MAŁGORZATA CZARNOCKA, "HOW IS SCIENCE UNIVERSAL?",
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Universal, a concept describing a *point of view* about the state of things, is, first of all, related to *values*. The values themselves are ideas taken over by as wide as possible human groups: ideas which thus are *criteria* for other appreciations and actions. And because the coherence of the human society requires the assumption of common criteria, they are created and moved so that they are taken over by as many people as possible. Thus, values are universal: certainly, in different degrees according to the size of social groups taking them over. This is the reason of the important activity of humans to educate, form, and influence their species fellows according to some ideas which they consider values.

Still, the values have not only a *quantitative* side, related to the number of those assuming them – though this aspect is considered by many as the main proof of truth of these ideas – but also, and foremost, a *qualitative* side: they must be logically demonstrated/demonstrable, thus necessarily articulated in a coherent construction corresponding to the real facts and, what is cardinal, they must accept their questioning from opposite standpoint. Only by refining their own internal logic as a result of the falsification attempts are they legitimate and thus, convincing. This is a *model* of the spiritual value, answering to the problem of the substantiation of the human beliefs. It is not an ideal, thus justifying some ones' retort that it would not be mandatory to overlap the ideals since reality is more complicated; no, the above sketch of the *formal* characteristics of values is just a *model of mandatory requirements*. But, as it is well-known, history is full of values which are even far from these formal characteristics: indeed, the values are *historical* and *social* constructions. And for the values are promoted within the *power relations*, they reflect these relations and manifest their positions towards these relations: in this way, in the name of dominant values the contrasting ones are at least silenced.

Science lies in an absolute different situation: it's the standpoint of not only many persons from the large public but also of many scholars. Indeed, in science at least not the quantitative criterion of the truth-value of theories has importance, since science is a clear *circumscribed* domain. Yes, but at the same time the condition of *certification* of the truth-value is just the discussion within the specific community of professionals and, after verification and falsification attempts, the taking over of the theory as a basis of the new research of the scientists from that specific scientific community. Actually, at least for some theories and domains there is not even the possibility to not accept the theory that was scientifically certified (by the scientists from those domains): *for a while*. Because: as we know, the progress of research always challenges the existing theories.

Anyway, the scientific theories prove to be *cognitive* values just because they respect the above qualitative requirements of value certification. This conformity of theories according to the qualitative requirements of value certification, in other words, this separation of common knowledge – that also includes opinion/*doxa*, and not only "true judgement with an account"[1]/*episteme* – from science that *always* must be "true judgement"/logically consistent and a proven correspondence with facts, is the first reason of the representations of science as the highest model of knowledge and, thus, of its value. In fact, these representations were structured just because they created/imagined the metaphysical *reason to be* of science as a specific body within knowledge. This reason to be was just the ensemble of cognitive methods – i.e. *manners to treat the*

[1] Plato, *Theaethetus*, 201c.

entire route of the scientific inquiry and everything on this route – therefore, the position of science in front of the world and the cognitive results of this position.

The scientists have step by step constructed the image of irrefutability of the scientific attitude in front of the world and within the general knowledge (and ignorance), just by their tenacious effort to question and refute their own theories. Science has arrived to its pedestal just because/in proportion as some scientific theories were rejected by scientists. These ones were, certainly, proud of their activity but at the same time very lucid: so modest. They knew that their work is a collective relay race and that they gradually arrive to better understand the intertwining of things and their constitution, but that this understanding is always only a moment in the knowledge process. Briefly, *not the scientists have propagated positivism, but some philosophers*.

Positivism as a philosophical doctrine is absolutely opposed to the scientific positive recourse to facts. Scientists' trust in science is not tantamount to the speculative presuppositions about "scientists' belief that science will solve everything" till the ultimate truth by the investigation of the empirical reality and by empirical demonstrations. On the contrary, these presuppositions have been constituted as a defence of the traditional metaphysics when the modern science has overwhelmingly provided proofs against its ideologically translated speculative intuitions. "Science" was incriminated as the modern enemy of the speculative ideologies, and as a more dangerous enemy than all the idealistic dreamers of social reforms: because it was a cold substantiated refutation, and focused on the deep incongruities of the speculative ideologies, but *always only in an indirect way*; just because the purpose of science was not the victory over the speculative ideologies, was science so dreaded by them, or antipathetic; and also, because it was "socially neutral", i.e. not involved in class struggles and existential political decisions, or clearer, involved *mostly on the dominant politics' side*[2]; and the more it was "socially neutral" and cold examiner of the speculative tenets, the more it was hated as the gravedigger of the traditional absolute supremacy of the speculative ideologies. From this standpoint, the entire history of the growth of science was and is marked by the harsh attack against the scientific spirit: and *this attack and history were/are ideological, and not "simply spiritual"*. The growth of science took place through ideological battles, and not only through the mutual criticism of scientific theories.

