

# TELOS AND ARISTOTLE'S TECHNOLOGICAL DETERMINISM<sup>1</sup>

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## ABSTRACT:

The paper analyses Aristotle's technological determinism as it is related to his theory of slavery. The sketch of technological determinism: 1) is part not only from Aristotle's theory of economy and of politics, but also from his ontology of the human being; 2) it is not a reductive standpoint, but the result of a deductive manner – illustration of his rationalism *all the way* – which spotlights both a basic ontological relation (of man with technique/the means of production) and a basic ontological form of the objects man faces and creates; 3) it calls attention to his *integrative, holistic* philosophy, by being interconnected with the *telos* and, more precisely, with the *telos* of the human persons and communities; 4) finally, it suggests an optimistic evolution of mankind, surpassing the image of a closed structure and explanation of the human existence – that some mainstream researchers have attributed to it.

Aristotle's technological determinism comes up as an argument of the *model* of slavery, and represents the rapid conclusion related to the relation between the efficient cause (the labour force) and the formal cause (the tool) acting on the material cause in order to create things necessary to the household. This conclusion sounds modern and is a quite hardy and original inference: since the productive level of tools is low, one certainly needs slaves who compensate through their efforts this lack of autonomy of instruments; but if this autonomy is conquered, people would be free from their previous toil. It results that though the level of the means of production appears as something objective, external to man, a datum that would be the ultimate cause of the condition of things in society, in fact *another/opposite situation is not unthinkable*. And if one understands this, things could really change. Aristotle was not interested about this path, but he considered his inference a valuable and *constructive* theory, something that could have its own evolution, separated from the theory of slavery: *anticipation* and not a description of the real state of things; it worked in the realm of possibility, and not of necessity. But just this opening is valuable from both an ontological and epistemological standpoint.

KEYWORDS: Aristotle, theory of technological determinism, *telos*, epistemology, utopia, present technophobia and technophilia.

## Introduction

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<sup>1</sup> This is the upgraded version following the discussions around the paper sent to and accepted by the *Aristotle – 2400 World Congress*, Thessaloniki, May 2016, and presented with 5 slides.

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The problem of Aristotle's technological determinism and its philosophical significances is less studied than other philosophical themes in Aristotle.

- The first reason, *historical and epistemological*, is the *separation* between economics and philosophy (ethics and sociology)<sup>3</sup> – this separation doubling that between ethics and politics<sup>4</sup> – as it have appeared in both Aristotle's scientific demarcation and *modern scholars' research within these domains*, i.e. far beyond the manner of ancient thinking. This separation has led to reciprocal misunderstandings of the intimate relationships of these domains, since economists' leaning toward the practical use of their cluster of theories already becoming autonomous made them to ignore the external world towards economy, while traditionally the philosophical specialisations did not consider the coarse means of the everyday living as worthy to be at ease in front of them.

- The second, *ideological*, is related to the reasonable consequences a theoretical economist could have deduced from the ethical analysis of the human life, and an ethicist could have introduced in his inquiry about the reasons of human behaviour. These consequences would have jolted the ideological assumptions of the long string of *mainstream intellectuals belonging in a way or another to the ruling class*.

- The third, *ontological and epistemological*, regards the difficulty to pass from one level of reality to another: each of them having its own logic leading to a kind of self-enclosure.

At any rate, all these reasons intertwine and, at the same time, do not substitute each other. Overcoming them, an integrated method of analysis, taking into account the many standpoints and criteria of different domains, is more generous. For example, though one cannot neglect the ideological motives in Aristotle's theory of slavery, *one cannot reduce its explanation to these ideological motives*, but rather emphasise the *integrative* philosophy of the Stagirite: a) its unitary logic of the tripartite soul, where "reason exercises political or kingly rule over desire", b) and

<sup>3</sup> Amartya Sen, *On Ethics and Economics* (1987), Malden, Ma., Blackwell Publishing, 2004, pp. 2-5.

<sup>4</sup> Gerasimos Santas, "The relation between Aristotle's ethics and politics", in *Aristotelian Political Philosophy*, Volume I, Edited by K. I. Boudouris, Athens: International Center for Greek Philosophy and Culture, 1995, pp. 160-176 (160).

Aristotle's interest to explain the specific political rule (always for the good of the whole/the common good) as differentiating from the rule of the master over the slave (only randomly for the good of the slave)<sup>5</sup>.

