

Culture and Memory

Reminiscences and Symmetries

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"I shall attempt the analysis of memory ... because memory in some form is presupposed in almost all other knowledge."
Bertrand Russell, *The Analysis of Mind* (1921)

"Beginning with *homo sapiens*, the formation of an apparatus of social memory stands out as the foremost problem of human evolution."
André Leroi-Gourhan, *Le Geste et la Parole* (1965)

Meme, Mneme, Mnemosyne: two neologisms, one dating from 1976 and the other from 1904, and the mythical figure personifying Memory from the time of the Titans – a strange primordial deity that the imagination brought forth even before the time of mortal men began. Her name is all that survived through the ages, yet this fleeting presence among the gods was just as consequential as a major figure like Prometheus. Could she have been conceived of as an indispensable condition for human beings to usher in the reign of culture?

According to ancient narratives, Mnemosyne was the offspring of an incestuous union of the Sky (Ouranos) and his mother, the Earth (Gaia), herself the daughter of original Chaos. Impregnated by Zeus (her Olympian nephew, the rebel son of her brother Cronos and her sister Rhea), the Titaness became the mother of the Muses, the third of which – in the archaic tradition prior to Hesiod – was still known by the name of *Mnêmê*, or Memory. It is common knowledge that until the recent past, the nine canonical Muses were the protectors of the arts and sciences (even if their names do not recall this direct ancestry), and that the infinite care they tendered to "the art of memory" (mnemonics or *ars memorativa*) went hand in glove with their rhetorical vocation which, for centuries, provided the framework for Western education and cultural trans-

mission.¹ Moreover, the idea of inscription or traces left in the brain is as ancient as the art of assigning them “places,” or *topoi*: memory, according to a seminal text dating from the last century before our era, is like a form of “inner writing.”²

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Two thousand years later, a new myth was invented, that of the “Meme.” Confronted with the ever-elusive question of the origin of memory and culture, recent explanations have persisted in establishing a link with a primal chaotic state, unpoetically dubbed the “primeval soup.” In this brew, very particular molecules arose (exactly how they emerged is not clear, but no matter): these were “replicators,” capable of self-reproduction.. Then from copy to copy, faithful in principle but sometimes deviating slightly, evolution took its course until it reached the replicators that are genes, for which we human beings are one particular mode among the various “survival machines.” This is precisely where things get complicated. In order to define a new type of “replicator” that is able to account for cultural evolution (presumed to be distinct from the evolution that is governed by the “selfish gene,” but also ruled by the mechanism of Darwinian selection), the biologist Richard Dawkins writes in the conclusion of a book that has achieved great popularity:

I think that a new kind of replicator has recently emerged on this very planet. It is staring us in the face. It is still in its infancy, still drifting clumsily about in its primeval soup, but already it is achieving evolutionary change at a rate that leaves the old gene panting far behind.

The new soup is the soup of human culture. We need a name for the new replicator, a noun that conveys the idea of a unit of cultural transmission, or a unit of *imitation*. “Mimeme” comes from a suitable Greek root, but I want a monosyllable that sounds a bit like “gene.” I hope my classicist friends will forgive me if I abbreviate mimeme to *meme*.^{*} If it is any consolation, it could alternatively be thought of as being related to “memory,” or to the French word *même*. It should be pronounced to rhyme with “cream.”

Examples of memes are tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation.³

The asterisk in Dawkins’s second edition refers to endnotes that invite the reader to share in the author’s joy over the success

of his new word: "it is now quite widely used and in 1988 it joined the official list of words being considered for future editions of the *Oxford English Dictionary*"; a brain scientist in Germany who maintains that memes are not simply metaphors but actual living structures proposes a detailed picture of what Dawkins calls their "neuronal hardware"; and instruments such as the *Science Citation Index* (which keeps track of the number of times a text is cited in scientific journals) have also traced the term's ascending curve, raising it to the respectable level of a veritable meme in its own right.⁴

If the artistic license of its definition risks baffling the lexicographers at Oxford, the accidental character of the meme does not seem to prevent the presumed cultural molecule, flighty as it is, from finding its way far beyond the frontiers of scientific popularization (which is its natural habitat); thus it is thrust into territories that are far removed from its inventor's field of expertise – anthropology and, more generally, the social sciences. Thus, in his latest essay, the cognitive anthropologist Dan Sperber – an author who is as independent as he is original – takes Dawkins's propositions seriously enough to take them into account in his "naturalist theory of culture," even if he rejects them in the end along with other sociobiologies based on an "overly cursory psychology." According to Sperber, "the success of the word 'meme' was such that it can be seen if not as a confirmation, then at least as an illustration of the very idea of the meme": bearing this out are the applications made by the philosopher Daniel Dennett or the anthropologist William H. Durham, as well as the current of all those who follow Karl Popper's or Luigi Luca Cavalli-Sforza's lead in subscribing to the selectionist conception of cultural evolution – which is just what Sperber is attempting to reconcile with a cognitivist model in which the social sciences could believe.⁵ Leaving open the choice between Greek and Latin etymologies (on the one hand imitation, mimetism, from *memos*, meaning buffoon or farce; on the other, memory, from *memoria*), and the double French echo – both the hauntingly homonymous "mème" of identity and the taunting rhyme of "crème" (an allusion to social selection lurking in the wings?) – it is possible that the apparently intentional imprecision of the definition proposed by Dawkins explains the ease with which this term

was adopted. A jocular scholarly pun supposed to designate the minimal units of culture by analogy with the minimal units of life, and consequently charged with embracing all that escapes the biological but yet fails to elude the regime of selection, the new word affects a light-hearted, seductive air, with just a hint of recklessness. But a theory that seeks to appear plausible also aspires to elegance. In order for the theory of the "selfish gene" to remain applicable from one end of the living world to the other, despite the disturbances created by the cultural escapades of human beings, what is called for is a counterpart on the cultural side, if only for the sake of symmetry: on the model of genetics, the study of the gene, a "memetics," or science of the meme, has yet to be invented.

