



<https://doi.org/10.48417/technolang.2024.02.09>

Research article

Leroi-Gourhan and the Object of Technology

Xavier Guchet (✉)

University of Technology of Compiègne, Rue du docteur Schweitzer CS 60319, Compiègne
60203 Hauts-de-France, France

xavier.guchet@utc.fr

Abstract

The emphasis on technical artifacts is a hallmark of contemporary philosophy of technology. How can Leroi-Gourhan's conceptualization of the technical object enrich current discussions among philosophers of technology? This article aims not to exhaustively address this question but to briefly outline how Leroi-Gourhan, as an ethnologist, reconfigures the concept of the technical object inherited from ethnology.

The article begins by presenting Leroi-Gourhan's ambition to revisit the central question of ethnology: what is the origin of the division of the human mass into distinct ethnic units called "peoples", distributed across the globe? According to Leroi-Gourhan, ethnology did not divide humanity at its natural junctures, leading to inaccurate historical conclusions. For him, "peoples" are not fixed and uniform entities defined by constant, specific characteristics. Instead, they arise from the temporary convergence of traits, such as language and technology, which have their own independent existence. These traits may come together at a certain point, but beyond that, they diverge. Ethnology should focus on these traits, not on the "peoples." In particular, technology serves as a reliable indicator of how the human mass has been divided and dispersed across space and time. However, to draw solid conclusions on this matter, it is essential to approach the extensive technical documentation with a rigorous method of classification and analysis. The article examines this method, leading Leroi-Gourhan to redefine the very concept of the technical object. The article highlights Leroi-Gourhan's focus on the concepts of "fact" and "tendency" in his analysis of technical objects. These objects are viewed both as solutions to general human challenges in transforming matter (representing "tendencies") and as culturally significant items with varying "degrees of fact." Thus, Leroi-Gourhan assigned a dual nature to technical objects, but in an interestingly different way than those analytical philosophers who have been discussing the dual nature of artefacts.

Keywords: Ethnology; Fact; Technology; Tendency

Citation: Guchet, X. (2024). Leroi-Gourhan and the object of technology. *Technology and Language*, 5(2), 116-124. <https://doi.org/10.48417/technolang.2024.02.09>



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)



УДК 39:62

<https://doi.org/10.48417/technolang.2024.02.09>

Научная статья

Леруа-Гуран и объект технологии

Ксавье Гуше (✉)

Технологический университет Компьена, ул. доктора Швейцера CS 60319, Компьень 60203 О-де-Франс, Франция

xavier.guchet@utc.fr

Аннотация

Акцент на технических артефактах является отличительной чертой современной философии технологий. Как концептуализация технического объекта, предложенная Леруа-Гураном, может обогатить текущие дискуссии среди философов техники? Целью данной статьи является не исчерпывающее рассмотрение этого вопроса, а краткое изложение того, как Леруа-Гуран как этнолог переконфигурирует концепцию технического объекта, унаследованную от этнологии. Статья начинается с представления амбиций Леруа-Гурана вернуться к центральному вопросу этнологии: каково происхождение разделения человеческой массы на отдельные этнические единицы, называемые “народами”, распространенные по всему миру? По мнению Леруа-Гурана, этнология не разделила человечество на его естественных этапах, что привело к неточным историческим выводам. Для него “народы” не являются фиксированными и однородными образованиями, определяемыми постоянными специфическими характеристиками. Вместо этого они возникают в результате временного сближения черт, таких как язык и технология, которые существуют самостоятельно. В какой-то момент эти черты могут сойтись вместе, но в дальнейшем они расходятся. Этнология должна сосредоточиться на этих чертах, а не на “народах”. В частности, технологии служат надежным индикатором того, как человеческая масса была разделена и рассеяна в пространстве и времени. Однако, чтобы сделать убедительные выводы по этому вопросу, необходимо подойти к обширной технической документации со строгим методом классификации и анализа. В статье рассматривается этот метод, что привело Леруа-Гурана к переопределению самого понятия технического объекта. В статье подчеркивается внимание Леруа-Гурана к понятиям “факт” и “тенденция” в его анализе технических объектов. Эти объекты рассматриваются как решения общих человеческих задач по преобразованию материи (“тенденции”), так и как культурно значимые предметы с различной “степенью фактичности”. Таким образом, Леруа-Гуран приписывал техническим объектам двойственную природу, но совершенно иначе, чем те философы-аналитики, которые обсуждали двойственную природу артефактов.