Aristotle's technological determinism appears as an argument of the *model* of slavery, and represents the rapid conclusion related to the relation between the *efficient* cause (the acting labour force) and its instrument (the tool) acting on the *material* cause in order to create things necessary to the household. This conclusion sounds very modern and is a quite hardy and original inference: since the productive level of tools is low, one certainly needs slaves who compensate through their efforts this lack of autonomy of instruments; but if this autonomy is conquered – i.e. “shuttles wove and quills played harps of themselves” – people would be free from their previous toil, and “master-craftsmen would have no need of assistants and masters no need of slaves”<sup>6</sup>. It results that though the level of the means of production appears as something objective, external to man, a datum that would be the ultimate cause of the state of things in society, in fact *another/opposite situation is not at all unthinkable*. And if one can understand this, things could really change. Aristotle was not interested in developing on this path, his goal was to explain the specific of political relations. But he considered his inference as valuable and thus a *constructive theory*, something that could have its own evolution, separated from the theory of slavery. This suggested constructive theory was different from the theory of slavery it only served: it was *anticipation*, and not a description of the real condition of things; it worked in the realm of possibility, and not of necessity; it was open, and not close. At the same time, it was not about a cold world of technical objects determining univocally the fate of man and enslaving him, or at least a part of society. The technological determinism of Aristotle<sup>7</sup> was an illustration of the *relational* framework he demonstrated as being the most profound, in fact the only one the human society has constituted upon. The situation of slavery was a human *construction*: the evolving human relationships were

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<sup>5</sup> Malcolm Schofield, “Ideology and Philosophy in Aristotle's Theory of Slavery” (1990), in *Aristotle's Politics: Critical Essays*, Richard Kraut, Steven Skultety eds., Lanham MD: Rowman and Littlefield, 2005, pp. 91-119 (107, 108).

<sup>6</sup> Aristotle, “Politics”, *Aristotle in 23 Volumes*, Vol. 21, translated by H. Rackham. Cambridge, MA, Harvard University Press; London, William Heinemann Ltd. 1944, Book I, Chapter IV, 1253b20.

<sup>7</sup> And later on, of Marx.

those having, consciously and unconsciously, instituted the master-slave relations.

In the present paper, I aim to demonstrate that Aristotle's technological determinism: 1) is part not only of his theory of economy and of politics, but also of his ontology of the human being; 2) it is not a reductive standpoint, but the result of a deductive manner – illustration of his rationalism *all the way* –that spotlights both a basic ontological relation (of man with technique/the means of production), and a basic ontological form of the objects man faces and creates; 3) it calls attention to his *integrative, holistic* philosophy, by being interconnected with the *telos* and, more precisely, with the *telos* of the human persons and communities; 4) finally, it suggests an optimistic evolution of mankind<sup>8</sup>, surpassing the image of closed structure and explanation of the human existence, that some mainstream researchers have attributed to it.

### The theory as such

Aristotle's theory of technological determinism is very simple. It consists in only a phrase: "*if every tool could perform its own work when ordered, or by seeing what to do in advance...if shuttles wove and quills played harps of themselves, master-craftsman would have no need of assistants, nor master – of slaves*"<sup>9</sup>. Aristotle did no longer elaborate on this topic, from where one could believe that this phrase would not be a theory and anyway it would not be important (nor would it be considered important by Aristotle himself).

But these preconceptions denote weakness in reasoning: not only because a precious theory does not necessarily need a long defence, but also for Aristotle's form of abductive argument ("*if...*") putting in relation real unquestionable facts was advanced just in order to challenge, to open a scientific discussion.

Somehow diverting from the pattern of explaining economy from the original and simplest structure – the household with its concrete needs and relationships – Aristotle has advanced a *generalisation*: that arises from the implicit *description* of the real state of things.

How does this real state appear in this implicit *description*? That:

- a. the *level* of tools/productive means is (was) low;

<sup>8</sup> See Ana Bazac, "Aristotle and the labour force. Aristotle's tradition in the present-day industrial revolution ideology", *Revue roumaine de philosophie*, 1-2, 2004, pp. 87-106.

<sup>9</sup> Aristotle, *Politics*, Book I, Chapter IV, 1253b20.

