

CHAPTER 1

Twenty-Five Hours

What Happens when Nothing Happens

IT IS HARD to fathom how easily your customary sense of time can come apart at the seams until it happens to you, as I discovered when visiting a cave in the spring of 1996 at the invitation of Romanian scientists. Buried down under the earth and far from anything familiar, I suddenly realized how tenuous our orientation to time really is. Our usual way of counting the minutes and hours might be compared to a sheet of ice on which we skate along from day to day with little apparent difficulty, but which separates us from a sea of other modes of experiencing time. This abundance of options is hidden from view, but ever-present. I have never been able to shake this image since my experience underground.

Caves are like places beyond time. The passage of time is forgotten in a flash once you have left the last glow of

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daylight behind. Once you hear nothing but an intermittent dripping of water, the tempo of the outside world fades away. These drops of water take the course of a human lifetime to make a stalagmite grow just a couple of millimeters. A is a cosmos unto itself, as old as the earth. Just as you cannot gauge the space between yourself and a bird in flight, because the air does not offer us any cues, you lose your orientation in time when you experience in the monotony of a cave. Suddenly you have arrived in eternity.

Normally, of course, speleologists are far too preoccupied exploring descents, labyrinths, and hidden water-courses to notice that past and future are gradually merging. A visit to the underworld is over in a couple of hours anyway. Cave explorers know when it's time to leave by looking at their watches, or by noticing that the fuel in their carbide lamps is draining out. It is rare for someone to spend a night down below. How would time be perceived if one could endure a lengthy stay in a cave? Wouldn't complete seclusion be an ideal laboratory to explore our sense of time?

Buoyed by this hope and a heaping dose of courage, Michel Siffre decided to try this experiment on himself. The French geologist was just twenty-three years old on July 16, 1962, when he descended into a glaciated cave in the southern Alps without a watch. He wanted to find out what happens when *nothing* happens for weeks on end. 130 meters deep in the mountainside he set up a subterranean camp stocked with food and equipment and pitched a tent. A battery-operated lamp cast just enough light for Siffre to find his way around and take notes. But this lighting method was costly, and Siffre was on a tight budget, so the

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researcher spent most of his time sitting on a campstool in complete darkness.



On September 14, 1962, an utterly exhausted Michel Siffre was hoisted out of his cave by his jubilant team. Dark eyeglasses shielded his eyes from the sunlight, which the researcher had not seen for 61 days.

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The only living being he encountered was a spider. Siffre began to regard this spider as a kind of friend, and struck up one-sided conversations with it. But when he got the idea of sharing his canned food with the spider, it died. Now he was all alone.

In no time at all, his tent and clothing were soaked through and through. The thermometer hovered at about zero degrees Celsius. His assistants had pulled the ladder back up; Siffre did not want to be tempted to break off the experiment. A field telephone was his only connection to the outside. He used it to let the team know when he got up, when he lay down in his sleeping bag, and how long he thought he had spent in the dark.

Siffre lost his orientation in time. “When, for instance, I telephone the surface and indicate what time I think it is, thinking that only an hour has elapsed between my waking up and eating breakfast, it may well be that four or five hours have elapsed,” he noted in his diary. “And here is something hard to explain: the main thing, I believe, is the idea of time that I have at the very moment of telephoning. If I called an hour earlier, I would still have stated the same figure.” He was dismayed to realize that although the only thing he was still experiencing was the passage of time, this very experience deceiving him, “I feel motionless, but at the same time I feel as though I am being pulled along by the uninterrupted flow of time. I try to grab hold of it, but every evening I realize that I have failed.”¹

But what does “evening” really mean? In the complete darkness, day and night are meaningless concepts. Siffre’s life lost its rhythm—at least it seemed that way to him. He esti-

mated that ten minutes elapsed between the moment he got up and when he began to eat breakfast, but in actuality more than a half hour had gone by. At one point he felt tired after a meal that he thought was his lunch, and lay down. When he woke up, he thought he had taken a little nap. In reality, his sleep had lasted more than eight hours.