Ключевые слова: Этнология; Факт; Технология; Тенденция

Для цитирования: Guchet, X. Leroi-Gourhan and the object of technology // Technology and Language. 2024. № 5(2). P. 116-124. <https://doi.org/10.48417/technolang.2024.02.09>



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)



PUTTING AN END TO THE CONCEPT OF “PEOPLE”

André Leroi-Gourhan (1911-1986) was primarily an ethnologist and an archaeologist, and he approached many fields of study, including technology, from this perspective. Ethnology focuses on human diversity and the origins of this diversity. Although humanity is one, it is also a very heterogeneous mass spread across the globe. Where does this heterogeneity come from? How has humanity fragmented into distinct ethnic groups across space and time? According to Leroi-Gourhan (1945), ethnology has traditionally answered these questions by uncritically accepting the division of humanity into “peoples” that are defined by unequivocal characteristics: a physical type, a language, a social and political organization, and specific cultural traits (p. 306). Social and political organization is most often considered primary. For example, we start by defining the “Chinese people” within a given territory as a political unit. From this initial delineation, the anthropologist will establish the physical type of the “Chinese,” the linguist will study the language or languages spoken by these people, the sociologist will examine their social and political organizations, and the historian of religions will explore their myths and beliefs, and so on. Thus, the existence of well-defined peoples in both space and time is an unquestioned reference point for the ethnologist.

This produces certain methodological biases, such as explaining all observable cultural phenomena (including technology) by referencing the “people” to whom these traits are attributed. Thus, when ethnologists study technical objects, they immediately draw conclusions about the people who created them, much like tracing an effect back to its cause. For instance, if two similar objects are found in distant locations, the ethnologist concludes that the respective peoples were historically connected, or that something from one culture (an object or an idea) reached the other through contact, borrowing, or diffusion. The “people,” assumed to be a primary, consistent, and unequivocal reality, are regarded as the actual cause of all ethnological phenomena.

Leroi-Gourhan challenges this assumption that humanity is naturally divided into well-defined ethnic units or “peoples” with fixed characteristics. He defends two major theses: first, the concept of a perfectly defined “people” cannot be a valid starting point for ethnology; second, we do not know the laws by which humanity has been distributed and divided into distinct groups across the globe: the general laws governing ethnic phenomena are still largely unknown. Therefore, the ethnologist's task is to use rigorously controlled archaeological documentation to uncover the natural divisions in this process, akin to Plato's ideal butcher finding the natural joints. The general history of humanity is not the history of “peoples” and their movements: ethnology must free itself from the very notion of “peoples” and adopt a completely different way of dividing up the whole of humanity.

Instead of viewing ethnic groups as having stable properties within well-defined territories, Leroi-Gourhan considers physical types, techniques, and social-religious structures as elements that each have a life of its own; some of these elements predate the group, others outlast it. Societies, he argues, are “temporary colonies” or constellations of elements, rather than cohesive units with consistent and stable characteristics over time (Leroi-Gourhan, 1945, pp. 403-404). What ethnologists refer to as a “people” is actually the result of the local and temporary convergence of some such elements. Beyond a



certain zone where these elements actually converge, they diverge and the very notion of a “people” is blurred (Leroi-Gourhan, 1945, p. 306). The ethnologist's role should not be to artificially construct the “average personality” of a supposedly well-defined ethnic group by combining specific characteristics (such as a physical type or a language). Instead, the ethnologist should trace these characters, considering them as distinct entities, each with its own dynamic. This approach may show that, indeed, these themes can locally and temporarily converge and align at specific points in space and time. However, beyond these points, the convergence dissolves.

As a consequence, when studying technology from an ethnological perspective, it is essential to separate humans from their products and to stop assuming that the spread of these products is dependent on the movement of people. In *L’homme et la matière* (Leroi-Gourhan, 1943) and his ethnology thesis on the archaeology of the North Pacific (Leroi-Gourhan, 1946), Leroi-Gourhan observes that humans have travelled much less frequently and over shorter distances than their products (Leroi-Gourhan, 1946, p. 7). There is abundant evidence of objects being transported independently of human migration. Humans and their products should not be seen as an inseparable unit.