- b. everything starts from the level of productive means, then
- c. the level of tools/productive means is objective, implacable
- d. but this means too – inalterable;
- e. therefore, the *quality* of productive means is not autonomous: they depending on the human force/ability;
- f. and if one think a little bit more, firstly the productive means depend on the human imagination/cunning/reason<sup>10</sup>: this is the reason of the master craftsman/engineer/*arkhitekton* (chief, director of works).

The *generalisation* consists in that the working process appears to be a normal, understandable *technical* relationship between: master – tools – assistant/slave. The tools mediate between the humans, and since the mediation is determinant, the elements put into relationship by the mediating structure have but to conform to it. This is the reason the master-slave relationship would be simply technical.

But, this entire description is put in the negative form (since the real level of tools was low), put in its turn in a hypothetical form: “let’s imagine a high level of tools...”: well, the relationships which are now banal, constitutive, would be absolutely different (“if things would be quite opposite to the real state...”), would they?

“So, could you falsify my theory?” seems to resulting from Aristotle’s offer, inviting the cohorts of thinkers to entering the dialogue. The present paper is an attempt to do this and to deconstruct Aristotle’s theory in order to contribute to his challenge.

### **The ontological role of the means of production in Aristotle’s philosophy**

Before being different – and even “the best” from all other living beings – man is an animal, and its endowment with soul, spirit, reason, requires the material support of food, clothes and all the other objects of civilisation<sup>11</sup>. But since it takes so much time to acquire the cognisance and

<sup>10</sup> See Ana Bazac, “From Slyness to Moral Wisdom in the Era of Emergent Technologies”, *Wisdom*, 2 (3) 2014, pp. 18-40.

<sup>11</sup> Aristotle, “Nichomachean Ethics”, *Aristotle in 23 Volumes*, Vol. 19, translated by H. Rackham. Cambridge, MA, Harvard University Press; London, William Heinemann Ltd. 1934; I, 8, 1098b2: “external goods”); I, 8, 1099a15: “not easy, to play a noble part unless furnished with the necessary equipment”); I, 10, 1100b11: “The happy man therefore will possess that element of stability in question, and will remain happy all his life”); X, 7, 1177a4: “the wise man equally with the just man and the rest requires the necessaries of life”.

education in order to become a good person<sup>12</sup>/ a citizen able to decide and choose the good ways for him and society/ a philosopher, i.e. a person focused on contemplative and political activity, and on the other hand, it is so difficult to realise the above-mentioned material support, it is more economical/rational that people *to divide into specialised groups*, since they want to achieve the highest level of perfection the human is able to attain.

And since the highest level of perfection is related to the good/the manifestation of the *function* of man to understand and thus to direct “their energies to public affairs”<sup>13</sup>, and on the other hand, the *whole being more important than its parts*, the good/the end (the *raison d’être*) of the city-state being finer to attain and preserve than that of an individual<sup>14</sup>, the *political* – i.e. domination-submission – division of labour in *masters/citizens* and *slaves/people without rights* is inherent<sup>15</sup>.

And though “all men naturally desire knowledge”<sup>16</sup>, would it not be more useful for the end of the whole, and of (at least) a single concrete part of it, to consider that the other part would have a structurally low capacity to know, thus to realise the end of man<sup>17</sup>? Letting aside the integration of the theory of natural slavery within the *metaphysical paradigm of the hierarchy of the world*<sup>18</sup>, the political difference between masters and slaves was explained by Aristotle through the *social division*

<sup>12</sup> See also George Boger, “Aristotle on the intention and extension of *person* and the focal concern of environmental philosophy”, in *Philosophy and Ecology*, Volume II, Edited by Konstantine Boudouris and Kostas Kalimitzis, Athens: International Center for Greek Philosophy and Culture, 1999, pp. 32-58.

<sup>13</sup> G.W.F. Hegel, *Philosophy of Right* (1821), Translated by S W Dyde, Kitchener, Ontario, Ca.: Batoche Books, 2001, § 248, p. 191.

<sup>14</sup> Aristotle, *Nicomachean Ethics*, I, 2, 1094b8.

<sup>15</sup> G.W.F. Hegel, *Lectures on the Philosophy of History* (1822/1837), III. Philosophic History. (1) The Abstract Characteristics of the Nature of Spirit, § 21,

<https://www.marxists.org/reference/archive/hegel/works/hi/history3.htm#i>:

”The Greeks, therefore, had slaves; and their whole life and the maintenance of their splendid liberty, was implicated with the institution of slavery”.

