FEMINIST IDEOLOGY AND CONTEMPORARY EPISTEMOLOGY

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Abstract: *Although the expression "feminist epistemology" can be considered a contradiction in terms – as M. B. Hesse maintains – because epistemology, as well as the science to which it is related is, at least at the programmatic level, independent of any interest and conception of a certain social group (defined by relating itself to a certain race, gender or religious option), lately, in the context of the development of a postmodern cultural pattern, feminine contributions to the development of science and, implicitly, of the epistemology, became a phenomenon that must be studied with the greatest attention. This is the reason why arguments have been advanced supporting the idea of a subsequent alternative science which might include a series of "feminine virtues"; the arguments rely on real phenomena belonging to the development of sciences which is characterized by the exponential growth of sciences, the multiplication of the scientific fields and the appearance of new basic concepts.*

Keywords: *feminist epistemology, ideology, feminism, feminist virtues.*

The phrase "feminist epistemology" occurs in postmodern contexts, a phrase that Mary B. Hesse, from the Cambridge University, regards as a "contradiction in terms"[1]. The reasons for this characterization of the phrase, a condemnable phrase from the logical perspective, may be summarized as follows:

"Feminism" is the ideology of a social subgroup that supports the need to promote some specific features of researches and creations that belong to women; on the other hand, "epistemology" represents the study of general conditions needed to acquire scientific knowledge, for its logical and philosophical foundation, beyond the opinion, intentions, interests and perspicacity of certain social groups that have been formed based on extra-scientific criteria (age, sex, religious conscience, etc.). In other words, modern epistemology considers that scientific knowledge objectiveness is dependant, first of all, to the extent that it is established by means of some transcendent rules, separated from social and historical contexts. Epistemology also accepts extra-logical criteria for the assessment of scientific discoveries, but sex has never been considered a decisive factor of epistemic evaluation. Therefore, according to Mary B. Hesse, there may not be a "feminist epistemology", just as there may not be a "black" or a "homosexual epistemology", an epistemology of honourable citizens or an epistemology of trade unions, of press or of a football club[2].

On the other hand, there are two important aspects of epistemology registered in the last five decades of the 20th century. (1) Many women have become specialized in philosophy and sociology of science, expressing their own critical opinions regarding the manner in which some important issues of scientific knowledge are formulated. (2) The expressed criticism is often illustrated by examples referring to women's presence in science, and how they have imprinted a certain type of rationality, which is in many ways

[1] M.B. Hesse, (2000), *How to Be Postmodern without Being a Feminist*, The Monist, nr. 77, 1994, Romanian translation by Mihai Ungheanu, Revista de Filosofie, XLVII, nr. 5-6, pp. 499-515, Bucharest.

[2] *Ibidem*, p. 500.

to the benefit of science development. In epistemology papers[3] elaborated during the past two decades of the 20th century, female authors notice that orientations in contemporary epistemology bear the seal of masculinity. This is why there is a prevalence of epistemological realism, which considers that the main goal of science is represented by the discovery of structure and of the fundamental laws of natural universe, as well as the optimism of expression in true statements, systematized in theories, of discoveries and researches. Feminine criticism is not directed against the ontological hypothesis regarding the existence of structures and the lawful characteristics, but against the conviction according to which the world may be completely known and exactly exposed in language. As they research history of science and the way scientific theories are elaborated in the latter half of the 20th century, many epistemological directions underline that science develops itself, but it does not evade social, economic or cultural influences, so that, although they aspire towards objectivity, many scientific statements remain, nevertheless, partially true.

A certain circularity would occur in scientific theories in the absence of such influences: the urge towards the elaboration of a scientific theory comes, in factual sciences, by means of observations; the result of observations must be linguistically formulated and communicated; this implies the use of concepts taken over from the existing scientific theories, so that the occurrence of a new theory is dependant on other existing theories, and there would be an impact on theoretical and practical progress because alethic evaluation judgments could not be elaborated ignoring previous theories. This means that those postmodern epistemologists, who noticed the dead end of scientific theory alethic evaluation, are right: on the one hand, they say that the truth of scientific theories may not be practically proven since the evaluation result must also be exposed in theoretical terms; on the other hand, scientific theories have nothing else for their evaluation except factual and/or formal practice. Therefore, according to Susan Haack, at the theoretical level, but at the applicative level too, sciences are impregnated with interpretations and evaluations because science would thus become "some trivial positivist exercise, with no aspiration of exceeding the observable"[4]. Theoretical constructions and their selections for evaluation are also partially elaborated based on the impulses of the cultural environment, these impulses also gathering certain values promoted by female scientific researchers. Important changes have thus been generated in epistemology. Choosing the theory turns into "making a decision in uncertainty" and it is acknowledged as a logic branch that requires making decisions referring to values and evaluative facts[5].

