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TWO SOCIOLOGIES OF KNOWLEDGE. L. FLECK — T. BILIKIEWICZ CONTROVERSY

Tadeusz Bilikiewicz, a scholar now somewhat forgotten, was in the 1930s active as an sociologist of knowledge. In 1931 he published a book entitled *Jan Jonston, 1603—1677, Żywot i działalność lekarska (His Life and Medical Activity)*, Warsaw 1931, and a year later *Die Embryologie im Zeitalter des Barock und des Rococo*, Leipzig 1932. He was also author of many articles, still to be properly investigated. His theory of knowledge he himself called 'perspectivism'.

In the Summer issue of the journal 'Przegląd Współczesny' of 1939, an argument was published between Fleck and Bilikiewicz which was overlooked by those concerned because of the outbreak of war, and which has not been taken note of by the bibliographies of Fleck's work. Yet this is an extremely interesting polemic, considering that Bilikiewicz was an exponent of 'the naive epistemology' seeing the relation between subject and object as being of a 'reflective' nature and accepting only the 'heuristic' influence of environment upon science. He flatly rejected Fleck's conceptions describing it as subjective idealism, agnosticism, relativism.

My intention here is to recall briefly that polemic.

I. THE CIRCUMSTANCES OF THE DISPUTE

L. Fleck began to be interested in epistemology soon after his stay in Vienna when he published his *Zur Krise der 'Wirklichkeit'*¹. Still he main phase of his work was in 1935 when his book appeared together

¹ 'Die Naturwissenschaften' Vol. 17:1929, 23, p. 425—430.

with a series of articles in Polish and foreign journals. So it is not clear why it was only seven years after the publication of Bilikiewicz's *Die Embryologie* and four years after the culminating period of his own writing on science that Fleck — as it was he who had initiated the dispute — entered into a discussion with Bilikiewicz. The polemic, carried on (luckily for us) in the same issue of 'Przegląd', consists of four successive articles, i.e. L. Fleck: *Nauka a środowisko (Science and Environment)*, T. Bilikiewicz: *Uwagi nad artykułem Ludwika Flecka 'Nauka a środowisko' (Remarks on an Article by Ludwik Fleck 'Science and Environment')*, L. Fleck: *Odpowiedź na uwagi Tadeusza Bilikiewicza (A Reply to T. Bilikiewicz's Remarks)* and T. Bilikiewicz: *Odpowiedź na replikę Ludwika Flecka (On Ludwik Fleck's Reply)*. Was this sequence established by the polemicists or by the editor we are now unable to find out.

Should we seek a stimulus for this polemic in the situation prevailing in science in those days, then we could find it in the rather ghastly suggestion emanating from the sociology of knowledge in the 1930s. Fleck wrote: 'Since any knowledge depends on the environment, this process should be reversed! There must be fitted an appropriate science into the artificially changed surroundings. Because there is no objective science after all. So one is in a hurry to 'concoct' a leftist or rightist science, a proletarian or national physics, chemistry, etc. Yet there is a danger in all this: a new generation of scientific workers is growing up with the belief that there exists no real truth, as it used to be in the old professional sense'². And indeed a real campaign was launched then against the 'bourgeois science' in one camp, and against the 'non-Aryan one' (Freud, Marx, Einstein) in the other. The argument used to be taken, alas, from the rich stock of the almost one hundred years old 'sociology of knowledge'. He who was concerned with it was obliged to take this situation into account. Besides, the academic sciences cultivating the notion of 'objectivity' were not put out by it — witness Bilikiewicz's position. The view was held that knowledge, while making use of models taken from the world of culture, treats them as something auxiliary. Once what is 'true' has been during this process selected and preserved, the heuristic elements are subtracted from science, the way as scaffolding is removed from a building the moment it is ready. The same goes for all manner of senses attached to science from outside and

² L. Fleck: *Nauka a środowisko (Science and Environment)*, 'Przegląd Współczesny' Vol. 18:1939, 8—9, p. 208—209. The work is not mentioned in: I. Rubaszko: *Profesor doktor medycyny Ludwik Fleck (1896—1961)*, in: 'Annales Universitatis Mariae Curie-Skłodowska', Sectio I, Vol. 3(4):1978(1979), p. 417—422. Neither are there any data on this polemic in the most comprehensive bibliography in: T. Schnelle: *Ludwik Fleck, Leben und Denken. Zur Entstehung und Entwicklung des soziologischen Denkstils in der Wissenschaftsphilosophie*. Hamburg 1982, p. 330—344.

having to do with its application — these are ‘additions’, structurally unconnected with ‘the content’ of a knowledge.