He found it exhausting to do spend his days without feeling the passage of time. He played Beethoven sonatas on the battery-powered record player he had brought along, calculating that a 33 1/3-rpm record took forty-five minutes from start to finish. But that did not really help him either. When the record was over, and the silence returned, he felt as lost as ever. In desperation, he even considered using his camping stove as a clock. He knew that the contents of the cartridge would last for exactly thirty-five hours if he burned it down all at once. If he did this, of course, he would no longer be able to make himself even a cup of tea to stay warm.

The anticipation of falling asleep became his only pleasure—even though he found he could not always distinguish sleep from waking: “My eyes were wide open as I looked into the darkness. I hesitated for quite a while and wondered whether I was asleep, hoping that I was still dreaming. But after I while I realized to my dismay that I had been wide awake for some time. I switched the light on, leaned out of my sleeping bag and dialed the telephone.”

But the confusion existed only in Siffre’s consciousness. In his body, a precise rhythm had been established. Of course, only Siffre’s friends, who kept a record of every call,

knew how rigid a time schedule his body was maintaining. Siffre’s day lasted 24 1/2 hours, of which he spent 16 awake.

When a rope-ladder was lowered into the cave on September 14 to hoist him to the surface, and his cheering friends toasted his successful completion of the experiment with champagne, Siffre was dismayed. His last diary entry read August 20, and he had planned to remain down below much longer. The researcher could not conceive of having simply having lost 25 days. Where had the time gone?

A Hidden Clock

Siffre repeated his experiment several times. In 1972, he spent 205 days underground in Texas, observed by NASA scientists. This time, a full two months were missing from his memory after the experiment.

Others followed in his footsteps. Among them was the Frenchwoman Véronique Borel-Le Gue, who set a women’s record by remaining under the earth for 111 days. Her experience had a tragic aftermath: according to a statement by her psychiatrist, the isolation and disorientation in time plunged her into a deep depression when she emerged into the light. One year later she committed suicide.

A comparable, but less perilous and uncomfortable version of Siffre’s first underground experiment took place in a bunker in Andechs, outside of Munich. There, scientists from the nearby Max Planck Institute for Behavioral Physiology set up cozy apartments under the earth, and over the course of the next few years, hundreds of students lived in complete isolation for weeks at a time. (Many of them were enticed by the hope that the isolation from any distractions

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would give them a good environment to cram for their upcoming examinations.) The only contact with the outside world was by way of a dumbwaiter, which the heads of the research teams used to supply the students with food at irregular intervals, and sometimes letters as well; they also collected urine samples to measure hormone levels. The subterranean beds were equipped with sensors that automatically registered the time at which the voluntary prisoners went to bed.

All these experiments yielded the same results as Siffre's underworld adventure: after a brief period of adaptation, the isolated subjects unwittingly stuck to a personal rhythm. Their day was somewhat longer than usual—for most of the test subjects it lasted about 24 1/2 hours, for some 26 hours or more. Hence, they went to bed less often than usual, and consequently felt as though days were missing when they emerged from their confinement.²

A hidden clock ticks inside our heads, regulating all the processes in our bodies and guiding us through the succession of day and night. Our body time modulates our blood pressure, hormones, and gastric juices, makes us grow tired and reawaken. It works in perfect rhythm with the finest mechanical clocks, because the natural chronometer is a miracle of precision. Over the course of decades that make up an entire life it is off by no more than a few minutes.³ Our bodies are keenly aware of outer time, down to almost the exact second.

Siffre and his colleagues brought the workings of this biological clock of the human body to light. Very few researchers get the chance to make such a great discovery;

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this result alone would have been ample reward for the weeks in isolation.

However, their experiments yielded still another exciting outcome: Although the biological clock modulates every aspect of our lives, it is not what we associate with the concept of time. Our consciousness produces its own inner time, which we might think of as the pulse of our souls. Everything we see, think, and feel is measured against it.

Inner time works independently of both mechanical and biological clocks. Siffre's biological clock kept a perfect rhythm, yet his sense of time had shifted substantially in relation to that of his friends. All of us find that our consciousness freely creates its own time frame; if it didn't, we would not need to wear instruments on our wrists to tell us what time it is.

How Long Does an Hour Last?

But why does our body possess a perfectly calibrated instrument to measure time if we cannot read it? We are oblivious to many of the processes that take place in our bodies, such as the extremely efficient way our livers modulate our metabolism, even after an all-you-can-eat buffet. The economy of attention requires that most functions in the body have to proceed without our conscious awareness. We would lose our minds if we had to take note of hundreds of thousands of biochemical reactions somewhere in our bodies at all times. As we will see, our body time is guided by biochemistry.

