The Stone is a forum for contemporary philosophers and other thinkers on issues both timely and timeless.

I.

It was on an all-night Capitol Air flight to Brussels, sitting in the back smoking rows with Leon Festinger, playing endless backgammon and consuming Scotch at an alarming rate, that I realized that, whether I liked it or not, I was about to learn a lot about human origins and uniqueness.

The year was 1981. Leon, the ingenious and intellectually adventurous social psychologist responsible for the theory of cognitive dissonance, had once again switched fields, this time from visual perception into what amounted to archaeology, and I was his sidekick.

We’d had extensive discussions in New York, secured a small study grant from the Alfred P. Sloan Foundation and were off to France to learn more about lithic technology (the production of tools from stone) from a master of the discipline, the archaeologist Jacques Tixier. We wanted to know what on earth had happened roughly one million years earlier when humankind started to make stone tools. As we exited the cigarette-fouled cabin after the long flight, Leon calmly observed, “You know when they outlaw smoking on planes, I am not going to be able to make
We made our way by train to Paris and found ourselves in meetings with others interested in our quest, like the psychologists David Premack and Serge Moscovici. David’s deep knowledge of the chimp mind and its inventiveness was always challenging to simple notions of what makes humans so vastly superior to other species in the acquisition of complex skills. Serge, in his work in the social domain, emphasized the dynamics of groups in human activity and how revolutionary and innovative ideas sped humankind along.

This rich discourse was always considered over good food, which found us at Allard in the Sixth Arrondissement. I can vividly remember a dinner when, over Canard de Challans aux olives, after taking a bite of bread, Leon complained to a stunned waiter, “This is the morning’s baguette, not the afternoon’s.” Our French host calmly took a bite of the baguette in question and confirmed the observation. The duck, on the other hand was out of this world.

Paris may be the most beautiful place on the planet where humankind comes at you at every turn. There is nothing subtle about it, nothing to suggest that some sort of gradual evolution occurred to create it. Even the trip over, in which 220 animals calmly accepted their shared use of the hugely complex technology of a jet plane, revealed the special capacities of humankind: We are inventive and we thrive in groups. And we all want to know what flipped the switch in our ancestors. What made us this way?

Leon thought clues were to be found in how stone tools came to be — and so, we were soon back on the train, this time to Antibes to visit Jacques Tixier, who welcomed us to his studio. While I don’t think Leon ever used a tool in his life, there was no one on earth who could have been more attentive. Watching the master make stone tools, Leon wrote in his 1983 book “The Human Legacy,” was far more instructive than anything he had learned from his considerable reading on the subject. He observed: “The ringing sound that came from a good piece of flint and the dull sound from a poor piece; watching him decide where to prepare the striking platform; seeing how he held the stone and how he struck it; my surprise to realize that the flake came off the bottom of the stone as he held it; the certainty with which he knew the size and shape of the flake that was to be
produced.”

Tixier also narrated as he worked, explaining in clear language what he was doing. He was telling the story of this particular tool as it was made. Luckily for me it was in English.

It was soon evident that Leon and I were considering two different aspects of this magical afternoon. On his large canvas of the evolution of humankind, he was taken both with the incredible insight of early humans to use the power of external objects (technology) for work and to be persistent in its development. It was, and still is, the inventive human mind producing technologies, and then teaching them to others, as David Premack pointed out, that pushes humankind ahead.

What fascinated me was the million-year plateau, the long period that passed when not much changed in stone-tool sophistication. Then suddenly, about 100,000 years ago, all the complexity we witnessed in Tixier’s tools began to appear. We estimate that human language emerged about 100,000 years ago as well. This is the point when language quickly becomes almost essential to complex thought. For decades, scholars have sought to link the appearance of language to all the grand things we humans do. I recalled that it was when Tixier provided the verbal narrative to the toolmaking process that it became so clear to us. A word says a lot, and the resulting savings on the mind’s resources is huge.

Yet to dwell on the role of language misses Leon’s underlying insight. It is the more primitive inventiveness of humans — technology and its role as the engine that powered humankind to dazzling heights of accomplishment — that pushed the slow grind of advancement into the fast lane of evolution. And Leon, being a social psychologist at his core, began to see how technology could be used to control human life. Technologies are not only physical things. They can be social forces as well, like philosophical or religious beliefs.

II.

Some years before our Paris trip, my own work in split-brain science had taken a new turn. In 1976, my student Joseph LeDoux and I were studying a teenaged boy, known in the scientific literature as P.S. He had undergone split-brain surgery, which severed the pathways between the left and right hemispheres of his
brain in an effort to curb his epilepsy. We were in the business of cataloging which mental functions were located in the left and right brains.

We had long known that language and speech processes were located in the left hemisphere, but absent from the right hemisphere, where various nonverbal skills are carried out. In normal, nonsplit brain cases, the two sides work together by integrating the information each receives. But in split-brain patients like P.S., that communication between hemispheres is cut off.

