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LUDWIK FLECK AND THE CONTEMPORARY PRACTICE IN THE HISTORY OF SCIENCE

Peter C. Kjaergaard¹

Today it will not be a question of whether Fleck has or have had an influence on the contemporary practice in the history of science or not. The question is rather how and to what extent we can say that Fleck has influenced these practices. As is well known, Fleck has in particular been celebrated by sociologists of scientific knowledge after his rediscovery in the 1970s. There can be no doubt that the Fleck appearing in sociological studies of scientific knowledge in the succeeding years was a Fleck shaped to fit the ideology of the acclaimed sociological programme. Whether the reasons for the sociological embracement of Fleck was owing to the bliss of discovering an hitherto unknown forefather championing the now accepted sociological view that indeed all knowledge was socially dependent (which not - as Fleck's contemporary founders of sociology of knowledge thought - excluded scientific knowledge), or it was thought that a new sociological research programme could now be launched, Fleck's reflections on the methodology of the natural sciences had certainly gained what they never did when he was still alive: a general and mainly popular attention.²

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² One of the landmarks documenting Fleck's influence and importance is COHEN, R.S. & SCHNELLE, T. (1986): *Cognition and Fact. Materials on Ludwik Fleck*, Boston Studies in the Philosophy of Science Vol. 87, Dordrecht: D. Reidel. Fleck entered the professional journals in the 1970s, but received the greatest attention in the 1980s through lots of publications addressing his methodological programme and contributions to the present study of science directly along with various historical reconstructions of Fleck's writings. During the 1990s Fleck has become standard knowledge especially for the social studies of science. This is epitomised in the creation of a special *Ludwig Fleck Prize of the Society of Social Studies of Science*. Moreover, Fleck's studies have been the inspiration for several medical case studies. See for example TRENN, T.J. (1976): "The Non-Rational Dimension of Natural Science." *Deutsche Vierteljahresschrift für Literaturwissenschaft und Geistesgeschichte* 50: 1-13; BALDAMUS, W. (1979): "Das exoterische Paradox der Wissenschaftsforschung: Ein Beitrag zur Wissenschaftstheorie Ludwik Flecks." *Zeitschrift der allgemeinen Wissenschaftstheorie* 10: 213-233; CACKOWSKI, Z.

However, this rediscovery was not an unproblematic event. It was concerning a work on the methodology of science by a medical researcher suggesting a programme for studying scientific practice which enjoyed close to none historical attention until some 40 years after its publication at a time when somewhat similar ideas had become the fashion of the day. How should one deal with that? There were at least three different and significant approaches to the study of Fleck owing to the special historical circumstances of his work: Fleck's methodology could be appropriated for a contemporary programme for the study of science, his own historical case-studies could be scrutinized by modern historians, or, finally, Fleck himself could be treated as an historical case.

Taking the three in reverse order Fleck certainly proves an interesting historical case. First of all, the absorbing question of why such a person, whose ideas decades later suddenly receive massive attention, passed through his times almost entirely unnoticed for his methodological work. Thomas Schnelle, among others, has demonstrated that Fleck only had a scattered knowledge of prevailing sociology and never pursued a philosophical study in a systematic manner although it remained a special interest of his.³ Neither did he have any significant contact with contemporary sociologists. Instead, his intellectual stimulus, apart from his own practical experience in the medical sciences, seems to have been the interdisciplinary scientific atmosphere in Lwów and its inspiring philosophical environment. Although the emphasis in most contemporary studies has been on the