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Dawkins's problem is not a new one. Nearly a century earlier, an ebullience similar to today's came to light, when Darwinism was declared to be undergoing a crisis and social Darwinism was becoming contagious. Simultaneously, across disciplinary borders, the most innovative scholars and researchers began to band together in the monist movement, in the hopes that a unified science, at last freed of all metaphysical dross, would take shape along with a renewed ethics that would uphold the individual in the enjoyment and exercise of his mental faculties, leading societies towards a union of peaceful nations the world over. It was in this context that new words were forged on the basis of old ones, in order to better apprehend the simultaneously organic and psychic functioning of memory.

Today again, the word "mneme" (derived from the Greek *mnêmê* or memory) figures in dictionaries of contemporary usage, where it is defined in the simplest possible way as the "organic trace that makes memory possible" (a synonym of the term that has gained currency in psychology, "engramme," or trace-effect of stimulation). Certain lexicons specify that the mneme is a concept that embraces both innate and acquired qualities, and that in this sense it was proposed as early as 1904 by the German zoologist and explorer Richard Semon (1859-1918), the essential idea being that "memory is to be considered not merely as a psychic faculty but as an organic faculty."⁶

The great dictionaries of the period are even more prolix on the subject of the term coined by Semon. According to one of them, the mneme is the group of stable modifications that are provoked in an organism by stimuli and that explain the phenomena of memory, association, and heredity. The mneme is made up of all the "engrammes" or trace-effects of memory, whether acquired or inherited, that are permanently inscribed by the stimuli in the nervous tissue and that are thought to produce the same reactions in response to an original stimulus as to similar ulterior stimuli, even weaker or qualitatively different ones.

Semon maintains that the mnemonic processes, which can be observed in man and in the higher animals, are consistent with evolutionary processes. According to his argument, any stimulus acts first upon a specific part of the organism, but it can also, via the "engrammes," influence other parts of the body, and even the germinal cells. Through the cumulative effect of frequent repetition this phenomenon is augmented to the point that it manifests itself in the next generation, thus assuring the inheritance of acquired characteristics. It follows that any germinal cell must be in possession of the entire inherited mneme. Distinct from external influences, the mneme appears to Semon's eyes to be the structure that conserves modifications in passing phenomena, at least as long as these modifications are not eliminated by natural selection.⁷

This theoretical construction is neither more nor less conjectural than that of Dawkins. On the other hand, it has the advantage of being clear and solidly built because of the possibilities it affords biological and psychological knowledge. Moreover, it is lacking in those ideological transgressions and hodgepodes that characterize yesterday's "social Darwinism" and today's sociobiology. This perspective falls in with the already widely heralded claim that – for lack of a better model, and taking into account the fact that this approach cannot predict the future explanatory capacities of genetics – heredity is a form of specific memory of the species:

- In Germany and in Austria, the direct inspiration came from the physiologist Ewald Hering who, in 1870, produced the hypothesis of a memory assimilated to a "general function of organized matter": a formulation that is rarely analyzed

- but tirelessly repeated even in our day, and which, apparently, has played the role of a powerful heuristic detonator. In Semon's eyes, Hering, although he was on the right track, remained at the level of the simple analogy and did not prove the identity of the different faculties of reproduction.⁸ Ernst Haeckel, of course, adopted the idea as his own on several occasions (1875 and 1904), as did other highly reputed researchers belonging to the monist or positivist tendency: the entomologist August Forel, who as a psychiatrist studied the anomalies of memory (1885); the physician and philosopher Ernst Mach, in his *Contributions to the Analysis of Sensations* (1886)⁹; and the chemist Wilhelm Ostwald (the founder of the theory of energetics), who integrated Hering's idea into his philosophy of nature (1902).
- In England, the psychiatrist H. Maudsley (1867) can be seen as a forerunner of Hering. Semon also mentions Samuel Butler (1878), of whom he did not have a very high opinion, and a fervent Darwinian who specialized in the nervous system, George John Romanes, for his book *Mental Evolution in Animals* (1883, translated into German in 1885), which includes as an appendix Charles Darwin's *Essay on Instinct*, published posthumously.¹⁰
 - In France, Semon cited as a basic reference the psychological study of heredity by Théodule Ribot (1873), who was at once the translator of Spencer, the popularizer of Schopenhauer, and the founder of experimental psychology in France.

