

# “... the art of shaping a democratic reality and being directed by it ...”—philosophy of science in turbulent times

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**Abstract** This article has three objectives: First, it revises the history of the reception of Ludwik Fleck’s monograph *Entstehung und Entwicklung einer wissenschaftlichen Tatsache* (1935, Genesis and Development of a Scientific Fact). Contrary to the established picture, Fleck’s book was largely discussed in the years before the outbreak of World War II. What becomes clear when reading these early reviews and especially Fleck’s comments to those written by representatives of Nazi Germany is, second, the political dimension of his epistemology. In this respect, Fleck’s emphasis on the genuinely democratic character of science will be discussed in some detail. And third, Fleck’s notion of “*Denkstil*”—thought-style—shall be examined more closely since, as we will claim, it can be understood as a notion indicating where the democratic dimension of science encounters its limits.

**Keywords** History of epistemology · Political epistemology · Democracy · Thought-style

*What times are these, when to speak of trees is almost a crime.*

*Bertold Brecht, To those who follow in our wake, Svendborg poems, 1939.*

“There were lively discussions when the book was published.”<sup>1</sup> This is a quote from a curriculum vitae Ludwik Fleck himself wrote in German after 1957, and the

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<sup>1</sup> Translated after the copy of the CV in the “Forschungsdokumentation Dr. Thomas Schnelle” of the Ludwik Fleck Zentrum at Collegium Helveticum in the possession of the Archiv für Zeitgeschichte

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book he refers to is no other than *Entstehung und Entwicklung einer wissenschaftlichen Tatsache*, published in Basel in 1935. Considering the established history of reception of Ludwik Fleck's epistemological thought and in particular of his book of 1935, one cannot but deem this wording euphemistic. Isn't it a fact that during his lifetime Fleck was hardly noticed as a philosopher of science? And is it not the case that the movement that recognises and discusses Ludwik Fleck not just as an amateur medical historian but also as an authority in epistemology gained momentum only decades after his death?

This traditional image, in some instances, has to be corrected or at least complemented, as will be shown in the following.<sup>2</sup> One has to admit that Fleck's book and his other writings—called by him “writings from the field of philosophy of science”—didn't become part of the esoteric circle of books discussed by experts in the field of epistemology during his lifetime. But this does not mean that they passed totally unnoticed.

On the one hand and first of all, we have to mention the discussions—only recently discovered, at least by the German-speaking world—Ludwik Fleck had with the philosopher Izydora Dąmbska in 1937 and with the medical historian Tadeusz Bilikiewicz in 1939, published in the renowned Polish journal *Przegląd Filozoficzny*.<sup>3</sup> Both debates involved fundamental problems of and positions in epistemology and were—especially on Fleck's part—pursued with polemical verve. The debate with Bilikiewicz, which focused on the relationship between science and its environment, will be discussed in detail below.

On the other hand, it needs to be mentioned that about 20 reviews appeared when his book *Entstehung und Entwicklung einer wissenschaftlichen Tatsache* (Genesis and Development of a Scientific Fact) was published.<sup>4</sup> In the curriculum vitae already referred to, Fleck speaks of “Germany, France, Italy, and Switzerland.” A number of other reviews were published in England, Holland, Austria, Poland, and in Scandinavia.

It is a fact that Fleck, in these journals and in the dailies too, was recognised primarily as a medical historian and less acknowledged in the field of epistemology.<sup>5</sup> And just as it was a certain Guérard de Laurieres, and not e.g. Gaston Bachelard, who reviewed the book for the French-speaking world, the authors of the two reviews published in Austria probably did not belong to the Vienna Circle or its

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Footnote 1 continued

(Archives of Contemporary History) of ETH Zurich that can be visited online too: <http://www.ludwikfleck.ethz.ch/de/fleck-archive/online-archiv.html>. For this case AfZ FD Thomas Schnelle/1.1.

<sup>2</sup> Borck (2004) in particular, has drawn attention to this fact.

<sup>3</sup> Cf. in particular Zittel (2007), Sauerland (2007), as well as Griesecke & Graf (2008), in particular Griesecke (2008a, b). An English translation of the debate with Bilikiewicz is available in Löwy (1990), 249–275.

