

### The Psychology of Machines

A driver who knows his car well speaks of it with the same terms a rider uses to speak of his horse. He calls it docile or reticent, soft or responsive, supple and reliable, or stubborn and touchy. He knows the best way to handle it to derive the maximum of efforts from it: at times he uses gentleness, at other times roughness; sometimes he gives it a rest, or lets it go and pushes it to the utmost, from the beginning to the end of a run. Two engines of the same brand and same series are rarely the same: each displays its own character through the particulars of its behavior. This is because the complexity of the inner structure and interactions of a mechanical organism leads to the individualization of the machine and impels, with regard to its overall working, a tinge of unpredictability which signals the very beginning of what we call, at varying degrees of development, freedom, will, or soul.

Depending on their complexity and subtlety, all instruments that require the attentive care of humans, so as to ensure their optimal use, acquire from this attention, albeit implicitly, certain psychological characteristics. And, as anyone can attest, it is a fact that a fountain pen becomes used to a certain penmanship with such attunement that it will not allow variation; a watch that faithfully kept time for twenty years in the father's pocket will stop working in a few days when handed down to his son, mindful as he may be, for even the watchmaker cannot restore the personal climate in which the mechanism has become accustomed to live.

### Whether Mechanical or Organic, the Complexity of an Apparatus Creates Its Own Psychic Aspect

A cell is certainly a being, but a soul emerges only through a colony of cells, all the more clearly when the colony is constituted of numerous and better-differentiated elements within a cooperative whole of a higher organization. A spring, a cog, or a valve are only die-cast metal, but a community of gears and pistons, functionally assembled, displays tendencies, habits and whims that form a rudiment of mind—and this psychological aspect is all the more apparent when the mechanism has a complex structure and complex functions. At a certain degree of multiplicity and architectural and functional sophistication, machines routinely behave in such a way that humans, against their better judgment, must recognize a kind of habituation in them. It amounts to a convergence of sensibility and memory, and also implies some kind of choice and discernment about proper and improper working, that is to say, between good and evil, as well as some latitude, some fantasy—a trace of freedom by the system in response to the forces we impress upon it and within it. Hence the fundamental observation of Ribot, who underlined the fact that the psyche emerges through the growth of the number of possible reactions among multiple nervous components, may be transposed into the inorganic world where it applies to the interplay of mechanical elements.

### Linked to the Functioning of a Whole That We Cannot Easily Locate, the Spiritual Character is Foremost Ubiquitous

Seeking to recognize the slightest bit of spirit in a farm tractor might seem excessive. But, to begin with, what is spirit? We generally only agree upon what it seems not to be: it couldn't be material because we cannot exactly situate its insertion points in matter, nor can we fathom how it communicates with and commands matter. A good part of the human soul has been assigned residence in the brain, yet the heart, kidneys, liver, gallbladder and other still more mysterious organs have also claimed the honor of housing

our invisible spirituality. The soul is everywhere in humans, and nowhere in particular. It results from the whole of organic function. Similarly, the personal character of a motor does not dwell exclusively in this or that part: carburetor or magneto, piston or cylinder head. This character is also an impalpable being, a global product of the activity of all mechanical organs.

Much simpler figures also possess a characteristic aspect that we cannot connect to any of their parts, but to which the collaboration of all these parts is indispensable. Hence the essential virtue of a Euclidian triangle is that the sum of its angles equals two right angles. Where does the character of this species come from? Neither from one angle nor the other, nor from its sides or heights or surface: it is everywhere and nowhere, it is a spirit.

### Beyond the Spirituality Common to All Superior Machines, the Cinematograph Develops Its Own Genius

Like any mechanism, and proportionally to its own degree of complexity, the cinematographic apparatus—in its multiplicity, comprising both camera and projector, sound recording and reproduction devices, and all their assemblies—possesses this personality that characterizes all superior objects, though in this case it might appear diffuse on account of the different contraptions through which it is implemented: thus it represents the collective personality of a small society of machines. However, beyond these characters of first individualization, a usual occurrence in the world of machines, the cinematograph displays its own genius loud and clear, of which no other mechanism has until now given such a pointed example.

Other systems born of the human mind, especially optical ones, have certainly reacted to it for a long time, allowing the human mind to reform and considerably develop its theories of the universe. Copernicus, Galileo, Kepler, Newton and Laplace were trained to rethink the world according to the images their astronomical telescopes delivered to them from the sky, in the same way that Spallanzani, Claude Bernard, and Pasteur were led to build or rebuild anatomy, physiology and pathology in accordance with the particular vision of their magnifying glasses and microscopes. Still, these enlarging lenses only multiply and transform—exclusively visual—uni-sensorial data that address only one category of the mind, optical extent [étendue]. Hence the modifications that these instruments propose to philosophical and scientific conceptions can only present themselves to intelligence by way of the spatial category in the same way as ordinary messages from a single sense, however important it may be: sight. For the researcher or the philosopher, a telescope can do nothing more than amplify the work of the external perception of an organ—an artificial super-eye that sees farther or closer or deeper, but does nothing else but look, unable as it is to mechanically combine data belonging to several rational categories. In other words, it cannot think.

The cinematograph differs from solely optical apparatuses firstly in that it gathers information pertaining to two distinct senses from the outside world, and secondly and foremost, in that, in and of itself, it presents this bi-sensorial data as arranged into specific rhythms of succession. The cinematograph is a witness that recounts a figure of sensible reality that is not only spatial but temporal, integrating its representations into an architecture whose relief presupposes the synthesis of two intellectual categories (extension and duration), a synthesis in which a third category emerges almost automatically: causation. Through this power of effecting diverse combinations, the cinematograph, though it may be purely mechanical, proves to be more than an instrument of enlargement or replacement for one or several of the sense organs. Through this power, which is one of the fundamental characteristics of any intellectual activity among living beings, the cinematograph stands out as a substitute and annex of the organ in which the faculty that co-



ordinates perceptions is generally located—the brain—the alleged center of intelligence.

No, the thinking machine is not exactly a utopia any longer; the cinematograph, like the computing machine, represents its first implementation, already working far better than a rough model. Leibniz, who obtained the notes and drafts left by Pascal, succeeded in working out the cog system that the Jansenist mathematician had invented without being able to make it function properly. Since then, evermore perfected, a purely mechanical device knows how to group the numbers it is provided in accordance with the fundamental algorithms of mathematics, not exactly in the same way the human mind does, but better, since it is errorless. Yet—one might object—this machine does not think. Then what is it actually doing when its work replaces the cerebral task of the calculator to perfection? We should recognize that a mechanical thinking exists alongside organic thought, and while it resembles organic thinking, we are only beginning to learn to activate this mechanical thinking that will expand in future robots and whose implementation is logically prescribed by the development of our civilization. This mechanical pre-thought would seem to be unconscious: but this presents an objection neither to its existence nor to its affiliation with the human soul, since today we agree that the latter is largely unknown to itself.

### The Philosophy of the Cinematograph

The cinematograph is among the still partially intellectual robots that, with two photo and electro-mechanical senses, as well as a photochemical recording memory, shapes representations—that is, thought—in which we discern the primordial framework of reason: the three categories of extension, duration, and causation. This would already be a remarkable result if cinematographic thought, as in the case of the calculating machine, were only mimicking human ideation. On the contrary, we know that the cinematograph inscribes its own character within its representations of the universe with such originality that it makes this representation not simply a record or copy of the conceptions of its organic mastermind [mentalité-mère], but indeed a differently individualized system, partly independent, comprising the seed of the development of a philosophy that strays far enough from common opinions so as to be called an anti-philosophy.

—1946