Who remembers Richard Semon today? As an individual, he has fallen into oblivion, even though his name remains associated with the notion of the mneme. A scion of the wealthy Jewish bourgeoisie (later ruined) that originated in Danzig (Gdansk), he was assimilated and converted to Protestantism; a great Prussian patriot, he committed suicide in 1918 in despair over the defeat of Germany. In his youth, Semon had been the disciple and assistant of Ernst Haeckel, and like his mentor he subscribed to monist materialism, but it was as an independent researcher seeking a unifying concept for all the phenomena of reproduction in organic life that he published his two theoretical volumes early in the

twentieth century: *The Mneme as a Conservative Principle in the Change of Organic Evolution* (1904) and *The Mnemic Sensations as Related to the Organic Sensations* (1909).¹¹ These books laid the groundwork for his neo-Lamarckian position, which he defended in a book published in 1912, *The Problem of the Heredity of Acquired Characteristics*.¹² Presumed to be compatible with Darwin's theory, this position corresponded to a relatively influential current within German Darwinism, which was as opposed to psycho-Lamarckism (considered overly metaphysical) as it was to a belief in the "omnipotence" of natural selection as professed by the neo-Darwinian August Weismann and his zealous followers (who were for the most part believers in social Darwinism). These followers, conscious that the logical proof supplied for the conception of heredity as a process of memorization could furnish a powerful argument in favor of the inheritance of acquired characteristics, formulated the principal criticisms of Semon's conjecture, from a radically innatist perspective; these critiques were moreover linked to the establishment of eugenic programs for eradicating supposedly hereditary diseases.¹³

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Beyond the undeniable phonological echo, are there commonalities between Semon's *mneme* and Dawkins's *meme*? Apart from the former's interest in the phenomenon of "organic" memory and the latter's association of memory with imitation, and apart from the emphasis in both cases on phenomena of repetition, can we discern elements that connect these two thinkers to each other? We must also ask whether there is a concretely discernable line of descendance, whether direct or indirect, between the two neologisms. An attempt to answer the first question would call for a thorough comparison of these two notions, both of which are liable to rekindle an old debate, in their respective contexts. Still as volatile and, above all, as dubious as ever, given the circular nature of its questions and the repetitiveness of the proposed solutions, this debate is enmeshed in a knot of seemingly insoluble enigmas that flare up each time a biologist, psychologist, cultural historian, or even a sociologist think they have discovered the unique key, the infallible principle, or simply the appropriate term

that will make it possible to illuminate the original mysteries of culture, the difference between man and animal, the duality of soul and body, nature and nurture, innate and acquired, and so forth. Such an analysis without a doubt would exceed the scope of the present article; I will thus confine myself to pointing out a certain number of paths to explore, which moreover also have a bearing on the problem of the genealogy of these neologisms, the possibility that one of the terms is derived from the other.

The fate of the concept of the *mneme* is closely tied to that of neo-Lamarckism. In 1928, barely two years after the notion of the inheritance of acquired characteristics was definitively condemned, the same great German dictionary that in 1906 had discussed in detail Semon's newly hatched "doctrine" declared curtly that the idea of a memory at the level of cells and of germ plasm (*keimplasma*) was not accorded general recognition.¹⁴ As it happens, the Austrian biologist Paul Kammerer, who had been taken to task for fraudulent experiments in his attempts (which were often spectacular and steeped in polemics) to prove the hereditary transmission of acquired characteristics, was a friend of Richard Semon and August Forel: like them, he defended psychophysiological monism in the scientific arena, and with them he fought to advance the cause of ethical monism (for cultural progress, social reform, world peace, and so on). Therefore it does not appear to be simply by chance that Semon's "doctrine," as a buttress for the concurrent school in biology, was simultaneously eliminated regardless of its possible intrinsic value.

Until Semon's sudden death, his formulations had great impact and took many forms. Among biologists, there was the attention paid to the *mneme* by Francis Darwin, as well as by the cytologist Marcus Manuel Hartog, who adopted the idea for himself: "The mnemonic possibilities of an organism may be termed, collectively, its *mneme*."¹⁵ In Germany, the eminent biologist Oskar Hertwig recognized the arguments supporting the inheritance of acquired characteristics, put forth in Semon's article on callouses already formed on the sole of an infant's feet, even though the sole had never touched a hard surface.¹⁶

But the *mneme* not only crossed national borders; it also frolicked among philosophers, and not the least of these: the English

translation of Semon by Louis Simon was published in the same year in which the British logician Bertrand Russell, equally famous for his resolute pacificism, placed memory at the center of his reflections, adopting Semon's term.¹⁷ Memory was also an element of the pragmatic epistemology of Ernst Mach, one of the most influential philosophers of the period, whose epistemology, heavily inspired by Hume, is representative of a "neutral monism" which he shared with William James.¹⁸ Fritz Mauthner, a disciple and admirer of Mach, who simultaneously undertook a radically skeptical "critique of language," devoted a number of pages to Semon's mneme in the second edition of his 1901-1903 work, which indicted his contemporaries' "verbal fetishism" and, following Mach's example, rejected all metaphysics. Mauthner saluted Semon's essay as a valuable extension of Hering's fruitful comparison of the processes governing memory and biological heredity, nevertheless reproaching Semon for his pointless and sterile use of borrowed terms and, above all, for neglecting to see the proximity – even the identity – of memory and language.¹⁹