(1982): "Ludwik Fleck's Epistemology." *Dialectics and Humanism* 9: 11-24. MERTON, R.K. (1983): "Sociology of Science in Poland." *Science of Science* 3(11): 179-19. ANDERSSON, G. (1984): "Problems in Ludwik Fleck's Conception of Science." *Methodology and Science* 17: 25-34; LOWY, I. (1988): "Ludwik Fleck on the social construction of medical knowledge." *Sociology of Health and Illness* 10:133-155; RIVADULLA, A. (1990): "Ludwik Fleck's Almost Unnoticed Foundation of Sociological Epistemology in the Thirties." *Explorations in Knowledge* 7(1): 19-28; VAN DER BELT, H. & GREMMEN, B. (1990): "Specificity in the Era of Koch and Ehrlich: A Generalized Interpretation of Ludwik Fleck's 'Serological' Thought Style." *Studies in the History and Philosophy of Science* 21: 463-479; WHITE, K. (1993): "Ludwik Fleck and the Foundations of the Sociology of Medical Knowledge." *Explorations in Knowledge* 10(2): 1-21; JACKSON, P.W. (1994): "Passive Smoking and Ill-Health: Practice and Process in the Production of Medical Knowledge." *Sociology of Health and Illness* 16: 423-447; BRORSON, S. & ANDERSEN, H. (forthcoming): "Stabilizing and Changing Phenomenal Worlds: Ludwik Fleck and Thomas Kuhn on Scientific Literature." *Journal for the General Philosophy of Science*.

³ SCHNELLE, T. (1986): "Microbiology and Philosophy of Science, Lwów and the German Holocaust: Stations of a Life - Ludwik Fleck 1896-1961." Cohen and Schnelle (1986), 3-36.

sociological character of Fleck's work - and indeed his point of departure was not science as it *ought* to be, but science as it actually *was* (at least according to his own experience) - he had an explicit philosophical agenda addressing fundamental epistemological and ontological issues.⁴ The separation of philosophy and sociology of science that has now grown so familiar to us does not easily apply to Fleck's work and should rather be avoided.

Fleck is also an interesting case with respect to his very explicit reflections upon the specialization of the sciences and the consequences it had for the development and progress of science. This had already been reflected by several scientists in the late nineteenth century and - although still viewing science from a distance - by the sociologist Max Weber.⁵ But in Fleck we have a unique source for how a highly reflective scientist, scrutinizing the specialization of the sciences and its consequences, viewed this phenomenon at this specific time in history when it was beyond doubt that it had been conclusively confirmed.

Secondly, Fleck's own historical studies can be the subject of a new reading. In this context the question of whether Fleck's conclusions about the different medical examples employed are acceptable or not become of interest. For obvious reasons the results of his investigations have been noticed the most. But it is interesting to note that the philosophical foundations of his interpretational framework result from an unsystematic study of philosophy. It is beyond doubt that Fleck was moderately informed in this respect. Certainly several of his philosophical and scientific cases demonstrate Fleck's rather hasty and superficial knowledge. For instance in his rejection of Immanuel Kant's "thing-in-itself" on a somewhat misunderstood basis, just as his criticism of the positivist philosophy (notably Rudolf Carnap), and the idea of the system of reference as something unchanging and absolute in human thought. Likewise it is comparatively strange that Wilhelm Ostwald's energeticist view is made the prime example

⁴ HEELAN, P.A. (1986): "Fleck's Contribution to Epistemology." In COHEN & SCHNELLE (1986), 287-308; LOWY, I. (1986): "The Epistemology of the Science of an Epistemologist of the Sciences: Ludwik Fleck's Professional Outlook and its Relationship to his Philosophical Works." In COHEN & SCHNELLE (1986), 421-444.

⁵ See LENOIR, T. (1997): *Instituting Science: The Cultural Production of Scientific Disciplines*. Stanford: Stanford University Press; DOLBY, R.G.A. (1979): "Classification of the Sciences. The Nineteenth Century Tradition." In ELLEN, R.F. and REASON, D. (1979): *Classification in their Social Context*. London: Academic Press, 167-193.

of a global physical theory allowing for all observed phenomena.⁶ Nevertheless Fleck managed to knit and bolt together a framework for capturing the social dynamics of the creation of scientific facts en vogue more than half a century later.

