

Time Piece

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I've never believed in setting the alarm clock early and then snoozing it, and snoozing it, and snoozing it. I calculate to the minute the time I need to get ready at full speed and then set the alarm to the very last second before.

I like to be surrounded by time: a clock in every room and one for each veranda.

I like to forget time: don't wear a watch on the weekends, put the cell phone aside.

I need the calendar alerts to tell me what to do next.

I hate the calendar alerts telling me what to do. I set them faithfully; I grumble at them when they buzz.

Since I discovered – from a book on searching for a sunken Spanish ship with a cargo of emeralds – that at one point in time there were four different systems of maritime longitude, I have been fascinated by datelines.¹

Since I read Umberto Eco's *The Island of the Day Before* – another shipwreck, this time at the international date line in the Pacific Ocean – I have wanted to stand astride that line in the sea with a foot in yesterday and the other in today, or a foot in today and the other in tomorrow.

An international association I belong to names their journals Spring, Summer, Fall and Winter. An antipodean colleague and I have asked them to stop doing that. You cannot be 'international' and think the year through northern hemisphere seasons, we argue in an attempt to put the 'Global South' on their radar.

Summer in the northern hemisphere is called 'summer'. Summer in the southern hemisphere is called 'austral summer'. It's a bit like 'writer' and 'lady writer'.

Since I discovered Cape Town is on another date line – and should be an hour behind us but isn't and so gets glorious long summer days and sunsets at 9pm – I have wanted daylight saving on the east coast. I even lobbied for it when I worked as a reporter on *The Witness* in Pietermaritzburg, to little effect.

I was three, then I was 10, then 15, then 25, 30, 37, 44, 50, 63. How did that happen when I still feel three?

We talked to our daughter Gemma in London via WhatsApp on a January day when the heat bore down and by dusk we were exhausted. She had just been out on a bicycle in the wintry cold and come home with bruises on her face from hail.

I was about 40 when I realised that it's not spring+summer, autumn+winter. Autumn concludes summer rather than acting as an opening for winter, and spring concludes winter, rather than acting as an opening to summer. Summer and autumn share gracious expansiveness, predictability and ease. You can go out knowing exactly what kind of clothing to wear (in summer, very little, in autumn something light to throw over). But spring and winter are spiky, changeable and catch you out (I'm always second-guessing my outfits with those two).

That insight has substantially changed how I think about the seasons and what I expect from them. I now pack away my clothes twice a year according to that schema. And the length of time each set is gone means I greet them like old friends when I unpack them from their hibernation again. For four winters now I have not unpacked my thick coats, the ones I bought for very chilly nights out in the open watching experimental productions at the arts festival in July.

The Thinking Tree (aka the Libidibia) sheds its leaves in summer in one swift fall and then almost instantly turns red-brown with new growth and then bursts into yellow flowers.

This puzzles me because we share a hemisphere; it comes from Brazil and a search shows it should be shedding in autumn. This tree took a very long time to grow. When it was still shorter than me and had been in the ground for about three years, my husband Brian said, it's not growing. No, I said, it's thinking about growing. When it shed its bark (which it does in great chunks, its other name is the Leopard Tree) I put my palm flat against the exposed pink flesh. It was soft, a bit spongy, moist and cool, and for a while the imprint of my hand stayed on its trunk.

Lying on my back in the pool I look up and see swallows. High, very high. Do they ever touch the ground? And why would they? Once, in Bournemouth we went to Hengistbury Head and visited a small museum which had a display on migrating birds. The map showed that swallows fly to Bournemouth every year and back – from Grahamstown! Unnamed as such on the map but that was the spot.

Do swallows sleep on the wing up there in the very high thermals while they traverse the globe? All my searching can't give me a proper answer because the answer is: we don't know, not really, because we can't see them doing it.

Arctic terns (each weighing only 100g) travel from Antarctica to the Orkney Islands every year and back again, I discover from Amy Liptrot's book *The Outrun*. They experience two summers – southern and northern – but, I wonder, are those summers worth it in such frigid, windy climes?