The issue referring to scientific objectivity and the role of social, economic and cultural factors inspires feminist pens for the support of the assumption according to which women have created sub-species of cultures in all human societies and they have played decisive parts for science development and understanding. Mary B. Hesse identifies three types of arguments supporting the importance of feminism to science, thus transferring the issue of feminist values to epistemology.

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[3] M.B. Hesse underlines several issues where these two aspects are debated: Lorraine Code, *What Can She Know*, Ithaca and London, Cornell University Press, 1991; Sandra Harding, *The Science Question in Feminism*, Milton Keynes, Open University Press; Merrill B. and Jaako Hintikka, *How can Language be Sexist?*, in Sandra Harding and Merrill B. Hintikka, *Discovering Reality*, Dordrecht, Reidel, 1983; Evelyn Fox Keller, *Reflection on Gender and Science*, New Haven and London, Yale University Press, 1985; Helen E. Longino, *Science as Social Knowledge*, Princeton, NJ, Princeton University Press.

[4] S. Haack, (1993), *Epistemological Reflections of an Old Feminist*, Reason Papers, 18, pp. 34-35.

[5] Significant examples for this perspective are given in L. Jonathan Cohen and Mary Hesse, *Applications of Inductive Logic,* Oxford, Clarendon Press, 1980, apud M.B. Hesse, *op. cit.*, p. 502.

The first argument is formulated based on certain investigations performed in the past; this has led to the often underlined situation of women's very limited participation in scientific research. However, from the epistemological perspective, one may notice that, by the middle of the 20th century, women prefer careers especially in the sciences of life and in the sciences of the social, and less in mathematics, physics, logic and philosophy. These predilections have been associated to the use of certain active methods for the investigation of people, of particular, diversified and complex aspects. simplicity, universality and necessity have lured few female minds, but, whenever this closeness occurs, outstanding results are registered. For instance, Maria Sklodowska Curie (1867-1934) and Irene Joliot-Curie (1897-1956). The former, performing precise measurements, notices that radiation represents a property that is specific to the uranium atom; she suggest the name of radioactivity for substances emitting Bequerel radiations, while the elements possessing it are called radio-elements. Irene Joliot-Curie discovers, among other things, the energy of rebound protons, also performing minute research requiring patience, will and giving up some satisfactions generated by the emotional side of personality.

Androcentrism has been manifested especially in the fields of philosophy by the middle of the 20th century. After 1950's, although no female names asserted themselves, the number of women increases a lot, getting closer to the number of men. A personally noticed and convincing example is provided by the Congresses of A.S.P.L.F. (Association des Sociétés de Philosophie de Langue Française), that I participated in, every two years, from 1994 until 2002. If we express ourselves in the terms of Mircea Florian's conception, we believe that the recessiveness phenomenon is manifested here, while women play the role of "outsiders" invading the academic philosophic community. There is also a prevailing tendency towards assertion that the oppressed, marginalized groups or classes have. Women presenting the result of their philosophic research consider themselves victims of ideological prejudgment, thus justifying their decision of building a "female epistemology". From a certain perspective, female "recessiveness" is explicable by the assimilation ability that may be possessed by an intellect that is less used in theoretical and abstract activities and which, after a long period of aspiration to be acknowledged as belonging to a certain elite, bursts off to careers that are never required until about fifty years ago.

If regarded objectively, feminist accomplishments in epistemology, let us say, may not be construed as superior to men's achievements; there are both minor and outstanding contributions from one side and the other. But, from the postmodern ideology perspective, one should underline the tendency of an increasing number of women who are passionate researchers in multiple fields of philosophy. Mary B. Hesse, one of the female personalities, acknowledged worldwide for her contributions in logic and science methodology[6], reveals the interest in using models and metaphors in science[7].

