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HISTORICAL PERSPECTIVES OF EMPIRICISM AND ANALYTICAL PHILOSOPHY IN ROMANIA*

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Abstract. Through the years, Romanian philosophers have been interested in British philosophy (Bacon, Locke, Hume) and in all the three periods of positivism: (I) philosophy of Comte, Spencer, Mill in the 19th century, (II) empirio-criticism: Mach, Avenarius, Petzold, and (III) analytical philosophy. As regards the latter, they have discussed the issue of the analysis process as being central, and the main idea that the surface form of a language may conceal a hidden logical structure. They have also been concerned with historical perspectives and confidence in the analysis method fostered by Frege and Russell's early reducing mathematics to logic and by the insights offered by the theory of definite descriptions, as well as by Moore and Carnap, the practitioners of analytical philosophy, who gave philosophy a new orientation to empiricism and formal logic.

Keywords: empiricism, historicism, analytical philosophy, logic, method.

Through the years, Romanian philosophers have been interested in British philosophy (Bacon, Locke, Hume) and in all the three periods of positivism: (I) philosophy of Comte, Spencer, Mill in the 19th century, (II) empirio-criticism: Mach, Avenarius, Petzold, and (III) analytical philosophy. As regards the latter, they have discussed the issue of the analysis process as being central, and the main idea that the surface form of a language may conceal a hidden logical structure. They have also been concerned with historical perspectives and confidence in the analysis method fostered by Frege and Russell's early reducing mathematics to logic and by the insights offered by the theory of definite descriptions, as well as by Moore and Carnap, the practitioners of analytical philosophy, who gave philosophy a new orientation to empiricism and formal logic.

Romanian specialists have pointed out that the chief topics considered by analytical philosophers can be put into different groups: a) existence sentences, identity sentences, natural kind terms, truth and number: the philosophy of

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mathematics and logic; b) time and causation: the philosophy of physics; c) indirect context, modal context, universal rules: the moral philosophy; d) meaning, reference, definite descriptions: the philosophy of language; e) mental processes, skill, purpose, belief: the mind philosophy.

They have also revealed the ambition of analytical philosophers to gain insight into the topics mentioned by logical, conceptual and linguistic analysis with instruments of symbolism.

Some of the Romanian philosophers shared the logical atomism of the analytical school according to which an object having a basic property is a basic fact and corresponding to basic facts are basic propositions which may be combined into complex propositions - truth functions. They noted that analytic philosophy, as practiced by Russell, Wittgenstein [in his early period] and Moore took the successes of logic at the beginning of the 20th century to open the way to a general programme in which the meaning or truth conditions of propositions would be revealed as a hidden logical structure beneath the surface forms of statements (logical atomism and the theory of unity of science sustained by the Vienna Circle), while philosophical analysis would provide a scientific and objective approach to traditional issues. Just as a mathematician can provide a definition for a complex notion revealing its identity in terms of a sequence of simple operations, so a positivist/empiricist philosopher should be able to identify the nature of a complex concept in term of simple constituent ideas and operations.

It is obvious that the analytical trends represented by German or German born philosophers like: Gotlob Frege (1848-1925), *Begriffsschrift, The Foundations of Arithmetic, Conceptual Notation and Related Articles;* Hans Reichenbach (1891-1953), *The Theory of Probability, Experience and Prediction, The Philosophy of Space and Time;* Rudolf Carnap (1891-1970), *The Logical Structure of the World, Meaning and Necessity, The Logical Syntax of Language;* Carl Hempel (1905-), *Fundamentals of Concept Formation in Empirical Science, Aspects of Scientific Explanation,* are better known than others, in Romania, because of the influence of the German culture on the Romanian one.

During the history of philosophical ideas, as early as the 17th and 18th centuries the dissemination of empiricism and logic took place through books printed in German. One of our prominent encyclopedical personalities, Dimitrie Cantemir (1675-1723), prince of Moldavia, was elected member of the Berlin Academy (1714) and his works enjoyed continental circulation. He advocated Helmont's natural philosophy and syllogistic logic in his book *Sacrosanctae scientiae indepingibilis imago* (metaphysics) and *Compendiolum universae logices institutioni* (logic). There were other philosophers like M. Hissman (1752-1784) with studies at Erlangen and Gottingen who published, in 1778, the review „Magazin für die philosophie und ihre Geschichte," and translated texts from

Euler and Condillac and declared himself an empiricist, or like G. Râmniceanu (1763-1826) and I. Eliade Rădulescu (1802-1873) who said they had "an analytical method" and an empiricist conception, or like Treboniu Laurian and Timotei Cipariu who translated books of philosophy authored by Baumeister, Krug.