<sup>4</sup> See Borck 2004, 453 f., Zittel 2007, as well as Schnelle 1982, 78 and 341.

<sup>5</sup> One exception is the review by Leon Chwistek (1936) published in Poland. In his introduction he writes: “This book belongs to the fields of methodology and epistemology and I do not exaggerate in declaring a turning point/milestone in the history of these sciences that are still very dark and full of archaic superstition.”

environs.<sup>6</sup> Still, what we can gather from these contemporary reviews is not simply irrelevant or just an—historical—oddity. In particular the reviews published in Germany are informative and worth considering, as a closer look at two of them shows. The most extensive, published in 1936, was written by Hans Petersen, an anatomist from Würzburg. As the author himself mentioned in the beginning of his review, it appeared in the same weekly, the *Klinische Wochenschrift*, that had published Fleck’s essay “On the fundamental principles of medical knowledge” (“Zur Frage der Grundlegung der medizinischen Erkenntnis”) one year earlier. In his paper spanning several pages, Petersen, in part, critically reviewed Fleck’s book and argumentation. Besides some reservations, e.g. one concerning Fleck’s notion of a thought-*collective* rather than thought-*community* (*Gemeinschaft*)—as a result of which he situated Fleck closer to the Russian concept of social life than to the German—there are passages full of acclaim like the following in which Petersen shows great interest in Fleck’s notion of “thought-style.” Fleck, according to Petersen, conceives “the history of medical thought as one link in a general cultural movement” and shows that it “complies with this ‘style of thought’ and, thus, with the historical situation and culture.” Petersen continues:

In a slightly disturbing move, not expected from this quarter, Fleck joins our new German ‘thought-style’ which denies the existence of an ‘absolute’ science without presuppositions and views it instead as always being part of a cultural totality. Science shares its presuppositions and commitments with the living conditions of its cultural context (Petersen 1936, 239).<sup>7</sup>

At least just as positive, if not still more enthusiastic, is a review, also published in 1936, in the *Zeitschrift für Psychologie*, the staff of which was closely connected with the Humboldt University in Berlin. Fleck’s undertaking is characterized as an “interesting task” and its author is said to have “a remarkably thorough grasp [Griffsicherheit].” The conclusion of the rather short review reads as follows:

All in all, a prolific approach that does away with the so-called impartiality of scientific thought more thoroughly than general epistemology can, and that, by elucidating scientific thought in its historical and social conditionality, makes suggestions how to deal with other scientific problems in historical case studies, a task that might be fruitful for psychology and epistemology, particularly if the racial determination of a thought-style is taken into account (Kroh 1936, 164).

The commentator who emphasized the possible future inclusion of “racial determination” in the concept of a “thought-style” was Oswald Kroh (1934), a

<sup>6</sup> Besides the review published by a certain “– – –el” in 1936 in the *Wiener klinischen Wochenschrift* mention should be made of a paper published in *Natur und Kultur. Monatsschrift für Naturforschung und Kulturpflege*, published in Vienna, Innsbruck, and Vienna. It considers Fleck’s book “of the highest value” and deplores “that many physicians unfortunately will not be able to follow the lines of thought because of a lack of philosophical education.” This second paper is not signed. The publisher of this journal was a certain Dr. Franz Wetzl in Munich (München-Solln) whose publishing company Herold also published a journal for dowsing-rod research, the *Zeitschrift für Wünschelruten-Forschung*.

<sup>7</sup> English translation quoted from Borck 2004, 454 f., slightly adapted.

psychologist, who, thanks to the publication of his work *Völkische Anthropologie als Grundlage deutscher Erziehung* in 1934, was soon to be appointed *Spartenleiter* (“section leader”) of the NS-project “Kriegseinsatz der Geisteswissenschaften” (“Mission of war of the humanities”) and who, in 1945, was dismissed as Professor of Philosophy and Head of the Institute of Psychology at Berlin University.