These references would already have sufficed to ensure the survival of Semon's invention, and even to enable it to emigrate far beyond biology, in various analytical fields of the human sciences. But in the long run, it took root in very circumscribed domains: biochemistry and psychiatry. The modern development of genetics, with the contributions of biochemistry, indeed implied a certain rehabilitation of Semon's studies, as indicated by the publications of Holger Hydén, J. V. McConnell, and Samuel Bogoch in the course of the 1960s. In Bogoch, for example, we read that "the glycoproteins of the nervous system represent the mnemonic substances in which experiential information is encoded."²⁰ We can trace the lode of psychiatry even further back, to Eugen Bleuler (1857-1939), who in 1911 coined the term schizophrenia and in 1924 published a *Natural History of the Soul: the initiator of "mnemism,"* Bleuler held the mneme to be an essential principle of life and of the psyche.²¹ Could it be that the idea of making the mneme a paramount theme in the "new anthropology" made its way to the promoters of this new approach – the philosopher Hans-Georg Gadamer and the physician Paul Vogler²² – via the detour of psychiatry? One of the authors represented in their work indeed maintains that the

increase of memory capacity is in his eyes one of the most powerful initiators of the development of conceptual language and culture in the evolution of man and the formation of language.²³ Another, Detlev Ploog (the director of the Max Planck Institute for Psychiatry in Munich), shortly thereafter gave his stamp of approval to a research project casting memory as both *memoria* and *mneme*. Originally setting out to examine the “biochemistry of memory,” he ended up producing an exhaustive study in three volumes of the psychological and biological aspects of memory and learning, culminating in a conception of “memory as a new psycho-physical concept” in which Semon’s idea and terminology play a role.²⁴

However, it was another Swiss psychiatrist, Auguste Forel (1848-1931), who became the true propagator of Semon’s views, to the point that the *Trésor de la langue française*, in reporting the etymology of the *mneme* (in the sense of a group of engrammes), does not cite its true inventor but rather refers to an article by Forel, “La mnème dans la schizophrénie.”²⁵ Forel had reviewed Semon’s first book, when it was originally published, in the principal journal of German eugenics²⁶ and in specialized publications,²⁷ asserting that, far from replacing Darwinian theory, Semon’s assertions were only meant to complete it, and he continued to integrate Semon’s work into his own writings.

Auguste Forel, a friend of Romain Rolland, of the social-democrat Eduard Bernstein, and of all the pacifists whose names were household words, was a many-faceted individual: as an entomologist, he observed and described ants (from his 1873 thesis, which elicited Darwin’s approval, through a multitude of monographs, to the five volumes of *Le Monde social des fourmis comparé à celui de l’Homme*²⁸). As an anatomist of the brain, he also made important neurological discoveries. But the better part of Forel’s life was spent with the mentally ill: for nineteen years, he served as the director of the famous Burghölzli asylum, and starting in 1898 he was a psychiatrist in the Vaud region of Switzerland (where he had been born). His positivist philosophical and scientific convictions were combined with psycho-physical monism, which allowed him to reconcile Lamarck and Darwin, De Vries and Mendel. Forel’s political and moral commitment was expressed in

a pacifism that was intensified by his experience of World War I, his adherence to social democracy movement, and his participation in reform movements (not only the fight against alcoholism, prostitution, and outdated penal law, but also the promotion of a radical program of eugenics calling for sterilization of the unfit and euthanasia of the incurably insane and of major criminals), with all of these positions culminating in anti-capitalist political religious programs such as the Bahai movement (which aimed to bring about world peace, a unified human race and general harmony among peoples).²⁹

In his frightening contradictions and his equally obvious consistency, no one illustrates better than Forel the existence of a powerful current – that of a monism that is distinct from Haeckelian evolutionism, to which it has been rather hastily assimilated – that cannot be tacked onto a genealogy going directly from Spencerian liberalism to present-day sociobiologies. It remains to be seen whether what is being repeated and perpetuated in the long term concerns merely the transmission of simple recipes (including the creation of neologisms, without explanations), the contents of bodies of knowledge and problems to be solved, the relation between these contents and their supporting ideologies, or, finally, a profound logic that, in spite of the differences, establishes a true kinship between the models of the past and today's models.

Let us concentrate for a moment on the texts themselves. The lessons to be drawn from the study of insects and that of mankind constitute a whole in which the reference to Semon's *mneme* is a tirelessly repeated constant. In *La Vie psychique des insectes* (1910), which purports to be a "monist theory of identity," Forel separates the *automatic* nervous manifestations (instincts, habits) from the *plastic* activities that can be adapted to the environment, and which are a condition for evolution. If instinct corresponds to an innate automatism, habits are acquired automatisms, consequences of the *repetition* of plastic activities that are acquired individually and that produce secondary automatisms, which "often resemble true instincts." Thanks to memory, as Semon says, "habit becomes second nature." The "engraphy," or inscription, of the environment acts upon living organisms at the same time as natural selection in order to gradually transform the species and their

instincts. Darwin and Lamarck are not mutually exclusive alternatives; rather there is a combination of factors: “engraphy constructs and natural selection eliminates.” If the specialized automatism of instinct is dominant in insects, what prevails in Man is the plastic capacity, thanks to his cerebral development; finally, the secondary automatisms will be replaced by the artificial memorization of writing. Psychologists are therefore wrong to oppose instinct to intelligence: Human beings also possess a large number of inherited instincts, whereas insects are not lacking in some plastic capacities.³⁰