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[6] M.B. Hesse (n. 1924) completes her career at the University of Cambridge, between 1960 and 1985, and is nowadays *emeritus fellow;* she is a member of the British Academy, in the managing board of which she operates between 1979 and 1981: she was a *visiting professor* in USA, at the Yale, Minnesota, Chicago, Notre Dame; she was the chief editor of the British Journal of the Philosophy of Science (1965-1969). Published books: *Science and Human Imagination: Aspect of the History and Logic of Physical Science* (1954), *Forces and Fields: A Story of Action at a Distance in the History of Physics* (1961), *The Structure of Scientific Inference* (1974), *Revolution and Reconstructions in the Philosophy of Science* (1980), *The Construction of Reality (1987).*

[7] M.B. Hesse mentions Eva Feder Kd'ltay, Sallie McFague, Janet Martin Soskice, Eileen Cornell Way, Alison Wylie.

The second argument underlined by Mary B. Hesse refers to the elaboration of a "feminist point of view" that generates certain reforms in scientific institutes, in universities, in the editorial offices of scientific journals, etc. threes reforms are characterized, first of all, by the introduction of a personal style, which opposes the impersonal style of the "andocentric" argumentation, without disturbing scientific objectivity. We have a nearby example at our disposal: the Chief Editor of the Philosophy Journal of the Romanian Academy has been, for several years, Angela Botez, 1st degree main scientific researcher at the Philosophy Institute of the Romanian Academy, with a remarkable publishing experience. The journal profile has gradually changed, being mainly directed towards the philosophy of the mental and towards postmodernism, thus drawing nearer to the actual reality of debates in contemporary philosophy.

The third argument is a very daring one: it refers to suggestions for the elaboration of some sort of science alternative, a successor kind of science, which may include more "female virtues". But, as Mary B. Hesse says, there are few representatives of the feminist trend in epistemology who "have tried to minutely expose successor science"[8]. Modern science, "of the Galileo-Newtonian kind", as it is designated in epistemology[9], is characterized by the prevalent use of the experimental method, combined with the application of mathematics: "... from Gilbert, Kepler and Galilei, to Huygens, Malenbranche, Leibniz and Newton, passing through Bacon, Harvey and Descartes, scientists of the 17th century establish the principles of modern science"[10]. It is characterized "by the establishment and development of mechanics, optics, acoustics, study of magnetism, electricity and heat, by the development of astronomy and cosmology... During the second half of the 18th century, this type of experimental-mathematical science proceeds to a massive expansion in the field of chemistry by the research of Lavoisier and Dalton"[11]. In the 18th century, science participates in the philosophical movement of the century of lights and the intellectual preparation of the French revolution. A century that underlines the scientific role of the spirit in rebuilding personality, but also in the inauguration of universal mechanization.

The science developed in the 18th century finds its support in saloons, comfort, luxury, curiosity, as well as in social life. Science provides people with solutions for the improvement of their material and cultural situation, "while the destiny of civilizations is decided in laboratories"[12]; teaching methods are also renewed and the reasonable organization of scientific research begins, by the specialization of researchers' activity, by the refinement and diversification of working and investigation instruments; amateurism and patronage become caducous, so that, the period lasting between 1780's, when one may say the specific of the 18th century comes to an end, and 1920's, when one may say that the modern age comes to an end, will be characterized by an impressive multitude of revolutionary inventions. This is why they say that the 19th century is a century of explosions, caused by geniuses. "The romantic 19th century turns the genius into a (...) sort of incarnation of divine inventiveness, a torch carrier of humanity who suffers for the hero's troubles and rejoices over his victories"[13].

This vision disappears in the 20th century; now the scholar becomes someone who dedicates most of his activity to the scientific activity; "transpiration" replaces revelation,

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[8] M.B. Hesse, *op.cit.,* p. 507.

[9] L. Blaga takes over this designation in *Experimentul şi spiritul matematic,* a paper that is elaborated at Cluj, between 1949 and 1953, and published posthumously at Ed. Ştiinţifică, Bucharest, 1969, with a preface by Călina Mare; second edition, 1983, Ed. Minerva; introductory study, Alexandru Tănase; third edition, 1998, Ed. Humanitas.

