

Science & technology

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Points of no return

Earth's climate is approaching irreversible tipping points

Scientists are racing to work out just how close they might be

Aug 14, 2025 01:06 PM

THE AMAZON rainforest is so big that it makes its own climate. As they photosynthesise and transpire, its billions of trees collectively produce enough moisture to form clouds. These, by some estimates, are responsible for at least a third of the rainforest's life-sustaining rainfall. But climate change is disrupting this circular process. The build-up of greenhouse gases in the atmosphere has raised regional temperatures, worsened droughts and increased the risk of fires. All kill trees.

Fewer trees means less rainfall, higher temperatures and yet more fires. Climate-change-induced deforestation therefore risks becoming self-perpetuating. And the more humans with chainsaws do to help things along, the sooner the dire day will come when the forest has shrunk so far that nothing can be done to restore it. Much of the basin will turn into a dry savannah, and the tens of billions of tonnes of carbon dioxide stored there will be released into the atmosphere, further heating the planet.

“Amazon dieback”, as this grim scenario is known, is just one example of what climate scientists refer to as a tipping point: a threshold beyond which self-sustaining processes irreversibly push a part of Earth’s climate system from one state into another. Those who study them think there are many other examples (see chart on next page). These include the breakdown of the vast Greenland ice sheet, which would raise global sea levels by more than seven metres, and the collapse of the Atlantic Meridional Overturning

Circulation (AMOC), the powerful system of heat-distributing ocean currents that keeps northern Europe reasonably temperate. Should AMOC collapse, temperatures and rainfall levels could fall dramatically across Europe, greatly damaging the continent's ability to grow crops.



In the 20-odd years since this way of thinking about the climate became formalised, the scientists involved reckon they have arrived at a decent—though not perfect—understanding of which parts of the climate system are most vulnerable to tipping, and why. Now they, along with politicians and business leaders, are trying to answer other, increasingly pressing questions: how to tell if a tipping point is actually being crossed, for one, and how to prepare for the consequences if it is.

No going back



Current global warming levels*
likely to trigger major tipping points, °C

● <2 ● 2-4 ● ≥4

*Above pre-industrial levels

- 1 ● Boreal permafrost, abrupt thaw
- 2 ● Greenland ice sheet, collapse
- 3 ● Barents Sea ice, abrupt loss
- 4 ● Boreal permafrost, collapse
- 5 ● Arctic winter sea ice, collapse
- 6 ● Boreal forest, northern expansion
- 7 ● Labrador Sea/subpolar gyre, collapse
- 8 ● Boreal forest, southern dieback
- 9 ● Atlantic Meridional Overturning Circulation, collapse
- 10 ● Sahel/west African monsoon, greening
- 11 ● Low-latitude coral reefs, die-off
- 12 ● Amazon rainforest, dieback
- 13 ● Mountain glaciers, loss
- 14 ● West Antarctic ice sheet, collapse
- 15 ● East Antarctic ice sheet, collapse
- 16 ● East Antarctic subglacial basins, collapse

Source: "Exceeding 1.5°C global warming could trigger multiple climate tipping points", by D. Armstrong McKay et al., 2022

The exact level of warming required to trigger any specific tipping point is not clear. Earth's climate is governed by myriad interconnected processes, many of which—like the dynamics governing ice-sheet disintegration, or the potentially cooling effects of wildfires—are only poorly understood. Others, such as the formation of light-reflecting clouds, occur at scales too small to be properly incorporated into planetary models. To further complicate things, one tipping point can trigger another, domino-style. The fresh water released into the oceans from a collapsing Greenland ice sheet, for example, would weaken AMOC, further reducing rainfall over the Amazon.

Model muddle

Different models, therefore, rely on different approximations and make different projections of when tipping points will occur. Some models suggest, for instance, that the Greenland ice sheet could start to enter an irreversible decline once global temperatures are 0.8°C above pre-industrial levels—something that happened around the turn of the millennium. Others put the threshold at closer to 3°C—which might never be reached. Similarly, the Amazon's decline is projected to become unstoppable somewhere between 2°C and 6°C of warming, though it could be greatly hastened if humans keep cutting down or burning trees at current rates.

It may thus be possible to defer the Amazon's tipping point simply by reducing deforestation as much as possible. Averting others, though, depends on the bigger and more difficult task of limiting how much global temperatures rise. And, with the global average now 1.2°C above pre-industrial levels, and projected to breach 2°C by the end of the century, it is unclear how much time is left in which to do so. That makes it ever more important to get a sense of whether any of these tipping points are already being crossed.

In order to help answer that question, Britain's Advanced Research and Invention Agency (ARIA) announced in February that it was going to fund systems that could produce and process the data needed for an “early warning system for tipping points”. ARIA’s initial five-year, £81m (\$109m) programme involves 26 teams focusing on two tipping points in particular: the breakdown of the Greenland ice sheet and the collapse of the subpolar gyre, a circulating current in the north Atlantic which helps power AMOC. If too much fresh water from melting ice flows into the gyre, it could be disrupted, increasing the odds of an AMOC collapse.

Kelly Hogan, a marine geophysicist at the British Antarctic Survey (which, despite its name, is functionally bipolar), is co-leading one of the teams focused on the Greenland ice sheet. They plan to use a fleet of small underwater drones to both map the shape of the ice face and measure properties such as salinity, temperature and the force of currents. These data will shed light on the way temperature and salinity change at the interface between ice and water—things scientists expect to influence melting. They will also deploy robots that can roam the surface of the ice taking measurements and drilled-in sensors for longer-term monitoring.



Other teams are following a similar logic. Oshen, a British startup, intends to deploy small, self-sailing robots with solar-powered sensors in the subpolar gyre, where they will measure such things as sea and air temperature and wind speed. Marble, another British

company, is developing drones that can monitor the position and size of icebergs, the location of the glacier front and the height of the Greenland ice sheet, three variables that are essential to accurately forecast melting.

Both Oshen and Marble say their work is only possible because smartphone technology has made sensors and processing power cheap. Control systems that once required proprietary software can now be run using free, open-source code. And widespread 4G coverage means that data can be transferred quickly. “We’re not inventing some new breakthrough laws in physics,” says Mathieu Johnsson, Marble’s CEO. “We’re exploiting a lot of technologies that have been there for a little while...it’s just that they haven’t been put together in the right way.” Meanwhile, several other ARIA-funded teams—including one led by Tim Lenton, a climate scientist at the University of Exeter and a pioneer of tipping-point research—are working out how these data might inform an early-warning system.

What's next?

For all this to be useful, says Dr Lenton, policymakers need to think more about the consequences of tipping points being crossed, and how societies must prepare for them. Laurie Laybourn, who leads the Strategic Climate Risks Initiative, a British think-tank, agrees. “The mental model of the climate threat among key people—particularly in senior parts of government—has yet to catch up with the fact that the nature of the climate threat includes things like tipping points,” he says. In his view, no government is considering scenarios like ice-sheet collapse with the seriousness afforded to other high-impact risks, such as pandemics. In fact, Mr Laybourn reckons, with the possible exception of the Nordic countries, most governments have not really been thinking about them at all.

For some, talk of tipping points is a harmful distraction. In 2024 an international group of well-known scientists published an article in *Nature Climate Change* arguing that a focus on tipping points diverted attention from the more general need for climate mitigation and adaptation, around which the science is much more certain. Others worry about fostering a sense of fatalism, by framing some catastrophic changes as unavoidable.

Regardless, the concept is slowly but steadily gaining ground. In July a big conference on tipping points in Exeter attracted actuaries, insurers and pension funds as well as scientists and activists. Emergency services and humanitarian organisations are showing increasing interest, too. And so are the Brazilian organisers of COP30, this year's United Nations climate summit, who are expected to place particular emphasis on the subject. The conference is being held in November in Belém, a city dubbed "the gateway to the Amazon". The setting could scarcely be more apt. ■

<https://www.economist.com/interactive/science-and-technology/2025/08/13/earths-climate-is-approaching-irreversible-tipping-points>

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Fires that freeze

Smoke from boreal wildfires could cool the Arctic

But the damage such blazes cause outweighs their benefits

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Much to reflect on

THERE ARE two things which climate scientists hate about “positive feedbacks”. One is that they are bad news. A positive feedback, in the science of complex systems, is an amplification; in climate change, this comes about when a consequence of rising temperatures drives a further rise in temperature. Such feedbacks are the sorts of things that drive [tipping points](#).