In Spain someone told me the hoopoe was a Spanish bird. I was offended. But if a bird migrates across the Mediterranean from my garden to yours, does it belong to you or me, or neither of us? (Birders say migrating birds 'belong' where they nest and raise babies.)

I had thought birds had their chicks in the spring. But, they also have babies in the heat and height of summer. I know because I am watching screaming, scruffy youngsters chasing their parents for food through the fig tree and plunging their fluffy bodies into the bird bath.

My garden is a jungle because of La Niña.² I have been clearing out things that have overtaken some struggling plants that need more light. I realise when I'm inside the overgrowth I can't see well enough to do this clearing out. I will have to wait for winter when things die back, make spaces, and I can see. I think to myself, that's a reason to look forward to winter (which I usually dread) because it enables me to shape, prune and work in a way I can't do now. I consult the wisdom of gardening YouTube and make a note, don't prune the jasmine in winter, it damages the spring flowers.

My morning waking sound is the Oriole (the closing sound of the day is the thrush). Never a day goes by without me marking that I hear an, or many an, Oriole. I read in Helen Macdonald's *Vesper Flights* that she undertook a special expedition in the UK to see an Oriole at the only place left that they nest (unnamed in the book to protect them). She counts herself terribly lucky to have seen one.

When Brian and I moved into this house in 1997 we discovered a resident thrush. We observed her for a while and then named her Janet Rustle (Janet after a brisk, efficient friend and Rustle for the noise she made in the leaves). After being on sabbatical away from Makhanda and coming back to the garden we disturbed a thrush who reacted in alarm. I was surprised because Janet Rustle was so used to us. And then I realised: in the 25 years we've lived here, we must have had a succession of Janets. This last one would have been born while we were away and is certainly not on nodding terms yet. (But we're getting there.)

A thought to ponder and hold on to: no tilt, no seasons.

Okay, it's also got something to do with an elliptical orbit.

In the Arctic and Antarctica there are only two seasons: summer and winter. At the equator there are two seasons: wet and dry. Grahamstown's little local joke is that we can experience four seasons in one day (not quite so accurate now that we're feeling the effects of climate change).

On a research trip my colleague Harry Dugmore and I set off from Brisbane in Queensland to visit Jeanti St Clair at Southern Cross University in Lismore, New South Wales. It was a two-hour drive, we left at 10 for a lunch with her at 12. We arrived an hour late. It was only as we crossed the border into New South Wales that I realised that we had entered a different time zone, one an hour ahead of us.

Johannesburg is on latitude 26°. Sydney is on latitude 33°. If you fly from Johannesburg to Sydney the flight takes 11 hours because the pilot doesn't fly in a straight line across the

Indian Ocean. The plane ducks south, takes advantage of the narrowing at the bottom end of earth then skirts Antarctica and comes up towards Sydney from the south. When you fly back it takes 14 hours; this time the winds are against you. But you leave at 10.30am and arrive at 2.30pm on the same day (in the summer time). This will be the longest day of your life.

I feel worse flying west than east. I tell myself it's because I am going against the turn of the earth and the prevailing winds. Google doesn't agree. It says that it's easier to delay your internal clock than to advance it, therefore flying east is worse. So maybe the 'jetlag' on leaving Australia and my family there is more about a second home sickness, or a tedium of coming back to a place I love but always find somewhat lacking on return.

The last time I flew back from Australia, I resisted the cabin crew instruction to set my watch immediately to destination time. Instead, at intervals, I consulted the plane's travelling map and adjusted my watch in increments as we flew west, each time choosing the date line we were crossing. An hour behind, then another, and another as we made progress across the sunlit Indian Ocean, against the advancing day. It was a very long day. But eventually the sunset caught us and we arrived in the dark.