TECHNOLOGY AND THE CLASSIFICATION OF TECHNICAL OBJECTS

To break away from common-sense divisions (“people”) and uncover the natural divisions of humanity, Leroi-Gourhan focused on technology, particularly in the extensive North Pacific region. He believed that it was crucial to reverse the usual ethnological assumption that objects are explained by the movements and activities of distinct ethnic groups. Instead, he argued that the formation of ethnic groups at specific points in space and time is not so much exposed but, much rather, caused by the circulation of objects.

Thus, the mistake of ethnology was to draw historical conclusions about the “peoples” who created and circulated objects, based solely on the dispersion of these objects in a given area. Leroi-Gourhan points out that conclusions about migrations have often been drawn from overall similarities in objects, even though these similarities rarely show indisputable identical traits. In other words, ethnologists have been too quick to make assumptions, relying on purely morphological aspects (i.e., the shape of objects) to derive historical insights without thoroughly verifying these conclusions through the establishment of proper technological connections (i.e., relating to the objects’ technical functions). Leroi-Gourhan argues that similar forms found in different locations do not necessarily indicate contact between peoples. It could simply be that people in different places faced similar challenges with only a limited number of solutions available. While two similar technical features might result from a historical point of contact, they could also be explained in purely technological terms—namely, the limited ways humans could interact with materials at a given time and place.

Technology is the science of how humans interact with materials. Like ethnologists, “technologists” group and classify technical objects, but they do so in a different way, namely based on the technical operations applied to materials. These are characterized



not by form but by the type of treatment they can undergo (solid, semi-solid, flexible, supple, fluid, etc.). Without the rigor of such technological classification, the historical conclusions of ethnologists are incredibly fragile. Therefore, every technical fact must be viewed from two distinct perspectives: history and technology. The ethnologist's error has been to conflate these perspectives, or rather, to neglect the technological perspective in the rush to draw historical conclusions.

Leroi-Gourhan acknowledges that ethnologists have also applied a logical framework to technical facts. Typically, they have reasoned similarly to philologists by analyzing each technical characteristic comparatively, viewing them as variations from an original motif—just as philologists analyze textual elements. Leroi-Gourhan argues that this approach assumes that there already exists a phonetics and syntax of objects, allowing us to analyze an axe or a hammer, as if they were a part of a sentence. However we do not yet understand the laws that govern the grouping of technical objects, the rules by which they form coherent sequences and inseparable sets, and the regularities by which these sequences and sets transform into others. In other words, we lack a syntax for the material world of humans (Leroi-Gourhan, 1946, p. 9). The goal of technology is to construct this syntax, but it cannot simply adopt the philologist's comparative method. It needs its own unique analytical approach.

These considerations prevented Leroi-Gourhan from relying on the form and similarity of objects to draw general conclusions. Instead, he suggests viewing objects as evidence of an interaction between humans and materials. On one side is the biomechanics of human action, and on the other are the material properties. These two factors define the limited range of ways humans can work with materials, regardless of where in the world the work is done.

All tools, despite their great diversity, fall into this typology that reflects the set of constraints on human action. The key to the classification tools lies not in the tool alone, but in the combination of the tool and the gesture that employs it (Leroi-Gourhan, 1964; 1965; 1993). Leroi-Gourhan is explicit on this point: the technologist must move beyond focusing solely on the object and instead see it as the result of a dialogue between human action and material properties, offering a richer understanding than a purely morphological classification. This means applying the same approach to “objects” that was applied to “peoples.” It means moving beyond immediate perception and reclassifying technical facts in a way that transcends common sense. The aim of technologists is to uncover the natural divisions by which these facts are distributed across space and time.

FACT AND TENDENCY

Technological documentation can be categorized in various ways and at different levels. At the most general level, an object represents a specific solution to a particular problem, chosen from a very limited set of possibilities. However, a technical artifact is more than just a functional solution; it also reflects the specific characteristics of its environment (such as the availability or scarcity of certain materials) and the unique cultural traits of the human group that uses it. On the most specific level, an object may



appear unique and specific to a particular group. On the most general level, it appears as a functional response to a problem, similar to how other objects from other groups address the same problem. As Leroi-Gourhan puts it, technical objects are both unique, context-specific “facts” and the materialization of “tendencies,” which are the general functional principles governing the interactions between humans and materials. Technical objects can be classified according to an evolutionary logic, but they can also be categorized from a historical perspective. How can we ensure the alignment between a technological series and a chronological one? How can the same fact be both a historical singularity and part of a technological classification independent of history? Is it possible to unify these two perspectives?