Here, visual perception plays an important role. Normally when a person focuses on a point in space, all visual information to the right of the fixated point is projected to the left brain and all visual information to the left of the point is projected to the right hemisphere. So by positioning images in certain places in relation to the patient’s focal point we can deliver visual information to either side of the brain. Images or words perceived by the left hemisphere can be easily described with language, but those perceived by the right cannot.

In the classic test for split-brain subjects, we flashed a picture of a snow scene to the right-half brain, while at the same time we flashed a picture of chicken claw to the left-speaking brain. When asked afterward what they saw, they could name only the claw. They knew nothing of the snow scene seen only by the disconnected right brain. The right brain does not speak.

We devised a slightly more interesting test for P.S. Instead of asking him what he saw, we presented him with two groups of picture cards and had him point to the one that best matched what he had seen. In quick fashion, his right hand (controlled by the left half of the brain) correctly pointed to a picture of a chicken, and the left hand (controlled by the right) correctly pointed to a snow shovel — meaning both sides of the brain had done its processing.

At this point in the test, the left brain actually didn’t see the snow scene and in fact should have no idea why the left hand pointed to the shovel. Of course, the left brain knew why the right hand pointed to the chicken, since all of the brain processes involved in such act were part of the left brain.

Then we stumbled on something very new. After 25 years of doing this test we finally asked a different question. “Why did you do that?”
At that moment, his left brain was immediately confronted with a puzzle. Again, it knows why the right hand pointed to the chicken but why did the left hand point to the shovel? So, on the spot the left brain said, “Oh, the chicken claw goes with the chicken, and you need a shovel to clean out the chicken shed.”

That one simple observation, now repeated dozens of time on several patients, revealed another special capacity of the dominant left brain. We called this device the “interpreter” and have come to realize it is the storyteller, the system that builds our narrative and gives our many actions that pour out of us, frequently outside of our conscious control, a centrality, a story — our personal story. It is so powerful an addition to humankind that it masks the reality: We are, in fact, a confederation of relatively independent agents, each struggling to be part of our narrative that is our story. It turns out the left brain has another capacity potentially more important than language itself. The interpreter is the thing that sticks all of those parts together.

It has been almost 37 years since we first made these observations, which is about a microsecond in evolutionary time. Still, it has allowed me to see connections with other ideas about humankind.

III.

In Graham Swift’s novel “Waterland,” the narrator, a history teacher named Tom Crick, defines the human as “the storytelling animal” who “wants to leave behind not a chaotic wake, not an empty space,” but the “comforting trail signs of stories: As long as there’s a story, it’s all right.” Even at the moment of death, he says, we see our life rush before us as a story.

Our ability to group events into a narrative could certainly help us feel better, could help us store the events as a single episode for later use, or could help us interact in a complex social setting. My threaded interpretation, however, could be different from yours. For stories (beliefs) to be useful as a technology to control groups of people, it is necessary to standardize our interpretations, something we know has occurred almost from the beginning of recorded human history.

This is why the historian Yuval Harari, in his book “Sapiens: A Brief History of Humankind,” has proposed that in addition to our personal narratives, we produce
collective fictions that are a uniquely human capacity. “We control the world basically because we are the only animals that can cooperate flexibly in very large numbers,” he writes. “And if you examine any large-scale human cooperation, you will always find that it is based on some fiction like the nation, like money, like human rights. These are all things that do not exist objectively, but they exist only in the stories that we tell and that we spread around. This is something very unique to us, perhaps the most unique feature of our species.”

Leon used to tell me he didn’t believe visual imagery existed because he didn’t get it. He hated scientific graphs and instead loved the densest mode of scientific presentations, a table of data. He was the most rationally driven man I have ever met and yet he could turn it off on a dime and talk about recipes for potato pancakes. When he was in his scientific mode, few could keep up with him. His capacity for abstraction was special and rare.

Yet when Yuval Harari is talking about gaining control of people by the use of fictions, he is talking about the kinds of abstractions and ideas everybody can understand — money, religion, politics and preferences, the kinds of things an interpreter is at work on all day long. As the novelist captures the personal, the historian captures the social story within which most of us are embedded and uniquely thrive. It is the inventive interpretive mind first applying itself to our personal life and then to our social existence that is our core skill. Once humankind realized it possessed this technology, we seized on it to thrive in and control our niche on earth.

Back to Brussels to catch the return flight home. Another eight hours of Camels, backgammon and Scotch, but this time feeling a sense of success. In the taxi from Kennedy Airport we were going through Lower Manhattan and Leon suddenly said, “Have you ever had pickles from Katz’s Delicatessen?” The driver quickly doped out what was to follow. I waited in the taxi idling on Ludlow Street while Leon went in to buy two containers of pickles.

It is that big canvas of human history we had experienced on our trip, and this ever so small one, existing at once, that makes humankind so wonderful.

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