Charles and Carol, relatives now living in the US, invited us to celebrate his 60th birthday on a cruise in the Bahamas. Our friends said with scorn: 'A cruise, how horrible.' But I was fascinated and wanted to go. What would it feel like to see only ocean, no land at all. What would it feel like to watch the wake of the boat fan out behind you as you travel. I watched a video on how to orient oneself on a ship by a seasoned cruiser. Which brought me to: Ship time! As ships cross the ocean they cross the datelines and therefore time is changing constantly for them. So they set their own time zone as they travel. A very charming Pakistani captain, Captain Zahid, who has his own YouTube channel, explains that as he travels he is taking five different types of time into consideration as he decides what time his ship will observe.³ We didn't go on the cruise but I would have spent a lot of my time, preoccupied with time (to the total lack of interest of everyone else).

There seem to be two major places in my life: here and there. *Here* is my garden (but also Marshall Street, Makhanda, Rhodes University, the School of Journalism and Media Studies, but mostly my garden). *There* is the places across the globe I visit as a researcher: Montreal, Lagos, Cartagena, Sydney. Here, in my garden, I move through a very small 200 square metre space over and over and I observe the constant change through the daylight shifts and the seasons. There, I traverse hemispheres – going from one season into another – and crossing timelines, moving my body through vast amounts of space in short periods of time.

Time. Time seems to be the holding factor. Time is so extraordinary. It has so many facets. It's so deeply, unconsciously embedded in our lives. We wear it on our bodies, we organise our days, years and lives by it. We even do different things in parallel in different spaces in the same time. It's entirely made up, but we need it. As I think and write, its details are like collecting gems – each one is shinier and more brilliant than the one I already have in my hand. I can't make up my mind with this dazzling array. And having discovered these things I have to share them. Why is the world not as bedazzled as I am about all of this?

I always know when it's full moon. When I get up in the night to pee the moon is just there, shining through the bathroom window. I always say hello. The moon always faces us. It turns at the same pace we do. Its rotation and its orbit are matched. Its day and its year are the same length (if we are its sun), ie 29.5 earth days. One hemisphere of the moon experiences two weeks of light and then two weeks of night.

In 2019 the Chinese landed a craft on the lunar far side, the side we never see.

On 24 December 1968 Apollo 8 astronauts Frank Borman, Jim Lovell, and Bill Anders became the first humans to see an earthrise as they orbited the moon. The photograph Bill Anders took, called 'Earthrise', gave those who saw it a powerful sense of fragility and preciousness – that little blue dot, covered in clouds, hovering in black space.⁴ As Carl Sagan said: 'That's here. That's home. That's us.'⁵

I gave up my faith for the earth. The big *here* of when I am and where I live. Instead of afterlife, eternal life, a body that doesn't corrupt, I believe in soil, worms, birds, compost. When I die I want to be put into the earth, but I don't want a coffin, a shroud, a grave, concrete, a head stone. I want to know the turn of the earth, the change of the seasons, I want

to feel the wind and the rain. I want to dissipate along the mycelial network into the roots, I want to shoot up through the trunks into the topmost branches and feel the tiny grip of the bird's feet when it's sitting as high as it can to catch the last light of the setting sun.

The full moons have names: in January it's a Wolf Moon, in February a Snow Moon, March is a Worm Moon, April a Pink Moon, a Flower Moon in May, a Strawberry Moon in June, a Buck Moon in July and a Sturgeon Moon in August. September and October both have Harvest Moons but in September it's a Full Corn Moon and in October a Hunter's Moon. Then the full moon in November is a Beaver Moon and in December a Cold Moon. Like the journal names, this all comes from a corner of the Northern Hemisphere. This needs rethinking:

January – Libidibia Leaf-Shed Moon
 February – Fig Moon
 March – Swelter Moon
 April – Balmy Days Moon
 May – Chill Edge Moon
 June – Anthea Moon [it's my birthday month]
 July – Winter Moon
 August – Wind Moon
 September – Jasmine Moon
 October – Roses Moon
 November – Gemma Moon⁶
 December – Deep Breath Out Moon⁷

The Blue Moon is the 13th one in the year (and occurs every two to three years and of course will occur as the second moon in a month). I'm not changing that one for the Southern Hemisphere because I happen to like it very much.

These are the names for the phases of the moon:

New Moon
 Waxing Crescent Moon
 First Quarter Moon
 Waxing Gibbous Moon
 Full Moon
 Waning Gibbous Moon
 Third Quarter Moon
 Waning Crescent Moon

Is 'gibbous' not a most marvellous word?

