

Michel Serres and Bruno Latour. 1995. *Conversations on Science, Culture, and Time*.

All Authors Are Our Contemporaries

BL With time. I think your most striking trait for all of us, as modern readers, is that you are absolutely indifferent to temporal distances. For you Pythagoras and Lucretius are no more or less distant than La Fontaine or Brillouin. One would say that for you there is no such thing as time. That everything is contemporary. But we, as pedestrians, say: "Nevertheless, Livy is way back there and buried. How can he mix him in with contemporary science?" What enables you to bring together in the same

time frame all these genres, authors, books, myths? We'll talk later about what makes the links among them.

MS In order to say "contemporary," one must already be thinking of a certain time and thinking of it in a certain way. Do you remember what we said earlier about historians' "time"? So, let's put the question differently: What things are contemporary? Consider a late-model car. It is a disparate aggregate of scientific and technical solutions dating from different periods. One can date it component by component: this part was invented at the turn of the century, another, ten years ago, and Carnot's cycle is almost two hundred years old. Not to mention that the wheel dates back to neolithic times. The ensemble is only contemporary by assemblage, by its design, its finish, sometimes only by the slickness of the advertising surrounding it.

Likewise, how many books appearing today are really and entirely contemporary? Take, for example, some book that seeks to reflect on certain recent scientific discoveries. Its philosophical reflection dates from the eighteenth century and earlier—a sort of scientistic materialism in the style of Helvétius or Holbach. There is often a serious lag between philosophical debate and scientific information. While the latter dates from today, the philosophical reflections that the author draws from it come from a bygone era, and this discrepancy makes these books—and certain debates, as I have already noted—into veritable caricatures.

This is often the case in epistemology. The two elements rarely date from the same period. It's like a building with one Greek wing, complete with columns and pediment, and the other, contemporary, pre-formed concrete and tinted glass. Half-Mona Lisa, half-Max Ernst. Come on now—do you split atoms with a pickax? When I began my studies I even had the impression that there was *no truly contemporary* reflection on the sciences.

A Different Theory of Time

MS It's a matter of interdisciplinarity.

BL *But doesn't this suppose another temporality, a nonmodern way of considering the passage of time?*

MS This is truly the fundamental question. Whether it's the scientific hypothesis, on the one hand, which we have called the hypothesis of excellence, or, on the other hand, that of historicism, the two suppose that time develops in a linear fashion—that is, that there really is an enormous distance, more than a score of centuries, between Lucretius and today's physics. Whether this time is cumulative, continuous, or interrupted, it always remains linear.

BL *Because of succession. Or successions of revolutions, as described by the epistemologists or even Foucault.*

MS There you are. But time is in reality somewhat more complicated than that. You no doubt are familiar with chaos theory, which says that disorder occurring in nature can be explained, or reordered, by means of fractal attractors.

BL *Yes. According to this, chance is nonetheless determined, and disorder is produced by an underlying order.*

MS Exactly. But in this, order as such is harder to perceive, and customary determinism has a slightly different appearance. Time does not always flow according to a line (my first intuition of this is in my book on Leibniz [284–86]) nor according to a plan but, rather, according to an extraordinarily complex mixture, as though it reflected stopping points, ruptures, deep wells, chimneys of thunderous acceleration, rendings, gaps—all sown at random, at least in a visible disorder. Thus, the development of history truly resembles what chaos theory describes. Once you understand this, it's not hard to accept the fact that time doesn't always develop according to a line and thus things that are very close can exist in culture, but the line makes them appear very distant from one another. Or, on the other hand, that there are things that seem very close that, in fact, are very distant from one another. Lucretius and modern theory of fluids are considered as two places separated by an immense distance, whereas I see them as in the same neighborhood.

In order to explain these two perceptions we must, in fact, clarify the theory of time. The classical theory is that of the line, continuous or interrupted, while mine would be more chaotic. Time flows in an extraordinarily complex, unexpected, complicated way...

BL So, it is not you who travel through time but, rather, the elements that become close in this chaotic time?

MS Certainly. Time is paradoxical; it folds or twists; it is as various as the dance of flames in a brazier—here interrupted, there vertical, mobile, and unexpected.

The French language in its wisdom uses the same word for weather and time, *le temps*. At a profound level they are the same thing. Meteorological weather, predictable and unpredictable, will no doubt some day be explainable by complicated notions of fluctuations, strange attractors... Someday we will perhaps understand that historical time is even more complicated.

BL In any case, it doesn't "pass."

*MS Yes, it passes, and also it doesn't pass. We must bring the word pass closer to *passoir*—"sieve." Time doesn't flow; it percolates. This means precisely that it passes and doesn't pass. I'm very fond of the theory of percolation, which tells us things that are evident, concrete, decisive, and new about space and time.*

In Latin the verb *colare*, the origin of the French verb *couler*, "to flow," means precisely "to filter." In a filter one flux passes through, while another does not.

BL But it doesn't pass in the form of a fluid. It's not a fluid.

MS Who knows?

BL It is perhaps turbulent, but not linear...

MS "Sous le pont Mirabeau coule la Seine..." [Beneath the Mirabeau Bridge flows the Seine...]—thus flows classical linear time. But Apollinaire, who had never ever navigated, at least on fresh water, hadn't studied the Seine enough. He hadn't noticed the counter-currents or the turbulences. Yes, time flows like the Seine, if one observes it well. All the water that passes beneath the Mirabeau Bridge will not necessarily flow out into the English Channel; many little trickles turn back toward Charenton or upstream.

BL They don't flow like parallel trickles.