In view of the ideologization of learning Fleck seems not so much to defend ‘purity’ of science, as to make knowledge relative, so that might not be declared absolute as ideologists are prone to do it. Indeed it was mostly the advocates of racial, class or national conceptions of science who stuck to idea of ‘truth’, while maintaining that in given social circumstances it was their science that was most ‘objective’. Fleck wrote: ‘The historians of philosophy have long been placing philosophical system against the background of respective cultures, have been indicating connections between philosophy and country’s nature, art and policy. Yet the historians of science have nurtured the view that some elements of “true science” do remain independent of time and place’³. And this was also the view of Bilikiewicz. He considered that social and cultural conditions ‘a context’ of knowledge. Fleck, by contrast, would try to prove that culture and society are ‘the text’, the content of knowledge.

The very beginning of the polemic was marked by courtesy and persuasiveness on the part of Fleck (in contrast to the reluctant tone of Bilikiewicz’s pronouncements).

Fleck started off by comparing the works of Schrödinger to those of his opponent: ‘Let me recall a book by Schrödinger *Ist die Naturwissenschaft milieubedingt* (1932) in which this eminent physicist points to a similarity between modern physics and some features of contemporary art [...]. The connection between science and cultural life of a period has been described beautifully and in detail by Tadeusz Bilikiewicz in his work *O embriologii w epoce baroku i rokoka* (*On Embriology in the Baroque and Rococo Periods*) in which he shows a “parallelism” between the views in this sphere of science and the stages of cultural development in society. This work makes it possible to follow “from a strictly specialist point of view” the intricate and mysterious phenomenon of intellectual life in it. As in the period of late baroque and early rococo the political absolutism begins to fade, there appears in embriology, along with an urge for individual freedom, the discovery of spermatozoa regarded as an independent *vita propria* governing living beings [...] as the position of women gets stronger there emerge the ovulists [...] and Buffon goes so far in seeking equal rights for women that he allegedly discovers female spermatozoa as well’⁴.

Fleck writes with something like fascination about the aforementioned example: ‘When one looks at it calmly it seems inconceivable what connection can there be between individualism and the perception of a spermatozoon. This is no more than a look at semen through the micro-

³ L. Fleck: *Nauka a środowisko*, p. 1.

⁴ *ibidem*, p. 2.

scope. What has it to do with individualism? Indeed, today it is enough to have a look. But a discovery, the first perception is not taking place in the calmness of mind. To look for something new the mind must be restless, constantly on the lookout for it. And this restlessness, this being on the lookout derive from our environment. To raise the outline of a new observation to the level of an object of purposeful study, concentrate on it, isolate it, describe it so that the description would stimulate reflections in others, all this is an influence of the environment. Environment consists of the words we have heard, of common views, our resentments and impulses of daily life, the education we have got at school, etc. They all form the intellectual readiness which the researcher brings into his work. He was thinking of a free personality and trying to notice it everywhere so he came to the discovery of moving, "free", independent spermatozoa. It must be stressed that freedom meant in those days a freedom of movements. Being in another mood, in another environment, he would not have paid attention to those moving points, he would not study them, not describe, he would have forgotten the first blurred image which could have been formulated among so many other ones. So a purposeful, collective, investigative mood leading to a common style of thinking, only this is an object formed for a study of science'⁵.