The parallel with the relation between nature and nurture (a parallel that Semon did not formulate) was established by Forel in the 1920s, with several publications in French and German which to a large extent overlap with one other, although their titles do not indicate as much: from the irradiations of engrammes at the level of the sensory cells and their increasingly complex development in the human brain (responsible for the formation of a subconscious) all the way through consciousness, he describes the highly complex evolutionary process that directs our motor, affective, and intellectual life.³¹

Forel pursues his interest further to “the history of human perfectibility, or civilization”: how can we pinpoint the “beginning of civilization,” which, along with the entomologist and ant specialist Carlo Emery, Forel would like to call “the progress instinct” but which “is lost in the sands of time”? He is led to differentiate the ascending evolution of living beings (which involves the hereditary mneme transmitted to germs), from the cumulative force of human civilization, at first traditional, then perfected. Moreover, he observes the link between language, gesture, and tool, together grafted onto an emerging social memory:

Man alone has developed a civilization ... [that] at first progressed extremely slowly By means of vocal and graphic signs, primitive man designated objects, natural events, unfamiliar creatures, and so on, or their imitation; thus civilization was adumbrated through onomatopoeias, crude drawings, and imitations that were slowly copied and generalized from father to son. All the members of the family or the clan used these means to communicate useful, joyful, or dreadful things to one another. Later came primitive instruments. Hieroglyphics and other symbolic drawings served to preserve thought after the death of their creator. Thus it was that primitive human beings, according to the hereditary nature of the brain, could

continue to utilize the discoveries of others who were gifted with imagination, and it was no longer necessary to constantly re-invent. In this way, tradition was at the root of civilization We do not know how speech first came into being ...

After a digression on the acceleration of modern civilization, natural selection (still at work in primordial man, in which it eliminated "inferior brains," but suspended in modern wars, which kill only the young and the best), as well as on artificial selection, which was already being practiced by the Spartans, Forel returns to his subject: "There is no antithesis between 'nature' and 'civilization.' Everything in man that belongs to the latter was built upon a natural base, upon the growth of our brains and its functions. Everything we have that is artificial comes out of a gradual progression from natural hereditary bases."

But also: "We have only one thing left to do: to discover the harmful parasites of civilization and to destroy them as we find them." At the same time, he emphasizes the distance that separates man from animal: "We cannot prove the existence in any animal of a progress that can be attributed to civilizing perfectibility," whereas "in relation to their social group," we can observe a "higher morality in Ants and Termites than in Man."³²

The original scene sketched by Forel clearly contains both the germ of a "cognitivist" approach and the broad outlines of a tableau that André Leroi-Gourhan was to develop in his major work, *Le Geste et la Parole*.³³ But if Forel seemed to glimpse the importance of a "social memory" (distinct from hereditary memory, which is subject to natural selection), which in a sense is an extension of the "social instinct" of Darwin's anthropology, his vision was nevertheless clouded by a belief that was widely held by psychiatrists, who like Forel considered humanity to be endangered by the effects of counter-selective degeneration. Education was powerless to stave off these effects, Forel declared: intervention could and must come at the level of civilization, this treasury of traditions accumulated by the collective memory, where change could take place at a rapid rate. This intervention is none other than artificial selection, or eugenics, which alone was considered capable of correcting the errors of natural selection that occurred at an extremely slow pace at the level of evolutionary heredity. In

sum, when the memory of the species erred, it was necessary to forget by exterminating its freakish offspring and preventing them from reproducing.

The paradoxical character of Forel's intellectual edifice probably stems from its double allegiance to two contradictory clusters of thought. On the one hand there is the "discontent of civilization," described by Freud³⁴: "degenerative" pessimism and its illusory remedy, eugenics, are part of this nexus. On the other hand there is a complex whose consistency has been less readily apparent: the earliest form of neo-positivism, whose representatives converge in the monist and pacifist movements with a decidedly supranational bent. Many of them are to be found among those we have observed here in the wake of Semon's mneme: Hering, Kammerer, Romanes, L. Morgan, Mach, Mauthner, Russell, Ostwald. Other names could be added (Romain Rolland, for example). For those among this group who declared themselves to be sincere Darwinists, their simultaneous allegiance to Lamarck's theory of acquired characteristics provided a scientific boost to a militant optimism fueled by the hope of deflecting the human trajectory towards the abyss.

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Semon's ideas as diffused by Forel hardly seem to have contaminated the certified theoreticians of culture. The precisely contemporaneous diffusionist trend in ethnology might in particular have taken its inspiration from these ideas in order to conceptualize the intensive gathering of significant "cultural traits" by observing resemblances that would make comparisons possible within a diverse collection of facts. In fact, nothing of the sort happened: attached to a historical essence and radically hostile to evolutionism, diffusionism was never linked to Semon's theories, any more than it was to Gabriel Tarde's *Les Lois de l'imitation* (1890), or to Maurice Halbwachs' *La mémoire collective* (1877), which presented themselves as a common ground of understanding.³⁵ Nor is there any apparent bridge offered between the mneme and the attempt to develop a "statistics of ideas" (*Gedankenstatistik*) that was proposed by Adolf Bastian, the initiator of German ethnology, who distinguished between "ethnic ideas" (*Völkergedanken*) and "ele-

mentary ideas" (*Elementargedanken*), that is, the basic units of culture that were reproduced everywhere and that in his eyes proved the psychic unity of the human race. This failure to make connections can no doubt be attributed to Bastian's and his successors' categorical refusal to apply natural selection to man: the institutional schism between the natural sciences and the human sciences was just in the process of forming.

