

# Monkeys on a high

How drunken apes explain evolution of boozing

FAYE FLAM

Humanity's longstanding relationship with alcohol poses an evolutionary puzzle: Surely natural selection would weed out those of our ancestors with a taste for something that clouds judgement, slows reflexes, dulls the senses and impairs balance.

And yet humans all over the world drink ethanol in various concoctions, or they enforce strict rules against it — rules that surely wouldn't exist if there weren't a desire. We've been at it a long time: Archaeologists have found wine and beer stains on 10,000-year-old stone age pottery.

Scientists are solving the paradox by studying the enzymes our bodies use to digest alcohol. The way these vary from one species to another tells an evolutionary story. Then there's the related question of whether other species imbibe. Preliminary investigations suggest the answer is yes.

We think we drink alcohol so we can get drunk, said Matthew Carrigan, a biologist. But if you were living in the wild, wandering around surrounded by predators at night, would you want to be inebriated? What scientists have learned recently is that among our fellow mammals, just humans, gorillas and chimpanzee share a mutation that improves the way our stomachs break down ethanol. This change probably equipped members of our evolutionary branch to handle the weak alcohol content of fermenting fruit — not wine, scotch or martinis. But an adaptation to stronger stuff may be in progress.

This fateful mutation occurred in a gene that holds the code for a version of alcohol dehydrogenase called ADH4. The reason this and other alcohol dehydrogenase genes already existed in the animal kingdom, he said, was that nature makes a number of differ-

ent alcohols. Ten million years ago our ancestors lived on fruit, and there's evidence that around this time the African climate cooled off, forests became savannahs, and our ape ancestors spent more time on the ground, where they'd probably encounter a lot more fermented fruit than they would in the trees.

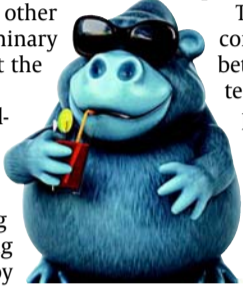
Those who could eat the fermenting fruit without becoming impaired had a big advantage over those who couldn't stomach it.

As a natural next step, Carrigan is now studying the drinking proclivities of our fellow primates. There are lots of anecdotal reports of apes, birds and even elephants getting drunk on fermented fruit, but repeated alcohol use is not scientifically documented, he said. Some of those animals may have recognised their mistake and not repeated it.

There's a big alcohol content difference between naturally fermented fruit, with at most 1 per cent alcohol, and man-made beverages, which are typically above 3 per cent. This suggests that neither we nor our cousins the chimps are well-adapted to drinking wine, let alone hard liquor.

But some may be ahead of the evolutionary curve. People in parts of China and Southeast Asia were among the first to cultivate grain (rice) and, inevitably, to make wine from it. Once that happened, a mutation started to spread in another gene associated with alcohol digestion. Those with the mutation processed alcohol faster than everyone else. Instead of getting drunk, they'd get flushed and sick from the fast buildup of one of the byproducts of alcohol breakdown — acetaldehyde.

Some might think this is a defect, but scientists believe it's an adaptation, protecting people from alcohol impairment and alcoholism. BLOOMBERG



BOOK REVIEW

# Cashless, not necessarily clueless

Kenneth Rogoff's new book makes a forceful, radical pitch for embracing a less-cash ecosystem for myriad gains

VENKY VEMBU

It is perhaps easy to surmise, based on the widespread disruptions of the past 50 days since Prime Minister Narendra Modi announced the demonetisation of high-denomination currency notes, that the intellectual argument for doing away with "the curse of cash" has been irremediably lost.

After all, you don't need satirical social media memes — of which there are plenty — to remind you that it wasn't just black money hoarders who were traumatised and inconvenienced by the overnight withdrawal of ₹500 and ₹1,000 notes.

Given the unvarnished reality of India — where, rightly or wrongly, the levers of the microeconomy continue to be greased by the lubricant of cold, hard cash — the extinguishing of about 85 per cent of the notes in circulation induced the currency equivalent of a cardiac arrest.