Thirdly, there is the issue of Fleck's methodology and whether it can be of use for contemporary studies of science or not. This is probably the issue which has drawn the most attention. Again there are several problems involved, but for the sake of simplicity I will give only three examples: One concerning the sociology of science, one the philosophy of science, and finally one concerning the historiography of science.

One of the main reasons why sociologists of scientific knowledge embraced Fleck when he finally appeared on the scene of science studies is that he looked so familiar.⁷ He was quickly shaped to fit the two intellectual main columns already moulded to support the sociological programme, namely Thomas Kuhn and Ludwig Wittgenstein.⁸ As is well known, Kuhn had himself declared his intellectual debt to Fleck, but also Wittgenstein's "language games", "forms of life", and dynamic theory of meaning were identified as compatible to Fleck's ideas of "thought-style" and "thought-collectives".⁹ Indeed Fleck has even been classified as a Wittgensteinian.¹⁰ Clearly there are similarities between the two, but this identification is at the very least historically awkward. It is true that those of Wittgenstein's ideas which has been appropriated by the sociological programmes were being developed at the same time as Fleck's.¹¹ Wittgenstein's ideas were known to

⁶ David Stump among others have challenged Fleck on a philosophical basis. Stump argues, for instance, that the statement that facts are a creation of a particular thought-style is wrong when thought of metaphysically. Stump's point is that Fleck invites such an interpretation himself and therefore we have to take this seriously; D. J. Stump (1996): "From Epistemology and Metaphysics to Concrete Connections." In GALISON, P. & STUMP, D.J. (1996): *The Disunity of Science: Boundaries, Contexts, and Power*. Stanford: Stanford University Press, 255-286, 278.

⁷KRAGH, H. (1999): "Temaer fra Videnskabshistoriens Historie." *Slagmark - Tidsskrift for idéhistorie* 28/29 (Special issue: "History of Science"): 7-24, 20; KJAERGAARD, P.C. (1999): "Sociale og kulturelle studier af videnskaben." *Slagmark - Tidsskrift for idéhistorie* 28/29 (Special Issue: "History of Science"):141-162.

⁸See BLOOR, D. (1983): *Wittgenstein: A Social Theory of Knowledge*. London: Macmillan.

⁹See HACKING, I. (1992): "Statistical Language, Statistical Truth, and Statistical Reason: The Self-Authentication of a Style of Scientific Reasoning." In E. McMullin (1992): *The Social Dimension of Science*. Notre Dame: University of Notre Dame Press, 130-157, 138.

¹⁰HARWOOD, J. (1986): "Ludwik Fleck and the Sociology of Knowledge." *Social Studies of Science* 16, 173-187, 178.

¹¹For a splendid account of Wittgenstein's life and the years at Cambridge see MONK, R. (1991): *Ludwig Wittgenstein: The Duty of Genius*. London: Vintage.

the philosophical community in Cambridge, but there can be no doubt that none of this reached Fleck in order to influence him and thereby make him a Wittgensteinian.

This also touches upon another problem which has been pointed out in the sociological Fleck reception: The internal contradiction of the dynamics of "thought-style". Jonathan Harwood has argued for the inconsistency of the idea that thought-style was *emerging* through the actions of the research community, but in turn was *feeding back* upon their inventors to channel their perception. The reason for this conclusion that the *emergence* of thought-style is identified as something sociological whereas the *feed back* mechanism can only be intellectualist. Had Harwood only appreciated - in his own words - "Fleck's Wittgensteinian emphasis upon continual renegotiation of meanings within a collective",¹² then he would have realised that there need not be a contradiction unless one insists upon separating the sociological from the philosophical. As already mentioned this was not the case for Fleck himself and serves as an example that we should be careful of not letting our idiosyncrasies dominate our historical readings; especially when we are tracking inconsistencies.