At the South Pole every direction you walk or face is north. At the North Pole every direction you walk or face is south. At the geographic poles, you are also – timewise – at the same time as everybody on earth in every place on the globe because all the longitudinal lines converge at the poles.

This is too weird to grasp.

The longitude discovery story is most fascinating. I'm not going to tell you that John Harrison, an amateur clockmaker from Yorkshire, in 1759 produced the marine chronometer. (Even though I have seen his three, huge proto-clocks and then his very beautiful, hand-held, actual, functional clock in the Greenwich Museum.) What I am going to tell you is that in 1530, mathematician, physician, cartographer, philosopher, and instrument-maker from the Netherlands, Gemma Frisius, was the one who proposed that longitude could be calculated using a clock. And this after centuries of men tried doing it via observing the planets, Jupiter's satellites and through lunar distances.

Most places in the world place their country time zones on the hour. Not India, Sri Lanka and Nepal. India and Sri Lanka have chosen the half hour. And the whole of India follows this one time zone. I was told when visiting that it was a technique to 'unite the whole country'. In Assam, tea country, plantations work on what they call *chaibagaan*, or 'tea garden time': clocks are set one hour ahead so teapickers have more sunlight.

And so to tea time, a weekend ritual from my childhood. While my grandfather and father worked in the garage making things, Cynthia (my step-grandmother) would make scones in the kitchen. At 4pm she would emerge with a tray, teapot, cups and saucers, milk jug, scones and jam and cream. On a hot Johannesburg summer afternoon we would sit under

a tree (and as there were many we moved over time from tree to tree) drinking tea. I still observe tea time with teapot, cups and saucers and milk jug, and I have many places under trees with furniture to sit in my very small garden. Each one gives a different aspect, a different view.

I once went to a conference in Porto Alegre, in Rio Grande do Sul in Brazil. It was only when I checked into my hotel and was told, 'you have no booking for tonight', that I realised I had arrived a day early, or, the same day I had left Johannesburg. Travelling west, against time.

We have always been time travellers.

If you look at a map of the international date line you see a huge notch in it in the southern hemisphere that separates days horizontally as well as vertically (another thing too weird to get your head around). This is because the country of Kiribati with its population of about 120 000 and its 32 atolls and one coral island need to be able to live in the same day and not across two days. (Ever tried to do business on a Friday when it's the weekend already in another part of your country?)

Why do we talk about 'The West' when an enormous amount of it is in the East?

East is west of West. Just look at the unreeling bits of land spinning out from Alaska, they're west of Alaska, but they're actually in the East – if you see how they lie across 180°W.

Tiny pieces of land that stretch out into the ocean giving one the sense of an end of land attract me. I visit Cape Point regularly to get that feeling. When Brian and I were in Miami we were offered a flight to Key West in an old World War 2 seaplane. We decided it cost too much, but I regret that decision. I so wanted to see that string of keys from the air. When I fly home into Gqeberha airport (formerly Port Elizabeth) I imagine that tiny point that sticks out into the ocean as the very southern tip of Africa (if Africa were tilted to the right). Cape Agulhas, the real southern point, just doesn't deliver the feeling. It has no real point.

Why do we have standardised time? Because of the railways. In the mid-19th century, when people travelled from one town to another they arrived in a place where they couldn't easily anticipate what the time would be (each town set its own time). So because humans were moving faster, they had to capture time, pin it down and make it conform – everywhere.

This work started in the 19th century and was completed in the 20th.

(So time turns out also to be a matter of both place and speed. How strange that one huge thing like time needs two other huge things to make it make sense. Or is it the other way around? Place and movement make no sense without time?)

30 days hath September, April, June and November

All the rest have 31

Excepting February alone, which has 28 days clear

And 29 in each leap year.

I learnt that from my Nana.

So legally – if you are born on 29 February – how is your age calculated? Strangely this doesn't seem to be a problem in the world, just a curiosity to remark on.