The other problem is that they sound like good news. Negative feedbacks face the opposite problem. In a negative feedback, which need not be harmful, a change in the system produces a response that pushes the system back towards where it was. Think of an air conditioner’s temperature setting or a radiator’s thermostat.

A recent analysis by Edward Blanchard-Wrigglesworth of the University of Washington and colleagues suggests that a much more important negative feedback may now be operating in the Arctic, one which could curb the region’s rapid temperature increase and markedly slow the decline in its sea ice. Indeed, it

looks strong enough to have an effect on overall global average temperature.

This particular negative feedback is driven by the increasing frequency, size and intensity of wildfires in boreal forests. The climate models that scientists use to simulate warming over the coming century run on scenarios that assume these fires will continue more or less as they did in the 2000s and early 2010s. Since then, though, they have become considerably larger.

Where there is fire, there is smoke. Some is sooty and dark; some is lighter. Dr Blanchard-Wrigglesworth and his colleagues think that the brighter, more reflective smoke wins out, cooling the ground below. Taking the fire-trend into account, they reckon that, in the 2030s, the extent of sea-ice cover in the Arctic ocean will be at least 3m square kilometres more than it would be in a fire-trend-free model. Without the fire trend, an ice-free Arctic September would be expected in 2050. Fires delay its onset by over a decade.

None of this says that the fires are a good thing, or that they will avert catastrophes elsewhere. Fires are a massive shock to ecosystems, and smoke which reflects sunlight also harms humans and other animals. Moreover, the carbon that fires release will warm the entire planet for some time to come. That is clearly bad news. ■

<https://www.economist.com/science-and-technology/2025/08/13/smoke-from-boreal-wildfires-could-cool-the-arctic>

Eyes in the sky

Drones could soon become more intrusive than ever

“Whole-body” biometrics are on their way

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FOR ALL the impressive tasks that drones can do, there is one that remains beyond their power: facial recognition. Drones are generally much farther from their subjects than the kind of cameras, such as CCTVs, that are ordinarily used for biometrics. At these distances a face may consist of only a few dozen pixels. Atmospheric turbulence caused, for example, by rising hot air, can distort features like the distance between one's eyes. And because they record from the sky, drones' on-board cameras may capture only a partial view of a face (or, if someone is wearing a wide-brimmed hat, none at all).

But new technology from a team at Michigan State University (MSU) seeks to change all that and extend the spying powers of artificial intelligence (AI) into the skies. The system, known as FarSight, suggests that long-range aerial surveillance could soon become far more accurate—and intrusive—than ever before.

The project is funded by the Intelligence Advanced Research Projects Activity (IARPA), part of the American government responsible for marshalling fanciful spy-gadget ideas into real-world use. Other current IARPA projects include an effort to build a device that can modulate a voice in real-time in order to avoid detection by speech-recognition tools, as well as an initiative to make snooping devices small and pliable enough to be woven directly into clothing.

FarSight works with a similarly crafty technique known as “whole-body biometric recognition”. Rather than trying to recognise a subject from their face alone, the system uses a combination of biometric-recognition algorithms that run in parallel.

One set of algorithms discerns a person’s gait. Another generates a 3D reconstruction of their body. Xiaoming Liu, a professor of computer science and engineering at MSU who leads the project, likens it to essentially undressing subjects in order to generate an accurate model of their anatomy, regardless of what they happen to be wearing.

A third set of algorithms runs the subject’s face through a turbulence model that seeks to undo the refractive effects of the choppy air on the light that comes into the camera. This returns the image gathered by the drone to a simulated undistorted state, from which a detailed mapping of the subject’s features is then extracted.

Once captured, the three biometric markers—gait, body shape and face—are fused into a combined profile. This profile can be matched to those of known individuals or, if the target is new, saved for future matching. The entire operation happens in about a third of a second, says Dr Liu. His team is working to scale down the system so that it could fit on a quadcopter

Though it is still an experimental system, FarSight’s early results are impressive. The National Institute of Standards and Technology (NIST), America’s standards body, which has been rating facial-recognition systems for more than a decade, tested FarSight on a set of tricky low-resolution images and videos collected at hundreds of metres, in many cases from a high angle. FarSight outperformed all other systems tested on the same set.

The project also illustrates how large vision models (LVMS), a variant of large language models, could be useful for surveillance. The MSU team used CLIP, a model made by OpenAI, to annotate

images of thousands of subjects with textual descriptions—"Muscular-slender, long torso", "Short torso", "High-waisted", "Low-waisted"—which it then used to train the body-shape reconstruction system. The gait-recognition feature is based on a different large vision model, called DINOv2, which was released last year by Meta.

Dr Liu says that LVMS could have even broader applications in the years ahead. This is because LVMS achieve high-performance recognition without requiring big training-data sets, which are difficult and expensive to produce. FarSight's training and testing data, much of which were collected by Oak Ridge National Laboratory, a scientific-research facility, consists of 876,000 videos and photos of about 3,000 subjects. An LVM, by comparison, is already pre-trained on billions of images and videos, and may require only minimal fine-tuning before it can be used for surveillance-video analytics.

FarSight is not yet ready for the field. Although it outperforms other systems on long-range recognition, its accuracy, as well as its false-positive and false-negative rates, remain "far behind the performance that would be required to make the system deployable", says Josef Kittler, a professor working on biometrics and computer vision at the University of Surrey, who was not involved in the research.

The system has other limitations, too. A person's gait, for instance, can change drastically if they carry a heavy load or have suffered an injury, says Dr Kittler. In a second NIST test on a wider data set, FarSight was not the best performer. Dr Liu says that FarSight's performance also drops considerably if the camera's angle is very high, if the weather is warm (which causes fiercer turbulence) or if the distance to the target exceeds a kilometre.

Should these shortcomings be resolved, though, it is not hard to imagine how such a system might end up overhead. According to

contracting documents, IARPA is looking to create a technology not only for drones but any high or distant camera, such as those mounted on tall buildings or border-surveillance towers. The agency has noted that the outcomes of the programme—which is known as BRIAR and has at least one other active research team, led by an American company called Science and Technology Research—are also intended for “protection of critical infrastructure and transportation facilities”.

“That implies its routine use on civilian populations,” says Jay Stanley at the American Civil Liberties Union, and “creates serious risks of abuse and chilling effects on people’s sense of freedom”. In cities like London or New York, where CCTV cameras are ubiquitous but not contiguous, whole-body recognition could help track individuals across long distances. Veritone, an American company, already markets a system that can match individuals according to such attributes as body shape and hairstyle. In May the company’s boss, Ryan Steelberg, told *MIT Technology Review*, a magazine, that the tool could be useful in cities where facial recognition is banned.