European Enlightenment answered scientists' older desirata of personal communication. In the 18th century those who experimented with, and meditated upon, natural phenomena left their isolation and entered the "arena" of scientific societies and academies, places where they could test, sometimes in violent confrontations, their ideas. Following the same tendency, "Physicians and Naturalists' Society" was founded in our country in Jassy in 1830, upon the initiative of doctors Iacob Cihac and Mihail Zotta. Soon after its foundation, this scientific association, which gathered and fused the creative energies of the physicians, biologists, geologists and chemists who lived in the Moldavian capital at the time, was enjoying a good reputation abroad. Its methodological empiricism was appreciated by such personalities as scholar Al. von Humboldt (Berlin), chemists J.J. Berzelius of Sweden, Fr. Würtzer (Marburg) and Ad. Brognard (Paris), the Swiss botanist A.P. Candolle – author of a new classification revising the one produced by Linne –, the renowned clinicians Fr. Jaeger (Vienna), R. Bright, G.J. Guthrie, R. Liston (London), M.L. Mayer (Lausanne), J.L. Schonlein (Zürich), Fr. Aug. von Amon (Dresden), Th. von Fischer (Petersburg). The ideas of chemistry, biology, technological sciences were disseminated by means of textbooks, dictionaries, and treatises translated from German or French for educational purposes.

In the Romanian philosophy of the 19th - 20th centuries there was a remarkable effervescence of ideas substantiating positivist empiricism, analytical perspectives, with philosophers interested in scientific knowledge, such as Vasile Conta, Constantin Rădulescu-Motru, P.P. Negulescu, Mircea Florian, Athanase Joja, etc., and with scientists concerned with philosophical problems, such as Spiru Haret, Alexandru D. Xenopol, Grigore C. Moisil, Octav Onicescu, etc. There were specific characteristics of these conceptions: without being erroneous, such philosophy was axiologically oriented; without being irrationalistic, it was open to intuition and creation, without eluding mathematics and physics, it also was dealing with biology, psychology, history, sociology, and showing an obvious tendency towards integration. The historical spirit should be remembered as a feature of the Romanian philosophy, A.D. Xenopol, considered to be the founder of an original and most up-dated logic of history wrote: History's specific reasoning is by "historical series" enjoying organization, comprehension, and anticipation.

We should also point out that at the moment when the acutest problems of epistemology were centered on cybernetics or informatics, moreover. Romanian scientific thinking expressed - through Grigore C. Moisil and Octav Onicescu –

the need for a logic and for a mathematical theory adequate to the conditions of constructiveness and to the diachronic processes, and through Ştefan Odobleja it opened paths towards the generalization of the principles of feed-back.

It is also worth mentioning nowadays when certain mutations in epistemology are caused by the ever-growing role of the humanistics, that one of the creators of the hermeneutic school and of a certain kind of "Kantian" criticism of social cognition was Romanian, namely the well-known philosopher Mircea Eliade. Such a tradition, besides the scientific one (in mathematics, psychology, linguistics, cybernetics) has favoured the predilect orientation of the spirit of the present epoch towards a union of the scientific and humanistic interest, of empiricist, phenomenologist and pragmatist perspectives, thus leading to the holist achievements in the contemporary philosophy of science in Romania.

In favour of anti-reductionist positions of Romanians I might just as well remind the fact that Lucian Blaga made a critical analysis of the positivist identification of scientific rationality with the logical identity, by which the real functioning and the historical progress of science were removed from among the epistemological approaches. He stated: "Intoxicated by the discovery of its inherent powers, rationality moves away from the fields it has practiced itself in, and, by isolating itself from its intrinsic structures and forms, it goes to impose its own law on both empiricism and theory (...). But in fact the identity principle represents only the guiding principle valid not for any kind of rationality, but for the rationality which splits with empiricism and other cognitive sources (...). The dialectical modality derived from the spirit's tendency of surviving by rationally shaping the empirical data and a world of utmost complexity, of a supreme concrete plenitude and which changes perpetually" (L. Blaga, *Experiment and the Mathematical Spirit,* Bucharest, 1969).

This paper is an attempt to present the works of some of the Romanian philosophers, logicians and scholars who lived before 1914 and between the last two wars and were in a way concerned with empiricism and analytical orientation to share or to criticize. I must admit that all of them boasted graduate and doctoral studies in Germany, Austria and France. Most of them were fellows of the former Romanian Academy. Some of them were prosecuted by the communist power because of their idealistic nonmarxist positions and their philosophical works were forbidden.

Vasile Conta (1845-1882) studied in Germany. His works cover the topics of determinism and evolution in terms of Universal Undulation.

Spiru Haret (1851-1912) studied in France, and Germany. His philosophical work *Mecanica socială* (Social Mechanics) is based on positivist ideas.