Bilikiewicz, without even trying to adopt any of Fleck's ideas, wants to have nothing to do with the latter's epistemology: 'I detect in Fleck's views an echo of the transcendental idealism as advanced by some neo-Kantists [...] As one reads Fleck's writings one comes to the conclusion that the discovery of those influences had some metaphysical consequences. One gets the impression that once the image of reality does vary, depending on which school the researcher belongs to and by which style of thinking he is influenced, the same reality is subject to changes as well, it becomes objectively different. *Ding an sich* does not exist absolutely, independently of the cognizant man. Man creates this absolute reality through an act of cognition and makes it after his style of thinking'⁶. Bilikiewicz saw the merits of his work on embriology also in something else: 'To Fleck similarity between performationism and Leibniz's preordained harmony was insignificant or at least useless for his conception. While being important for a historian, to Fleck it must seem merely an expression of the researcher's artistic, subjective and therefore unscientific judgment'⁷.

⁵ *ibidem*, p. 4—5.

⁶ T. Bilikiewicz: *Uwagi nad artykułem Ludwika Flecka 'Nauka a środowisko'* (Remarks on an Article by Ludwik Fleck 'Science and Environment'), 'Przegląd Współczesny', ed. cit.

⁷ *ibidem*, p. 19.

II. SOCIETY AS THE CONTEXT OR TEXT OF KNOWLEDGE

Bilikiewicz indicates that he applies to his investigations the method of Joël and Wölfflin. This statement reveals the real intellectual background to the dispute Fleck-Bilikiewicz. Now, the tradition of Bilikiewicz's theory goes back to the nineteenth-century *Geisteswissenschaften* school of thought which tried to establish organic links between culture and 'life', as well as between particular elements within culture. So the line of thought under attack is the one coming if not from Hegel then from Dilthey and going through Taine, Durkheim or Max Weber, M. Scheler and K. Mannheim. Its fruit were the then famous science of biography (by Gundolf or Bertram), philosophy of history (Spengler's *Morphologie der Weltgeschichte*), and theory of culture (Panofsky's famous work on the 'organic links' between medieval scholasticism and the gothic art in architecture). Within this line was also Schrödinger's work, mentioned not without reason in Bilikiewicz's context since its author noticed for instance a connection between the empty walls of modern architecture and the intuition of 'empty places' in science. In Poland this school of thought had many adherents.

It claimed that there are lasting patterns 'circulating' in culture and ensuring both to societies and whole historical periods their unified character. Owing to them we get the humanistic knowledge, based on a study of analogies and of a common style: 'The same phenomenon becomes to us a guiding motive in our biographical, criminological, historical investigations, not to mention those in the fields of education, politics, etc. By reading a leaf torn out from a novel we recognize the author if he is known to us. The finger-nails and heels tell us about a person's character. Having heard a few melodies, not only a musicologist but a simple music-lover can have no doubts whether this is classic or romantic music, or perhaps Spanish or Russian, Tschaikovsky or Berlioz or Debussy. One cannot adequately capture in words what the style of these pieces actually consists in, and yet one perceives it at once and unerringly'⁸. All such styles are shaping up into a sort of universal architecture: 'The superiority of styles may be multiple, Chopin has his own style which is in tune with the superior Polish style, this in turn is in tune with the Slavonic style, being [...]'⁹ etc.

It is most astonishing indeed that with this totalitarian conception of organic links between elements of culture (an approach open, by the way, to all sorts of abuses and wrong analogies) Bilikiewicz defends the existence of an "objective reality" not only in natural sciences but also in historical ones, whereas Fleck, who wants this totalism to be re-

⁸ *ibidem*, p. 12—13.

⁹ *ibidem*, p. 13.

stricted, who limits the science of science to particular disciplines, even more — to scientific theories, and eventually, as it will appear, to the analysis of single words, that he renounces at the same time the existence of a stable object of knowledge being the very aim of knowledge.

Let us say at once that this differences is due to the tradition which formed Fleck's intellectual background, the tradition of the *Gestalt-psychologie*. This appears most strikingly in Fleck's probably last work on the nature of science, in his article *Patrzyć, widzieć, wiedzieć (To Look, to See, to Know)*¹⁰. We find in it almost the complete set of examples and arguments used by the gestalt-psychologists to demonstrate how the whole is perceived before its elements, how those are assuming various shapes, a process which depends on the preconceived knowledge of the subject as well as on his practical qualifications, interests, profession, etc. The structure of this work is almost reminiscent of the classical 'tropes' of the sceptics. However this statement does not explain everything, because Thomas Kuhn, too, refers, openly or by implication, to the *Gestaltpsychologie*. And yet there is a divergence between Kuhn and Fleck which cannot be explained by the mere tradition of this school.