Resolved to demonstrate the interactive nature of biological and cultural evolution, two well-known authors of sociobiology, C. J. Lumsden and E.O. Wilson, had good reason to deplore this schism and what followed from it: the split allegiance of the study of the *zoon politikon* to two regimes of truth that had no knowledge of each other.³⁶ Seeking to go further than ethology and sociobiology in their early forms, and considering with a rather naive common sense that "genes are indeed linked to culture, but in a profound and subtle way," Lumsden and Wilson propose to take into account the free activities of consciousness, as well as the cultural diversity that results from it. To this end, along with a whole series of refashionings of old terms such as *epigenesis*, *co-evolution* or *reification*, they straightaway offer their own brand new word, *culturgens*: "a device of behaviors, mental facts [mentifacts], and manufactured objects [artifacts], together designated *culturgens* (from the Latin *cultura*, culture, *geno* produce, pronounced kul'tur jens)."³⁷ Clearly, the authors prefer this word to the terms already forged by colleagues to designate more or less the same thing. Lumsden and Wilson are gracious enough to provide a list of these terms, from *idea* (Huxley, 1962; Cavalli-Sforza, 1971) and *idene* (Murray, 1964), through *sociogen* (Swanson, 1973), *instruction* (Cloak, 1975), and *culture type* (Boyd and Richerson, 1976), to *concept* (Hill, 1978); the image that comes closest is the archaeologists' *artifact* (Clarke, 1978). *Mnemotype* (Blum, 1963) ought to draw our closer attention, as should Dawkins's *meme*, which is prominently treated although already somewhat marginalized by the invading *culturgens*.³⁸ The latter are supposed to vibrate in the relational networks of long-term memory with which they end up merging.³⁹

The list is not exhaustive. Jean-Luc Jamard, adding mention of the *cultural genotype* advanced by Gerard, Kluckhohn, and Rapoport (1956), cites the British anthropologist Tim Ingold, who

“takes this genealogy of the ideal of mental representations undergoing mutations and selections all the way back to the philosopher William James” in 1898.⁴⁰

William James as a founding father of sociobiology? The evidence is not overwhelming. In any case, he has nothing to do with the heaping up of neologisms that obscure rather than illuminate a real problem and which, nevertheless, correspond to a current practice. In the case of Lumsden and Wilson, we may be permitted to doubt the originality of their work:

The best research strategy for gene-culture coevolutionary theory, and the one we have employed in this book, would seem to be the same as that employed in biology and ethnography: start with examples in which the units are most sharply and readily definable, establish them as paradigms, and then proceed into more complex phenomena entailing less easily defined units.⁴¹

With admirable frankness, they set about reinventing the good old methodology that consists of collecting data, describing them, and classifying them according to criteria that will be specified later ...

The difficulty of true innovation is no less salient in Dawkins. After examining the parental, sexual, and aggressive interactions among survival machines of the same species, the propensity to live in a group, and the tendency towards reciprocal altruism, all illustrated by examples drawn from observations of the animal kingdom, the author comes to assert the uniqueness of human beings: “Everything that constitutes the particularities of mankind can be summed up in one word: culture.”⁴² In the later edition of his book, he writes that it was only after the fact that he realized that his discovery of the role of the maternal uncle preoccupied entire generations of anthropologists. His main concern, by his own admission, was not to sketch out “a grand theory of human culture” (323), inasmuch as when he began work his “designs on human culture were modest almost to vanishing point”: his “true ambitions” were to “claim almost limitless power for slightly inaccurate self-replicating entities, once they arise anywhere in the universe” (322). What was important in his view was not to dwell on the material existence of *memes* in the neural network, but to posit the argument that alongside genes there could be other entities capable of replicating themselves. In his self-destructive asser-

tions on the possibilities of sociobiology, he goes even further: "Whether the milieu of human culture really does have what it takes to get a form of Darwinism going, I am not sure."⁴³

This doubt, which is to Dawkins's credit, is the corollary of the conclusion of the chapter he devotes to culture, in which, contrary to his general thesis, Dawkins definitively poses freedom as the human condition: "We are built as gene machines and cultured as meme machines, but we have the power to turn against our creators. We, alone on earth, can rebel against the tyranny of the selfish replicators."⁴⁴ Only this conclusion – which carries with it a faint whiff of Lamarck – enters into flagrant contradiction with Dawkins's overall conviction, which follows the determinist path of neo-Darwinism: "The central idea I shall make use of was foreshadowed by A. Weismann in pre-gene days at the turn of the century – his doctrine of the 'continuity of the germ-plasm'."⁴⁵ Besides *The Origin of Species*, the allusion to Weismann is virtually the only historical reference to be found in the book. Is it this association with the sworn enemy of Lamarckism that has made the *meme*, instead of a direct descendant of the *mneme*, rather a little thing "that jumps from brain to brain" to end up in the brain of its genitor? This is hardly likely.