Those who take matters of privacy into their own hands might also find their personal powers of evasion diminished in the face of whole-body biometrics. Someone wishing to evade a tool like FarSight could no longer just rely on an outfit change or a big hat. They would also need to adjust their gait and, somehow, present a different body shape to cameras. In other words, Dr Liu says, “the whole enchilada”. ■

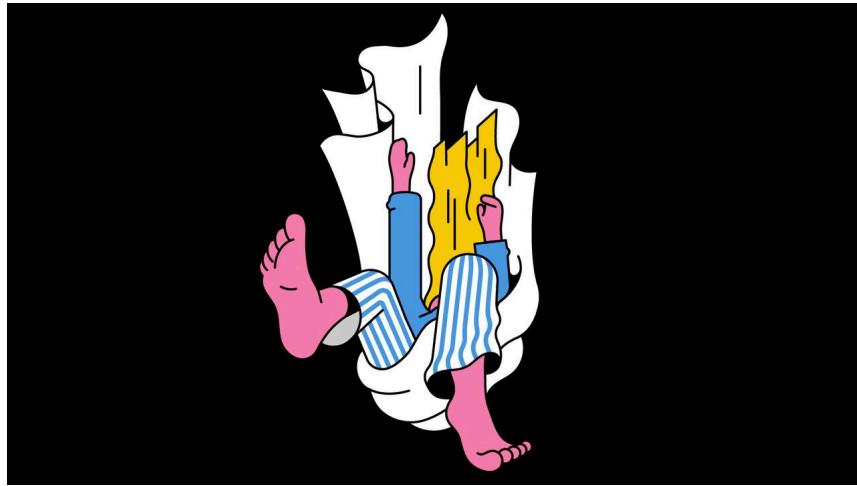
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Sweet dreams

Are nightmares bad for your health?

If you have them often, the answer seems to be yes

Aug 14, 2025 01:06 PM



NIGHT HAGS and night mares. Succubi and incubi. Sleep has long been a demon-haunted world. In olden days such visitations were thought to drain the dreamer of life-energy and, though modern science has no truck with actual demons, the fear that bad dreams somehow sap a dreamer's health has not vanished. Instead, it has been confirmed.

Almost everyone has nightmares. But it is among those who have them weekly—somewhere between 2% and 6% of the population—that connections with ill-health seem to arise.

Some links are to be expected. Depression, anxiety, schizophrenia and post-traumatic stress disorder, for example, all have nightmares as a common symptom. The same goes for chronic pain. But other connections are more mysterious. Research by Abidemi Otaiku, now at Imperial College London, suggests that nightmares may warn of neurological illnesses, such as Parkinson's disease and dementia. And other groups have shown that other conditions

including cardiovascular problems and autoimmune diseases like lupus, seem linked to nightmares, too.

Worst of all, nightmares may kill. Dr Otaiku's most recent work, presented in June at a conference in Helsinki, shows that frequent nightmares are stronger predictors of early death than smoking, obesity, poor diet or sloth.

Dr Otaiku reached this conclusion by analysing six long-term studies from America and Britain, involving more than 180,000 adults and almost 2,500 children. Those with frequent (at least weekly) nightmares were three times more likely to die before the age of 70 than those who had them less than once a month. Out of 174 people who died prematurely, 31 had frequent nightmares.

Part of the explanation is his finding that the chromosomes of the nightmare-prone show signs of accelerated ageing, perhaps brought about by the stress hormones nightmares are known to promote. These chromosomal effects, he reckons, are responsible for about 40% of the increased risk of premature death in those prone to nightmares. Where the other 60% comes from is unknown.

All of which suggests paying attention to nightmares is a good idea. Where they are a symptom, they can warn of trouble ahead. And where they are a cause, treatments to reduce nightmares can be undertaken as a priority.

That is not to say the two are always easy to distinguish. In the cases of depression, anxiety and so on, nightmares are both symptom and cause. Bad dreams triggered by psychiatric disturbance induce stress that reinforces the underlying problem.

Something similar is probably also true of lupus, in which the immune system attacks healthy organs, including the brain, promoting inflammation. That may well trigger nightmares, with

any stress hormones released as a consequence then likely to make things worse.

In conditions such as Parkinson's and dementia, though, which are the results of specific types of neurological damage, nightmares are unlikely to be anything other than symptomatic. By contrast, for cardiovascular problems they are probably causes, not consequences. The stress they create will encourage blood-vessel-damaging inflammation.

Treating nightmares is harder than spotting them. Psychotherapy may help some. And certain drugs, such as prazosin (ordinarily used to treat high blood pressure), may assist. But the study of nightmares remains an underexplored field of medicine. That needs to change.■

<https://www.economist.com/science-and-technology/2025/08/08/are-nightmares-bad-for-your-health>

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Roman, not ruins

The largest dig in a lifetime is under way in Pompeii

What lies beneath the pumice in the ancient city is magnificent

Aug 14, 2025 01:06 PM | POMPEII

WAS HE HER lover? The two skeletons, male and female, were clearly physically close when they died: she on a bed, he on the floor. [Archaeology](#) offers other hints. She seems to have been richer (or at least was carrying gold); they spent their last hours together (debris trapped them in the room); those hours were terrible (he, his injuries show, died first). Archaeology offers one final clue: their ages. She was in her 30s or 40s; he in his teens or early 20s. Perhaps they were lovers, or mother and child, or total strangers. Even at the distance of 2,000 years you find yourself hoping she did not watch her own son die.

Welcome to Pompeii. This is the ancient city both as you have seen it before—graffiti, [frescoes](#), tiles, toilets and some highly enviable terrazzo—and as you have never seen it before. The largest dig in 70 years is under way: 3,200 square metres have been uncovered and innumerable tonnes of soil, rubble and pumice have been moved. In them are, so far, three houses, a bathhouse, a fresco that looks so like a [pizza](#) that archaeologists call it the “not-pizza” fresco, five human skeletons and, this being Pompeii, lots of phalluses.

The dig feels faintly surprising, less for what is being found (little has been able to surprise archaeologists since Pompeii’s infamous god-having-sex-with-a-goat statue was unearthed in 1752) than that there is anything left to be found at all. Pompeii feels so familiar: it has appeared in films (“POMPEII” in 2014) and fiction (Robert

Harris's "POMPEII") and non-fiction ([Mary Beard's](#)—guess what—"POMPEII").

In the three-odd centuries since excavations began, it has been used—and, critics say, abused—by almost every generation. It has been used as a stone quarry (nice stones) and a classical one (nice statues). It has been held up as a parable of sexual liberty (its frescoes); sexual immorality (that goat) and debauchery (ditto). It has been seen as a paradigm of [civilisation](#) (its plumbing) and barbarism (its slavery).

Every generation has offered a reaction: Christians tutted at it; Mussolini had dinner in it; Professor Beard metaphorically winked at it. It is often called a "lost city" but few cities have had such exposure per square metre. Its art is found on fridge magnets and its mosaics made into doormats. The city has been recast as a souvenir. So much of Pompeii is known that it is easy to forget how much is not known: one-third of Pompeii is still unexcavated.

That is obvious once you look closely. Walk through the popular bits of Pompeii—past the theatre, amphitheatre and brothel—and keep going and you will find yourself in quieter streets with fewer people and more pigeons. There are shopfronts here too, but their windows open onto a wall of earth: nothing seems to be behind them. These are the undug streets.

But, after an injection of EU cash, archaeologists started digging in 2023. The dig is "complicated", says Gabriel Zuchtriegel, the director of the site and author of "The Buried City", a recent book. If you were to add an archaeologist to your novel, you would add Dr Zuchtriegel: German, handsome, he is fluent in three languages and mildly forbidding in all of them. (To cheer himself up, he reads the New Testament in ancient Greek.) Ask him his feelings on uncovering this stuff and he says "nothing": you are just "so concentrated". The epigraph of his book comes from Herman

Melville's diary: "Pompeii like any other town. Same old humanity. All the same whether one be dead or alive."

To call this a "dig" is to underplay the speed of it. Pompeii offers some of the finest archaeology in the world; it also offers some of the fastest. When Vesuvius erupted in 79AD, sending a cloud of ash 32km into the sky and surprising the locals—who not only did not know that Vesuvius was a volcano, but had no word for "volcano"—what fell on Pompeii was not lava but pumice stones, so light that locals, as Pliny the Younger, a Roman writer watching from a nearby villa noted, "tied pillows over their heads...for protection".

The stones kept falling at a rate of 15cm an hour. In three hours, they reached people's knees; in six, the height of a toddler. Most people fled—perhaps 90% escaped. Those who sheltered and stayed became, like the skeletons in the house, trapped. Their room, says Sophie Hay, an archaeologist, "became their tomb". Walls started to collapse under the weight (one killed the young man). Then the volcanic cloud collapsed and a wave of superheated pumice, gas and ash raced, at speeds of 100kph and temperatures of over 200°C, down the slope. In Pompeii, people suffocated. In Herculaneum, people's brains boiled.