<sup>16</sup> Aristotle, “Metaphysics”, *Aristotle in 23 Volumes*, Vols.17, 18, translated by Hugh Tredennick. Cambridge, MA, Harvard University Press; London, William Heinemann Ltd. 1933, 1989, Book 1, 980a.

<sup>17</sup> See also Eugene Garver, “Aristotle’s Natural Slaves: Incomplete Praxeis and Incomplete Human Beings”, *Journal of the History of Philosophy*, Volume 32, Number 2, 1994, pp. 173-195.

<sup>18</sup> Spyridon Ragos, “The Aristotelian foundation of natural inequality”, *Aristotelian Political Philosophy*, Volume II, Edited by K. I. Boudouris, Athens: International Center for Greek Philosophy and Culture, 1995.

between *physical and intellectual* labour, explained in its turn as difference in the principle of knowledge specific to these two types of labour: thus, those in the first category knew only from experience the *individual* things they acted on or with, while those in the second category knew the *general* “the wherefore and the cause”<sup>19</sup> “by art and reasoning”<sup>20</sup>. Actually, though the artefact (*technê*) was created by human intention, i.e. by the efficient cause represented by the worker<sup>21</sup>, this cause was like a unanimated cause acting on another unanimated thing: because the real intention pushing to creation pertained to the masters *who knew the reasons of this action*.

Therefore, slavery was demonstrated within the implied idea of social/political division of labour, and through the *technical* relation of slaves with tools. Slavery was not a social relation, but just this technical relation with tools. And, since the efficiency of tools was low, the normal inference was that of the compensating role of the straining of the labour force (the “living tool”<sup>22</sup>) in order to realise the *telos* of things created through work. The *direct* material cause of slavery was the *simple* character of tools.

And here Aristotle once again has proved to be a philosopher: the problem was not that tools' simplicity consisted in their direct action over the objects of work (as of a hammer on the wood or metal), and nor that of mediated actions – of tools on tools and thus on the objects of work (what the economists call *complex* tools) – but that *all types of tools* (see for example the incline) needed the *human effort*. And more: that without this effort, no task would have been accomplished.

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<sup>19</sup> Aristotle, *Metaphysics*, 1, 981a1.

<sup>20</sup> Aristotle, *Metaphysics*, 1, 980b21. And follows 981a1-981b1.

<sup>21</sup> As we know, in *Physics* (Aristote, *Physique II*, Traduction par O. Hamelin, Paris, Félix Alcan, 1907), the Stagirite has differentiated (Livre II, Chapitre I, 192b) between the natural things which have in themselves the “innate impulse to change” and the artefacts which exist because of an external cause. This was related to the sort of knowledge specific to these two types of things (II, 2, 193a and 193b): to the natural things a scientific knowledge corresponded, interested about the causes of the matter and form of these things; but the knowledge of the matter and form of artificial things was limited only to their “function”.

This distinction is connecting with the division of labour, where the physical one was definitely subordinated to the intellectual labour. But this subordination had also perverse effects: a possible autonomy of the physical labour (see the line Aristotle-Hegel), and even an excessive instrumentalisation of the objects, as experienced from the 19<sup>th</sup> century onward.

<sup>22</sup> Aristotle, *Nicomachean Ethics*, Book VIII, 11, 1161b6.

This was the reason of the description of the slave as “an assistant in the class of instruments of action”<sup>23</sup>, since “every assistant is as it were a tool that serves for several tools”<sup>24</sup>. And if, by imagination, these all other instruments would have accomplished the tasks only by obeying people, and even “by seeing what to do in advance”<sup>25</sup>, it certainly would have been no need of the specific instrument of action on the inanimate instruments.

*Ontologically*, the means of production – in fact, something very commonplace – have been transformed into a *basic concept* for the understanding of man: and perhaps for the first time. This concept has become the ultimate material cause of the master-slave relations. It was part of the Aristotelian ontology of man and had the function to legitimate the status quo.

But the philosopher was interested about the difference between the master-slaves relation and other relations of leadership and hierarchy, and not to develop the ‘why’ of these relations, nor their interdependence.