It seems more likely that beyond the incessant "language games," which are only the external and interchangeable signs of a profound aporia, we see old disputes cropping up again, recurrent symptoms of unresolved contention, which will remain insoluble for as long as the fundamental aporia is not dispelled. This aporia is that of the "social instinct" or "social memory." We cannot but remark that the "Darwinian" Dawkins, venturing onto the rocky landscape of the science of man, does not invoke the authority of Darwin's anthropology, and that *The Descent of Man* is not part of his referential baggage. It would seem that Mnemosyne dozed off at a crucial moment.

N.B. I have just learned that the 1993 edition of the *New Shorter Oxford English Dictionary* incorporates the recent neologism *Meme*, created after 1970 (from the Greek word *mimêma*, meaning what is imitated, patterned after “gene” (vol. 1, p. 1740). According to the entry, the term belongs to the realm of biology. It is an element of a culture or a system of behavior that is thought to be transmitted from one individual to another by non-genetic means, in particular by imitation. The synonyms mentioned in the course of this article have not received the same recognition.

Translated from the French by Jennifer Curtiss Gage

Notes

1. Frances A. Yates, *The Art of Memory* (Chicago, 1966). On Mnemosyne, the reader is referred to Marcel Détiéne, *Les maîtres de vérité dans la Grèce archaïque* (Paris, 1995; first ed. 1967); see in particular the new preface “Retour sur la bouche de la Vérité,” pp. 5-31; tr. Janet Lloyd, *The Masters of Truth in Archaic Greece* (New York and Cambridge, Massachusetts, 1996).
2. Anon., *Ad Herrenium*, 86-82 B.C., cited by F. A. Yates, FRENCH TITLE etc., p. 18.
3. Richard Dawkins, *The Selfish Gene* (Oxford, New York, 1989; 1st ed., 1976), pp. 192-193.
4. Dawkins, (see note 3 above), pp. 322-323.
5. Dan Sperber, *La Contagion désirées. Théorie naturaliste de la culture* (Paris, 1996), pp. 46 and 141.
6. *Brockhaus Enzyklopädie*, vol. 14, (1991, 19th ed.); see also *The Oxford English Dictionary*, vol. 9, 1989; *Le Trésor de la Langue française*, Vol. 11 (1985) records the normalization of the term “mnemonic” by citing Sigmund Freud’s *Abrégé de la psychanalyse*, in which the expression “traces of memory” *Erinnerungsreste* is translated by “restes mnémiques” or mnemonic remains.
7. The immediate interest generated by Semon’s theory is manifested in *Meyers grosses Konversations-Lexikon*, vol. 14 (1906, 6th ed.), p. 4.
8. Ewald Hering, *Ueber das Gedächtnis als eine allgemeine Funktion der organisierten Materie* (Vienna, 1870), translated into English by the editor of the American monist league (Chicago, 1895): *On Memory and the Specific Energies of the Nervous System* (an address delivered before the Imperial Academy of Sciences, Vienna, 1870).
9. Ernst Mach, *Die Analyse der Empfindungen un das Verhältnis des Physischen zum Physischen zum Psychischen* (Jena, 1886); *Contributions of the Analysis of Sensations*, trans. C. M. Williams (Chicago, 1887).

10. It is worth noting that the posthumous *Essay on Instinct* was recently published in French a volume edited by Patrick Tort, *Pour Darwin* (Paris, 1997), pp. 247-274.
11. Richard Semon, *Die Mneme als erhaltendes Prinzip im Wechsel des organischen Geschehens* (Leipzig, 1904; 3rd ed. 1911) and *Die mnemischen Empfindungen in ihren Beziehungen zu den Organempfindungen* (Leipzig, 1909; 2nd ed. 1922).
12. Richard Semon, *Das Problem der Vererbung erworbener Eigenschaften* (Leipzig, 1912).
13. August Weismann, "Semons Mneme und die Vererbung erworbener Eigenschaften," *Archiv für Rassen- und Gesellschaftsbiologie*, 3 (1906); Heinrich Ernst Ziegler, *Die Vererbungslehre in der Biologie und in der Soziologie. Ein Lehrbuch der naturwissenschaftlichen Vererbungslehre und ihrer Anwendungen auf den Gebieten der Medizin, der Genealogie und der Politik* (Iena, 1918), pp. 163-165.
14. *Meyers grosses Konversationslexikon* (1928, 7th ed.).
15. Francis Darwin, "Lectures on the Physiology of Movement in Plants. 1. Associated Stimuli," *The New Phytologist* 5 (9) (1906); M. M. Hartog, *Problems of Life and Reproduction* (London, 1913), p. 275.
16. Richard Semon, "Die Fusssohle des Menschen," *Archiv für mikroskopische Anatomie* (1913). Hertwig refers to this in his synthetic work *Das Werden der Organismen* (Iena, 1916), p. 607.
17. Bertrand Russell, *The Analysis of Mind* (London and New York, 1921).
18. Ernst Mach, *Erkenntnis und Irrtum, Skizzen zur Psychologie der Forschung* (Leipzig, 1905).
19. Felix Mauthner, *Beiträge zu einer Kritik der Sprache. 1. Zur Sprache und zur Psychologie*, chapter "Memory," pp. 598-600 (Stuttgart, 1906; reprinted Frankfurt, 1982).
20. Samuel Bogoch, *Biochemistry of Memory with an Inquiry into the Function of the Brain* (New York, London, Toronto, 1968), p. 194.
21. Eugen Bleuler, "Die Mneme als Grundlage des Lebens und der Psyche," *Die Naturwissenschaften* (1933), p. 21; "Mnemistische Biologie und Psychologie," *Psychiatrisch-neurologische Wochenschrift* (1935), p. 37.
22. Hans-Georg Gadamer and Paul Vogler, eds., *Neue Anthropologie. 1. Biologische Anthropologie* (Munich, 1972), p. XXXIII. The ambitious idea of seeking to integrate the different branches of anthropology in a unified science did not succeed.
23. A. Remane, "Konsequenzen der Evolutionsforschung," in Gadamer and Vogler, *Neue Anthropologie*, p. 321.
24. Hans-Joachim Flechtner, *Memoria und Mneme*, 3 vols. (Stuttgart, 1974-1979): *Gedächtnis und Lernen in psychologischer Sicht* (1974); *Biologie des Lernens* (1976); *Das Gedächtnis—ein neues psychophysisches Konzept*, with an introduction by Detlev Ploog (1979).
25. Auguste Forel, "La mnème dans la schizophrénie," *Annales médicopsychologiques* (1926) 2, p. 275.
26. August Forel, review in *Archiv für Rassen und Gesellschaftsbiologie* 3 (1905). As we have seen, this journal also published Weismann's attacks on this subject.
27. August Forel, review in the *Journal für Psychologie und Neurologie* 5 (1905), a journal in which Forel also placed a note in 1919 in memory of Semon (no pun intended), as he did in the journal of Freemasonry *Sonnenstrahlen*.
28. Auguste Forel, *Les Fourmis de la Suisse...* (1873; 2nd ed., 1920); Auguste Forel, *Le monde social des Fourmis comparé à celui de l'Homme*, 5 vols. (Geneva, 1921-