It is hard to imagine a more appalling end—or, for archaeologists, a better one. The grains of pumice beneath were so light and dry that they protected all they fell on; so easy to remove that archaeologists, says Dr Hay, call it "Amazon packaging material". You less excavate Pompeii than unbox it, brushing grey, frozen-foam crumbs of pumice from a fresco here and shovelling it out of a swimming pool there. In days columns start to emerge, inverse Excaliburs, from a slowly sinking lake of grey.

The problem with Pompeii is not getting stuff out: it is keeping it upright once you have. The same pumice-pyroclastic one-two that caught bodies as if in freeze-frame—this one clawing at a throat, or

that little boy writhing—caught buildings in the same way. A shattered column or wall mid-fall can be wholly held up by pumice. Take it away and, like a game of giant Jenga, the whole thing might fall. A cat’s cradle of scaffolding winds its way around the walls (see picture). Dr Zuchtriegel likens digging to performing “a complicated operation”.

It has been worth it, as what has been found is breathtaking. That is partly because, like so much else in Pompeii, it is [untouched by time](#) and partly because, like very little else in Pompeii, it is untouched by archaeologists. Pompeii’s relics have suffered as much from enthusiasts as eruptions. The Bourbons plundered Pompeii (you can still see the holes, cut as if by giant mice, in the walls). Napoleon’s sister, Caroline, planned, with [Napoleonic](#) efficiency, to uncover it all in three years. Everyone has stolen from it.

Buried treasure

The new excavations, by contrast, are pristine. A bathhouse has such perfect curved steps on its plunge pool you could imagine slipping into it today. A nearby wall is painted with such rich pigment you might find it on a Farrow & Ball colour chart (“Cataclysmic Ochre”). Many of the houses are mid-refurbishment. In one, roof tiles sit stacked, ready, on the floor; a builder’s plaster-splashed bucket waits by a wall. Archaeologists play a game—a Roman Rightmove—of which house is nicest: the not-pizza-fresco one? The baths one?

It is a bit of fun. But there is a ghoulish guiltiness to ogling Pompeii. Posterity accuses the Bourbons of “collector syndrome”—the urge to acquire antiquity. But, Dr Zuchtriegel suggests, tourists are guilty of it too, acquiring experiences as greedily as Bourbons snatched artefacts. Millions visit each year, sweating across its forum, smirking in the brothel where the audio guide tells you about “la vie sexuelle de Pompéi” in nine

languages. Dr Zuchtriegel has limited the daily number of visits to 20,000, down from 36,000.

He would prefer people not to tick off lists but to look at one thing, carefully. Which thing? He shows a favourite: in a small house there are little charcoal drawings of some gladiators. When they first uncovered this last year, they thought it might have been a stylised adult's drawing. Then they dug further and found that the artist had, in their way, autographed it, drawing round their own hand in charcoal. To judge from the size of the hand, the artist must have been six or seven. When they see it, everyone does the same thing, Dr Zuchtriegel says: they stretch out their own hand to hold it over where the Pompeian child put theirs. Same old humanity, whether one be dead or alive. ■

<https://www.economist.com/interactive/culture/2025/08/14/the-largest-dig-in-a-lifetime-is-under-way-in-pompeii>

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On the case

Bombs, dinosaurs and UFOs: Luis Walter Alvarez's eclectic career

He won a Nobel prize in 1968 for his work on particle physics. But his interests ranged far beyond that field

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Collisions. By Alec Nevala-Lee. W.W. Norton; 352 pages; \$31.99 and £23.99

LUIS WALTER ALVAREZ'S career was marked by two explosions. The first was one the physicist enabled: a plutonium bomb, whose design he oversaw, destroyed the Japanese city of Nagasaki in [August 1945](#). The second was one he theorised: the terrestrial impact 65m years ago of an asteroid sufficiently powerful to drive the dinosaurs to extinction. It may be for the asteroid theory—developed alongside his son and widely accepted after his death—that Alvarez is best remembered, rather than his groundbreaking contributions to the Manhattan Project.

Yet, as a new biography by Alec Nevala-Lee shows, Alvarez's scientific contributions extended far beyond even those two projects. He developed airborne radars that are sometimes credited

with winning the second world war, as well as enabling the Berlin airlift. His work on particle physics won him the Nobel prize in 1968.

Mr Nevala-Lee calls Alvarez “the world’s foremost scientific detective”. (The author’s previous book was about Buckminster Fuller, another polymath.) The list of mysteries on which Alvarez consulted would have raised even [Sherlock Holmes’s](#) eyebrows. Alvarez investigated the assassination of [John F. Kennedy](#), looked into unidentified flying objects and searched the [pyramids of Giza](#) for hidden chambers.

His interest in science developed early, in part because both his father and paternal grandfather, an immigrant from Spain, were doctors. A bright student—so unlikely to make mistakes that he completed his maths exams in pen, not pencil—he graduated from high school at 17 and enrolled at the University of Chicago in 1928. Alvarez’s arrival could not have been better timed. Nuclear physicists in those decades were the first to set foot on a new scientific continent: any experiment might yield a Nobel-prizewinning discovery. Moving fast and fearlessly was the only way to build a reputation, even if it meant exposure to dangerously high doses of radiation. Alvarez never stopped getting his hands dirty.

His combination of ambition, intellect and self-belief meant he was not always easy to get along with. One early collaborator described him as a “little fascist”; another deplored his manner of treating colleagues as servants. Frustrated by his frosty reception among palaeontologists, he dismissed them as stamp-collectors rather than real scientists. Alvarez’s dedication to his work also strained his relationship with his first wife, Geraldine, a brilliant mind herself.

Most notably, he clashed with J. [Robert Oppenheimer](#), the scientific director of the Manhattan Project, whose alleged communist sympathies led to a hearing and the revocation of his national-

security clearance in 1954. Alvarez was one of Oppenheimer's most persistent critics, which Mr Nevala-Lee attributes to Oppenheimer's post-war change of heart with regards to the use of atomic energy for war. (Alvarez considered the development of a thermonuclear bomb to be a national priority.) Whatever his motivations, there is little doubt that Alvarez's testimony helped him make friendships with powerful figures in Washington that would subsequently benefit his career.

Unsurprisingly, Alvarez was particularly proud of his Nobel prize, awarded for his work designing a new generation of bubble chambers: giant vats of liquid hydrogen in which the paths of individual particles could be observed and photographed. No less noteworthy to Alvarez was the fact that his award citation was the longest ever for a Nobel prize in physics. (The record would not be broken until 2013.)

In a fast-moving career spent pushing the boundaries of what was known and what was possible, it is remarkable how rigorously Alvarez vetted his own reasoning. That tendency to look for trouble, inculcated by a university instructor who encouraged students to secretly interfere with each other's experimental set-ups, saved him from embarrassment on multiple occasions. In an age where people are all too prone to believing what they wish to be true, rather than challenging their own assumptions, it may also be the most important lesson his example can offer. ■

<https://www.economist.com/culture/2025/08/14/bombs-dinosaurs-and-ufos-luis-walter-alvarezs-eclectic-career>

World in a dish

Private chefs are spilling the culinary secrets of the super-rich

On social media they serve recipes with a side of celebrity intrigue

Aug 14, 2025 01:06 PM



“**M**Y CELEBRITY CLIENT wants a \$2,000 pizza,” Brooke Baevsky (pictured), a private chef, tells the camera. How do you prepare such a pie? Add lashings of [caviar](#), organic figs and manuka honey, then dust everything with 24-carat gold flakes, which are tasteless in both senses of the word.

The [pizza](#) was the appetiser for a posh dinner party in Los Angeles. Ms Baevsky—who says she cooks for royalty, sports stars and actors—made sure to record herself serving the pizza, lest anyone think it was satire. Known online as Chef Bae, she is part of a batch of private chefs offering their followers a chance to ogle opulence.