### **What does technological determinism mean?**

As we know, the deterministic pattern of thinking – copying the child’s and human’s spontaneous reasoning in front of the existence – has become a great victory when it was taken over by the theoretical approach; and it has become the stake or the main criterion of knowing when and because *philosophy* was interested about the world beyond appearances. For example, Aristotle’s four causes were the philosophical expression of the development within the human consciousness of the infinite chain and types/qualities of reasons/causes, and between them the fourth one, the *telos*, was the most important: as grounding all the others and as reason of the existence itself. Over the centuries, the prestige of the entire scientific comprehension has flourished just from the ancient deterministic theoretical pattern of thinking.

Indeed, if for Aristotle every being/action had/has its own *telos*, just the clear indication of the concrete *telos* opens the way for the inquiry of other ones and, obviously, for the material, formal and efficient causes related to them. Just the *telos* forbids the reduction of causes and the unilateral understanding of the functioning of things.

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<sup>23</sup> Aristotle, *Politics*, 1254a1.

<sup>24</sup> *Ibidem*, 1253b1.

<sup>25</sup> *Ibidem*.



When the Stagirite has sketched his technologically grounded deterministic theory of slavery – and of the possible alternative situation to slavery – he seemed to have found the “ultimate” cause of a very difficult problem. In virtue of this “ultimate” cause is Aristotle the early representative of the technological determinism (that some ones considered to be a reductionist theory explaining the complexity of social phenomena only through the technological factor).

But neither Aristotle did support a reductionist view – since the above-mentioned *telos* of man would anyhow have generated a hierarchical social order (with or without the element of explanation represented by technology) – nor the technological determinism as such is a unilateral understanding. And not only because it is an explanation of complex social phenomena by *focusing* on some causes and *bracketing* the other ones, but because *it cannot forget the chain of causes related to it*.

A contemporary reductionist tendency is just the *hard* technological determinism considering that either the modern and new technologies would be the *only* cause of the decay of society (and absolutely independent from the social relations) – this is the technological pessimism / technophobia – or these technologies would be the only deliverer of mankind, the technological optimism/ technophilia.

When Aristotle is revealed as a conservative thinker, his technological determinism could be seen as an ordinary reductionism. But when one understands the non-conformism of his epistemology, the technological determinism is an extraordinarily sharp grasping of causes within their *hierarchical and complex structure*, and supposing even the most metaphysical ones, the *teloi* of the human beings. (While concerning other ideologically non-conformist theories – as Marx's technological determinism –, just because they aimed at explaining the *change*, they neither needed one single cause, on the contrary, they needed the complex of social relations, and thus they nor needed to bracket this complexity).

*Analytically*, the Aristotle's technological determinism is only *a part* of the inferences about the causes of the condition of society (where slavery existed). The whole explanation, more complicated, is framed by the game of the different *teloi* of masters and slaves.

It is clear-cut that the technological determinism is only *half* of the determinism of the relations between slaves and technology. This half inferred the existence of slaves from the low level of tools. The other one would have inferred from this existence the state of technology (for

example, a certain rhythm of innovations, and their diffusion): just the existence of slaves was the obstacle of innovations and their spreading. But it's obvious that Aristotle *could not* develop this other half of argumentation: because the development of technology was of such level and so stagnant that, apart from the ideological background, the theory simply *could not* perceive the possibility of a different rhythm of innovation and diffusion.

Finally, one may advance a supplementary thesis legitimising Aristotle's technological determinism as an extraordinary intuition *seeming* to bracket the main arguments related to the *telos* of man, and only contained within the corpus of these arguments. As we remember, Aristotle provided his theory of technological determinism as a *hypothesis*. Because: in his time it was a fantasy to conceive of autonomous tools. His theory was a *reductio ad absurdum*, similar for example with the "theory" that if people would breathe in water, they would obtain their food by living in the sea like fishes. Actually, Aristotle has transmitted the explicit belief that the hypothesis is a fantasy. The alternative suggested mode – "if..." – was *not probable* for Aristotle. Or, put differently: starting from common observations about the instruments people used in order to realise the things and services needed, Aristotle has developed a theory in the form of an *abductive reasoning*: which, as we know from Peirce, is only the most economical explanation, but certainly *within a complex assemblage of theories*.

And, because the slaves take precedence of all other instruments – thus because of the *contradictions* intimated in the whole problem – Aristotle has shown that the entire problem of technology and slaves was *open*.