- 1923); tr. C. K. Ogden, *The Social World of the Ants Compared with That of Man* (London, New York, 1928), 2 vols.
29. Anne Marie Wettley, *August Forel. Ein Arztleben im Zweispalt seiner Zeit* (Salzburg, 1953); also see the entry on Forel in Patrick Tort, ed., *Dictionnaire du Darwinisme et de l'Evolution* (Paris, 1996), pp. 1705-1710.
 30. August Forel, *Das Sinnesleben der Insekten. Eine Sammlung von experimentellen und kritischen Studien über Insektenpsychologie* (Munich, 1910), pp. IX-X. This collection of texts was written in French between 1878 and 1908; republished and revised, it was translated by Maria Semon, Richard's wife, who also translated essays by Charles Darwin in 1842 and 1844, which her son Francis published in 1909. Maria Semon also translated Lloyd Morgan, who was himself the publisher of G. J. Romanes, whose approach to animal psychology, positing a gradual increase in complexity that could eliminate the frontier between instinct and intelligence, would warrant a comparison with the work of Semon and Forel. Forel also cites Sir John Lubbock, Darwin's neighbor and friend, who was as well known for his studies in prehistory and his theories on the origin of civilization as he was for his pioneering role in the observation and the interpretation of the social life of insects: the connection between Lubbock and Forel merits exploration. In English, see August Forel, *The Senses of Insects*, tr. MacLeod Yearsley (London, 1908).
 31. Auguste Forel, *Homme et Fourmi. Comparaison de la société des fourmis à celle de l'Homme. Programme humain praticable* (Lausanne, 1923), pp. 5-11; Auguste Forel, *Der Weg zur Kultur* (Vienna-Leipzig, 1924); this publication contains the "cultural program" sent to President Wilson in 1914 under the title "The United States of the Globe."
 32. Auguste Forel, *op. cit.*, 1923, pp. 23-38; and *op. cit.*, 1924, pp. 9-14 and 117-120.
 33. André Leroi-Gourhan, *Le Geste et la Parole*, 2 vols. (Paris, 1964-65). See in particular vol. 2 for the chapter "La libération de la mémoire." Leaving aside the entomologist's obsolete vocabulary, it would be interesting to analyze the correspondences between Forel and Leroi-Gourhan.
 34. Sigmund Freud, *Das Unbehagen in der Kultur* (Frankfurt, 1972). This text (first published in London in 1948) was written in 1930.
 35. On "diffusionism," see my article in the *Dictionnaire du Darwinisme et de l'Evolution*, pp. 1205-1215.
 36. Charles J. Lumsden and Edward O. Wilson, *Genes, Mind, and Culture: The Coevolutionary Process* (Cambridge, Massachusetts, 1981), pp. 1-4.
 37. *Ibid.*, p. 7.
 38. *Ibid.*
 39. *Ibid.*, p. 27.
 40. Jean-Luc Jamard, "L'évolutionnisme anthropologique est-il un péché?", in Patrick Tort, ed., *Darwinisme et société* (Paris, 1992), p. 645; Tim Ingold, *Evolution and Social Life* (Cambridge, 1986), p. 366. Note that William James was in direct contact with Ernst Mach, a connection that could bring us back full circle to the mneme.
 41. Lumsden and Wilson, (see note 37 above), p. 30.
 42. Dawkins, (see note 3 above), p. 189.
 43. *Ibid.*, pp. 296-97, pp. 322-323 and *passim*.
 44. *Ibid.*, p. 201.
 45. *Ibid.*, p. 11.