Titu Maiorescu (1840-1917) studied philosophy in Vienna and Berlin. His Ph.D. thesis is entitled *Das Verhaltnis.* His works deal with the logic and history of contemporary philosophy. He lectured on logic in Jassy.

Mihai Eminescu (1850-1889) is the national poet of the Romanians, with a good philosophical training. In Vienna and Berlin, he studied philosophy with the most outstanding scholars of that time, from whom he inherited the encyclopedic bias. He was among the first initiators in Romania of some philosophy editorial activities such as: a dictionary of philosophical terms, a translation of Kant's *Critique of Pure Reason,* a contribution to the Brockhaus Lexicon, which unfortunately remained mere projects.

A.D. Xenopol (1847-1920) studied in France, and Germany. His Ph. D. degree was received in Berlin. His contribution is to the logic of history by his theory of the series. He was influenced by Comte, Rickert, Herman Paul, L. Ranke, Ottokar Lorenz, V. Langlois, Ch. Segnobos. He was elected associate foreign member of the *lnstitut de France.*

C. Rădulescu-Motru (1868-1957) studied in Paris (with Ribot) and in Munich, Leipzig (with Wundt). His Ph. D. thesis *Zur Entwickelung von Kant's Teorie der Naturcausalität* (On the genesis of Kant's Theory of Natural Causation) was published in "Philosophisher Studien" by Wundt. His conception named "energetic personalism" is influenced by ideas from Kant's, Oswald's, and Wundt's works. His book *Timp şi necesitate* (*Time and Necessity*, 1940) was translated and published in Germany. He wanted to build a "genetic logic." C. Rădulescu-Motru was one of the Romanian thinkers who tried to substantiate a real theory on science by applying, under W. Wundt's influence, an "experimentalist" concept to a scientific grounding of psychology. During the early part of his work, in essays such as *Criza ştiinţifică contemporană* (*The Contemporary Scientific Crisis*), *Problema ştiinţei în filosofia contemporană* (*The Problem of Science in Contemporary Philosophy*), *Valoarea ştiinţei* (*The Value of Science*), C. Rădulescu-Motru argued in favour of the prevalence of the scientific approach to the cognition of world and man. Subsequently, having been persuaded by the arguments of "scientific philosophy, "he tried to justify the need for metaphysics itself and for a genuine philosophical anthropology to rely to a larger extent on the values of science, on the unity between knowledge and action, on a profound historical awareness stemming from social experience, and on a common methodology, applying to both scientific and humanistic thinking. In his work *Lecţii de Logică* (*Lessons in Logic*), the Romanian philosopher developed a chapter on the methodology of sciences and another on the verifiability (or the degree of certainty) of scientific propositions. C. Rădulescu-Motru spelled out the criteria for the evolution of logical structures, thereby anticipating the modern problematic of "paradigms" in science and philosophy as well as the specific relationship between verifiability and language in science on the various stages of the history of culture.

Mircea Florian (1888-1960) studied in Germany. With his Ph. D. entitled *Der Begrijf der Zeit bei Bergson* (1914), he aimed at a "philosophical reconstruction"

by singling out an epistemological nexus of the inductive, experience-based type. In his fundamental works, such as *Ştiinţă şi raţionalism* (*Science and Rationalism*, 1926) *Cunoaştere şi existenţă* (*Cognition and Existence*, 1939), and *Reconstrucţia filosofică* (*Philosophical Reconstruction*, 1943) he admitted that the methodological perspective of science could be shared by both scientific constructions proper and the theoretical ones, reflecting a realistic ontology in which the explanation (or theory) strictly followed the object (or concrete fact), *i.e.* the *datum* (given). Consequently, that part played by the cognitive subject was limited to an identification of the object and never went on to an absorbtion of the object "in the depths of one's consciousness." Consistent with those principles, M. FIorian considered that cognition itself was also a piece of reality, since it originated in experience, while the philosophy of cognition further led him to the finding of those arguments which steered him away from subjectivist metaphysics, while bringing him closer to scientific thinking, the only one that was able to detect the specific, particular forms of the *datum.* The Romanian philosopher provided the reason for a possible "reform of logic" through the elimination of the psychological approach from scientific thinking and through a reconsideration of the ontology of cognition, as well as through a necessary clarification of the primacy of the object in relation to language.

Stephane Lupasco (1900-1987) studied in France. His Ph. D. is: *Du devenir logique et de l'affectivité.* He published as early as 1935 both in Romania and abroad, some essays on the philosophy of science which aimed at substantiating "a new theory of cognition" starting from then-recent discoveries in microphysics and from the extensive applications of probabilistic and statistical mathematics. In 1936 he published *Les idees directrices d'une nouvelle philosophie des sciences* and in *1940 L'Experience microphysique et la pensee humaine* in which he outlined "a new discourse on the method" Lupasco founded the "new logic" on the principle of "contradictory complementariness" departing from the classical principle of noncontradiction. The method he suggested was to seek, when faced with a given phenomenon, first, which is the phenomenon that contradicts it, and secondly, to what extent it virtulizes, or is virtualized by, the latter. He worked out a corpus of "the three logics" and the three corresponding types of mathematics, and he subsequently elaborated on those concepts in relation to the development of contemporary science.