Why does Sunday night feel like Monday's harbinger?

Why does Wednesday feel like a hinge between it could get better or it could get worse?

Why does Friday feel like an achievement?

Why does Thursday's child have far to go?

Thursday is my birth day, and that statement has always seemed prophetic to me.

We have seven days in the week because of the moon and the Babylonians. Avid astronomers, they rounded the moon cycle down to 28 days and divided it into four periods of seven. They then created the leap day to stay in sync over the long run.

Now, we also have leap seconds, a one-second adjustment to UTC (the governing time system for the planet) every now and again to accommodate the difference between International Atomic Time (very precise) and observed solar time (imprecise).

We have the sexagesimal system (all those 12s and 24s and 60s) because of the

Sumerians. Base 60 instead of base 10. The number 60 is a superior, highly-composite number, according to mathematics. It has 12 factors: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, and 60, of which 2, 3, and 5 are prime numbers. Therefore flexible, and useful.

If that isn't magic, what is?

Why do we have a five-day working week? The industrial revolution put people into factories and worked them more than 70 hours a week for six days, and sometimes only allowed them a Sunday afternoon off (so as to be fresh for Monday). It took industrial action to get this changed. And a US government survey in 1890 which found that the average working week was 100 hours. But the biggest impact on the situation was Henry Ford's factory where a 40-hour, five-day working week was adopted in 1926. Ford was aware that in addition to making cars he was growing a middle class to buy them and needed time to use them, hence the self-serving pragmatism.

The days drag and the weeks rush by. Somebody wrote that a long time ago, but I have never forgotten it as a very accurate summation of my working experience.

Henry Carter Galpin came to Grahamstown (now Makhanda) in 1850 and set up shop as a watchmaker and jeweller. In 1859 he bought a double-storey house at 10 Bathurst Street. He renovated the house for business purposes and then after he had raised a family redesigned the home. Floors were added to house a meridian room, a clock tower observatory and a camera obscura on the roof. *The Grahamstown Journal* of 1882 described the house as 'a bold departure from the ordinary rules of architecture'. Galpin also set up a telescope and placed it in a turret with four open sides. The meridian room had a high ceiling and a pin hole high up in the north-facing wall. The sunlight coming through the hole strikes a north/south line at noon during the equinox and solstices. The analemma⁸ is marked out on the floor, determining the location of the room to within a second (latitude 33° 20' S; longitude 26° 32' E).⁹ According to historian Rita Snyman, Galpin adjusted his clock every day to the correct time. She comments, 'It is quite clear that Mr Galpin "monopolised" TIME [sic] in Grahamstown as all the clocks and watches were daily set according to the time indicated on the clock-tower clock.'¹⁰

(I find it heartening that while all those railway travellers in North America and the UK were confused about what time they had left and what time they had arrived, by contrast Grahamstonians were perfectly punctual and in tune with the seconds, hours, sunrises and sunsets, eclipses and ellipses, and totally on top of their longitude and latitude, courtesy Galpin.)

There is a sundial in a forgotten corner of the Makhanda Botanical Gardens. A small square plaque on it reads: 'A Gift from Britain.' The gnomon, that beautiful little upstanding wing which catches sun and time, is long gone.

Serve time
 Mark time
 Call time
 Tell time
 Make up time
 On time
 In time
 About time
 Time's up
 It's time
 Got time?
 Bed time
 Hard time
 Good time
 Life time
 Time me!

African time. A quite nasty pejorative. Here's another view: "'African time" is one option in a repertoire that is available not only to Africans but to everyone else,' say a pair of anthropologists. They also say we could unlock the future for everyone by 'opening up to the diverse ways of thinking about time'.¹¹

We have ‘clock genes’ in our bodies, and not just a regulator in our heads that wakes us up and sends us to sleep. A professor of Circadian Neuroscience says our cells contain clocks attuned to our planet’s 24-hour day.¹² *We are creatures of here* and of sunlight. That’s why nightshift workers and astronauts struggle terribly with insomnia. (That’s also why *there* is both unsettling and exciting.)