Leroi-Gourhan employs very Kantian terms to discuss this hypothetical concordance between these two viewpoints, which he describes as incommensurable: the unity of the two perspectives on the technical fact is not itself a fact and should not be sought in a theory of a higher level; “This unity is transcendental.” (Leroi-Gourhan, 1945, 58) This means, to continue using Kantian words, that the duality of the “technical fact” and the “technical tendency” is a condition of possibility for knowledge in ethnology. Technical objects fall under two kinds of research, one historical and the other reflexive: this is not a paradox, but the condition of possibility for ethnology as a science. Based solely on technical objects considered in their inexhaustible and bewildering cultural diversity, ethnologists can do nothing but indulge in speculative constructions based on apparent formal similarities among these objects. Very quickly, they realize that these constructions are artificial and that they can develop opposing theories from the same documents. They then unavoidably fall into skepticism.

Ethnologists made two mistakes: firstly, they believed they could classify technical objects on a purely morphological criterion which is very imprecise; secondly, they drew erroneous general historical conclusions from this morphological classification, without any caution. When Leroi-Gourhan writes that *Évolution et techniques* (Evolution and Techniques) should be read as the critique of a great book whose author has yet to be born (Leroi-Gourhan, 1943, p. 37), the word “critique” should be understood in its Kantian meaning: it is indeed about defining the transcendental conditions for valid knowledge in ethnology. What is this “great book”? The systematic collection of all knowledge about humans and the products of their activity, based on complete and perfectly controlled archaeological documentation, on a global scale. In his thesis on the archaeology of the North Pacific, Leroi-Gourhan imposed severe constraints in order to achieve maximum security in the treatment of documentation and in the conclusions he allows himself to draw. In light of these constraints, one can’t help but imagine that the completion of this “great book” is not for tomorrow...

The Kantian reference leads to a remark regarding the “tendency.” It is known that this term owes to an inspiration by Henri Bergson. Should we understand this concept of “tendency” as a sort of vital impulse, a force acting within the human milieu? In short, should we see it as an eruption of metaphysics in ethnology? The answer is no: the tendency is, as Leroi-Gourhan argues, “a convenience cut that our logic introduces into the activity of men”(Leroi-Gourhan, 1943, pp. 34-35). It is not a metaphysical concept,



but a transcendental one. Admittedly, transcendental concepts, in Kant, are certainly not classificatory concepts, as tendency is. The connection with Kant stops there.

How does this classification of technological documentation, using the concepts of “fact” and “tendency”, work in concrete terms? The example of harpoons illustrates this particularly well. In this regard, Leroi-Gourhan (1946) states his intention to establish a framework that is broad enough to encompass all possible variants of harpoons, and precise enough to capture the finest local nuances (p. 326). This is facilitated by organizing the documentation (which is vast) within the two poles of “tendency” and “fact” (for a detailed analysis, see Leroi-Gourhan, 1943, pp. 30-35).

The tendency embodied by the harpoon is “to kill a marine animal.” Countless human groups have hunted marine animals across the globe. Since the word “harpoon” conveys nothing more than its function (“to kill a marine animal”), with no added ethnic specification, Leroi-Gourhan identifies this first degree of the fact with the tendency itself. It is found widely throughout the world. From there on, Leroi-Gourhan classifies the documents according to the “degrees of the fact,” and in doing so, he individualizes them more and more. Comparing technical objects from different place around the world is only beneficial “if a list is created for each object. This list should begin with the most prominent feature, move on to the more apparent characteristics, and finally include the most specific details, such as the symbolic meaning of the tool.” (Leroi-Gourhan, 1943, p. 30) In the case of harpoons, a second degree of the fact specifies them as “harpoons with bone tips,” found in the Pacific Ocean – still very broad, but no longer the entire world since in other regions of the world, harpoons do not have bone tips. This is already an ethnically determined specification, a first level of individualization. At the third degree of the fact, there are “harpoons with bone tips and a float,” among the Eskimos – a new level of individualization, a further narrowing of the geographical area concerned. At a fourth level, there are “harpoons with bone tips and a bladder float,” among the Eskimos located in Alaska (unlike the Eskimos who live elsewhere). The degrees of the fact can be multiplied as necessary to achieve the maximum level of individualization of the technical fact.