[10] Cf. René Taton (ed.), (1971), *Istoria generală a ştiinţei*, vol. II, Ştiinţa modernă de la 1450 la 1800, Romanian translation, Ed. Ştiinţifică, Bucharest, p. 202.

[11] L. Blaga, (1998), *Experimentul şi spiritul matematic,* Ed. Humanitas, Bucharest, p. 37.

[12] R. Taton (ed.), *op cit.,* p. 458.

[13] R. Taton (ed.), *op. cit,* vol. III, 1972, p. 12.

while the scientist is assiduously required to preoccupy himself with what may come out of his works. Therefore, the period of time that separates a laboratory discovery from its technical and social application is considerably shortened because the means that the scientist has for his work are multiplied based on the hopes that governments and enterprises have for the scientific research results. Working teams are thus created, which implies increasing technical and administrative staff: laboratory technicians, assistants, engineers, etc. This is how the first massive getting through of women into scientific research takes place.

We are hereby presenting other conditions that have generated women's increased presence in scientific activity and, therefore, the elaboration of an epistemology that may also reveal, among other things, "a feminist point of view", signaled in the current literature that is governed by postmodernism.

First of all, an important condition is represented by the exponential increase of science. Derek J. de Solla Price, from the University of Yale in New Haven, United States, talks about this aspect in 1963; by means of some statistic methods, he analyzes "the general problems related to science form and dimensions, as well as those of related to the basic rules that govern science increase and behaviour"; he presents a "calculation of workforce, literature, talent and costs for science"[14] and he draws the conclusion that certain sufficiently big sectors of science grow in an exponential manner. "This means that science increases by a compound interest, being multiplied by a particular fixed quantity throughout an equal period of time"[15]. Thus, an exponential increase is characterized, in optimal conditions, by a certain time that is necessary to double the volume or for a 10-time increase. Should we take the number of scientists and the number of scientific publications as parameters, then we may notice that they double every ten years, with no difference between poor quality works and high level works, or every 15 years, when a certain harshness is applied in the selection of published scientific works and of their authors. Science has thus stopped being a social factor with slow and weak action, turning into a factor of rapid and powerful action. Changes have therefore occurred, not only from the economic and social perspective, but also from the perspective of women's presence in scientific research, in fields requiring very big efforts, which, in the 19th century, were unimaginable for women to achieve.

The multiplication of scientific fields is the second condition for women's increased number in scientific research in the 20th century. As classical subjects enrich and develop their fields, they establish connections among themselves, leading to the creation of mixed subjects, such as biochemistry and biophysics, physical chemistry and mathematical chemistry; thus, the linear classification of sciences, elaborated by Auguste Comte, is replaced by a network with several branches. Modern science, developed before 1900, takes the form of quite big islands of knowledge, surrounded and separated by a vast ocean of ignorance. The postmodern science of the 20th century gathers big continents connected by isthmuses with perpetual correlation. The great scientific restructuring could not be achieved without the feminine contribution. For example, "... some of the great syntheses, such as the one that includes all the electromagnetic radiations, from cosmic gamma radiations to the cosmic long radiations, are followed by a set of other partial syntheses of increasing intensity"[16]. In the 20th century, an important distinction is clearly set between two types of discoveries. Some are inevitable; they occur during a well-defined interval, due to the activity of those researchers who perpetuate their forerunners' attempts and suggest new solutions. For instance, the

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[14] Derek J. de Solla Price, *Little Science, Big Science,* Columbia University Press, 1963, Romanian translation by P. Teodoru and O. Iordan, Ed. Ştiinţifică, Bucharest, 1971, p. 12.

[15] *Ibidem,* pp. 25-26.

[16] R. Taton (ed.), *op.cit.,* vol. IV, p. 12.

discovery of X rays by Röntgen; many physicians would make experiments with Crookes tubes, so that, in a relatively short period of time, the effects of X radiations have been noticed on fluorescent screens, on photographic plates and electroscopes. There are, however, inevitable discoveries; it has been noticed that, usually, these discoveries imply the contribution of researchers who are later included in a scientific communion; in the 20th century, women are present, to a significant extent, especially in chemistry, biology and social-human sciences.