It’s not easy to understand the history of horology, but what I take from it is this: there is no time telling without something moving, vibrating, oscillating – whether it’s sun traversing sky, sand flowing through a bulb, water running from a bowl, sun brightening and shadowing a face, a pendulum swaying back and forth, a candle burning down, and now, electrons in an atom vibrating as the driving force of time.

But then, time might be nothing more than an illusion.¹³ Or is it? My determination to understand spacetime before I die has brought me into a giant argument between scientists. Time exists and moves forward (but why?) vs Time is an illusion, a human invention.

Newton thought the universe worked like a giant clock and he built time (t) as a factor into all of his equations. That was when scientists believed time was universal and independent of us. But then came Einstein with spacetime. Scientists now believe time is interwoven with space. The picture they use to help us understand is the ‘block universe’ – a four-dimensional shape which contains the three spatial dimensions plus time. The block contains time at every point and therefore contains all of space and time simultaneously. And so time doesn’t flow forward. There is no ‘arrow of time’. In this picture time **is** a coordinate, but time **does** past, present and future.¹⁴

So, after all, history might not be one thing after another?

Quantum mechanics tells us that time might in fact be a relationship between an observer and a clock, just like that extraordinary situation where/when observing a particle changes its situation. Measuring time produces time.

Time has a history,¹⁵ and it goes something like this:

1. Newton: time is unchanging, absolute and is the backdrop to the universe.
2. Darwin: evolution has a direction, the new is built on the learnings of the past.
3. Einstein: time is a dimension.
4. Quantum mechanics: time is a quality that emerges from change.
5. Thermodynamics: systems show that time moves forwards.
6. Assembly theory: time not only moves forwards but is memory and information.¹⁶

So on the side of time is an illusion/effect, we have Einstein and quantum mechanics. On the side of time is a real thing with direction, we have Darwin, thermodynamics and assembly theory (forget about Newton).

Where do I come down? (I’m a Gemini and very adept at holding two impossible ideas in tension indefinitely, but okay, I’m going to invoke the Big Bang to make a determination – also it’s easier to understand than the block universe.)

The big bang started something (maybe not everything, but definitely something). In scientific terms the big bang was quite simple, and since then everything has been increasing in complexity, or what scientists call ‘entropy’. Entropy gets used colloquially as a synonym for mess or chaos, but actually it’s change, transformation. And it’s because things move and change that we know time. And this experience of time has both flow and direction. Entropy doesn’t decrease in our universe so time doesn’t go backwards, it seems we can’t undo what has been done, we can’t make simpler what has been made complex. Plus which there is memory and learning in this flow and that means the complexity is not more mess, more chaos, but systems, patterns, repetitions, rhythms, forms, networks. And stories, histories, music, dance.

In my garden I watch things change, that’s the joy of a garden – the changes. As the winter storms blow in, the white stinkwoods shed thousands of leaves which pile up in great heaps. Then as the year turns, even while the chill lingers, they will sprout intensely bright-green, new leaves. This will happen again and again, year on year, like clockwork, rhythmically. But the arrival of three drongos this autumn is unusual. I have no reasons for why they are here, now, only delight at their noisy, sleek black presence and bright, watching eyes.

R—H—Y.
T—H—M.

That's how Miss Heller our music teacher taught us to spell out the word in a sing-song voice that did two things at once (get the spelling right and spell out the meaning). I still use it. Like a metronome. And I also think, now: no time, no music.

Wikipedia tells me every clock needs an oscillator – an object which repeats the same motion over and over again, with a precise beat, like a heart.¹⁷

As I write (as you read), we are breathing in and out. Our hearts are beating – even if erratic, that pulsing holds our life. If you're female within a certain age range the moon is exerting its pull on you and on the oceans, giving you and them a waxing and waning. Our world is turning on its off-kilter rotation, spinning on its elliptical orbit around our sun. Here, far south on the African continent at 33.3106° S, 26.5256° E, UTC+2, my day is ending. I've begun to notice that the sun is setting earlier.¹⁸ There's lots more heat to come still, but inexorably we will go towards winter. I will have to give up being barefoot.