Ion Petrovici (1882-1972) studied in Berlin with Wundt, Volket, Paulsen, Dilthey, Riehl. He received his Ph. D. degree in Germany with the thesis: *The Psychophysical Parallelism.* He collaborated to the "Archiv für Geschichte der Philosophie und Soziologie." His books and articles on logic were influenced by Goblot and on epistemology by Comte, Spencer, Kant. He admitted that philosophy could not be separated from the results of scientific investigation, he argued in favour of a necessary complementariness between the rational method

(perceived as an "instrument") and the empirical one, which induced an apprehension of the existential "whole." He believed that the dissociation of those two fundamental methods had been a source of errors, and he worked out a "philosophy of compromise," which actually anticipated that kind of "open" philosophy in which truth was built continually through the interpretation of newly-emerging knowledge, and also through a reshaping of thinking and of its methods (adaptability of thinking of the object of cognition). It was in that spirit that I. Petrovici developed his ideas in notable works such as *Introducere în metafizică* (*Introduction to Metaphysics*), *H. Poincare ca filosof* (*H. Poincare as a Philosopher*); *Introducere la critica cunoaşterii* (*Introduction to the Criticism of Cognition*), and particularly in his studies on logic. His view on the relative nature of knowledge derived from a Kantian perception of the limits of human cognition. But the Romanian philosopher was also aware of the prevalence of the methodology of science over formal logic. While attaching particular importance to analogy, hypothesis, language, and to the objective nature of knowledge, he explained the specific character of methods and applications to various science in relation to the classical methods of logic.

Lucian Blaga (1895-1961). He studied in Vienna with A. Dopsch, C. Linck, S.I. Meyer. His Ph. D. thesis is entitled: *Kultur und Erkenntnis.* In the quasi-totality of his work, and especially in *Ştiinţă şi creaţie* (*Science and Creation*), integrated in *Trilogia valorilor* (*The Trilogy of Values*), and in *Diferenţialele divine* (*The Divine Differentials*), Lucian Blaga evinced an interest in defining scientific cognition and "the history of scientific spirit." While setting himself apart from Kantianism and post-Kantianism, Blaga regarded scientific thinking as a process leading to the detection and accumulation of empirical observations, but also to a growing "solidarity" between such elements and certain "interpretations." In Blaga's view scientific thinking was not alien either to axiology or to stylistic conditioning. He sought to illustrate the fact that European thinking had developed the scientific approach the way it had because it operated with stylistical categories that were different from those of other Oriental peoples, for instance. But he did not justify the differences by tracing the psychology of the respective peoples; he rather offered well-founded epistemological analyses. Thus he outlined a theory and a methodology of the categories of cognition, anticipating – in our view – the modem doctrines concerning "the general problematique of comprehension" (hermeneutics, in Paul Ricreur's connotation) or even the philosophy of expression and language. He did so by dissociating two irreducible types of cognition (cognition focusing on the organization of the data perceivable by the senses, the domain of reason, and cognition focusing on challenging the "mystery"). Blaga gave a comparative analysis, using that "modelling" approach, of the various concepts and "styles of scientific thinking," ftom the archaic ones pertaining to his own time. After the war, Blaga would

return to some ideas related to science, which were quite topical in philosophical debates at that time, in *Experimentul şi spiritul matematic* (*Experiment and Mathematical Spirit*), *Aspecte antropologice* (*Anthropological Aspects*), and *Despre conştiinţa filosofică* (*On Philosophical Awareness*).

P.P. Negulescu (1872-1951) studied in Berlin, Leipzig, Paris. His Ph. D. work *Critics of Apriorism and Empiricism* (1892) was influenced by Spencer. P.P. Negulescu pleaded for a philosophy of sciences that should amount to a superior synthesis of an orderly arrangement of human knowledge, and also for creative vocation of philosophic vision in relation to the results attained by the particular. In *Geneza formelor culturii* (*Genesis of Cultural Forms*), P.P. Negulescu outlined a theory of culture, basing his approach on several principles of the philosophy of science, such as detecting explanatory factors in historical phenomenology, or dissociating cultural structures and types. A most relevant idea concerns the dependence of the inductive and analogical reasoning on the time factor and the historical ordinate, since the validity of such reasoning at the time when they are formulated differs from that of their application. P.P. Negulescu also made noteworthy contributions to the field of the methodology of science, especially regarding the criteria of setting the rules for the verifiability of truth, and the (causal and functional) role of hypothesis and hypotetical ratiocination in the development of cognition.