While for Bilikiewicz the architecture of the elements of culture consists in the superior forms and patterns getting concrete in particular elements and parts, assuming thereby their individual status, in Fleck the relation between the whole and its parts is different. Parts do not exemplify the whole, they dissolve in it and vanish: 'In fact we perceive a shape as a whole ready to become an element of further superior shapes when we forget, at least almost so, about its elements and structure. Or else trees make the forest invisible, syllables make the words and sentences unclear. In order to see, one must first know, and then have a skill and forget part of it. One must acquire a readiness to see particular objects'¹¹.

For Bilikiewicz an irradiation of cultural patterns is usually taking place when there appears a gap in human knowledge, an ignorance, lack of facts. The scholars of the past 'had to fill in their ignorance of facts with guesswork and filaments of imagination. In this they were like the creators of culture. And only to that extent were they subject to the styles, if not of the period as Fleck does not agree with it, then to the styles of intellectual collective bodies [...] In historical sciences, when facts are not enough or we are short of them, we build up syntheses [...] And it is to the syntheses and hypotheses, in science or arts, that we are obliged to apply some styles'¹². For Fleck, on the other hand, style form,

¹⁰ L. Fleck: *Patrzyć, widzieć, wiedzieć (To Look, to See, to Know)* 'Problemy' Vol. 2:1947, p. 74—84.

¹¹ *ibidem*, p. 77.

¹² T. Bilikiewicz: *Uwagi [...]*, p. 16—17.

intellectual whole are not designed to fill in gaps or empty places. On the contrary — the perceived whole makes particular elements amorphous, unnoticed, forgotten. To put it more strictly: the elements of an intellectual whole are pushed into subconsciousness, they become part of a 'skill', that is they perform an 'operational' function in thinking and acting, without reflecting the whole in which they have lost their independent sense. So Fleck's favourite example he is quoting in his last epistemological work, is an image of 'letters' subordinated entirely to words and sentences, and in which as long as the thought is running smoothly the letters do not attract our attention at all. But in Fleck this 'forgetting' is unlike that in Freud who in his symbolic mechanics of associations remains entirely within the sphere of 'the sciences of spirit'. One could point instead to Fleck's similarity to Bergson for whom separate elements of perception disappear in the stream of consciousness, like 'the frames' of a film are 'invisible' in the projected picture on screen.

The relation between a whole and its parts suggests, according to Fleck, 'the style of thought', which is to be investigated by the theory of science. Style does not imply here a repetition of the same pattern at various levels of the relation between man and the world (as it does in Bilikiewicz). Style means such a manifestation of the object which at the same time veils something in it. We can see then owing to our not seeing. We are thinking because of our forgetting. The visible is at the same time invisible. Our perception covers only some aspects, but not in the way we can contemplate a building from only 'one side', but in the way a pianist can think about the music without paying attention to the instrument, since this has already been absorbed by him as part of his skill.

Thus we are coming close to capturing what is perhaps most essential in Fleck's whole sociology of knowledge, that is to his 'instrumentalism' in the acquisition of knowledge in science and of knowledge in general. Indeed he describes the scientific equipment, used for experiments in laboratories, as a real 'embodiment' of the intellectual style. Such equipment, he claims, contains a certain amount of relevant knowledge in the very arrangement of its functions and 'skills'. The mechanics of these functions, like manual or intellectual operations, may not even be 'visible' in the apparatus, and yet they determine the course and results of the cognitive process. In carrying out an experience we get the knowledge not only from nature but from the apparatus and machinery as well, that is to say we describe within the results and numbers the changing behaviour of this equipment in various situations. The terminal situations of knowledge mark also the terminal capacity of the apparatus, similarly to the notion of a 'house' which includes the number of operations a thinking can do while 'describing' the particular

elements of a house and various possible and actual combinations of those elements. Their number, although considerable, is always practically limited. An acquisition of knowledge consists more in an combination of facts than in summing them up.