With regards to the philosophy of science, Fleck's ideas about the coexistence of different concepts of scientific facts - both in different cultures and within the same culture - can add to the philosophical discussion of reductionism and anti-reductionism as discussed by Paul Hoyningen-Huene among others.¹³ Fleck's suggestion that the concept of disease changes depending on which scientific context it appears in - as well as it does when it enters the popular context - represents an interesting argument for anti-reductionism. Pathological phenomena, as Ilana Löwy has argued, have a complexity and such an individual character that they cannot be reduced to physics, chemistry, or biology for that matter.¹⁴ Pathology implies a higher level of complexity and therefore a higher degree of indeterminacy than, say, biology. The way scientific facts are established by a specific thought-style within a specific thought-collective, makes them incompatible with scientific

¹² HARWOOD, J. (1986): 182-183.

¹³ See for example HOYNINGEN-HUENE, P. (1989): "Epistemological Reductionism in Biology: Intuitions, Explications, and Objections." In HOYNINGEN-HUENE, P. & WUKETITS, F.M. (1989): *Reductionism and Systems Theory in the Life Sciences*. Dordrecht: Kluwer Academic Publishers, 29-44; HOYNINGEN-HUENE, P. (1994): "Zu Emergenz, Mikro- und Makrodetermination." In LUBBE, W. (1994): *Kausalität und Zurechnung. Über Verantwortung in komplexen kulturellen Prozessen*. Berlin: de Gruyter, 165-195.

¹⁴ LOWY, I. (1988), 140.

facts within other thought collectives. They can be exported, but that inevitably changes them and they will not appear the same if they should eventually be imported again. There is no hierarchy of facts and constituents of facts so the reductionist dream would not be possible according to Fleck. This is not an argument that has or will revolutionise the philosophical reductionism anti-reductionism discussion. The same idea has been presented in different forms by Wittgenstein and the French biologist and philosopher of science Henri Atlan.¹⁵ But it will add a very good example of a meticulous case study to the anti-reductionist arguments.

The third and last remark I will make is concerning the historiography of science. Even though sociologists of science have proudly announced that *they* study science as it *is* and not how it *should* be there are numerous examples of fitting the data to confirm the methodological needs. The methods we employ when studying science should always be case-dependent and not the other way around. This counts whether one is a philosopher, an historian, or a sociologist of science. The sociologists' appropriation of Fleck as a full-fledged sociologist of scientific knowledge has the tendency of playing down other factors which had equally value for Fleck himself in the understanding of the genesis and development of a scientific fact. His own approach combined historical, philosophical, and sociological factors in a multi-disciplinary approach dubbed by himself a comparative epistemology.¹⁶ The study of the sciences involves so many complex interactions that simply relying on sociological aspects alone will not suffice. This multi-disciplinary aspect has been discussed in two of the more significant historiographical works in the history of science in recent years: Jan Golinski's *Making Natural Knowledge* surveying the trends in the contemporary practice in history of science along with John Brooke and Geoffrey Cantor's *Reconstructing Nature*, a true tour de force in demonstrating different methodological approaches in a case-dependent history of science.¹⁷ These two rather different monographs demonstrate effectively the pitfalls of being historiographical one-sided and emphasise the multi-disciplinary sensitivity in historical work. At least Fleck was aware of

¹⁵ WITTGENSTEIN, L. (1958): *The Blue and Brown Books: Preliminary Studies for the 'Philosophical Investigations*. Oxford: Basil Blackwell; ATLAN, H. (1986): *A tort et à raison: Intercritique de la science et du mythe*. Paris: Seuil.

¹⁶ L. FLECK, L. (1979): *Genesis and Development of a Scientific Fact*. Chicago: University of Chicago Press.

¹⁷ GOLINSKI, J. (1998): *Making Natural Knowledge: Constructivism and the History of Science*. Cambridge: Cambridge University Press; BROOKE, J.H. & CANTOR, G. (1998): *Reconstructing Nature: The Engagement of Science and Religion*. Edinburgh: T&T Clark.

the necessity of being multi-disciplinary informed. In this context the lesson could be: *What* we are reading in Fleck can also benefit us in *how* we are reading Fleck.