Perhaps the clock that determines the rhythm of our days is not suited to counting minutes, which might seem odd, because when we think of time, we picture a clock face

with several hands to indicate minutes and even seconds as well as the hour. A church clock is useless in determining the winning time in the 100-meter dash; a stopwatch does not distinguish between morning and evening. A similar situation applies to our physical and mental timers: We need—and have—several yardsticks to orient ourselves in time. When we are experiencing the span of a moment, seconds count; for our day and night rhythms, by contrast, our bodies need a clock that runs at least 24 hours long.⁴

The clocks of the body and the consciousness measure time in completely different manners. The body clock determines the time automatically. Sixteen hours after awakening we grow tired, whether we like it or not. Its gauge is fixed.

Inner time, by contrast, depends on the focus of our consciousness at a given moment. Our ability to gauge time is an extremely complex function of the brain, more learned than innate. How long does an hour last? The question seems trivial, yet it is anything but. The answer requires us to bring in past experiences as a yardstick: An hour spent waiting for a streetcar seems like an eternity; an hour in a doctor's waiting room just barely acceptable; an hour's stopover at an airport before a transcontinental flight is a quick connection. We rely on our memories of hours spent at streetcar stops, at doctors' offices, at airports in the past. To form a picture of those time intervals, we need memory. If our memory fails, we lose our sense of inner time.

Michel Siffre's memory was intact, but he appears to have lost all gauges of time. Sounds are different in a cave; scents are unfamiliar. And what little there is to see appears as a shadow in the light of the mine. The stream of events that

normally pours over us seems diluted to an extreme. For minutes on end, nothing whatsoever happens, then a drop of water can be heard, and then there is silence. In this setting our accustomed means of calculating intervals, which work so well in the light of day, are doomed to failure. This was Siffre's disturbing experience.

The Trouble with Time

The rhythm of day and night is programmed into humans at birth, but we structure our day in accordance with minutes and hours, using their scale to schedule appointments or to figure out how long we will need to accomplish a given task. But minutes and hours are not natural measures of inner time. Nature did not equip us with an innate sense of the intervals of time that matter most in our everyday lives. If it had, life would be simpler: If we could count on a gauge for time intervals just as reliable as the one that makes our stomachs growl at noon, we would not miss our trains, we would have no trouble organizing our workdays, and we would get to our meetings on time.

Why didn't evolution provide us with a clock to measure minutes and hours? As with all questions about the why of nature, this one allows only for speculation. Probably in the past there was simply no need to establish a chronometer for intervals of this order. A creature has to adapt to the rhythms of day and night in order to hunt for food when its natural enemies are sleeping. It can be a matter of life or death whether an animal leaves its shelter at daybreak or at noon, but it is of no consequence whether it gathers the first nuts at exactly 4:17 or fifteen minutes later.

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Minutes and hours have no meaning in the wilderness. Traditional tribal cultures also get along without them. The languages of some traditional cultures even lack vocabulary for such brief periods of time.⁵ Only highly developed societies have demarcated these segments of time, a process the British natural philosopher Gerald Whitrow has called “the invention of time.” This invention has enabled people to coordinate their activities in an increasingly complex network of relationships, but it runs counter to human nature, which is why people continue to grapple with issues of time far more than when living in a cave, and their control over minutes and hours keeps breaking down as they lurch from one mini-crisis to another.

We generally think of time as an unvarying mush; one spoonful tastes exactly like the rest. We picture 60 seconds adding up to a minute, 60 minutes to an hour, 24 hours to a day. Every unit is simply a fraction of the next.

But our experience of time tells a different story. Our perception of a single moment has nothing in common with the mental processes that make spending an hour in the waiting room unbearable or make us notice that our stomach growls when the clock strikes twelve. In an alien environment, such as a cave, these disjunctures are immediately evident, but in everyday life we fail to notice them, because we rely on clocks, which measure all time uniformly. Since this uniformity runs counter to our nature, however, they seem positively tyrannical.

We have the freedom to enjoy a far richer experience of time. An hour is often more—or less—than the sum of its minutes. And there is more to a day than a set of twenty-four hours.

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