It is obvious that for the instrumentalists the traditional distinction between object and subject of knowledge becomes meaningless. Knowledge varies according to the research equipment which expands our senses and which is at once an object and cognitive subject. Fleck's instrumentalism would not be particularly original had it not been for the fact it is strictly bound up with his sociology of knowledge, with his concepts of *Denkkollektiv* and of the social 'text' of knowledge. Fleck went so far as to consider *wissenschaftliche Gemeinschaft* (a scientific community) as being a sort of 'research apparatus' which is as much 'investigated' as a laboratory instrument is an object of scientific study. This approach would not be completely novatory if we recalled for instance Bergson who referred to the film apparatus in trying to illustrate the structure of the intellect and the processes of cognition. But Fleck, even if he too sometimes refers to a similar example¹³, does prefer another comparison. Groups of men are for him similar to radio-sets, tuned to the reception on a certain wavelength but unable to receive — at least at the same moment — on another one. This analogy is strengthened by his use of the term *nastrój* — mood, tune — in the acquisition of knowledge which in Polish suggests the 'tuning up' of a receiving apparatus. His comparison might be considered more accurate in that a film apparatus reproduces only the film it has been given, whereas a radio-set, can through the 'tuning', receive a variety of messages reaching it at the same time. The invisible becomes through the apparatus visible and audible, as it does in cognition.

'The cognitive style', the way objects are producing concepts, cannot be detached from the objects, as Bilikiewicz had suggested it happens. The subject of cognition is here himself a separate part of the world, of nature. And the object has in itself no 'objective' meanings. Nature is made up of elements which have as much 'meaning' as do letters in an alphabet. What we write by means of them, what sentences and wholes we form does not depend on the sense of letters, although without them we could not construct these wholes. Technology, industry, applied sciences use nature the way a writer uses letters. That is why one cannot speak about the existence of a 'thing in itself', 'objective reality', and the like. Without the subjective factor nature is 'nothing'.

Yet we must go still further in our analysis of Fleck's understanding of society if we are to define his sociology of knowledge. He does not

¹³ L. Fleck: *Problemy naukoznawstwa (Problems of the Science of Science)*, 'Zycie nauki' Vol. 1:1946 5, p. 332—336.

use the notion of style (an embodiment of which is apparatus or a team of scientists) in a static sense, but a dynamic one. Style should also explain the question of variability in science and thereby also the variability of the subject in cognition. Society being a sole subject and object of knowledge is not permanently tied to a single channel of world's perception, but it changes its readiness to perceive, directing it towards various layers of 'reality' (this notion has for Fleck an exclusively 'grammatical' sense).

So it must be established what exactly he means by a 'scientific collective', and what is his actual competence in the sphere of sociology. This is essential in discussing his sociology of knowledge whose epistemological significance has been so much enhanced by him.

It is obvious that while binding so closely together the object and subject of cognition Fleck does not apply to his 'collective' the term a 'collective subject'. At the same time he favours the term 'collective' (in spite of the pejorative sense this word used to have at the 'period of collectivisation' of the 1930s) instead of such notions as society, community, group. Sometimes he does use the word *zespół* (team) and in his work in German there appears the term *Gemeinschaft* (community). This question requires a closer study, still it must be said that the word has been borrowed from Lévy-Bruhl and means a not completely formed group of people, which has become institutionalized, petrified. Fleck is referring in it to the original sense of the word 'collective' (Latin *colligere* — collect) suggesting a rather loose group of individuals. One could also trace the origin of this word in this context a notion from Spencer's sociology — 'aggregate'. At any rate the collective is not a stable 'apparatus'. Instead, one can distinguish in it two tendencies: towards spontaneity, a 'restless mood of investigation', and towards routine, petrification. Only in that state of spontaneity a change in the style of thinking can actually take place, as well as a new readiness to perceive, to comprehend a new object.