Ludwik Fleck, as we know, took notice of these reviews and the way in which his “teaching of thought-style and thought-collective” was appropriated. He responded to this political usurpation of his thinking partly within the framework of the discussions mentioned above, in 1939, with the Polish psychiatrist and medical historian Tadeusz Bilikiewicz. The starting point of these discussions was Fleck’s—late—response to a study of Bilikiewicz published in 1932 by Thieme in Leipzig, *Die Embryologie im Zeitalter des Barock und Rokoko* (Embryology during the Baroque and Rococo). In the related discussion concerning the question how the social and cultural environment determines the way in which research—including its findings—can be carried out, we put special emphasis on the following passage, in which Fleck talks about the “pointless phrases about the non-existence of ‘voraussetzungslose Wissenschaft’ (presuppositionless science).”<sup>8</sup> Since he puts this phrase in quotation marks and, what’s more, in German, this can be seen as a direct reference to the reviews of Kroh and Petersen. And with the following passage at the latest, it becomes clear that Fleck’s essay was not simply one more paper contributing to the learned discussions of medical historians. In this case he unambiguously writes about the contemporary background of this discussion concerning “the dependency of science on epoch and environment.”

The sociological, collective nature of knowledge was first turned into a political slogan involving the social and class conditioning of science, and then the competing political trends created the spirit of a nation and the race to provide a mythical world-view propagated through the ages (Fleck 1990 [1939], 250).

The topics Fleck turned to in his epistemological deliberations were not solely limited to matters of the academic world. The reception of Fleck’s “writings from the field of philosophy of science” by his contemporaries was intended to show this, a fact of which he was clearly aware. He emphasised the political context in which his discussions with Bilikiewicz took place by talking about the “present turbulent times.” It is against this background that one has to consider Fleck’s repeated references, between 1929 and 1939, to the *genuinely democratic character* of the “thinking which is typical of the natural sciences.”

He underscored his opinion most extensively in his essay “On the crises of ‘reality’” published in the journal *Die Naturwissenschaften* in the year 1929. The fact that it was the first theoretical essay he wrote in German, the essay with which he entered the epistemological scene, makes it even more noteworthy. The following line from the article was italicized by the author himself: “*Natural*

<sup>8</sup> The Polish original reads as follows: “[...] a nie źródłem płytkich frazesów o nieistnieniu ‘voraussetzungslosen Wissenschaft’ lub smętnych refleksji o ‘niepewności wielkiej ludzkiej wiedzy’” (Fleck 2007, 265).

*science is the art of shaping a democratic reality and being directed by it—thus being reshaped by it*” (Fleck 1986a [1929], 50).<sup>9</sup>

The democratic way of thinking—particularly—of the natural sciences comes from and was developed, as Fleck explains earlier, “among the artisans, the seamen, the barber-surgeons, the leatherworkers and saddlers, the gardeners and probably also among children playing.” Since “wherever serious or playful work was done by many, where common or opposite interests met repeatedly, this uniquely democratic way of thinking was indispensable.” And he continues:

I am calling the thinking which is typical of the natural sciences democratic, because it is based upon organization and control at all times, it rejects the privilege of divine origin and wants to be accessible and useful to everybody (Fleck 1986a [1929], 50).

A comparable characterisation distinguishing the “thinking which is typical for the natural sciences” from hierarchically organised religious thought collectives and is, thus, “democratic” can be found in Fleck’s essay “The Problem of Epistemology” published in 1936 in Polish (“Zagadnienie teorii poznawania”):

The modern scientific thought-collective ought to be called democratic: the criterion of truth is found—at least in principle—in the ‘general public’, i.e. in the mass [‘general verifiability’] and not in the élite, which clearly stresses that it serves the ‘general public’. There are no secret powers, one cannot refer to a mission obtained from upper circles; every epistemological act should be derived from universal powers, i.e. powers to which everybody is entitled, and from general adopted formulae” (Fleck 1986c [1936], 105).<sup>10</sup>

One can hardly emphasise more clearly the contrast with the ideology and organisational form of authoritarian institutions or apparatuses. And the same essay reveals how alarmed Fleck was by the markedly advanced attempts—on both sides—to exploit the sciences politically, since he points out that it was the “democratic system [‘ustrój’ in Polish, meaning ‘form of government’] of the scientific thought-collective, developed for good only in the 19th century with which our present-day thought-style stands and falls” (Fleck 1986c [1936], 105).