We should mention that the social neutrality of science has been constituted on the ground of the historical separation between the physical and intellectual work, in fact it was a specific form of this separation. But concretely, the social neutrality of science was the result of two processes: *epistemological*, resulting from the scientific focus on concrete problems/systems cut out from their direct larger systems and obviously, from their indirectly related environment; and *ideological*, imposed by the dominant speculative philosophy not only in the trail of the traditional separation of spiritual activities from the dirty world but also because of the dominant *will to stop scientists' tendency to bring closer to social problems*. Mainly this ideological process explains why when the holistic type *scientific* researches have arrived to important outcomes (as ecology) they were not immediately assumed as new *paradigms* helping the applied analyses, and also why both the Western science *and* philosophy/ideology have *selectively* took over creations from non-Western areas.

Therefore, in the battle of science to develop its specific and rationalist capabilities, it inherently has influenced the modern spiritual atmosphere. And those who have discussed the reasons of this influence were (mainly) the philosophers. The issue was the existence, or not, of these reasons.

[2] An example is that occurred in the First World War. As we remember, 93 German intellectuals (scientists, writers and poets, philosophers and theologians) have signed a manifesto supporting the war, while only 4 – including Einstein – have written and signed a counter manifesto.

And when the prestige of science has generally spread, the point at issue was no longer directly the existence of reasons of this prestige but the basis of these reasons.

The basis is just the consistency and accuracy of the scientific research and theories: *the epistemic standards and meeting of these standards explain the general assumption of scientific spirit*. But this means not only the universality of the scientific spirit but also the *sine qua non* character of the scientific epistemic standards and their meeting: just and only in this way is science universal, a model, a pole and a stake in the human knowledge. But how is science universal if it is a social creation in inherently particular cultural environments? Isn't it this ontological condition a barrier against the universality claim of scientific values (research, theories and spirit)? Małgorzata Czarnocka responds just to these two apparently opposed viewpoints.

Suggesting the problem of criteria of scientific knowledge, the topic of the article highlights the intense positions towards the claim or refusal of the universal value of science. Thus, two schools of thinking are described in a critical way: the foundation of epistemology and the present analytic *epistemology*, the school promoting the idea of universality of science on the basis of the epistemic standards of scientific endeavours and upshots, and the *sociology of knowledge*.

Both schools deploy comprehension exercises of the specificity of science, but – we must not forget – *they do this in the frame of the ideological battles around science*.

If we describe the two schools/tendencies as ideal models, it would not be false to depict them as a reflex of the physical-intellectual labour division, because none of them is sensitive to the *complexity* of praxis. However, the two philosophical positions towards science cover the *evolution* of many reflections about the problems of knowledge and science and therefore, that reflex is only indirect and far away; and as the physical-intellectual labour opposition will be cancelled by the development of IT and AI, so the gap between the two schools will be overcome.

Is there a conflict between the two schools? Not necessarily: they *both* have instituted a non-combat state, because of their/rather the analytic school's assumption of the theory of impossibility of the mutual translations of tenets of the philosophical schools. Therefore, in the present philosophical landscape various schools and tenets coexist in an assumed cacophony. Małgorzata Czarnocka's article aims to surpass this situation by showing that the different tenets may be translated through the analysis of their consequences. Clearer: if some theories may be refuted by standpoints of the opposed school, other ones may well coexist in a superior theory.

At the same time, if we analyse the two schools' positions towards science we may affirm that *their truths are not mutually translatable*: because they pertain to *different* aspects.

Therefore, the *epistemological* theory of science substantiates the universal character of science on the basis of the epistemic standards that science constructs and from which it depends. Though "science" means many sciences, each of them with its own objects and rules for hypothesis creation, verification, experimentation / testing, confirmation and falsification, inference and outline of theories – and this letting aside their evolution –, in fact all of these differences subsume to the *common epistemic standards*: rational character and logical consistence in reasoning, questioning of premises/hypothesis[3], concepts and methods and their rectification according to proofs (falsification: therefore, the proofs are "stronger" than the initial hypothesis or theory), severity of attitude in all the above requirements (learning from error), consideration of opposing theories in the same strict mode, honesty of researchers in all the moments of the research, so also in the communication of papers and the dialogue with the specialists (and the general public).

[3] This is the main and cardinal difference between science aand religion: only science (always) questions its premises/hypotheses.