MS It's not always laminar. The usual theory supposes time to be always and everywhere laminar. With geometrically rigid and measurable distances—at least constant. Someday it will be said that that is eternity! It is neither true nor possible. No, time flows in a turbulent and chaotic manner; it percolates. All of our difficulties with the theory of history come from the fact that we think of time in this inadequate and naive way.

BL All the theologians agree with you.

MS Really? Maybe that's why I so greatly admire Péguy's work.

BL His Clio? [Clio: Dialogue between History and the Pagan Soul.]

MS Yes, *Clio*. In it one sees, from the evidence, a time that is completely turbulent.

From this you understand how Lucretius can be as close to us as our neighbor and, conversely, how contemporary things can become very distant.

BL You have a topologically bizarre space as your reference for understanding time.

MS There is in Lucretius a global theory of turbulence, which can make that time really understandable. His physics seems to me truly very advanced. Along with the contemporary sciences, it holds out the hope of a chaotic theory of time.

BL Everyone has heard you say this, and no one believes you.

MS Nonetheless, fairly simple mathematics can also easily bring one to such an idea. A certain theory of numbers reorders their sequence in such a way that near neighbors become very distant, while, inversely, distant numbers come closer. It's fun, instructive, and has a strong influence on intuition. Once you've entered into this kind of thinking you realize how much all of what we've said about time up till now abusively simplifies things.

More intuitively, this time can be schematized by a kind of crumpling, a multiple, foldable diversity. If you think about it for two minutes, this intuition is clearer than one that imposes a constant distance between moving objects, and it explains more. Everyone is amazed that after 1935 the Nazis, in the most

scientifically and culturally advanced country, adopted the most archaic behavior. But we are always simultaneously making gestures that are archaic, modern, and futuristic. Earlier I took the example of a car, which can be dated from several eras; every historical era is likewise multitemporal, simultaneously drawing from the obsolete, the contemporary, and the futuristic. An object, a circumstance, is thus polychronic, multitemporal, and reveals a time that is gathered together, with multiple pleats.

BL You are explaining here a sentence I was going to ask you to explain from your book *Le Tiers-Instruit*, which speaks of precisely these non-metrical diversities: "I have always used a process of abstraction like this, which could be called topological, and whose principle consists of describing non-metrical diversities—in this case, the network."

MS Yes. If you take a handkerchief and spread it out in order to iron it, you can see in it certain fixed distances and proximities. If you sketch a circle in one area, you can mark out nearby points and measure far-off distances. Then take the same handkerchief and crumple it, by putting it in your pocket. Two distant points suddenly are close, even superimposed. If, further, you tear it in certain places, two points that were close can become very distant. This science of nearness and rifts is called topology, while the science of stable and well-defined distances is called metrical geometry.

Classical time is related to geometry, having nothing to do with space, as Bergson pointed out all too briefly, but with metrics. On the contrary, take your inspiration from topology, and perhaps you will discover the rigidity of those proximities and distances you consider arbitrary. And their simplicity, in the literal sense of the word *pli* [fold]: it's simply the difference between topology (the handkerchief is folded, crumpled, shredded) and geometry (the same fabric is ironed out flat).

As we experience time—as much in our inner senses as externally in nature, as much as *le temps* of history as *le temps* of weather—it resembles this crumpled version much more than the flat, overly simplified one.

Admittedly, we need the latter for measurements, but why extrapolate from it a general theory of time? *People usually confuse*

time and the measurement of time, which is a metrical reading on a straight line.

BL So mathematics, which is your model, is not metrical?

MS It can easily become so. Sketch on the handkerchief some perpendicular networks, like Cartesian coordinates, and you will define the distances. But, if you fold it, the distance from Madrid to Paris could suddenly be wiped out, while, on the other hand, the distance from Vincennes to Colombes could become infinite.

No, time does not flow as people think it does. The time we spontaneously use imitates the succession of natural integers.

BL So, it's never a case of your inventing the proximities, in your opinion? Whereas for a modernist, time passes, falls behind him, is obsolete.

MS Archaisms can always be found among us, while Lucretius, in some instances, is right on top of things, as they say.

Let me tell you a true story. Have you ever heard how some brothers, in their seventies, were grouped around their father for a funeral vigil, weeping for a dead man aged thirty or less? He had been a mountain guide and, following an accident, had disappeared into a crevasse in the high mountains. He reappeared more than a half-century later, deposited in the valley by the glacier, perfectly conserved, youthful, from the depths of the cold. His children, having grown old, prepare to bury a body that is still young. That's the source of this alpine scene, which is precisely an anachronism, and is admittedly rare here, but often observed—between a writer and his critics. Art, beauty, and profound thought preserve youth even better than a glacier!

Admire how, on the problem of time, an unpretentious true story agrees with recent science, to produce good philosophy.

BL It's precisely this biographical and philosophical bizarreness that sets you apart from modernists and makes you so difficult to read.

MS We are archaic in three-fourths of our actions. Few people and even fewer thoughts are completely congruent with the date of their times. Recall what we were saying earlier about the present.

BL Yes, but it's not enough to say it that way. A modernist could say it also. But for him it would mean that the archaic is repressed, dangerous, that it could leap out at us. Whereas for you it is a positive affirmation.

MS Why the specter of this pointless repression? Antiquity is there, most often, without needing any air pump (a truly obsolete instrument) to drive it back.

BL For you *archaicism* is not a holdover of which we still need to rid ourselves more completely. That would be the position of Bachelard, for example.

MS Maybe. Everything depends on the way you understand the passage of time.