And given the Modi government's artless articulation of specific policy objectives, its constant shifting of the narrative goalpost, and its tragi-comic tweaking (on average about twice a day for 50 days) of the microdetails of the guidelines for currency deposits and withdrawals, the case for a cashless society could not have been made more inexpertly.



**The case for 'less cash'**  
But it would be unfair to dismiss the merits of the underlying argument based

**MEET THE AUTHOR**  
**Kenneth S Rogoff** is the Thomas D Cabot professor of public policy at Harvard University and former chief economist of the IMF. He is the co-author of *This Time Is Different: Eight Centuries of Financial Folly* (Princeton). He writes a monthly column that is syndicated in more than 50 countries.

solely on the flawed implementation of the policy. There is, even today, a persuasive case to be made — in India, and in many other countries — for "gradually doing away with high-denomination currency notes".

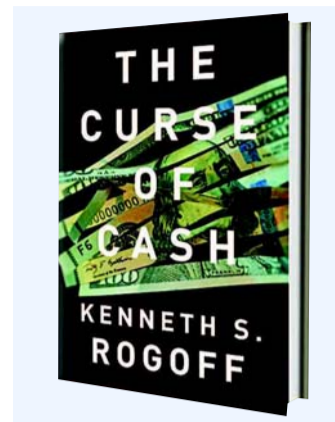
In his book *The Curse of Cash*, Kenneth Rogoff, former chief economist at the IMF, makes a forceful pitch for just such a radical move in the interests of discouraging tax evasion and crime.

Rogoff's point is simple, and one that he has been making for nearly two decades: phasing out high-denomination currency notes over a period will make it progressively difficult to engage in recurrent, large and anonymous cash payments (which are typically correlated with crime, including tax evasion). But small-denomination notes can and must be around indefinitely.

Thirdly, phasing out paper currency can clear the way for central banks in recession-hit developed economies to overcome the monetary hurdle of the "zero lower bound."

Rogoff's authorial preoccupations are centred rather more on the US and Europe; in fact, India figures only peripherally in his mindspace — and even then only to say that India currently lacks the financial inclusion infrastructure that is a pre-requisite for transitioning to a "less cash" economy.

Nevertheless, the points that he marshals in defence of his policy prescriptions for a "less cash" society apply, with some important tweaks, to India too. Virtually every one of the criminal activities that Rogoff says are facilitated by the "curse of cash" — from cor-



**Title:** The Curse of Cash  
**Author:** Kenneth S Rogoff  
**Publisher:** Princeton University Press  
**Price:** \$29.95

ruption to tax evasion to sponsorship of terrorism to counterfeiting to human trafficking — applies with greater malefic effect to India.

**Where the Modi govt erred**

The foundational premise that underlay Modi's dramatic demonetisation announcement was, in that sense, rock-solid. The problem lay in the timing and the implementation.

As Rogoff points out in a passage that the Modi government's policy advisers evidently overlooked, "the speed of transition (in phasing out high-denomination currency) needs to be slow, stretching changes out over at least 10-15 years. Gradualism helps avoid excessive disruption... It puts authorities in a position to make adjustments as issues arise..."

More critically, Rogoff writes, "it is essential that poor and unbanked individuals have access to free basic debit accounts... and possibly also basic smartphones." Modi is manifestly a man in a hurry — and in any case, there is no certainty that he will be in

power for 10-15 years — so he appears to have abridged the Rogoff-recommended transition time-scale to 50 days.

Additionally, he and his policy advisory team made the cardinal error of putting the 'demonetisation' cart in front of the 'financial inclusion' horse.

And their failure to foresee how the corrupt entrenchments would leverage the gaping loopholes in the system (such as the tax shelter for agricultural income and for political donations below a threshold) reduced them to a bunch of hopelessly ill-equipped fire-fighters.

Rogoff is, among things, a chess Grandmaster, the honorific given to those who have attained the highest level of distinction in the game. And even in his policy prescriptions, he exhibits an ability to think several moves ahead.