The above configure an *ideal* model of science but, at the same time, the *criteria* differentiating science from non-science[4]. Accordingly, Czarnocka's criticism of the epistemological school is too harsh: there are also ideological constraints which impose to the analytic philosophy to not be too interested about the origin of science and its relations with the external world (*however the author does not speak about these constraints*), but the *focus as such on the above criteria is simply the business of epistemology*. However, the fact that epistemology in its Kantian underpinnings, in neo-Kantianism and in analytic philosophy[5] is *not open to the problems of science's relations with the external world* generates serious shortcomings. This epistemology is bent in itself as a concave lens and this means that it omits some problems of scientific theories (demonstrations, verification etc.) resulted from the interference of external conditions: and this is a form of disengagement towards the scientific community of researches. This attitude is also the result of tarrying within the confines of the "ideal" science of physics. But with all these shortcomings, we have to retain the conclusion of this analytic epistemology: the *universality* of science, based just on the epistemic standards and the features of the scientific objects and regularities or laws.

It is probable that the exclusion of external factors which really distort the structures and architecture of science leads even to a deviation of the logic of the epistemological theories: but one cannot ignore that the ideal models of science and scientific procedures have generated just the big acquisitions related to the contents and limits of determinism, reductionism, change (the non-linearity and multi-linearity of causal chains, the cumulating, bifurcation and revolution moments, the significances and identification of scientific concepts in both the internal coherence of theories and their correspondence with an object that is on the one hand constructed, while on the other hand it has to be empirically adequate, how much etc.), thus related to the surpassing of theories in the process of their criticism – therefore, *science criticises itself* – and to the margins of flexibility and ductility of the scientific theories resulted from the internal logic of scientific knowledge. Although the analytic epistemology is foreign to "continental" concepts, one may say that just its treatment of science highlights that, besides all the external determinism, there is an internal *telos* of science: that allows the understanding of the internal logic of rigorous knowledge; certainly, in relation with reality (and here a lot of problems), but anyway according to an internal logic.

And this also permits to understand that the epistemological truths – irrespective here of their partiality – are of a different order than the truths resulted from the confrontation of science with its social surroundings: indeed, *these two kinds of truths are not mutually translatable*/ *not reducible to each other*.

Yes, the article is right, according to the analytic epistemology the relation is: "the validity of scientific knowledge—the autonomy of science—the universality of science" (p. 222), but we should understand that this *analytic autonomy of science is necessary if we want a pole in our judgement of science*.

The diverse sociological theories corresponding here to the *sociology of knowledge* are opposed to this school of thinking. Is this sociology school really a challenge for epistemology? Only from the point when epistemology is both refractory to the integration of the *epistemological* problems generated by external factors and is separated from the real problems of humankind. In this isolated posture, the analytic philosophy legitimises at least the neo-liberal substitution of the scientific community debate with the rule of "experts".

Pointing that the sociologised theories about science do not constitute a philosophical school with a common programme – as the analytic epistemology does – the article defends the

[4] As in the above note about religion that does not question its premises.
[5] The continuity Kant, neo-Kantianism and analytic philosophy as *anti-speculative position* is a good stress.

meritorious *thesis* that "there are no grounds for the sociologised-epistemological distinction" (p. 228), indicating its reasons. *First*, rationalism only prevails in analytic epistemology (namely, not the entire analytic philosophy is rationalist), and not the entire sociology of knowledge considers science as randomly constituted as a result of different social facts. *Then*, the *normative* (linked to epistemology) and *descriptive* (related to the sociology of knowledge) distinction is not real. "Normative programmes aim to improve, idealise and repair scientific praxis, they are idealistic projections of scientific praxis and not praxis-remote, which means they contain essentially descriptive elements" (p. 228). *Thirdly*, the individual-social/collective distinction is not total – Czarnocka refuted it with the Kantian transcendent subject, but it can be rejected with the emergence of the *social epistemology* as such, and this emergence is a *normal development of epistemology*: as both criticism of the relativist and anti-objectivist standpoint about science and a supply of finer theories about truth-acquisition –. And *fourthly*, the social constructivism promoted by the sociology of knowledge does not at all means a direct causal relation between the scientific theories and the complex social contexts[6].

Nevertheless, one should underline, these contexts may outline different *meanings* to things and concepts and thus – in multi- mediated processes – may outline even the paths of different cultures[7]. What is important is that these mediated causations to not lead to mutual disagreement, hierarchy and non-translatability of cultures. This is the reason of the importance of the approaches of science. A concrete problem is that *the social distortion of the attitudes towards science* – that is always the result of *power relations – may lead to the failure to comply the epistemic truth/the epistemic conditions of truth*. Thus, on the one hand, the problem is the application of epistemic standards in the process of science – this application guaranteeing the universal assumption of the scientific spirit. On the other hand, when the social/cultural conditioning of science transforms into cultural particularism as a dogma, it attacks science's universal character.