### **Is Aristotle's technological determinism a utopia?**

Since the utopian construction is a negation of the present condition of things, Aristotle's theory was indeed a utopia. It aimed at improving the present /rather, the explanation of the present, and not at predicting the future<sup>26</sup>: but this prediction *resulted*. And because the utopia has "shadowy boundaries"<sup>27</sup>, it is possible to characterise the Stagirite's

<sup>26</sup> Howard P. Segal, *Utopias: A Brief History from Ancient Writings to Virtual Communities*, Malden, Ma., Oxford: Wiley-Blackwell, 2012, p. 12.

<sup>27</sup> Frank Edward Manuel, Fritzie Prigohzy Manuel, *Utopian Thought in the Western World* (1979), Cambridge, Ma.: The Belknap Press of Harvard University Press 1997, p. 4.

technological determinism as a *sketch of utopia*: not recognised as such<sup>28</sup>, it is, however, an *unexplored* utopia where Aristotle only has *suggested* a possible future trend and, at the same time, has made an *indirect* critique of the master-slave relations, considered in those circumstances as an inevitable evil.

And since the technological model suggested by Aristotle was not at all probable for him, it may be described as “high utopianism”, or only a “heuristic device”<sup>29</sup>.

### **The *telos* brings the nuance of optimism**

Everything has its *reason* to be, if it really is/manifests in the form/level of actuality. But since, generally, things have one *telos* – having a precise *function* in the concert of the world – man (and not the *polis*: thus the understanding of the human being cannot be reduced to the understanding of the polis, it is not tantamount to the *polis*, just opposite to Plato, see *The Republic*) is a quite specific entity: just because it has many, different and simultaneous *teloi*.

Indeed, the *simplest telos* of man is emphasised through its concrete relationships within the *polis* (and thus within the species as such). Every man and woman must perform his/her function in order to help the realisation of the function of the other human fellows. And from this standpoint, it seems things do not change: and even ought to be kept and observed, since we want to not alter the *good* (that is the model and tendency of things). Obviously, Aristotle has inherited Plato's *oikeiopraxia*: the human meaning of life was the subordination to the concrete social and professional *function within the polis*: both the master and the slave should do their best in order to realise the *telos* of their existence. Well, *but if* the old conditions of production change? Does a re-writing of the concrete social (and professional) functions not follow? So, even from this

<sup>28</sup> See Lewis Mumford, *The Story of Utopias* (1922), With an Introduction by Hendrik Willem Van Loon, New York: Boni and Liveright, 1928, who – though sensitive to the problem of technology – spoke only about Plato's utopias, and did not mention Aristotle.

A recent analysis about Aristotle's utopian coloratura (but not about his technological determinism): Vladimir Goutorov, “On the utopian trends of Aristotelian political philosophy”, in *Aristotelian Political Philosophy*, Volume I, pp. 67-78.

<sup>29</sup> Jeremiah Reedy, “Utopia, dystopias and the *Kallipolis*: Plato's *Republic* in context”, in *Polis and Cosmopolis: Problems of Global Era*, Edited by Konstantine Boudouris, Athens: International Center for Greek Philosophy and Culture, 2003, pp. 182-196 (187, 192).

conservative background Aristotle's theory of technological determinism has generated non-conformist suggestions.

But the *telos* of man can be explained not only starting from its relationships, but also from its human essence as this one may be approached by the human reason. (And yes, from this standpoint Aristotle was an essentialist, and not an existentialist as he was in most of his thinking). The *telos* of man as a human being – a being endowed with *logos*, thus a *moral being* – is/can be but the fulfilment of its cognitive creativity: the understanding of the “why” of things. And in order to do this, man has to exercise its reason/will/capacity to control its desires of little animal. Indeed, all of these human capacities, including that of intellectual research/contemplation, are *dispositions*: but they develop concretely, as *virtues*. The learning and exercise of virtues constitute the *subjective* condition of the realisation of man's good – whether only through the functions within the household and *polis*, or even as high, philosophical understanding of the world. But does this subjective condition not depend on the *objective* conditions: the social position of man and the material conditions it lives within – including or especially the level of productive means –? Consequently and if we do not suppose that Aristotle has forgot or bracket his theory about man when he sketched his theory of technological determinism, we can infer that the hypothetical form of this theory once more has included within an optimistic suggestion: if the level of productive means raises, the raising of the virtues of those who now toil, and their strong attraction toward the understanding of the “why”, would not be unthinkable.