He anticipates every one of the arguments that critics of a 'cashless' or 'less-cash' system raise, such as the risks of hacking and the threats to privacy, the possibility of 'cyber blackouts' or power outages during natural disasters (such as Cyclone Vardah recently), and even 'what if I drop my cellphone in my bathtub?'

In every case, he provides practical survival tips and concludes that "one can think of endless objections to change, but most are quite superficial and can be easily dealt with, especially given a long transition period."

**Monetary musings**

After making a persuasive case for a 'less cash' system on all these counts, Rogoff commends it for reasons that are linked up with arcane monetary policies. His prescriptions in this space are no less provocative. Central banks in de-

veloped economies, Rogoff notes, have been grappling with the "zero bound constraint": that is, they find themselves unable to invoke unfettered negative interest rate policies in order to fire up recession-mired economies and get out of a deflationary spiral.

That's because in the cash-based system as it exists today, negative interest rates would trigger a stampeding into paper currency, which at its core works like a zero-interest anonymous bearer bond, in the sense that it at least preserves value in a deflationary environment.

Rogoff argues that doing away with paper currency would provide such central bankers with endless "magic bullets" and allow them to go deep into negative-rates territory and do "whatever it takes" to raise inflation expectations. In his reckoning, negative interest rates are more potent than "quantitative easing" and offer central bankers a way around the monetary policy paralysis that has gripped developed economies. Like a chess player playing many opponents simultaneously, Rogoff views "the curse of cash" through several prisms, and offers a compelling rationale of the merits of a 'less cash' economy. The imperfections that showed up in India's implementation of the policy can be traced in large part to the cherry-picking of policy prescriptions and the collapsing of the time-scale for the transition.

A more complete understanding of Rogoff's intellectually robust recommendations may have yielded more gainful results than the demonetisation exercise in India seems fated for in the short term.

**Rogoff says doing away with paper currency would provide central bankers with endless "magic bullets" and allow them to go deep into negative-rates territory.**

## 5 THINGS to WATCH OUT for TODAY

**Prime Minister** Modi is expected to announce a key policy change at Lucknow rally in poll-bound Uttar Pradesh today. Many expect Modi to announce measures to ease demonetisation blues, now that more than 50 days have passed since the PM announced demonetisation of high value notes on November 8.

**The Congress** party will launch a nationwide movement in three phases from today to "expose" the demonetisation drive of the Centre, which it dubbed the "biggest scam of Independent India".

**Employees** of public sector banks will stage a dharna at Azad Maidan in Mumbai today to protest against the impacts of demonetisation on their services, and against the RBI's failure to provide enough cash to them. PSU bank staff are planning to go for a strike in the third week of January, which may affect banking services across the country.

**The BCCL** office-bearers are likely to know their fate today when the Supreme Court gives its ruling on the Justice RM Lodha panel's recommendation that the board's office-bearers should be replaced by an independent observer.

**Andhra Pradesh** CM N Chandrababu Naidu will launch the fourth phase of the ambitious Janmabhoomi programme in Kallur, Kurmool today. Naidu will inaugurate Muchumarri Lift Irrigation scheme, which would facilitate release of water to about 30 lakh acres through the KC Canal.

**BY THE WAY** DIPANKAR BHATTACHARYA looks at people and professions



**EASY**

**ACROSS**

- 01. Administers physic (5)
- 04. Root vegetable (7)
- 08. Being untruthful (5)
- 09. Hang (7)
- 10. Rotten (3)
- 11. It rings a warning (5,4)
- 12. Spool (4)
- 13. Poems (4)
- 18. Feelers (9)
- 20. Unit number (3)
- 21. Patent, clear (7)
- 22. Derby racecourse (5)
- 23. Witchcraft (7)
- 24. Civic dignitary (5)