The universal character of science, the article concludes, does in no way mean a single body of scientific concepts and theories: not this or that body represent the universality of science but the *epistemic standards* and the *goal to arrive to verified truths about the world*. If so, one may understand that the *constructivist* pattern of scientific representations is, as Czarnocka rightly so declares, "epistemic" (p. 235), thus specific to scientific universalism. Finally, when science is understood, besides as an epistemic endeavour, also as an inevitably social institution, the necessity of both the universal principles of science and society's observance of these principles appears as inherent and functional. At this point one may add that the attitude of society towards science requires the reciprocal obligation of science towards society: in the frame of the same principle of universality of science. The "responsible scientists" or different associations of responsible scientists today apply just the above-mentioned obligation.

Małgorzata Czarnocka's article is important because it highlights the necessity of science universalism, thus the necessity to differentiate between science and "pseudo-science". Also, it shows that the cultural particularism theorists "tend to bypass cultural similarities and concentrate on the differences" (p.234) while just the ethnographic and anthropological researches, they make

[6] Indeed, this refutation is from Marx; and later only the dogmatic materialists thought that it would be a direct causal relation between the social processes and the spiritual creations. But if not direct, *it is indirect, however mediated*: and just this indirect involvement of the social facts into the meanders of thinking was rejected by the idealists who have also developed as epistemologists.

[7] See Guo Zhenzhen, *Pensée chinoise et raison grecque*, Préface de Daniel Parrochia, Presses Universitaire de Dijon, 2017.

little use however (p. 237), show the *similarities which are the underpinnings of the universalism of science*.

The article proposes a "base-level universality of science" based on "a common cultural fundament, or a single cultural base", in its turn based on the "human nature" (p. 237). Well, man is a cultural being, but without naming the rational and social aspects of the human nature it's difficult to infer "the single cultural basis". But the problem arises when the article asserts that "science emerged from certain elements[8] of this base and not the specific features of European culture (antique or modern)" (ibidem). In fact, this position endorses the a-social epistemology, without being conscious of this approach. Of course, science emerged on the basis of the rational character of the human being but *also/at the same time* on the basis of concrete complex social conditions. More dryly: science emerged not only from human curiosity and cleverness, but *at the same time* from concrete social needs, conditions, and opportunities.

However, letting aside this aspect, the article considers the base level global universalism a value "because what it really says is that all cultures have a common fundament, and that this fundament can serve as a platform for global-scale intersubjective communication without the need to resign from any of the cultures" (p. 237).

So, "we all are human beings"; yes, and this reminder is never worthless in the philosophical demonstrations. Nevertheless, it is not enough; even when it is specified as the basis, the "content-free, inter-culturally acceptable criteria for the activity of communicating" (p. 238). In order to being convincing, those inter-culturally acceptable criteria should be highlighted as the *common principles of science* (as *epistemic standards* but also as *behaviour standards*[9]).

But this is not at all "base-level universality": it is an aspect of the *dialectics* – contradictory coexistence/coexistence of opposites – of *universality determined by the internal mechanism of science* and *culturally coloured particularity of conditions of science*. And to speak only about culture (though, obviously, culture encloses everything is human related) is not enough in this philosophical demonstration. One should speak also and clearly about the social aspects. I think that a reason of an impression that the demonstration is unfinished is just the lack of these aspects.

The social relations as essential conditions of science, mediated by values, do not lead to the rarefaction of the universal human, but on the contrary reveal it, and just through their contradictory manifestations. When Heidegger has criticised humanism (1946) he spoke in fact about ideologies which have promoted their social/class interests by covering them with their cultural particularity equated as universalism. The difference between particular social interests – difference he spoke not about – is just the manners the human being (or better, the human beings) was/were treated: in an abstract manner (already criticised by Hegel), thus lacked by any concrete problems generated by their social positions (and thus it was easy to give to abstract humans the wanted particularity), or in a concrete social manner that led to attempts to rationally understand the human problems from *both* the standpoint of universality and particular conditions and values.

The author's emphasis of the "content-free" criteria as the vectors of the possibility to think the universality of man and science rightfully suggests that there is about a formal/logical/"syntactic" structuring of these criteria. But *at the same time* the formal entails not only the "external" content but also more specified formal criteria and aspects: as, for example, the behaviour principles of science. These ones are not simply the following of the epistemic standards

[8] The article does not name which elements.