Classifying technological documentation in this way makes it possible to carefully control historical conclusions. Indeed, often the general constructions of ethnologists consist of linking together two facts at the second or third degree (or even higher) by a fact considered at the first degree, in order to conclude that the two corresponding “peoples” have had historical contact. Let us reiterate that the first degree of the fact (for example, the harpoon without further specification) is the materialization of a technical tendency, that is, the solution to a problem to which many human groups have independently responded, drawing from a limited stock of possibilities. Therefore, referring to the presence of harpoons considered at the first level of the fact (that is, without ethnic peculiarities) to prove historical connections between distant human groups is misleading. The similarity in the shapes of countless harpoons found worldwide does not necessarily indicate historical connections between distant ethnic groups. Instead, these similarities highlight the universal nature of technical functions and the constraints these functions impose on tool design.



CONCLUSION: LEROI-GOURHAN AND THE PHILOSOPHY OF TECHNICAL ARTIFACTS

In conclusion, a technical object only holds scientific value for ethnology if it is precisely described and characterized. A technical object is meaningless without its accompanying documentation, making it both material and textual. The criteria for this documentation were established by Mauss (1947) and later adopted by Griaule and Leiris (1931/2015) during the Dakar-Djibouti mission of 1931-1933, with Leroi-Gourhan further building on this foundation.

This framework is very different from that proposed by contemporary philosophers analyzing technical artifacts. Analytical philosophers view a technical artifact as the interaction between material and intention. Leroi-Gourhan would have considered these concepts of material and intention overly general. According to him, material in itself does not exist; instead, there are specific materials with distinct properties that either assist or resist the technician. These materials can be stable solids, fibrous, plastic, semi-plastic, flexible, or fluids. Depending on how they are treated, their properties can change. For instance, bronze is a stable solid when chiselled, plastic under the hammer, and fluid when cast in a mold. Therefore, a sculptor might work with the same material but encounter different properties, requiring different techniques. Intention must also be broken down according to its tendencies and degrees, encompassing both the general technical function and the desire to impart a unique ethnic quality to the tool.

Analytical philosophers tend to analyze a technical artifact in isolation, whereas Leroi-Gourhan believed that an isolated technical object cannot be conclusively analyzed scientifically; it must be part of a functional series. An isolated technical object, even with detailed documentation, does not qualify as a scientific document; only a series can establish solid knowledge. Between the isolated object and the series lies the collection. Properly cataloged and documented objects form collections, which can then be classified into functional series based on the duality of “tendency” and “fact.” Consequently, Leroi-Gourhan's technical object is less like the artifact analyzed by today's philosophers and more akin to the biological samples that biobankers compile into collections of scientific relevance for biomedical research.

REFERENCES

- Griaule, M., & Leiris, M. (2015). Instructions sommaires pour les collecteurs d'objets ethnographiques. In É. Jolly, & M. Lemaire (Eds.), *Cahier Dakar-Djibouti* (pp.169-207). Éditions Les Cahiers. (Original work published 1931)
- Leroi-Gourhan, A. (1943). *L'Homme et la matière. Vol. 1 of Évolution et techniques*. Albin Michel.
- Leroi-Gourhan, A. (1945). *Milieu et techniques. Vol. 2 of Évolution et techniques*. Albin Michel.
- Leroi-Gourhan, A. (1946). *Archéologie du Pacifique nord. Matériaux pour l'étude des relations entre les peuples riverains d'Asie et d'Amérique*. Travaux et mémoires de l'Institut d'Ethnologie de l'Université de Paris, XLVII.
- Leroi-Gourhan, A. (1964). *Le Geste et la Parole. 1 Technique et langage*. Albin Michel.



Leroi-Gourhan, A. (1965). *Le Geste et la Parole. 2 La mémoire et les rythmes*. Albin Michel.

Leroi-Gourhan, A. (1993). *Gesture and Speech*, [A. Berger, Trans.] MIT Press.

Mauss M. (1947). *Manuel d'ethnographie*. Payot

СВЕДЕНИЯ ОБ АВТОРЕ / THE AUTHOR

Ксавье Гуше, xavier.guchet@utc.fr
ORCID 0000-0003-4912-4912

Xavier Guchet, xavier.guchet@utc.fr,
ORCID 0000-0003-4912-4912

Статья поступила 3 марта 2024
одобрена после рецензирования 10 июня 2024
принята к публикации 17 июня 2024

Received: 3 March 2024
Revised: 10 June 2024
Accepted: 17 June 2024