PHYSIOLOGICAL PSYCHOLOGY OF WILHELM MAXIMILIAN WUNDT

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Abstract:In the second part of the 19th century, Germany occupies a leading position in research in science, chemistry and physics in particular, but also in psychology. Wilhelm Wundt was a pioneer in experimental psychology, setting up a laboratory where students from all over the world came not only to learn but to experiment as well. In their native countries, the vast majority of these disciples continued the work started with the German psychologist and, in turn, developed such institutes in all developed countries. In Romania, the new ideas propagated by Wundt echoed through the work of scientists such as C. Rădulescu-Motru, Eduard Gruber and Florian Ştefănescu-Goancă. The approach of neurological phenomena from a novel perspective, their study with the help of other sciences such as physiology, anatomy, chemistry, physics and even mathematics and logic made Wilhelm Wundt's work a new branch of psychology. The researcher did not actually bring anything new, but he used what other sciences had gained to study human brain activity: one of the most complex systems. The experiments conducted by Wundt's followers are various: visual and auditory illusions, attention, music harmony, time to respond external stimuli, etc. But the merit of the German psychologist is that of generating a new way of thinking that propagated throughout the world.

Keywords: psychology, sensory perception, psychophysics, mental processes, consciousness

Born in the age of the struggle between realism and romanticism, in the first half of the nineteenth century, **Wilhelm Maximilian Wundt** (1832-1920) was born in Germany in a large family. He graduated from the Heidelberg School of Medicine in 1856 but did not practice medicine. He completed his medical studies with a doctoral thesis on tactile sensitivity in hysterical patients. Wundt chose fewer explored and more conceptual territories, but he used his acquired knowledge during medical studies, especially those of anatomy and neurology

He taught physiology, with Hermann von Helmholtz as mentor. During this period he comes in contact with the research methods of his teacher who studies the physiology of the eye and who has been intensively researching the field of perceptions and how they form in the human brain. The period spent by Wundt in the laboratories, researching these neurological phenomena will end with the publication of a treaty (*Contributions to Sensory Perception Theory* written between 1858 and 1862). A year later, his interest in the similarities and differences between man and animal is found in the pages of another paper *Lectures on Human and Animal Psychology*. Wundt taught both anthropology and psychology, and this last field will mark his entire career. More specifically, Wundt begins to deepen the field of experimental psychology and his concern in this branch led him write a history of psychology: *Principles of physiological Psychology* in 1874.

The following year, Wundt became professor of philosophy at the University of Leipzig, where research was already under way to determine the relationship between physical stimuli and the human brain's generation of perceptions and sensations. In 1900, he began publishing *Volkerpsychologie*, a large-scale work in nine volumes that made long cultural digressions and in other fields such as history, philology, linguistics, ethnology and anthropology. And linguistics has come into the attention of the German psychologist although he considers it to be a social construct, linguistics can also preserve individual influences or can show how the individual relates to the linguistic system and can adapt it to his needs. But, beyond individual touches, language is the representative of a people's spirituality.

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The turn of the century was the ground for this scientist so interested in the way the human brain works in contact with excited environmental factors. Encouraged by the new possibilities offered by the university, Wundt sets up the first laboratory to study psychological phenomena (in 1879 was founded under his guidance the *Institute of Experimental Psychology*). One of the best-equipped locations for that time, the laboratory was endowed with numerous tools that could quantify how subjects perceived external stimuli. Although the research work occupied all his time, Wundt does not give up teaching by organizing courses ranging from anthropology to epistemology, from logic to psychology of language, from physiology to psychology, and up to cosmology and philosophy. His work has attracted students from all over the world, both from Europe and the United States. Many personalities have studied with the German professor how the human brain works. Among these personalities are the Romanian philosopher and sociologist Constantin Rădulescu-Motru, Eduard Gruber and Florian Ştefănescu-Goancă

The German physician realized that there are many interconnections between physiology and psychology. Physiology has, according to Wundt, recognized directly or indirectly psychology as an integral part of human functioning studies, namely the brain. The evolutionary step made by the German physician and researcher was to try to unravel the psychology of physiology, to put "the tools" of physiology to the benefit of psychology. Thus, history of medicine recognizes him as the one who laid the foundations of experimental psychology. But in an attempt to become self-sustained science, psychology makes only a tangential call to physiology, as its initiator stated: "Our psychology will be availing itself of all the means that modern physiology puts at its disposal for the analysis of conscious processes."[1] The burden the German encountered was a dialectical one. Even greater as physiology operates with quantitative modalities, as long as psychology, which was at the beginning of the road those times, was not yet endowed with the "theoretical and notional" tools. Physiology helps psychology with the methodology already in place.

Using the notions already recognized in philosophy, psychology proposed by Wundt operates with investigations. This complex process of observing the processes of confluence between physical aspect and mental plan makes the new territory explored by Wundt, and even receives a name from its initiator: *psychophysics*, precisely to clarify the importance of two sciences seemingly different at creating a unitary one, a junction between body and mind. But Wundt opens the door to other sciences that come to complete, as a corollary, a much wider picture where we can talk about ethnic psychology (of various cultures), pediatric psychology (applicable to children), animal psychology.