[9] As in Robert Merton, indeed. See Ana Bazac, "Ritmurile științei", *Noema*, XV, 2016, pp. 33-82 [The rhythms of science].

of science: if they were articulated, it was also because the observance of these standards in society faced concrete social hindrances.

The *cognitive interests are "processed" by and through social (ideologically mediated) interests*. For this reason, these two aspects should not be separated. The two philosophical paradigms analysed by the article as *extreme* positions towards science – supporting or rejecting its universal character – are, from my standpoint, only *moments* in the understanding of science. Actually, *my expectation when I learned the title and abstract of the article was just to see how is sketched the dialectical approach where the two paradigms are complementary*. Or the logic deployed there has only in passing, unconvincingly and with a timid wariness suggested this dialectic of the *core* of the paradigms (the epistemic standards and the mechanism and functioning of science, and the general cultural determinism of science).

But if one speaks not only about culture in general but also about the social relations, and one does not forget that the ideological battles around science are related to the general ideological battles around values, one can understand that besides the *core* of paradigms there are also the coating of *exaggerations*: that science would be absolutely autonomous from science and that the cultural determinism would annul any universal feature of science, leading to a non-united variety. The core elements of the philosophical paradigms which are promoted by those thinkers who do not assume in a clear-cut manner the reasons of their positions and do not criticise them are always *surrounded by the layer of exaggerations*, because just this layer represents the conscious or unconscious ideological influence and taking over of this influence. Accordingly, these doctrines advance a mixture of truth and non-truth, and legitimate the non-truth with the truth. However, in front of this situation, the criticism against the two extreme positions towards science rightfully confronted the non-truth but did not explicitly arrive to the dialectical idea that, if the truth of the two positions is integrated, their non-truth, *determined by concrete ideological causes*, is annulled.

The contribution of the article, the "base-level universality of science", is contradictory: on the one hand, it does not oppose the diverse cultural determinism of science, and it, I hope from a slip of pen, "professes cultural autonomy" (p. 238) (a not too happy formula, and here we see that it definitely rejects the reference to the social conditioning); on the other hand, it promotes "the isolation of scientific praxis from the social world" (p. 239). In other words, the base-level universality of science is no longer constituted only from the epistemic standards which outline the ideal of science, but also from the prescription to keep the "autonomy of science" (ibidem). But the *universality of science results only from its internal logic: that gives the epistemic standards*. The above recommendation is already from without this logic.

As I mentioned before, the epistemological truth – the core of the epistemological paradigm – and the culture dependent truth, the core of the sociological theory of knowledge, *are not mutually translatable because they are of different orders/reality*. However, the paradigms of these philosophical approaches are *total*: they contain their cores and their layers of exaggerations. And this allows our dialectical view: science is universal through its epistemic standards and behavioural standards (which are *internal* to the logic of science), i.e. through the fact that these standards reflect the ends of science and the correspondence of its procedural means to its ends. But science is a *total social phenomenon*, thus includes the scientific practice and therefore, it involves the transfiguring of standards through all cultural and social conditions; and that, despite all processes of transfiguring as a result of all social conditions, without the observance of standards there is no science. Then, the total phenomenon of science *can be judged* according to/from the standpoint of the relationships between standards and the complex social conditioning. This dialectics better explains the universality of science than the base cultural universality (unfortunately, not defined).

The first half of the last message of the article is very easy understandable: one must preserve the standards – and it's absolutely necessary –: "but in order to be authentic and valid, it

must distance itself as much as possible from this world in its praxis and strive to realise the ideal of "pure" science as faithfully as it can" (p. 239). Well, the implied message of this phrase is the necessity to preserve the standards. And we all agree with. But if science really observes its standards, it must *develop* by, first and foremost, focusing on new topics as the holistic ones related to ecology, resources, management and organisation, health care, information and human resistance. As we all know, these and very much other topics are followed *according to the power relations*. When these relations impede the development of science – and, as we all know, the observance of science standards – it is difficult to speak about "distancing from the world"[10]. I think that it is better to oppose and *substantially* correct these relations: just under the flag of the universality of science. Only this assumption of the burden of complex *scientific and social responsibility* can carry on the scientific ideal.

The problems put by the article are very important. Also, the synthesis it made. Also: the reference to present deviated manners of science (which, certainly, have generated just the paper's logic). And also – the solution it supplied, just because it is challenging.

Ana Bazac

[10] This urge is not new, even from the standpoint of the ideal of science. It is consonant with the dominant ideology that considers respectable only the most "neutral" scientists or those who assume its values.