Nicolae Bagdasar (1896-1971) studied in Berlin, with H. Maier, A. Liebert, W. Sombart, A. Riehl. His Doctoral Thesis was *Der Begriff das Theoretischen Wertes bei Rickert* (*Rickert's Notion of Theoretical Value*). He translated from Hume, Berkeley, Husserl, Natorp.

Nae Ionescu (1889-1940) submitted his Doctoral Thesis in Munich, 1916: *The Logistic – An Essay on the New Foundation of Mathematics.* He was influenced by Kant and by Poincare. He criticized Russell's and Whitehead's positions. He was a constructivist-Iogicist and supported a theory of *datum* such as Th. Zieben did. Dan Bădărău published *Du jugement comme acte significatif* (1944), analyzing the problem of language and of the meaning of synthesis in science focusing on "significant acts". Anton Dumitriu in *Logica nouă* (*The New Logic*) and in *Logica polivalentă* (*Polyvalent Logic*), 1940-1943, pushed the philosophy of science toward overcoming the paradoxes engendered by the progress of physics and the needs of formalization. In 1942, Al. Posescu wrote *Logica Ştiinţei în spirit pozitivist* (*The Logic of Science in a Positivist Spirit*). D.D. Roşca produced critical analyses of Hegel's work and wrote *Existenţa tragică* (*Tragical Existence*, 1934), in which he debated in a dialectical vision about "the myth of the integral rationality of existence." Constantin Noica analyzed the structures of scientific thinking in *Mathesis sau bucuriile simple* (*Mathesis, or the Simple Joys*, 1934), *Concepte deschise în istoria filosofiei* (*Open Concepts in the History of Philosophy*, 1936), *Filosofia lui cum e cu putinţă ceva*

nou (*The Philosophy of How It Is Possible to Have Something New*, 1937). J.D. Gherea published in 1939 *Le moi et le monde. Essai d'une cosmogonie anthropomorphique,* while Al. Mironescu wrote *Limitele cunoaşterii ştiinţifice* (*The Limits of Scientific Cognition*). Petre Botezatu in his books *Schiţa unei logici naturale* (*The Map of a Natural Logic*, 1969), in the volumes *Valoarea deducliei* (*Value of Deduction*, 1971) and *Adevăruri despre adevăr* (*Truths about the Truth*, 1981) is a supporter of natural logic, of a theory about the thought in its habitual functions. He named such a logic operative logic. It is an intermediate discipline which, in some respects, goes back to the sometimes abandoned view of traditional logic, but on the other hand tends to include, not without discrimination, a part of the results of symbolic logic.

About these and other philosophers and logicians I must cite some texts by our chairman of the Philosophy Section of the Romanian Academy, professor Alexandru Surdu. He specialized in intuitionist logic. He studied in Amsterdam with Heyting and B. von Rootselaar. Some of his books are entitled: *Classical Logic and Mathematical Logic* (1971), *Elements of Intuitionistic Logic (1976), Neointuitionism* (1977), *The Theory of Prejudicatives Forms* (1989), *The Pentamorphosis of Art* (1993), *The Romanian Philosophers and Logicians* (1996). He made translations from Kant, Wittgenstein, Popper.

In his book on Romanian thinkers, Alexandru Surdu makes special references to the so-called "genetical logic" by Rădulescu-Motru, which has an unchallenged modem value and significance. As concerns another disciple of Maiorescu, Ion Petrovici, the author notices the originality of the concept of *transcendent substance* with its numerous modem significances which has favorable echoes in Western philosophy. But the most important are his contributions to logic, where he had some priorities as compared to the Westerners. Part of these priorities in logic, unknown till now, are pointed out by Al. Surdu. He mentioned Nae Ionescu too, a personality of great influence in Romanian philosophy. Considered as belonging to the "right" wing, his works were strongly criticized and even forbidden during the communist regime. His works have reappeared only after 1990. The author of the study is trying to outline the complexity of this personality in order to justify his constant influence on one of the most elevated philosophical and scientific Romanian spirits. A person close to Nae Ionescu was the mathematician Octav Onicescu. He followed the intuitional line which had been suggested by Nae Ionescu and succeeded to draw up an original logic of mathematics. It is a logic without a false value, similar to the Dutch intuitional logic of the last few decades. Following the same intuitional line, but being inspired directly by the works of the Dutch formalist Neointuitionists, Grigore C. Moisil obtained results acknowledged in the Western literature. He had a remarkable theory about the so-called *hierarchisation of the formal systems.* Ştefan Odobleja wrote *The Logic of Resonance* where he