Thus, if Fleck calls the system of the sciences democratic, this certainly does not mean that some voting procedure would determine the truth of a scientific finding.<sup>11</sup> And if Fleck underscores the democratic character of “the scientific thought-style,” it is not just because he is an apprehensive citizen but because, as he wrote in his book of 1935, he is convinced that “the postulate ‘to maximize experience’ is the

<sup>9</sup> Originally “Zur Krise der ‘Wirklichkeit’.”

<sup>10</sup> Originally “Zagadnienie teorii poznawania.”

<sup>11</sup> Fleck’s characterisation of the sciences as being democratically constituted is in line with the deliberations of the literary critic and pedagogue Richard Wagner and of the philosopher of science Edgar Zilsel, in Vienna, in the mid-twenties. As Monika Wulz shows in her as yet unpublished study, “Talking about Democracy in the Philosophy of Science: The 1920s in Vienna,” both Wagner and Zilsel discussed the existence of procedures to control the aims and assumptions of a statement and to critically reflect the preconditions of its validity. Fleck may have been familiar with the work of Wagner and Zilsel, but—as far as I know—he makes no reference to them.

supreme law of scientific thinking,” (Fleck 1979 [1935], 51) and that solely a democratic form of organisation with its constitutive openness would guarantee the adherence to this postulate. In a footnote toward the end of the book he avers:

This *postulate concerning a maximum of information* [*Kenntnisse*, jf] must be separately stressed, because it is an outstanding characteristic of the thought style of modern natural science. It can be formulated as follows: ‘No System of knowledge [eines Wissens]—for example, about a chemical compound or a biological species—must be regarded as closed in such a fashion that possible new findings might be rejected as superfluous’. To assess the difference, compare the diametrically opposed position of a dogmatic knowledge that is regarded as completed. That is also a democratic trait of the thought style of natural science, which denies previous knowledge any preferential or privileged status above that of new knowledge” (Fleck 1979 [1935], 182n28, translation adapted).

It is not surprising that the reviews by Kroh and his colleagues did not mention Fleck’s characterisation of and deliberations on the democratic system of the modern scientific thought-collective. They had to be ignored in order to talk about Fleck’s closeness to a ‘new German ‘thought-style’. As Schnelle and Schäfer (1980, viii) wrote in 1980 in their introduction to the German reprint of *Genesis and Development of a Scientific Fact*, the “Polish Jew Fleck [...] could not find broad interest in Nazi-Germany.” This is certainly correct. And after having read the reviews one would like to add: the Germanization of the first name<sup>12</sup> was obviously insufficient for the attempted usurpation. Fleck’s political thinking was by far too reflective for that.

This would be an elegant, almost exemplary, conclusion, but this reading or interpretation definitely falls short. It was not only in Germany and not only among Nazis that Fleck’s references to the “democratic system of the scientific thought-collective” did not find interest. They weren’t taken up at all, at least not to my knowledge.

As far as I know, the three texts quoted remained the only ones written by Fleck in which he explicitly points out the “democratic trait of the thought-style of natural science.” Already in the article published in 1939 the expression “democratic” is left out, nor is it found in his texts written after the war, not even in the essay—or manifesto?—“Crisis in Science. Toward a Free and More Human Science” that was written in Israel and remained unpublished during his lifetime.<sup>13</sup> One cannot help noticing however that these later texts also have strong political accents. Especially the one just quoted, which is a forceful warning, in particular, to scientists of the

<sup>12</sup> In the reviews published in Germany, without exception, Fleck’s first name was spelled with a ‘g’.

<sup>13</sup> However, one has to mention here Fleck’s comment to Tadeusz Tomaszewski’s talk on the “Psychological Studies on E-Prisoners of concentration Camps,” as recorded in the 1948 proceedings of the Lublin Philosophical-Psychological Society. He states: “It is important to educate people in the spirit of true democratic equality. We should develop efficient ways to resist propaganda that negates this fundamental principle as well as approaches (means) that prevent infiltration of such propaganda” Quoted from Leszczyńska 2009, 31.

dangers inherent in propaganda, and clearly builds on the position Fleck held in the 1930s.