Private chefs serve up their recipes with a side of celebrity intrigue. They give fans tours of gargantuan fridges and record trips to fancy food shops such as [Erehwon](#) and Citarella. Ms Baevsky says a client spent \$20,000 to send her across the world to fetch some favourite [chocolate](#) and nuts. Emily Ruybal serves four-course

menus on yachts in the Bahamas. All this draws in viewers: the hashtag #privatechef has been viewed some 5bn times on TikTok.

In the summer many private chefs head to the Hamptons, an upscale coastal resort near New York. Private chefs such as Meredith Hayden, whose username is @wishbonekitchen, have gone viral for video diaries of 17-hour catering shifts. According to TikTok the “Hamptons aesthetic”, a style of decor inspired by the luxurious beach houses, is one of the trends of the moment.

Menus in the Hamptons typically involve salad leaves rather than gold ones, harvested by hand from immaculate [vegetable gardens](#). As Jill Donenfeld, co-founder of The Culinistas, an American private-chef agency, puts it, clients not only seek “caviar and lobster” but also simple “farm-fresh ingredients”. The firm’s most popular dish is its “burrata bar”, in which the creamy cheese is heaped with toppings such as prosciutto, peaches and pistachios. Some clients ask chefs to make the dishes served at their favourite restaurants.

The industry has benefited from its [viral moment](#). The Culinistas says business in the Hamptons this summer is up by 40% from the year before. (It costs around \$50,000 to hire one of its chefs for the season.) The rich and famous are seeking out chefs they see on their Instagram feeds. In turn, private cheffing—a career long seen as inferior to *chefs de cuisine*—is being taken more seriously by culinarians.

Yet not much is private about TikTok’s private chefs. In a business that often demands discretion, Ms Baevsky notes how “fun” it is to make videos with Hollywood clients such as Emma Roberts and Sarah Michelle Gellar. Some chefs are now celebrities themselves. Ms Hayden’s “The Wishbone Kitchen Cookbook” is a bestseller. She has quit the long shifts and bought her own house in the Hamptons. Perhaps, in time, she will hire a private chef. ■

<https://www.economist.com/culture/2025/08/11/private-chefs-are-spilling-the-culinary-secrets-of-the-super-rich>

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Donnie, Rudy, Al and the gang

The four years when old New York died and a new one was born

Some of America's most outlandish politicians also made their debuts in 1986-89

Aug 14, 2025 01:06 PM



The Gods of New York. By Jonathan Mahler. *Random House*; 464 pages; \$32. *Hutchinson Heinemann*; £25

MIKE BLOOMBERG once mused that [New York](#) was “a luxury product”. The former mayor meant that businesses—and, by extension, their staff—should be willing to tolerate higher costs in exchange for the advantages of living in a megacity. But many voters crave Manhattan buzz at Midwestern prices. This is one reason why New York’s Democrats recently backed a young, charismatic, far-left mayoral candidate, [Zohran Mamdani](#), whose plans to ease the cost of living (such as a rent freeze) would surely make things worse (by discouraging new construction).

Because New York has been tolerably well run since the 1990s, some New Yorkers have forgotten how much damage a dysfunctional city government can do. New York nearly went

bankrupt in 1975, after decades of financial mismanagement. By the early 1980s crime and homelessness were visibly out of control. “Squeegee men” menaced motorists while purporting to clean their windscreens. Vandals and [graffiti artists](#) despoiled public spaces unchecked. The police were inept and sometimes corrupt. Between 1986 and 1989 an average of 1,760 people were murdered each year: nearly five times as many as were killed in 2024. AIDS, crack, racial tension, welfare fraud and cronyism added to the sense of chaos. Yet in “The Gods of New York”, Jonathan Mahler—a writer for *New York Times Magazine* and author of “Ladies and Gentlemen, the Bronx Is Burning”—argues that “luxury” New York was born in those four turbulent years.

Part of the pleasure of this book, especially for readers too young to remember the late 1980s, is that it chronicles a time when several important American political figures first strode onto the public stage. Here is [Donald Trump](#), suing everyone, puffing out clouds of bluster and braggadocio, wildly overspending on his Atlantic City casinos and taking up with Marla Maples while still married to Ivana.

There is Al Sharpton, a rabble-rouser leading street protests—a rather different figure from the slender, sober-suited version who appears on network TV today. Here is Rudy Giuliani (pictured), with “the demeanour of an undertaker and the verbosity of a lawyer”, as one columnist wrote, making his first failed run for mayor. And an ambitious young medical bureaucrat named Anthony Fauci faces withering criticism from gay activists for what they see as his too-cautious response to the spread of AIDS. (Readers may wonder whether the long lockdowns he recommended during covid-19 were an overcorrection.)

Mr Mahler paints a portrait of a city facing multiple crises. AIDS was at first not just a death sentence but also a terrifying mystery, as healthy young men swiftly sickened and died. New York accounted for one-third of America’s recorded AIDS deaths by

March 1987, and the city's response was woefully inadequate, with too few beds and tests, and public nursing homes that would turn infected patients away, for fear of contamination. New York's efforts to deal with homelessness were similarly flat-footed.

Race relations were dire. Black men were murdered for setting foot in white enclaves of Brooklyn and Queens. Five black and Latino teenage boys were falsely convicted of beating and raping a jogger in Central Park; Mr Trump took out newspaper adverts urging New York to bring back capital punishment. In 1984 a vigilante was acquitted of attempted murder after shooting four black teenagers who he thought were about to mug him—and became a folk hero to many white New Yorkers.

Presiding over the chaos was Ed Koch, first elected mayor of New York in 1977. Querulous, combative and tireless, he said he wanted to be “mayor for life”. Mr Mahler recounts his political demise. He was an avatar of an older New York—more working-class, with political control wielded by “white ethnics” (largely Italian, Irish and Jewish Americans)—and he failed to understand or respond to a changing city. Elected for a third term in 1985, he would lose the Democratic primary in 1989 to David Dinkins, the staid and courtly Manhattan borough president who would go on to become New York’s first black mayor.

The city’s economic engine also changed in this period; the industrial base was gone, and [Wall Street’s](#) boom in the 1980s presaged the rise of FIRE—finance, insurance and real estate—that would drive the city’s remarkable growth through the 1990s and beyond. As the crack epidemic ebbed, and as policing improved when Mr Giuliani was mayor (1994-2001), New York grew safer and more desirable. Rents soared as people flocked in.

Mr Mahler’s book is skilfully constructed and vividly written. The author avoids the longtime New Yorker’s trap of nostalgia. As with all great cities, things are always dying and being reborn: anyone

who wants placidity is free to catch a flight to Bruges or Santorini.



<https://www.economist.com/culture/2025/08/12/the-four-years-when-old-new-york-died-and-a-new-one-was-born>

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Digital media

What's your preferred playback speed: 1x, 1.5x or 2x?

Young people, in particular, want audiobooks, podcasts and videos to go faster

Aug 14, 2025 01:06 PM



GLEN POWELL, a Hollywood heartthrob, likes 1x listening speed: “I want to hear people talk at a normal human rate.” Bowen Yang, an American comedian, prefers his narration fast and loose—“You can round up to 2x”—though he reckons 1.8x is the perfect “Goldilocks” pace.

Both men appeared in an advert by Audible, an [audiobook](#) platform, earlier this year, which featured various celebrities talking about the speed at which they listen to their chosen titles. It provoked fierce debate online for implying that those who make haste are weird, even psychopathic. “I listened [to] your judgmental ad on 2x speed,” one TikTok user said. Some claimed to feel “shamed” by the advert and threatened to cancel their subscriptions.

The online brouhaha points to the changing way in which audiences, particularly young ones, engage with [digital media](#). Polling by *The Economist* and YouGov found that 31% of Americans between the ages of 18 and 29 listen to audio at playback speeds faster than 1x, compared with 8% of people aged 45 and over.