continued the research aiming at the elaboration of a creative artificial thinking, similar to the natural thinking of the human being. In *The Syllogistics of the Predicative Judgments,* Florea Ţuţugan, a logician, discovered 192 valid syllogistic moods, other than those of classic logic. The merit for the priority of the discovery is incumbent on a German logician, who spoke of a part of these moods ten years after their discovery by Ţuţugan, noted Al. Surdu, but the German logician had the opportunity to speak about them at an international congress. As regards the microphysical phenomena, **Stéphane Lupasco** tried to elaborate an original logic to correspond to this field, namely a logic in which classical laws of logic should no longer be valid. A similar logic had been attempted by other scholars, too; for instance with the denial of the principle of the excluded midlle. Stephane Lupasco's logic is different from all these, logics because it supposes the denial of the law of identity. The book continues with a characterization of **Mihai Drăgănescu**'s *Orthophysics* made by Noica. It contains an original philosophical system drawn up by a great specialist in informatics. He focuses on some concepts characteristic for the depth of the material world: *lumatia* and *informatter,* which are introduced by the Romanian specialist in informatics.

During the communist period, philosophy was in a rather difficult position because philosophers were all requested to be marxist, materialist, determinist. In spite of these hard conditions there still were researchers in logic, epistemology and philosophy of science and history of philosophy who succeeded to obtain information and results. We had old professors who taught us about Hume, Kant, Mill, Russell, Carnap, Wittgenstein. We were interested in the new trends in the philosophy of science because in this area cenzorship was less watchful. This is the domain where a lot personalities existed before and after 1989. I must say that all the new fellows of the Romanian Academy are specialized in the philosophy of science, logic, history of contemporary philosophy. They have experience and books dating back to the '60s. I think there are three groups, teams or schools in Romania now, which we can say are concerned with the analytical philosophy in the same largest meaning I understood our Conference used all the time. *Bucharest Team:* logicians Alexandru Surdu, Sorin Vieru, Drăgan Stoianovici, Petre Bieltz, Cornel Popa, Călin Candiescu, and philosophers of science: Mircea Flonta, Ilie Pârvu, Vasile Tonoiu, Angela Botez, Axinte Dobre (disciples of D. Bădărău, A. Dumitriu, Ath. Joja, C. Noica, Didilescu, Stoichiţă); *Jassy Team:* Teodor Dima, Petru Ioan, Ştefan Afloroaiei, Constantin Sălăvăstru. They are the students and followers of logician Petre Botezatu; *Cluj-Napoca and Timişoara Team:* Călina Mare, Andrei Marga, Aurel Codoban, Dan Grecu, followers of D.D. Roşca.

Mircea Flonta, corresponding fellow of the Romanian Academy (a former beneficiary of a Humboldt scholarship in 1972-73). Some of his books are:

Necessary Truth? Monographic Study on Analyticity (1975); *Philosophical Perspective and Scientific Reason* (1985). *The Images of Science* (1994), *Cognition. A Critical Introduction to the Question of Knowledge* (1994). His topics cover the theory of knowledge, epistemology, the philosophy of language, kantianism. He translated and commented texts by Hume, Kant, Wittgenstein, Popper, von Wright, Kuhn, Russell. He edited the series entitled: "Philosophy and Science" at the Humanitas Publishing House. He participated in the Kant and IUHPS Congresses, in Helsinki Philosophical Conferences. He has a number of interesting hypotheses on the analytical capacity, on scientific language, on truth and testing in science. Mircea Flonta is an important specialist in empiricist (Hume) and analytical philosophy, in structural approaches elaborated in Romania, regarding the unity of science, scientific facts and theory, as well as scientific explanation and interpretation.

Ilie Pârvu is a corresponding fellow of the Romanian Academy. He was also a beneficiary of a Humboldt scholarship. His Ph. D. thesis is entitled: *Logic of Science in Carnap's Conceptions* (1974). Some of his books are: *Semantics and Logic of Science,* (1974), *Scientific Theory* (1981), *Introduction to Epistemology (1984), The Architecture of Being* (1991). He is the editor of many volumes and translations. His topics on research are theory, philosophy of physics, organization conceptions. He is a member of the World Association of Symbolic Logic. He collaborates with professors Moulines, Balzer, Morman from Munich. He has commented on Carnap, Hempel, Popper, Quine, Stegmuller. Ilie Pârvu considers that the transition from the structuralist model of theories to the organizational model will make possible a more realistic analysis of the structure and dynamics of science. The methodology of this type of theory will account for the profound open historical character of the new scientific functions. Teodor Dima, corresponding fellow of the Romanian Academy, is a logician and philosopher of science. He has published books on Reichenbach, Vienna Circle, Popper, Hempel: *Explication and Understanding* (two volumes, 1980-1994), *Rational Foundations of the Philosophy of Science* (1983), *General Logics* (1996). He is interested in semiotics and philosophy of language. He states that epistemology should offer a complex picture within which science should concomitantly appear as structured in terms of theoretical systems, of paradigms, as well as of a dynamics· which allows restructuring processes, reversed foundations and evolutions. Epistemology should avoid the overestimation of both the structural facet and the dynamic one, which leads to gnoseologic relativism.