At this point however a divergence sets in between Kuhn and Fleck in spite of their common starting point, the *Gestaltpsychologie*. Kuhn concentrates upon the ready-made sociological gestalts, that is scientific schools. He sees sciences as something concentric, in which the very centre is a place of complete intellectual petrification, and the further one goes towards the fringes the weaker becomes the power of paradigms, then, at the level of 'private scientists', real innovations in science may appear. Fleck's approach to this question is exactly opposite. For him the centre is occupied by groups of 'experts' who preserve in their work a considerable degree of independence, individuality and originality (which finds its expression in professional journals), and it is in the wider circles that the knowledge becomes petrified, due initially to the 'conventions' in the formation of notions ('the dictionary knowledge'),

then to the 'text-book knowledge' which leads to simplified theories, and finally to the popularization which creates a very stable system of knowledge suited to the reception by many. In spite of this petrification at the fringes of science, these can make knowledge dynamic in Fleck's conception too, but they do it differently from the way they do it in Kuhn.

Petrification is going on within the 'collectives' as well, they become solid in the forms they have worked out, they stiffen into routine. This does not necessarily involve a fall in activity, on the contrary — individuals in such a group may feverishly develop particular lines of research, but they will do it without innovations, like a well-tuned radio-set will receive clearly and loudly on a single frequency. 'At such a moment it is routine that replaces the intellectual restlessness of the group. There is no need to seek anything, verification has been completed, any attempts at falsification would be a sign of bad manners. Let us consume peacefully the fruit of our labour' ¹⁴. As a result there emerges something which Fleck calls 'a social structure'. So only to this product he is prepared to give the adjective 'social', to something completely petrified. Has a group of this type proved durable, it assumes distinctly a social structure. We can find within it emulation, an urge to imitate, admiration, scorn, sympathy and antipathy. Parties are being formed, some sentences are addressed because they have been said by Mr N., other ones are disregarded because they have been said by Mr M. Rules of exchanging thoughts and of conduct are being formulated, ideologies come into being' ¹⁵.

So a research group, before it becomes a sociological creation, a school, exists not so much as an object of sociology as that of 'social psychology' and is more subject to psychological than sociological laws. This Kuhn did not notice while objecting to Fleck's connections with the tradition of 'the thought collective' ¹⁶. Owing to the fact that a group can be at the same time 'hard' and 'soft' — notions referred by Fleck to science's 'external' and 'internal' spheres ¹⁷ — it can interiorize knowledge in two ways: operationally and structurally. At the same time the inner workings in a group are such that we can assume the petrification of a group of scientists can never become durable. This by the way calls for a more subtle analysis, because Fleck makes occasionally also other statements.

¹⁴ *ibidem*, p. 332.

¹⁵ L. Fleck: *Patrzeć, widzieć, wiedzieć*, p. 83.

¹⁶ Cf. R. K. Merton: *Przedmowa Autora do wydania polskiego (Author's Preface to the Polish Edition)*, in: *Teoria socjologiczna i struktura społeczna (Social Theory and Social Structure)*. Warszawa 1982, p. 10—14.

¹⁷ L. Fleck: *Problemy naukoznawstwa*, p. 336.

All these questions do however justify a hypothesis which could elucidate the way Fleck understood 'society'. Thus if his theses are related more to 'social psychology' than to the 'sociology of knowledge', then the source of his views on this matter seems quite obvious. This is surely the conception of Lévy-Bruhl, over whose views Jerusalem had been enthusiastic, the latter having inspired Fleck with an interest in the theory of sciences in its sociological aspect. Fleck however criticized Lévy-Bruhl and did it at the point at which the latter was getting close to Bilikiewicz's thesis. He discovers in Lévy-Bruhl a belief in the existence of 'objective features of objects which automatically draw the attention of the observer when the mystical elements of thinking are losing their power — thus Lévy-Bruhl departs from his own theory'⁴⁸. On the other hand, the way the 'collectives' are forming by virtue of only psychological laws and owing to the deformation of knowledge, which is taking place in them, strengthens the hypothesis that Fleck remained to a high degree under the influence of the theories of Le Bon and Tarde. It is enough to say that in Le Bon's book, very appreciated in Poland in the days of Fleck's youth, we find the notion of 'the waiting attention' and of 'ideas-images' (Fleck's *Sinn-Sehen?*), as well as many statements about the 'infectiousness' of the individual's behaviour when in group, etc. But Fleck does not refer directly to these views, which may be due to the fact that by the 1930s Le Bon was already considered a 'charlatan' in science as a consequence of the supreme importance he attached to the notion of 'crowd'. And yet Fleck's 'collective' had been derived from Le Bon's notion of 'crowd', the more so that this notion had not a quantitative meaning because, as Le Bon wrote, 'There are moments when half a dozen people make a psychological crowd'⁴⁹. Also from the same source had been derived Fleck's notion of social 'density' which makes the reception of reality either as being 'hard' — it does so in science, or as 'soft' — as it happens in art which is free in its lending sense to things.