Both Apple and Spotify offer users the option to dash through podcasts. Many newspapers—including this one—offer audio versions of their articles at a variety of tempos. Netflix has a button to switch up videos' speed in its web pages and apps. [YouTube](#) has a similar feature and recently rolled out a 4x option for its premium subscribers, apparently by popular demand.

The time-saving benefits can be enormous: YouTube claims that its viewers collectively save more than 900 years per day thanks to its fast-playback feature. If you had a ten-hour journey, you could listen to “[Persuasion](#)” in eight hours and 13 minutes at 1x speed. But, if you clicked 1.5x, you’d hear all about Anne Elliot’s exploits in five and a half hours, leaving space for “Animal Farm” and “The Little Prince”, with time to spare (they would take 120 and 80 minutes at 1.5x, respectively).

A more garrulous pace does not seem to affect listeners’ ability to concentrate. The average person speaks at a rate of about 150 words per minute, but most brains are capable of processing information faster than that, says Marcus Pearce, a cognitive scientist at Queen Mary University of London. A recent meta-analysis led by academics at the University of Waterloo in Canada looked at the test scores of students who had watched lectures back at varying speeds. They found that up to 1.5x there was not much of a difference in performance, although scores started to decrease noticeably as playback speeds approached or exceeded 2x.

For audio and video platforms, there is no downside to offering different playback options: the more books or episodes a subscriber

gets through, the better the advertising and sales revenues. But for listeners, the experience differs greatly between 1x and 2x.

“There’s an art of pacing, tone and suspension” to reading aloud, says Kimberly Wetherell, an audiobook narrator. “If you speed that up too much, you’re losing that part of the performance.”

Rhetoric often relies on rhythm and pauses for emphasis and meaning: few actors race through the soliloquies in “Hamlet”, for instance. Yet for many, to speed or not to speed is no longer a question. ■

<https://www.economist.com/culture/2025/08/13/whats-your-preferred-playback-speed-1x-15x-or-2x>

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From hero to zero

Thought John Proctor was one of the good guys? Think again

A hit Broadway show brings “The Crucible” into the era of #MeToo

Aug 14, 2025 01:46 PM | NEW YORK



ON BROADWAY, AMONG the jukebox musicals turning out the old hits, the stage adaptations of blockbuster films and the star-studded revivals with eye-wateringly [expensive tickets](#), a new play with a single set and a mostly teenage cast has been quietly packing the house night after night. Audiences have been leaving the Booth Theatre stirred and tearful.

“John Proctor is the Villain” is about a classroom of clever high-schoolers who grapple with “The Crucible” in the wake of #MeToo. It opened to acclaim in April and was meant to close in early July, but popular demand kept extending its run. It will vacate the stage in September only because the theatre has another play on deck, but Universal has recently picked up the film rights and tapped the talented young playwright, Kimberly Belflower, to adapt her sharp script for the screen. Schools and universities across America are licensing the play for their own productions.

Ms Belflower wrote and set the play in 2018. In October 2017 [Harvey Weinstein](#), a Hollywood producer, was accused of sexual abuse by multiple women, setting off a tidal wave of allegations against powerful men. Women across the world shared their experiences of harassment and violence; voices long silenced were suddenly heard and even believed. It was a thrilling moment and an alarming one, in which long-standing rules about sex and power were being rewritten in real time.

This is the charged atmosphere in which the teenage girls in a one-stoplight town in Georgia grapple with [Arthur Miller's take](#) on the Salem witch trials of 1692-93. It is a classic play their energetic and beloved teacher, Mr Smith (Gabriel Ebert), says features “one of the great heroes of the American theatre” in John Proctor, a married farmer who is doomed to hang for refusing to falsely confess to witchcraft. Proctor’s resolution and refusal to provide untrue testimony was seen as especially admirable when “The Crucible” was first staged in 1953. It was the height of McCarthyism—a time when many were baselessly accusing their fellow Americans of communist ties or sympathies.

The consensus view that Proctor is a hero conveniently overlooks the fact that the play’s drama stems from an affair Proctor had with a 17-year-old orphan girl named Abigail, who worked for him as a servant before she was fired over their romance. In the cold light of 2018, this aspect of Proctor’s behaviour seems dishonourable at best. “I think he sucks,” says Shelby, one precocious student (played originally by Sadie Sink, of “[Stranger Things](#)” fame, and now by Chiara Aurelia).

This ensemble play is rich with vivid, well-developed characters, but in many ways it is Shelby’s story—though it takes around 30 minutes for her to make her entrance. Much of the play involves learning just why Shelby has good reason to identify with Abigail, whom Proctor dismisses as a vengeful “whore”. In the same classroom where Mr Smith teaches both English and sex education,

the other girls meet after school at their new “feminism club” to talk about [Taylor Swift](#), sex, the hotness of their teacher (“Have you seen how big his feet are?”) and Shelby.

In hushed tones they make it clear that Shelby betrayed her best friend by sleeping with her boyfriend. She has been mysteriously absent for months; her return triggers a cascade of uncomfortable revelations, which bring the thorniness of #MeToo into the classroom.

Ms Belflower, like many Americans, read “The Crucible” in high school, but she saw something different in the play when she returned to it in 2018. Her decision to revisit it was prompted, in part, by Woody Allen’s dismissal of #MeToo as a “witch-hunt”. (The film-maker has been accused of sexual assault by his daughter. He has denied the charges and said he is “perfectly innocent”.) “I said to my dad: ‘It’s so weird because it seems like John Proctor is the villain,’” Ms Belflower says. “I knew the title of this play before I wrote it.”

The playwright was 30 and just out of graduate school when she started writing the play, her Broadway debut. The dialogue of her ensemble of awkward, thoughtful teens rings true, in all its searching and stuttering. The show is artfully directed by Danya Taymor, who won a Tony award for “The Outsiders” last year.

Today it is fashionable to dismiss #MeToo as an overcorrection, maybe even a witch-hunt. But what makes “John Proctor is the Villain” such an intelligent, invigorating drama is that it captures the excitement many people felt at the time of suddenly having a language to describe sexual transgressions—and of being in a society receptive to hearing it. Many of the teens in high school at the time are now entering the workforce with a few more terms and tools at their disposal.

The play lands differently now from the way it would have even a few years ago. The fairness the girls hoped for has not transpired. Few abusers other than Mr Weinstein have been brought to justice. Some disgraced men have been able to resurrect their careers with ease, even at the level of America's highest office. ■

<https://www.economist.com/culture/2025/08/14/thought-john-proctor-was-one-of-the-good-guys-think-again>

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Indicators ::