In his philosophical approaches to explaining the physical substrate of mental activity, Wundt takes into account all the theories generated by philosophers of the world: from metaphysical explanations to hylozoism. If we take into consideration all the movements made by the human body as part of the consciousness we could not explain, the German psychologist thinks, how the involuntary movements are dictated by the vegetative nervous system. Therefore, when discussing mental functions as reason-generating, Wundt refers only to volunteer external actions as manifestations of volition. The psychological analyzes of the German have the capacity to make a junction between the most diverse domains. Sensations are the place where the physical and psychological intersect. Thus, perceptions can be studied from a double angle point of view: on one hand, as external manifestation and from the point of view of their internalization, as a mental manifestation. In order to argue his hypotheses, Wundt makes an intellectual journey in biology, macro and microscopic anatomy, histology, neurology, chemistry, physics and philosophy.

Wundt connects, in a totally new way, the exact sciences that provide quantifiable experimental data with the subjective values of philosophy and psychology, because starting from the scientific tangible we can reach mental processes and the role of binder between various sciences, the task of transgressing the limitations that science has, belongs to philosophy, "it aims to complete and deepen the data that special sciences acquire by exact observation by experiment.

[1] Wilhelm Wundt, *Principles of Physiological Psychology*, Translated by Edward Bradford Titchener, 1904, p. 2

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Special sciences have the boundaries determined by their own methods, which they have to apply. Philosophy goes beyond these boundaries, combining the methods of the various special sciences, and completing the data obtained by reasoning."[2] This explanation that reveals the essence of the German psychologist's thinking system is given by one of his followers. By deduction, it is the philosopher who leads the work of the scientist to a higher level, says C. Rădulescu-Motru. The step from science to philosophy can be made by any scientist: "Any special scientist can become a philosopher if he can, with the help of reasoning, build upon the knowledge of his particular science a unitary orderly conception of the world and life. Among the special science and philosophy there is not so a contradiction, but a continuity. (...) philosophy is the science of science."[3]

The German psychologist's approach must, in fact, be regarded in a wider context of new scientific and medical discoveries since the mid-nineteenth century. Wundt builds and carries on thinking systems initiated by other scholars. If C. Rădulescu-Motru places the German in the lineage of Aristotle and Leibnitz, we can detect also influences of the psychologist Johann Freidrich Herbart (1776-1841) a Kant follower who reached a mathematical deduction of the specific human psychic experiences. Contemporary with Wundt, and probably with influence over his work, were sociologist Max Weber and psychologist Gustav Theodor Fechner, who set forth the law that bears their name. It is the determination of the relationship between the sensation (the psychological component) and the intensity of the stimulus (physiological component).

The psychologist, philosopher and writer **Constantin Rădulescu-Motru** (1868-1957) was one of Wundt's disciples. The Romanian scholar attended two faculties at the same time Faculty of Law and the Faculty of Letters and Philosophy. Between 1890 and 1893, in Germany, he studied in the laboratory that Wundt had founded. The Romanians' interest in studying the sense-perception-psychic relationship had been evident since the completion of the philosophy courses with the thesis *Empiric reality and knowledge requirements* (1889). The studies conducted in the German psychologist's laboratory were the door opened to what he had intuited purely theoretically. Returned to his native country, Rădulescu-Motru finished his doctoral studies with a paper focused on the theory of the objective cause-effect theory initiated by Kant *Zur Entwickelung von Kant's Theorie der Naturkausalität* (1893). Rădulescu-Motru founded the Society of Philosophy and the Philosophy Review and was passionate about social psychology. The Romanian scholar wrote numerous studies *Psychology Problems* (1898) and *Social role of philosophy* a year later. The Romanian psychologist was interested in how spiritual resources influence the real world. The number of the studies he signed is outstanding *Science and Energy* (1902); *The Power of the Soul* (1908); *Elements of metaphysics* (1912); *Personal energy* (1927); *Elements of metaphysics*, based on Kantian philosophy (1928); *The Morality of personal energy* (1946); *Materialism and Personality in Philosophy* (1947). He also analyzed the spiritual values in relation to political life: *Romanian Culture and Politicianism* (1904); *Peasantism. A Soul and Politics* (1924). A great deal of energy has been given by the psychologist in deciphering the springs forming a people, perceived as an ensemble of individuals, devoting papers to the Romanian spirituality, *Romanianism. The Catechism of a New Spirituality* (1936); *Psychology of the Romanian People* (1937); *Time and Destiny* (1940); *The Romanian Ethnic. Community of origin, language and destiny* (1942).