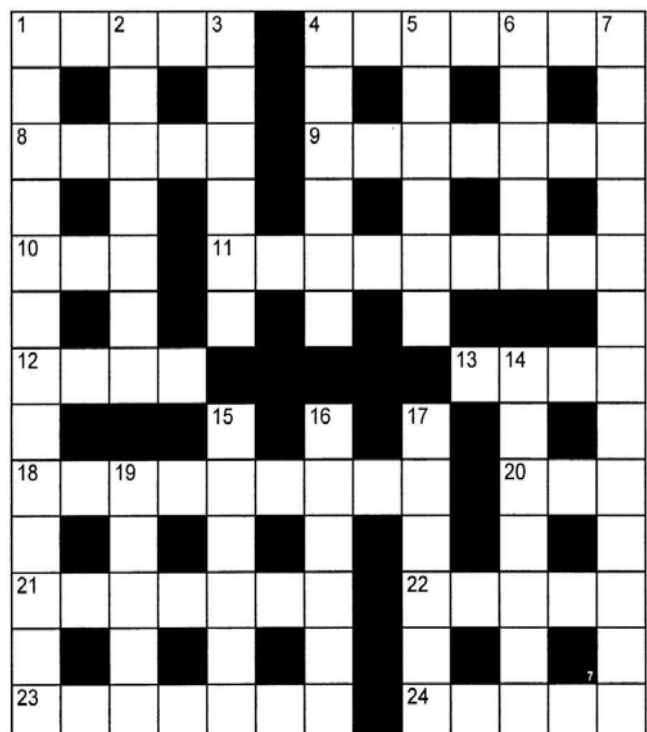
**DOWN**

- 01. Mature reflections (13)
- 02. Con, cheat (7)
- 03. Convey message to distance (6)
- 04. Concerning the mail (6)
- 05. Take up again (6)
- 06. Female relation (5)
- 07. Side- or stern-wheel craft (6,7)
- 14. Calls in on one (5,2)
- 15. Word of honour (6)
- 16. Vitreous (6)
- 17. High regard (6)
- 19. At no time (5)

**SOLUTION: BL Two-way Crossword 755**

ACROSS 1. Railway line 8. Quota 9. Present 10. Ivanhoe 11. Toper 12. Meekly 14. Landed 18. Reign 19. Hands on 21. Fancier  
23. Crude 24. Ragged-Robin  
DOWN 1. Requiem 2. Iron Age 3. Wrath 4. Yapped 5. Inertia 6. Eye 7. Motor 13. Linking 15. Disturb 16. Dungeon 17. Charge 18. Refer 20. Nicer 22. Nor

**BL TWO-WAY CROSSWORD 756**



**NOT SO EASY**

**ACROSS**

- 01. Swindles one about sulphur one takes as medicine (5)
- 04. Nails to knock back for root one can eat (7)
- 08. As it's recumbent, it should not be believed (5)
- 09. Pass some time holding you and me, but stop for a while (7)
- 10. With such a grace, is ungracious (3)
- 11. Its warning is uttered in ringing tones (5,4)
- 12. Part of a film that sounds genuine (4)
- 13. Poet's output taken back out of prose document (4)
- 18. They feel a number as Celt is upset (9)
- 20. Indefinite person owns nothing — except starters (3)
- 21. Old boy gets one among you French, that's plain (7)
- 22. Salts where the Downs are (5)
- 23. Being magic, it might make Rose cry (7)
- 24. Leader of council for a month, getting the gold (5)

**DOWN**

- 01. French composer about to get quota of mature thoughts (13)
- 02. Less wind — less an environment to cheat one out of (7)
- 03. A message to put one's name to with a logical beginning (6)
- 04. Work up to last confusion of mail service (6)
- 05. Take it on oneself to lose head and begin again (6)
- 06. She is the last of tribe to be involved in cine trouble (5)
- 07. Moves canoe a metre out for an entirely different craft (6,7)
- 14. Lets go of heartless lad as one calls in informally (5,2)
- 15. Wan, at holding gold up — my word! (6)
- 16. Girl held by heartless fellow has a glazed look (6)
- 17. Comes across the East turning up with high respect (6)
- 19. One version to include when tomorrow comes (5)