In the movie *Tar*, *New Yorker* writer Adam Gopnik says to orchestra conductor Lydia Tar: 'There are many people who think of the conductor as a human metronome.' Tar responds: 'Well that's partly true. But keeping time is no small thing. Time is the thing. Time is the essential piece of interpretation. You cannot start without me. I start the clock. My left hand shapes but my right hand – the second hand – marks time. And moves it forward. However, unlike a clock sometimes my second hand stops [here raising her right hand to a hover]. Which means that time, stops. Now, the illusion is that I'm responding to the orchestra in real time, making a decision about the right moment to restart the thing or reset it or throw time out the window altogether. The reality is that right from the very beginning I know precisely what time it is and the exact moment at which you and I will arrive at our destination together.'¹⁹

I think back to my school days studying flute, learning to read music and work with actual scores. It was so shocking that time could be regulated differently to produce different kinds of effects, just by one human deciding to do so with a time signature. It was even more shocking that the 20th century composers could undo the regularity of beat (which regularity felt sacred) and make it jar and jangle. And excite.

Dave Brubeck's *Unsquare Dance* in 7/4 time, written in 1961 and nearly as old as me.²⁰ A piece of music I return to again and again. That seventh beat is a Thursday, is the 29th of February, is a leap second, the 23.5° tilt of the axis, a notch in the date line, a blue moon, a memory, a drongo.

No wonder the drummer laughs in relief when the dance is done.²¹

ENDNOTES

1. The book, I discover with a search, was *The Nautical Chart* by Arturo Pérez Reverte. It hinged on the emerald-hunters working out that the ship's location depended on which conception of longitude the captain was using when it sank.
2. A weather pattern in the Pacific Ocean off the west coast of South America which has brought unusual rains to the whole of South Africa from December 2022 through to February 2023. It's a rare phenomenon, having only occurred twice since 1950.
3. He says they are: Greenwich Mean Time, Zone Time, Local Time, Ship's Mean Time and Standard Time. See <https://www.youtube.com/watch?v=dvb2tKJq9dQ>
4. <https://www.theguardian.com/science/2018/dec/24/earthrise-how-the-iconic-image-changed-the-world>
5. <https://www.youtube.com/watch?v=wupToqz1e2g>
6. My daughter's godmother's name for her, and her birthday month.
7. I have since discovered that the Centre for Astronomical Heritage has named the full moons for us in South Africa, see <https://cfah.org.za/fullmoon/> and my birthday month moon is a sisters moon because of the return of the Pleiades.
8. A combination of the earth's 23.5° tilt and its slightly elliptical orbit combine to generate a figure-8 pattern of where the sun would appear at the same time throughout the year. The pattern is called an analemma.
9. In sexagesimal notation.

10. https://journals.co.za/doi/pdf/10.10520/AJA0018229X_1281 'South Africa's Most Unique House' by Rita Snyman, 1961.
11. <https://theconversation.com/why-the-idea-of-african-time-keeps-on-ticking-169791>
12. Foster, Russell. 2023. *Life Time*. London: Penguin..
13. Einstein called it a 'stubbornly persistent illusion', see <https://aeon.co/essays/time-is-not-an-illusion-its-an-object-with-physical-size>
14. <https://theconversation.com/great-mysteries-of-physics-1-is-time-an-illusion-201026>
15. <https://aeon.co/essays/time-is-not-an-illusion-its-an-object-with-physical-size>
16. I owe this potted history to Sara Walker, see <https://theconversation.com/life-modern-physics-cant-explain-it-but-our-new-theory-which-says-time-is-fundamental-might-203129> Walker believes in time as a thing.
17. <https://en.wikipedia.org/wiki/Clock#:~:text=The%20first%20model%20clock%20was,Clement%20in%201670%20or%201671>
18. You'll notice this format is in decimal degrees and not 'sexagesimal' degrees. A shift which is all about increasing precision, and control.
19. The scene is somewhat redacted to suit the purposes of this essay.
20. <https://www.youtube.com/watch?v=lbdEzRfbeH4>
21. Which he does if you listen very carefully.