During the studies within the Faculty of Philosophy and Letters, the courses that he never missed would be those of Titu Maiorescu: Logic and History of Contemporary Philosophy. Together with him and the wife of the politician and teacher he traveled through Switzerland and France. In Paris, he attended the laboratory of Sorbonne's physiologist H. Beaunnis, Charcot's lessons, and the psychology courses of neurologist Jules Soury. In Leipzig, in 1891, Rădulescu-Motru listened to various courses: from anthropology, physics, psychology and by listening to

[2] C. Rădulescu-Motru, *Wilhelm Wundt and scientific philosophy*, in *The Royal Foundation Review*, 1st January1944, year XI, no. 1, p. 33
[3] Idem, p. 34

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Wundt he reached to know the "spell surrounding the philosopher's thinking (...) he made purely scientific philosophy. It was the prototype of the objective researcher."[4]

Psychology is vital one in the life of modern human beings. The reasons are two: the rationalization of work and, on the other hand, a change of perspective on soul life which is now regarded as a synergy of several "cosmic, biological and cultural domains (...) where the physical is matched by the psyche, to construct a spiritual end."[5]As a consequence, an institution that studies the psychological peculiarities of the Romanian people can only help society in building a viable and solid order. Psychology serving self-knowledge can provide answers where other sciences fail.

The cultural values Romanian people were always important to the scientist C. Rădulescu-Motru. But an individual cannot be removed from the wider, social context, in which he lives. In order to thrive, human beings need periods of lull to evolve because "man's destiny was always related to the representation of a spiritual order."[6] For the Romanian philosopher the very term spirituality has a much deeper meaning; it is the one that gives a perennial character, answering "the requirement of perfection and immortality. In it lays the man's solace and, at the same time, the pride."[7] In this sense we cannot push away science, on the contrary, it is needed to develop, says the psychologist, a science of spirituality as part of culture science. Another aspect that the psychologist tried to elucidate is that of the inclination. Thus, the scholar comes to the conclusion that an individual's aptitude starts from the human subconscious for the logic to emerge in the final part. Another feature of the vocation is that it is carrying a personal interest and finally, the one who produces values out of a call considers it a structural part of the self, it is part of the inner fiber ultimately the work of such persons should be studied through psychology.[8] Fervent defender of scientific philosophy Rădulescu-Motru reiterates whenever he can the very essence of this new field "Everything that falls under the field of human consciousness either through senses or by intuition of intelligence should be checked in the light of reason."[9] The professor emphasizes the necessity of disclosing the Romanian mystery, of that ethnically enigmatic spirit that unites all the inhabitants of this country. The pedagogue through his formation, Rădulescu-Motru advocates for giving up mysticism and the heading towards the scientific spirit, the only one that leads to a safe progress.

Eduard Gruber (1861-1896) was born in Iassy. During the academic years of study he was drawn to the link between aesthetic values and psychology. He graduated from the Faculty of Letters and Philosophy with a thesis focused on linguistics *Studying the genus of Latin elements in Romanian, compared to the other Romance languages*. In 1888 he returned to his old passion-the relationship between art and psychology-publishing the paper *Style and Thought*. In 1892, he attended the Physiological Psychology Congress with a work on synesthesia. Arrived in Leipzig, he becomes a disciple of Wundt and works intensely with him. On his return home, excited by the research done and by his PhD in Germany (the thesis aws called *Philosophical Studies*), he establishes the Institute of Experimental Psychology in Iassy (1893). Unfortunately, premature death prevented him from continuing the plan he had for promoting new values of Western psychology on the Romanian land.

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[4] C. Rădulescu-Motru, *Memories from the time of studies*, in *The Royal Foundation Review*, 1st February 1934, year I, no. 2, p. 285

[5] . Rădulescu-Motru, *Designation of a national psychology institute*, in *The Royal Foundation Review*, 1st June 1938, year V, no. 6, pp. 533-534

[6] C. Rădulescu-Motru, *Spiritual birth of our century*, in *The Royal Foundation Review*, 1st May 1934, year I, no. 5, p. 299

[7] C. Rădulescu-Motru, *Rehabilitation of spirituality*, in *The Royal Foundation Review*, 1st November 1934, year I, no. 11, p. 306

[8] See C. Rădulescu-Motru, *Vocation and deep psychology*, in *The Royal Foundation Review*, 1st November 1941, year VIII, no. 11, p. 294

[9] C. Rădulescu-Motru, *The offensive against scientific philosophy*, in *The Royal Foundation Review*, 1st July 1943, year X, no. 7, p. 127

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Florian Ştefănescu-Goancă (1881-1958) studied under Wundt's guidance and finished his Ph.D. with a novel paper, *Experimentelle Untersuchungen zur Gefühlsbetonung der Farben*, about the effects of colors on the human psyche. Like the other two Romanians who had had the opportunity to work in Wundt's German psychology laboratory, Ştefănescu-Goancă came back to the country with the fervent desire to implement the new research in the field. Thus, in 1922 he founded, in Cluj, the Institute of Experimental, Compared and Applied Psychology. In 1938 he fell victim to a legionary attempted assassination, but he managed to remain alive. His name is linked to an adaptation of the Terman-Merrill scale that measures the development of intelligence in children (1940). Arrested in 1950 by the communist authorities, Ştefănescu-Goancă was sent to Sighet jail from where he would be released five years later. Unfortunately, he survived only three more years.

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