Indicators

Economic data, commodities and markets

Aug 14, 2025 01:06 PM

Economic data

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	Gross domestic product			Consumer prices			Unemployment rate	
	% change on year ago: latest	quarter*	2025†	% change on year ago: latest	2025†	%		
United States	2.0	Q2	3.0	1.3	2.7	Jul	2.8	4.2 Jul
China	5.2	Q2	4.5	4.7	nil	Jul	-0.3	5.0 Jun‡§
Japan	1.7	Q1	-0.2	0.6	3.2	Jun	3.1	2.5 Jun
Britain	1.3	Q1	3.0	1.0	3.6	Jun	3.7	4.7 May††
Canada	2.3	Q1	2.2	1.0	1.9	Jun	2.1	6.9 Jul
Euro area	1.4	Q2	0.4	1.2	2.0	Jul	2.0	6.2 Jun
Austria	-0.5	Q1	0.6‡	0.1	3.6	Jul	2.9	5.8 Jun
Belgium	1.1	Q2	1.0	1.0	2.6	Jul	3.0	6.5 Jun
France	0.7	Q2	1.2	0.6	0.9	Jul	0.9	7.0 Jun
Germany	0.4	Q2	-0.4	0.3	1.8	Jul	2.1	3.7 Jun
Greece	1.8	Q1	0.2	2.2	3.7	Jul	2.7	7.9 May
Italy	0.4	Q2	-0.3	0.5	1.7	Jul	1.7	6.3 Jun
Netherlands	1.5	Q2	0.4	1.3	2.5	Jul	3.4	3.8 Jun
Spain	2.8	Q2	3.0	2.6	2.7	Jul	2.3	10.4 Jun
Czech Republic	2.4	Q1	2.8	2.1	2.7	Jul	2.4	2.5 Q1‡
Denmark	2.6	Q1	-5.0	2.6	2.3	Jul	1.8	2.9 Jun
Norway	-0.4	Q1	-0.3	1.3	3.3	Jul	2.3	4.9 May‡‡
Poland	3.4	Q2	3.2	3.0	3.1	Jul	3.9	5.4 Jul§
Russia	1.1	Q2	na	0.9	8.8	Jul	8.7	2.2 Jun§
Sweden	1.0	Q2	0.4	1.8	0.7	Jun	2.3	9.4 Jun§
Switzerland	2.0	Q1	2.1	1.3	0.2	Jul	0.1	2.9 Jul
Turkey	2.0	Q1	4.0	2.8	33.5	Jul	33.8	8.5 Jun§
Australia	1.3	Q1	0.8	1.7	2.1	Q2	2.1	4.2 Jul
Hong Kong	3.1	Q2	1.6	2.4	1.5	Jun	1.5	3.5 Jun‡‡
India	7.4	Q1	9.8	6.2	1.6	Jul	3.9	6.8 Jul
Indonesia	5.1	Q2	5.9	4.7	2.4	Jul	1.6	4.8 Feb§
Malaysia	4.5	Q2	6.2	4.0	1.1	Jun	1.8	3.0 Jun§
Pakistan	4.8	2025**	na	3.0	4.1	Jul	4.8	6.3 2021
Philippines	5.5	Q2	6.1	6.4	0.9	Jul	1.5	4.1 Q2§
Singapore	4.4	Q2	5.8	2.8	0.8	Jun	0.9	2.1 Q2
South Korea	0.6	Q2	2.4	0.6	2.1	Jul	2.0	2.4 Jul§
Taiwan	8.0	Q2	12.9	4.5	1.5	Jul	1.8	3.3 Jun
Thailand	3.1	Q1	2.8	1.8	-0.7	Jul	0.2	0.8 Jun§
Argentina	5.8	Q1	3.4	5.6	36.6	Jul	39.7	7.9 Q1§
Brazil	2.9	Q1	5.7	2.2	5.2	Jul	5.1	5.8 Jun§‡‡
Chile	2.3	Q1	2.8	2.3	4.3	Jul	4.1	8.9 Jun§‡‡
Colombia	2.7	Q1	3.2	2.3	4.9	Jul	4.9	8.6 Jun§
Mexico	0.1	Q2	2.8	0.1	3.5	Jul	3.9	2.6 Jun
Peru	3.9	Q1	5.1	2.8	1.7	Jul	1.8	7.6 Jun§
Egypt	4.8	Q1	-23.0	4.1	13.9	Jul	15.9	6.3 Q1§
Israel	1.4	Q1	3.5	3.0	3.3	Jun	3.0	2.7 Jun
Saudi Arabia	2.0	2024	na	4.4	2.3	Jun	2.6	2.8 Q1
South Africa	0.8	Q1	0.4	1.0	3.0	Jun	3.1	33.2 Q2§

Source: Haver Analytics *% change on previous quarter, annual rate †The Economist Intelligence Unit estimate/forecast §Not seasonally adjusted

‡New series **Year ending June ‡‡Latest 3 months ‡‡3-month moving average Note: Euro-area consumer prices are harmonised

Economic data

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	Current-account balance % of GDP, 2025 [†]	Budget balance % of GDP, 2025 [†]	Interest rates 10-yr govt bonds latest, %	change on year ago, bp	Currency units per \$ Aug 13th	% change on year ago
United States	-3.9	-5.9	4.2	39.0	-	
China	1.7	-5.9	1.6	-\$5	7.18	-0.1
Japan	4.5	-3.4	1.5	66.0	147	-0.1
Britain	-3.0	-4.9	4.6	60.0	0.74	5.4
Canada	-0.5	-1.9	3.4	38.0	1.38	nil
Euro area	3.0	-3.3	2.7	50.0	0.85	7.0
Austria	2.2	-4.5	3.0	27.0	0.85	7.0
Belgium	-0.1	-4.7	3.2	43.0	0.85	7.0
France	-0.3	-5.7	3.3	41.0	0.85	7.0
Germany	5.3	-2.7	2.7	50.0	0.85	7.0
Greece	-5.9	-0.2	3.4	9.0	0.85	7.0
Italy	0.9	-3.6	3.5	-9.0	0.85	7.0
Netherlands	7.9	-2.4	2.9	36.0	0.85	7.0
Spain	2.4	-3.2	3.3	15.0	0.85	7.0
Czech Republic	0.3	-2.4	4.3	58.0	20.9	10.3
Denmark	12.9	1.6	2.5	33.0	6.37	6.9
Norway	14.1	9.4	3.9	54.0	10.2	5.7
Poland	0.2	-6.1	5.4	30.0	3.63	8.0
Russia	2.0	-2.7	13.8	-109	79.5	14.5
Sweden	5.8	-1.4	2.4	53.0	9.53	10.2
Switzerland	6.7	0.7	0.3	-14.0	0.80	7.5
Turkey	-1.7	-3.7	29.3	249	40.8	-17.7
Australia	-1.2	-1.8	4.3	23.0	1.53	-0.7
Hong Kong	10.7	-5.3	3.0	5.0	7.85	-0.8
India	-0.5	-4.4	6.5	-40.0	87.5	-4.0
Indonesia	-0.8	-3.3	6.4	-36.0	16,194	-2.2
Malaysia	1.8	-3.9	3.4	-40.0	4.21	5.7
Pakistan	-1.4	-5.2	12.0	+++	-203	283
Philippines	-3.3	-5.4	6.1	-9.0	56.7	0.4
Singapore	14.4	0.2	1.9	-89.0	1.28	3.1
South Korea	3.5	-2.4	2.8	-17.0	1,382	-0.8
Taiwan	15.5	0.6	1.4	-16.0	30.0	8.4
Thailand	1.8	-5.8	2.1	-48.0	32.3	9.0
Argentina	-2.3	0.4	na	na	1,323	-29.0
Brazil	-2.4	-8.1	13.8	240	5.39	1.7
Chile	-1.5	-2.2	5.6	-28.0	953	-2.0
Colombia	-2.6	-7.3	11.8	191	4,022	0.5
Mexico	-0.1	-3.5	9.1	-29.0	18.6	2.3
Peru	2.1	-2.8	5.9	-61.0	3.53	6.2
Egypt	-4.6	-7.5	na	na	48.3	2.2
Israel	3.1	-5.3	4.2	-51.0	3.38	10.1
Saudi Arabia	-1.8	-2.9	na	na	3.75	nil
South Africa	-1.6	-4.9	9.6	34.0	17.5	3.7