Still, or all the more, it has to be noticed that the expression “democratic” is left out. Did Fleck retract his earlier views? Had Fleck lost his faith or confidence in the democratic functioning/system of the actually existing sciences? Were the differences between ideal and reality—reality as Fleck had experienced it during WWI as a medical officer in the reserve of the austro-hungarian army, or in the Lemberg ghetto, or as prisoner in Auschwitz and Buchenwald, or during his post-war years in Poland, up to the time when he was employed at the Israel Institute of Biological Research in Ness Ziona—too great? Considering the historic events, all the turning points in the history of civilization that shaped his biography, the political catastrophes Fleck had to live through, one could easily interpret it that way.

A closer look at the texts under discussion here, dating from 1929 to 1939, discussed, suggests the possibility of broader and different interpretations. Apart from the passages already cited emphasizing the “democratic system of the scientific thought-style” one can detect a number of passages dealing with or investigating the concept of “thought-style” in a way that is contrary to this concept of the democratic system of the sciences or at least modifies if not curtails it. It would need another paper to investigate systematically the constitutive ambivalence inherent in Fleck’s deliberations concerning the notion or concept of “thought-style.” I would like to give a small example here, from the book published in 1935:

Because it belongs to a community, the thought style of the collective undergoes social reinforcement [...]. Such reinforcement is a feature of all social structures. The thought style is subject to independent development for generations. It constrains the individual by determining ‘what can be thought in no other way’. Whole eras will then be ruled by this thought constraint. Heretics who do not share this collective mood and are rated as criminals by the collective will be burned at the stake until a different mood creates a different thought style and different valuation (Fleck 1979 [1935], 99).

The thought-style as defined by Fleck, in this instance, “as directed perception with corresponding mental and objective assimilation of what has been so perceived” and “as a *readiness* for directed perception,” (Fleck 1979 [1935], 99 and 144, emphasis added) exerts a certain—if not necessarily striking—force. It determines or “dictates,” as he writes in an essay also published in 1935, “what and how” the members of a community “do see” (Fleck 1986b [1935], 72)<sup>14</sup> and, thus, concerns the democratic system as explained above, which topics are dealt with and which not. Since Fleck, in this connection, chooses the expression “heretics will be burned at the stake” or, to give another example, this time from his essay “The Problem of Epistemology,” the phrase “the evil spell of doggedness with which fanatics of their own style fight the people of a different style,” (Fleck 1986c [1936], 112) one cannot doubt that political implications and consequences were included in

<sup>14</sup> The original in Polish was published under the title “O obserwacji naukowej i postrzeganiu w ogóle” in *Przegląd Filozoficzny*.



his deliberations on the problem of scientific knowledge, respectively that this can be read as a—his basic—political theory of scientific knowledge. His formulations, at least, can be interpreted as an invitation to read them in this way.

The fact that in the writings he published after 1936, with regard to the modern scientific thought-collective, he left out the concept of democracy does not have to mean that Fleck thereafter denied the political dimension of his epistemology or disregarded the challenges science and society were faced with. Cornelius Borck (2004, 462) called Fleck's epistemological writings, especially with regard to their political content, a "message in a bottle" (in his article published in 2004 with exactly that title). As Borck convincingly showed, one characteristic of the political traits of Fleck's thinking lies in the surprising phrases, the formulations he used, subtly hinting, between the lines, at the difficulties in spite of which those texts were written. In his essay, published in Poland only one year after the war, "Problemy naukownawstwa"—"Problems of the science of science" in the English translation by Richard S. Cohen and Thomas Schnelle—Fleck has one of the two characters discussing fundamental epistemological questions say the following:

[...] in practice—as we learn from observation—there exists, for every scientific worker, or, better still, for every collective body of workers—as these are collective matters—a characteristic moment at which the worker or the collective body assumes that no further verification is required. The opinion becomes rounded, systematized, limited, in short it becomes mature and obtains its form which is consistent with the thought-style of the given collective. The collective body considers that any further questions are superfluous, simply indecent. Some things must not be asked of the members of religious, political or scientific collectives (Fleck 1986d [1946], 122).

It is part of an acknowledged thought-style that "some things" no longer have to be discussed. All members of this thought-collective are cognizant of them but they don't have to be discussed once—or over and over—again. Yet, as Fleck was to experience himself, one always has to be aware that something one needn't discuss any longer might turn into something that must not be discussed or questioned any longer. Thus, which topics the sciences focus on and how they pursue them never should be seen as a purely scientific question.

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