III. PSYCHOSOCIOLOGY OF SCIENCE AND THE RELATIVITY OF KNOWLEDGE

Bilikiewicz believed not only in objective reality (*Ding an sich*) but also in the obviousness of direct experience: 'It is impossible that there should be two theories, which would not be identical, not to say contradictory, if they stated such facts as "a normal human hand has 5 fingers", or "neck is between head and torso", even if the scholars repre-

⁴⁸ L. Fleck: *Patrzeć, widzieć, wiedzieć*, p. 84.

⁴⁹ G. Le Bon: *Psychologia tłumu (Psychologie des foules)*. Lwów—Warszawa 1899, p. 22.

sented completely opposite styles of thinking. Because this is not the matter of style but of perception' ²⁰.

Fleck's conception of the 'styles' implies, on the other hand, 'the impossibility of stating a general criterion of truth from the point of view of the classical of knowledge in that it considers truth to be a current state in the changing style of thinking. This certainly makes knowledge relative, since various images of reality, derived from various styles of thinking, are considered equally valid, even when those images are contradictory' ²¹. This objection used to be stated in Lwów where they were fond of the saying that those who disregard the law of contradiction should be locked up in an asylum.

Fleck answered all Bilikiewicz's objections starting with one about metaphysics: 'There is nothing more foreign to me than metaphysics. I simply do not understand the statement that "the thing in itself exists absolutely, independently of the perceiving person" — neither do I understand the opposite statement that "the thing in itself does not exist absolutely". I use the term "reality" only for grammatical reasons, as a necessary grammatical subject in sentences stating cognition' ²². Then, however, he adds ironically: 'in spite of it, the "thing in itself", as an unattainable ideal does not stop one from specialist cognitive activity' ²³. Next he deals with the question of truth: 'The theory of intellectual styles does not by no means lead to relatively in knowledge. "Truth", as a current stage in the changing style of thinking, is always only one and is determined by that style. A variety of the images of reality results simply from the variety of the objects of knowledge. I am not saying that the same statement may be true for A and untrue for B. If A and B participate in the same style then the statement is for them either true or false. But when they adhere to different styles there can be no such thing as "the same statement", because the statement by one of them is unintelligible to the other or is understood by him differently' ²⁴. Finally, the sentence 'a normal hand has 5 fingers' is not obviously true to a physician to whom 'normality' means something else than it commonly does, neither is it obvious to the peoples of various cultures who sometimes have in their language no notion of 'finger'. So this sentence is the matter of style and not of 'perception'.

'The crowd psychology' of Le Bon and Tarde demonstrated how a loose collection of individuals suddenly changes into a 'whole', a compact organism showing other properties, feelings and will to act than

²⁰ T. Bilikiewicz: *Uwagi* [...], p. 17.

²¹ *ibidem*, p. 13.

²² L. Fleck: *Odpowiedź na uwagi T. Bilikiewicza (A Reply to T. Bilikiewicz's Remarks)*, 'Przegląd Współczesny' ed. cit., p. 20.

²³ *ibidem*, p. 26.

²⁴ *ibidem*, p. 21.

those in particular individuals. The same mechanism has been subsequently described by the Gestalt psychologists in perception. So it can be said that Fleck's psycho-sociology of knowledge does no more than demonstrate an interdependence of two processes in the formation of wholes from elements: of human individuals forming a research team and of their chaotic perceptions shaping up into 'wholes' of perception. Apparently the fact that an element of perception is lost in a whole and an individual does so in collective makes for the petrification of the whole. However it does not happen so and here we find an answer to the question why Fleck places the most dynamic manifestation of science in the 'centre' of scientific schools and why he thinks that the collectives can stimulate individuals and not drive them to blind imitation in knowledge, as Bilikiewicz had put it.