Source: Haver Analytics §§5-year yield +++Dollar-denominated bonds

Markets

In local currency	Index Aug 13th	% change on: one week	Dec 31st 2024
United States S&P 500	6,466.6	1.9	9.9
United States NAS Comp	21,713.1	2.6	12.4
China Shanghai Comp	3,683.5	1.4	9.9
China Shenzhen Comp	2,289.1	2.8	16.9
Japan Nikkei 225	43,274.7	6.1	8.5
Japan Topix	3,091.9	4.2	11.0
Britain FTSE 100	9,165.2	nil	12.1
Canada S&P TSX	27,993.4	0.3	13.2
Euro area EURO STOXX 50	5,388.2	2.4	10.1
France CAC 40	7,805.0	2.2	5.7
Germany DAX*	24,185.6	1.1	21.5
Italy FTSE/MIB	42,186.4	2.9	23.4
Netherlands AEX	900.1	1.8	2.4
Spain IBEX 35	15,019.9	3.3	29.5
Poland WIG	110,781.9	2.3	39.2
Russia RTS, \$ terms	1,176.5	8.3	31.7
Switzerland SMI	11,978.9	1.9	3.3
Turkey BIST	10,950.0	0.4	11.4
Australia All Ord.	9,103.1	-0.1	8.1
Hong Kong Hang Seng	25,613.7	2.8	27.7
India BSE	80,539.9	nil	3.1
Indonesia IDX	7,892.9	5.2	11.5
Malaysia KLSE	1,586.6	2.9	-3.4
Pakistan KSE	146,529.3	1.0	27.3
Singapore STI	4,272.8	1.1	12.8
South Korea KOSPI	3,224.4	0.8	34.4
Taiwan TWI	24,370.0	3.9	5.8
Thailand SET	1,277.4	1.0	-8.8
Argentina MERV	2,287,631.0	-5.3	-9.7
Brazil BVSP*	136,687.3	1.6	13.6
Mexico IPC	58,477.6	2.3	18.1
Egypt EGX 30	35,855.3	1.1	20.6
Israel TA-125	3,006.5	1.0	23.9
Saudi Arabia Tadawul	10,763.5	-1.7	-10.6
South Africa JSE AS	102,278.4	2.1	21.6
World, dev'd MSCI	4,178.0	2.1	12.7
Emerging markets MSCI	1,277.0	2.6	18.7

US corporate bonds, spread over Treasuries

Basis points	latest	Dec 31st 2024
Investment grade	94	95
High-yield	356	324

Sources: LSEG Workspace; Moscow Exchange; Standard & Poor's Global Fixed Income Research *Total return index

Commodities

The Economist commodity-price index		% change on		
2020=100		Aug 5th	Aug 12th*	month year
Dollar Index				
All items		131.2	133.5	1.9 7.6
Food		141.8	145.3	1.7 8.7
Industrials				
All		122.4	123.8	2.1 6.5
Non-food agriculturals		124.8	124.6	2.4 -3.2
Metals		121.8	123.6	2.0 9.3
Sterling Index				
All items		126.9	127.2	1.2 2.3
Euro Index				
All items		129.6	130.9	1.6 1.1
Gold				
\$ per oz		3,385.7	3,343.9	-0.1 35.3
Brent				
\$ per barrel		67.7	66.2	-3.8 -18.2

Sources: Bloomberg; CME Group; FT; LSEG Workspace; NZ Wool Services; S&P Global Commodity Insights; Thompson Lloyd & Ewart; USDA; WSJ *Provisional

<https://www.economist.com/economic-and-financial-indicators/2025/08/14/economic-data-commodities-and-markets>

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Obituary

- **Razia Jan insisted on educating Afghanistan's girls**

Most willingly to school :: The fearless teacher and campaigner died on July 20th, aged 81

Most willingly to school

Razia Jan insisted on educating Afghanistan's girls

The fearless teacher and campaigner died on July 20th, aged 81

Aug 14, 2025 01:30 PM



EVERY DAY she was at her school, Razia Jan held a kindergarten inspection. Passing along the desks of excited, fidgety little girls, most of them proudly in their uniform of green scarves and grey salwar kameez, she commanded each small mouth to open. “Did you brush your teeth this morning?” “Yes,” each one answered, often unconvincingly, for these were country children from dusty village compounds. “Are you fibbing? I’ve told you before, if you don’t have toothpaste, use salt.” Nothing escaped Auntie Razia’s eagle eye. “What’s that stain on your scarf? Didn’t I tell you to get your mother to wash it? You must always come here clean and neat.” Her stern commands were still met with joyful smiles, for she was their teacher.

This was not, however, her first inspection of that day. The first was to visit the hose in the playground from which they replenished the water coolers. She filled her jolly spotted mug to the brim and drank it steadily down. Then she wandered round for a while, just

to see if the water would sicken her. If she was absent, staff did this for her; not a day could be missed. In girls' schools elsewhere in Afghanistan the wells had been poisoned. Other schools had been set on fire or attacked with guns and grenades, mostly by Islamist Taliban terrorists. The rule for girls walking to school, since almost all of them walked, was to go in pairs or a group, keep their heads down, and go fast. Even so some were pelted with stones, or had acid thrown in their faces, by men who thought that girls should not go to school at all.

Razia Jan never ceased to be outraged by this. She grew up in the 1940s and 1950s in a beautiful country and in a well-off, liberal family. As a matter of course she went freely anywhere, never covered her head and even rode a bike. Naturally she went to school and after that to college, studying early education and ending up in Cambridge, Massachusetts. In America, where she stayed because the Soviet Union had invaded Afghanistan, she had full charge of her own life. She brought up her son Lars alone, started a tailoring business on Boston's South Shore and rose to be president of the local Rotary chapter, a force to be reckoned with.

After the terrorist attacks of September 11th 2001 her attention turned back to Afghanistan. Her country, though now free of Soviet invaders and a five-year Taliban government, needed everything: not only physical rebuilding but food, clothing, medicines and fuel. She helped send over 30,000 pairs of children's shoes, but random donations like that barely scratched the surface. Only a much slower, deeper project would assure a brighter future for her country: defying the blind bigotry of most Afghan men, she had to champion the education of girls.

Her school, the Zabuli Education Centre, opened in 2008 in a cluster of seven poor villages called Deh'Subz, 30 miles north of Kabul. With typical persistence, she had persuaded the Ministry of Education to donate a plot to her. There, in the teeth of intense local

suspicion, she saw her school emerge: two storeys, 14 smallish rooms, with funding largely from American Rotary friends.

Girls soon flooded in. More than 100 enrolled in the first year; in 2020, 800 were there. In 2016 Zabuli celebrated its first graduates from 12th grade. She had an institute ready for them, where they could train as midwives or teachers to educate more girls. But then, in 2021, the Taliban returned to power and all that stopped. No institute, and no classes beyond sixth grade when the pupils, at 11 or 12, were beginning to revel in learning English, Persian and Pashto, harder maths and science. Auntie Razia had even added a tech lab with a computer and internet in it. There the older pupils could watch videos, all crowding wide-eyed round her.

That loss of half her students made her sadder than she could say. But she was still there, having got further than almost anyone else. Her secret was her fearless handling of men. She liked to think they were a bit afraid of her, because she was so forthright and also because she was old. Mind you, she had not made life easy for herself by building a school in the countryside. There the crazy views of women persisted, whether or not the Taliban were in power. In early meetings with the village elders, 35 of them, none would look at her. She was talking! And she wasn't covered! But her own head was high; she knew how to soften them up. A man, addressed as "honorable Headmaster", was the last word on discipline. She appealed to the elders to protect the school, employing some of them to guard the gate. Very early on all pupils were taught to write their fathers' names, as many of their fathers could not do. This caused joy and astonishment. The school fed and clothed the girls, and sometimes their families, free of charge.

Hostility surfaced again, though, when little girls became teenagers. Older pupils would be stopped in the street and admonished to wear the burqa. They became engaged, even married, and usually to men they had not chosen. An acclaimed film of the school, "What Tomorrow Brings", made in 2016,

showed how girls might stop attending then, spending hours, like their mothers, crouching in murky kitchens to chop coriander, or cleaning the house. Razia and the other teachers struggled to rescue them, confronting the fathers if necessary and, if they failed, at least continuing to send books. The school had a mobile library that still functions for housebound, frustrated young women.

Amid her own frustrations, Auntie Razia stayed positive. When the older girls left, she took in many more younger ones. To plant even a little education in a girl's mind was to sow a seed that would flower. As she was building her school, some elders had asked her to make it for boys, since these were the backbone of the community. Ah, she said, but women were the country's eyes. Though silent, they did not miss much. They observed the little things, as she did: the stain on a scarf; the bruise from a beating; the pride at reading a sentence, colouring a small girl's face. ■

<https://www.economist.com/obituary/2025/08/14/razia-jan-insisted-on-educating-afghanistans-girls>

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