely needs growth. The 15-year period between 2004 and 2019 was the weakest for growth in GDP per person since the one between 1919 and 1934—and that was before the shocks of Brexit and covid-19.

Boosting Britain's feeble growth will require an honest assessment of what the country does well, not just where it lags behind. That may seem head-smackingly obvious. But it needs saying. The Tories won the 2019 election on the promise of a hard break with Britain's largest trading partner. The big idea of Boris Johnson's government has been levelling up, a scheme to reduce regional inequality that has often seemed more like an excuse to bash successful places. The financial-services industry, one of the country's biggest assets, was an afterthought in Brexit negotiations. Brexit is a fact, and it will yield some opportunities. More should be done to improve the productivity of northern cities. However if the Tories are to be a party of growth again, they must play relentlessly to Britain's strengths.

There is no better example of those strengths—which include scientific excellence, fine universities and a healthy startup culture—than the life-sciences industry. Britain hosts four of the top ten universities in the world in life sciences, all of them within the “golden triangle” of Oxford, Cambridge and London. Enterprise is flourishing. British life-sciences firms raised £4.5bn (\$5.4bn) in 2021, compared with £261m in 2012.

In the National Health Service (NHS), the industry has a major asset: a large cradle-to-grave source of data for clinical trials and drug discovery. This ecosystem rose to the challenge of the pandemic. The Oxford-AstraZeneca vaccine saved more lives—6.3m of them—in the first year of its roll-out than any other jab. The RECOVERY trial, the world's largest trial for people hospitalised with covid-19, went from first protocol to first patient in nine days. British institutions sequenced more than a quarter of all SARS-COV-2 genomes during the pandemic.

Yet the industry faces plenty of obstacles. In theory the NHS ought to be able to act as a centralised buyer of new medicines and products, giving startups a large market to test innovations. But it is often sluggish and stingy, and seldom cohesive. America's competitive health-care market is swifter to adopt new technologies. The time from approval of a medicine to it being available to patients is 120 days in Germany, but 335 days in England. Lack of space is another constraint, particularly in the golden triangle: Cambridge had no

available lab space in 2021, although property developers are now responding. Labour shortages are a worry: the industry says it will need 133,000 new staff by 2030.

Most important, there is not enough domestic growth capital available to young life-sciences and other technology firms. Investors often pull firms towards other markets, notably America, which has more large companies that can buy promising startups. The public markets in America are more hospitable, too. The London Stock Exchange accounts for less than 1% of the capital raised in global initial public offerings so far this year. Its biggest listing for a decade—a toothpaste-peddling spin-off from GlaxoSmithKline, one of two big pharma firms with headquarters in Britain, which took place on July 18th—is instructive. It raised no new money and involved no new technology.

There are technocratic answers to such problems. The gap in growth capital would close if pension funds and insurers were able to put more of their money into venture-capital funds; less than 1% of these assets is currently invested in unlisted equities. The government this week endorsed proposals to smooth public listings. Last year it added the job of lab technician to its “shortage occupation list”, making it easier for foreigners with the right experience to get a British work visa.

Real change requires political will. Getting the life-sciences industry, and the economy as a whole, to grow faster will require the new government to face some hard truths. The first concerns Brexit. Leaving the European Union (EU) does yield some opportunities to liberalise: Mr Sunak wants to streamline the approval process for clinical trials, for example. Yet Brexit throws an awful lot of sand in the gears, too. Britain’s medicines regulator is approving fewer new drugs than its peers in the EU, in part because firms are heading to the larger market first. A bill to override the bit of the EU withdrawal agreement about Northern Ireland threatens British participation in the world’s largest multinational scientific-funding programme. Until the Tories stop treating Brexit as a test of ideological purity, its economic costs will only grow.

Geography is another area where Tory thinking and economic logic collide. In 2021 the

government released a plan it called the “Oxford-Cambridge Arc” to turbocharge connections between the two cities. That scheme was fundamentally wise—the fastest way to get between them by rail now is via London. But it was quietly dropped, in part because it was thought to conflict with levelling up, in part because the government is nervous of building anything that spoils the views from voters’ windows. It is reasonable to worry about governments picking winners; only in Britain has it been policy to pretend winners don’t exist.

The Tory leadership debate about growth has so far focused on tax cuts. Ms Truss thinks an unfunded giveaway would pep up the economy; Mr Sunak argues, rightly, that it would fuel inflation. In making these arguments, both lay claim to the mantle of Margaret Thatcher. But Thatcher was defined above all by her character, not her policies. Hauling the British economy out of a deep rut took steel and stamina. These qualities are needed again today. It is easy enough to talk about the need for growth, much harder to embrace its consequences: difficult compromises with the EU, more money for already-wealthy areas and unpopular planning decisions taken in the teeth of local objections. The fortunate thing is that Britain boasts world-class strengths. It should play to them. ■