Finally, the third condition, tightly connected to the first one, is the occurrence of certain fundamental concepts that have quickly conquered several scientific fields, also encouraging new methodological orientations, unsuspected by modern science. This particularly refers to the notions of structure, system and information. At the beginning of the 20th century, the idea of discontinuity appears in science, especially in one field, the field of energy, which seemed to be meant to the continuous; this typical physical measure, which seemed simple and movable with no losses from one system to another, acquires a quantum structure. The quantum conquers the scientific world so that it is no accident when a Romanian researcher focuses his doctor's degree thesis on panquantism[17] in 1945. At the same time, structural studies have made themselves noticed in chemistry and biology, where women play parts that would engage their curious minds. One may nowadays notice that, in these fields, the number of women has surpassed the one of men. They have a significant contribution for the chemistry developed formulas to become models in the analysis of cellular protoplasm components, which leads to the acknowledgement of some very small figurative objects, so that molecular biology reaches the turning point between physics, chemistry and biology. Moreover, in the 20th century, there is a breakthrough into the real structure of mycelia, which become macromolecules, in the nature of colloid majority, opening up a huge chapter of biochemistry.

We shall not focus on exemplifications; we believe that the provided information is sufficient to support the idea that, starting the second half of the 20th century, the female part of scientific researchers has a significant contribution to the development of certain fields that would occur and develop with a conquering rapidness, unknown in the history of science. „The front change" of science led, certainly to an epistemological renewal. From an a priori, abstract and sometimes formalized discipline[18], charged with the formulation of timeless fundaments of knowledge, within the limits of a rationality equivalent with the standardized demonstrability, flexible epistemologies, able to model on and interpret rapidly the radical scientific changes, have appeared.

We cannot, surely, maintain that an "alternative science" was established in the second half of the 20th century but, in this interval, sciences diversified their methods and instruments of research and argumentation; therefore, Habermas admits three types of scientific knowledge: empirical-technological, historical-hermeneutical and critical-emancipating[19]. Thus, in the epistemological valuations, together with the logical-

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[17] P. Botezatu, (2002), *Cauzalitatea fizică şi panquantismul,* Ph. D. thesis, defended in 1945, under the supervision of Dan Bădărău and published posthumously, at the "Alexandru Ioan Cuza" University Publishing House, Iasi, by Teodor Dima.

[18] It is significant, in this respect, the structuralist programme of research in the logic and philosophy of the last three decades in science, initiated by Joseph D. Sneed and developed by Wolfgang Stegmüller. Through Sneed`s works, *The Logical Structure of Mathematical Physics,* Dordrecht, Reidel, 1971, and Stegmüller`s, *Theorienstrukturen und Theoriendynamik (Theorie und Erfahrung,* Zweiter Hallband), Berlin, Springer, 1973 (English language translation; *The Structure and Dynamics* of *Theories,* Berlin, Springer, 1976), *The Structuralist View* of *Theories,* Berlin, Springer, 1979 and others. The structuralist conception was exposed in the Romanian area by Ilie Pârvu, in *Introducere în epistemologie (Introduction in Epistemology),* Ed. Ştiinţifică şi Enciclopedică, Bucharest, 1984, pp. 318-354.

[19] J. Habermas, (1968), *Knowledge and Human Interests,* trad. J.J. Shapiro, Heinemann, London, appendix, apud M.B. Hesse, *op. cit.,* p. 506.

philosophical and methodological analyses, make their way too, the interests of knowledge, interpretation, understanding and communication, interests that depend on economical and socio-political structures. Can we admit here also interests that depend on the fact that the feminine participation in the scientific developments has increased? The answer asks for certain determinations, in order to highlight the conditional conditioning of the development of humankind in the 20th century.

From the complex canvas of correlations, we highlight the education development without sexual discrimination, granting that the development of science (economically, politically and socially conditioned) exponentially exploded and included feminine participations; once entered the scientific circuit, women had their part in contributing to the rhythm intensification of the scientific progress. Epistemology must, therefore, record these aspects, especially because, as we mentioned earlier, there are women specialists in epistemology.