And this inference related to the importance Aristotle has given to the theory of *man as a moral being* is not indefensible. The slaves were not only instruments, they were *humans*, and thus not all the means of coercion were admissible towards them. More: they could and had to be treated not only as slaves, but as humans too<sup>30</sup>. And if so, the problem put by the technological determinism was not only that slaves could be treated humanly, but that it would be possible from an *objective* standpoint to do this: “*if...*”.

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<sup>30</sup> See *Nicomachean Ethics*, Book VIII, 11, 1161b7: “Therefore there can be no friendship with a slave as slave, though there can be as human being: for there seems to be some room for justice in the relations of every human being with every other that is capable of participating in law and contract, and hence friendship also is possible with everyone so far as he is a human being”.

Therefore, by adding the theory of technological determinism to the theory of natural slavery – and not as a wishful thinking, but as a logical hypothesis within the corpus of theories – Aristotle has suggested that in fact *oikeiopraxia* could be substituted with an open model of social functionality: without destroying the good, the perfection as criteria of his functionality; but open. And already this is a nuance of optimism hitting the inherent pessimism of the master.

### **Concluding remarks**

The above decomposition of Aristotle's technological determinism aimed to show that this theory was not only an argument in favour of slavery as constitutive relation, but also a very fruitful construction for the analysis of society. And though the Stagirite's technological determinism aimed at justifying the domination-submission relations, actually it had and has *unintended consequences*.

The philosopher could not follow them: neither in his time, nor later on until, let say, the last decades of the 20<sup>th</sup> century and the present 21<sup>st</sup> century, the means of production were not *autonomous* from the human labour force (were not “like the statues of Daedalus in the story, or the tripods of Hephaestus which the poet says ‘enter self-moved the company divine’”<sup>31</sup>), and so they only could continue to explain the social divide, because as without the old and modern subjected labour force there was no overproduction, thus no basis for the development of civilisation and culture, as the old and modern dominant classes had the *technical* function to compel this labour force.

And since only from the above-mentioned threshold there is a convergence between the physical and intellectual labour, and *the new labour force no longer needs to be technically constrained* – because of the cybernetic, IT, nano, bio and genetics revolution<sup>32</sup> – it results that the

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<sup>31</sup> Aristotle, *Politics*, 1253b20.

<sup>32</sup> Though it is not the place to discuss in detail, a question put after my presentation related to the *driverless cars* – a present tendency but also a *metaphor* for the development of such autonomous tools that they don't need anymore any human presence in order to perform their tasks – is worth to answering to, as I did. The problem of driverless cars does not suggest that a new Luddite philosophy to stop the development of technology would be proper in order to not expand the unemployment. On the contrary: the development of technology is absolutely necessary to liberate the time of people, nowadays still filled with routine and repetitive actions, thus to enrich this time with understanding, culture, human relationships, creativity. But since the present social order allows only these extreme theoretical possibilities – *either* to

philosophical focus on technology acts just as a weapon of the overthrowing of the old pattern of domination-submission.

This function of weapon is all the more important if we understand that the social change for the good of *every* human being is supported not only by normative/prescriptive ethical theories (speaking about *phronesis* and middle way, to discuss only Aristotle), but also by anticipative theories about everyday terrestrial things as Aristotle's technological determinism and regardless the forms of these anticipations.

However, as anticipative as it may be, a theory is always post: it interprets the existing facts or, at least, tendencies. This is too the reason of Aristotle's *contradictory* conclusions. But *nowadays*, the *objective* tendencies to jolt both the real pattern of social relations and the old theoretical clichés already exist. Hence: the flourishing of the theory of technological determinism. But, since theory as such develops in a social frame marked by the domination-submission relations, the *mainstream* technological determinism theories ignore the social interests and the essential influence of the social relations over society, and pessimistically picture a quite apocalyptic view about the destruction of humankind because of the new technologies, or optimistically consider the modern technology as the *deus ex machina*. Only the non-conformist "against the current" ideology is continuing Aristotle's suggestions.

Aristotle's technological determinism – as later on Marx's – proved to be a founded, valid non-conformist epistemology, a part of a holistic approach of man and society: in front of the present technophobia and technophilia, their theory appears as a model easily falsifying them.

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develop robotics etc. and unemployment *or* to stop the research and the evolution of technology – the logical solution is not to support one of these two variants, but to choose *another one*: the change of the social relations which determine the present blind alley.

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