Now, a whole renders its parts amorphous and so it begins existing beside those parts in which it finds no support. So human individuals, scientific notions and similar elements become open to the assumption of other forms than their current ones. Consequently the new things in science emerge not at the level of the whole structure but in one of its elements. The man of science will never submit to a paradigm: 'The layman thinks' — says Fleck — 'that a rule has been dictated by God or some semi-gods, the scientist knows that it has been drawn up by his colleagues'. This question must not have thoroughly thought out by Fleck if he was prepared to quote a statement of this kind by Gumplovicz: 'what is thinking in man is not he himself but his social community'²⁵.

It seems, however, that the surprising unsteadiness of theories, their constant evolution and variability of their styles must be put down to the fact that a whole cannot prove durable on the basis of the elements it makes amorphous. Le Bon's 'crowd' broke up into elements, the music of the Gestalt psychologists, when listened to very long, loses its melody and disintegrates into a collection of sounds, similarly a sentence, when repeated uninterruptedly, loses cohesiveness.

It is a fact that in the course of the polemic with Bilikiewicz Fleck begins suddenly to ascribe a big role to 'the word': 'It seems to me that it is less important to investigate whole schools of thought and theories, such as for instance the eighteenth-century embryological evolutionism, than to analyse particular sentences of a text, the way one analyses a ciphered code. One cannot explain in today's words the content of views dating from past periods, because the particular notions of that period do not tally with the present-day ones. The "embryo" of the eighteenth century views means something else than the "embryo" in the current state of embryology. It is very well expressed in a chapter

²⁵ L. Fleck: *Problemy naukoznawstwa*, p. 335.

of Bilikiewicz's work, describing the "wavering" of evolutionism and mechanism, where it is shown how with the changing style of thinking a long-standing dispute turns out to be a dispute about a definition, about the meaning of words. The style aura of notions changes and which must be studied first of all, that is the colouring given them by the style and affecting the usage of certain words, especially in their metaphorical sense. Only this method can reveal the actual style of thinking in a given period' ²⁶.

Ambiguous, flexible, amorphous are the most 'wavering' components of a theoretical whole. Notions themselves not only 'name' certain objects, they are also supposed to attract attention to them of other scholars and of the public. So notions relate both to the sphere of subject and object. This aspect of theirs reminds us of the role of words in attracting social attention and deserves a separate analysis. Indeed it is a fact that major theories of our time have been given striking names, such as 'struggle for survival', 'theory of infant sexuality', 'theory of the Big Bang', etc. It is the role of science to 'organize attention', to focus it on certain elements. This role cannot be restricted to a mere description of reality, as Bilikiewicz was claiming in his 'naive epistemology'. Style by its very nature is ambiguous, anything of a single meaning (which does not at the same time obscure and make clear) would be deprived of style in science. In an article of 1946, Fleck ascribes this character to the axioms of logic and mathematics and considers them at the same time to be worthless for science. So if Bilikiewicz stated that perception (of a hand for instance) is without style, then Fleck did agree that some formal axioms have no style. In this very strange way did coincide their thoughts as to the possibility of there being something in science which remains outside any 'style'. But the substance of their argument leading to this statement was very divergent indeed.

Curiously enough this controversy not only passed unnoticed by those concerned with those problems but Fleck himself had 'forgotten' about it. In his first article on the theory of science, after leaving the concentration camp, he touches upon many problems discussed by him before to this polemic. At the same time there appears in this text a dialogue between two characters, Simplicius and Sympatius, the first of them seems to be related to a character from a dialogue by Galileo, but it might be also interpreted as a 'stylized' figure of Bilikiewicz because it repeats some of his objections. And in later years Fleck never mentioned that polemic either.

Translated from the Polish by Ludwik Wiewiórkowski

Reviewer: Zdzisław Cackowski

²⁶ L. Fleck: *Nauka a środowisko*, p. 6.