From this viewpoint, he defines the scientific explanation as equally a structure and a rational process, by which the anti-enthropical character of science is observed and which allows the balanced interrelation of experience and theory.

Alexandru Boboc, corresponding fellow of the Romanian Academy, is specialized in modem and contemporary philosophy, comparativist history of

philosophy and philosophy of language. He has had education and experience from Bonn, Koln, Mainz. His books are on Leibniz, Kant, Husserl, Carnap, Wittgenstein, on empiricism: *Kant and Neokantianism* (1968), *The Neopositivism and Contemporary Science* (1974), *The History of Contemporary Philosophy (1976), Current Debates of Philosophical Ideas* (1988), *Language and Ontology* (1997). He has translated from Leibniz and Kant and is a member of International Societies concerned with Kant's and Leibniz's works. He participated in Congresses and conferences on these topics.

Sorin Vieru is a logician interested in Frege, in modal logic. He is a senior researcher with the Romanian Academy and professor at the Bucharest University. His books in this area are: *Semantics of the Possible World Axiomatizations and Models of Syllogistic System* (1970), *Elementary System of Modal Logic* (1988), *Logical Essay (on Boole, De Morgan, Frege)* (1997). He translated and edited *The Logico-Philosophical Writings* of Gotlob Frege (1977). He analyzed the practical discourse in ethics and law. He edited the volume *Norms, Value, Actions* (1979).

Vasile Tonoiu, corresponding fellow of the Romanian Academy, is professor at the Bucharest University. Some of his books are: *Dialectics and Relativism, (1978), Bachelard on Modern Scientific Spirit,* (1974), *The Idoneism - A Philosophy of Opening* (1972), *Dialogal Man* (1995). According to Vasile Tonoiu the distortions of the global picture of knowledge in general and of the scientific one in particular, resulting from a one-sided view of the already obtained results in the light of the logical-linguistic reality, can be corrected by an epistemological integration of the genetic dimension. To attain this purpose recourse is made to critical-historical and psycho-genetic methods, which are gaining ever more ground, as well as to the praxiological ones, regarding the "science-producing" behaviour of the research groups. He·has translated from Piaget, Gonseth, Bachelard.

Angela Botez is a senior researcher at the Institute of Philosophy of the Romanian Academy, vice-president of *DLPMS/RCHPS.* She is a member of the international societies: GAP, *4S,* EASST and of the Editorial Board of the reviews "Man and World" (USA) and "Appraisal" (UK). She is interested in the post-analytical trends of the philosophy of science and has specialized in the philosophy of mind, and in philosophers like: Wittgenstein, Searle, D.H. Mellor, D. Papineau, Rorty, Habermas, Derrida. She edited volumes containing articles of the protagonists and the most important representatives of these orientations, entitled *Nowadays Metamorphosis in the Philosophy of Science* (1981), *Realism and Relativism* (1993), *Philosophy of Mind. Experiment and Intentionality* (1996). She has translated from P.M.S. Hacker, W. Newton-Smith, Roger Trigg, C.O. Schrag, Rom Harré, Ted Honderich, Tim Crane.

Călin Candiescu, senior researcher at the Institute of Philosophy is interested in Classical and Modern Logic, the philosophy of language and of logic in Aristotle, Kant, Frege, Wittgenstein. He was also a beneficiary of a Humdoldt scholarship 1991-92. He is now secretary of the philosophical Section of the Humboldt Club in Romania. He published *Contemporary Trends in the Philosophy of Logic, Fregean Conceptualism, Logical Atomism and Linguistic Philosophy.* I must mention the new orientation of young people – **Dumitru Gheorghiu, Adrian Miroiu, Adrian Paul Iliescu, Valentin Mureşan**, **Mircea Dumitru** – to the analytical perspective in politics, moral and law. Most of these people have studied in Germany (Humboldt bursary) in France, in England, USA, Holland and Italy. They are members of International and National Societies of Philosophy of Science, Symbolic Logic, Analytical Philosophy. We have had for a long time a Romanian Committee of History and Philosophy of Science (all the persons I named before are members) which organized the International Congress of Logic, Methodology and Philosophy of Science, in 1971, in Bucharest. Among the participants I would mention Tarski, Kotarbinski, Hempel, von Wright, Stegmuller, Hintikka, Mary Hesse, Bunge. Ever since 1996 The Romanian Society for Analytical Philosophy (the President is Ilie Pârvu) has been working and most of us are its founders.

Not only the philosophers largely described here but also **Clara Dan, Ştefan Georgescu, Crizantema Joja, Călina Mare, Andrei Marga, Stelian Popescu** are good specialists in the philosophy of knowledge.

Inciting ideas and theories come from scholars like **Mihai Drăgănescu, Mircea Malița, Solomon Marcus, Gheorghe Ştefan** on the concept of information and system, on mathematic, cybernetic and cognitive sciences, scientific language.

Another process of long-standing tradition in Romania, which has engendered fertile ideas in its present development, consists in the interweaving of the approaches in the philosophy of science with those in logic **(Petre Bieltz, Gheorghe Enescu, Petru Ioan, Cornel Popa, Drăgan Stoianovici).** Approaching the specify of the field, the methods of investigation and testing of the reasoning in social disciplines, concrete suggestions have been elaborated with a view to optimizing legal procedures, as well as argumentative or interrogative ones. The global systemic vision is also perceivable in another series of works whose authors are scholars with a bias towards philosophical meditation. It is worth noting that mathematicians, physicists, chemists, biologists, psychologists, anthropologists, economists have highlighted the ever greater significance of the methodology by their mutual balancing, which increases their capacity of using homogeneous logical-mathematical, historical, psychological, sociological and axiological methods in their study of scientific facts, theories and disciplines. The abovementioned research works made it possible for our philosophers to work out

a *Treatise on the Theory of Knowledge,* which includes a conception on the substantiation of knowledge from a social-historical, methodological and psychogenetic perspective, alongside a minute analysis of the fundamental forms and stages of scientific knowledge (fact, problem, hypothesis, law, experiment, theory) as well as the attempt at formulating a synthetic conception on truth, rationalization and dynamics of science.

We have in Romania three journals – *Revista de filosofie,* and *Noesis,* and *Revue Roumaine de Philosophie* – in foreign languages) which publish articles on Logic, Philosophy of Science and Epistemology, on Realism, Empiricism, Analytical Philosophy. We have collaborators from abroad, too. We teach epistemology, philosophy of science, philosophy of mind, logic in all our Universities and have research teams at the Institute of Philosophy.

Works by Kant, Einstein, Frege, Quine, Russell, Carnap, Heisenberg, Austin, Searle, Kripke, Salmon, D. Lewis, Jeffrey, R.M. Hare, Rawls, Popper, Kuhn, von Wright, Ramsey, Reichenbach, Ayer, Ph. Frank, Schlick, Tarski, Lukasievicz, Godel, Searle, Moore, Neurath, Chomsky, Hao Wang, von Weizsacker, Sneed, Föllesdal, Hilpinen, Cortanedo, Recher, Horowitz, Dirac, Wiener, Bohr, Bohm, Asby, Turing, Shannon, Toulmin, Hintikka, Stegmuller, Putnam, Nagel, Bunge, Papineau, Hacker, Mellor, Newton Smith, have been translated into Romanian. From the list of books translated into Romanian, I mention: Rudolf Carnap, *Meaning and Necessity* (1972); Gotlob Frege, *Logical Philosophical Writings* (1977); Karl R. Popper, *Logic of Discovery* (1983); *The Open Society, The Misery of Historicism* (1996); *Knowledge and the Mind-Body Problem* (1996); G.H. von Wright, *Norm and Action* (1992); *Explication and Understanding* (1995); Patrick Suppes, *Probabilistic Metaphysics* (1990); Bertrand Russell, *Problems of Philosophy* (1996), etc.

There have been a number of series at the publishing houses on analytical philosophy and epistemology as follows: before 1989: *Editura Ştiinţifică,* Bucureşti: Logos, Contemporary philosophy, Humanities. *Editura Politică,* Bucureşti: Dialectical Materialism and Modern Science, Theory and Method in Social Science, Philosophy and Science, Contemporary Ideas, and after 1990: *Editura «Dacia»,* Cluj: Philosophy of Science; *Editura «Humanitas»*, Bucureşti: Philosophy and Science; *Editura «Junimea»,* Iaşi: Logical Perspectives; *Editura «Univers»,* Bucureşti: Philosophy of Science; *Editura «Eminescu»,* Bucureşti: Synthesis; *Editura «All»,* Bucureşti: Philosophy, Philosophy of Language, etc.

The studies on the philosophy of science that have been worked out in Romania also evince the capacity of a most subtle and profound communication both in a dialogue and in a polemical form – with the most powerful and significant trends and orientations in contemporary epistemology: neorationalism, logical empiricism, genetic epistemology, structuralism, phenomenology, hermeneutics, the new philosophy of science.