

Stefan Odobleja, cybernetics and artificial thinking/ Artificial Intelligence

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ABSTRACT

The article demonstrates that the Romanian scientist Stefan Odobleja (1902-1978), in his work "Consonantist Psychology" elaborated the principles and laws that are the basis of artificial thinking. The fascination with artificial intelligence began last century, when humanity was very far from the technologies without which we cannot imagine life today. Artificial intelligence refers to the phenomenon where a machine acts like a human mind. The history of artificial intelligence can include the scientist Stefan Odobleja, as the father of artificial thinking, described in his work, which is actually a generalized cybernetics.

Keywords: artificial thinking/artificial intelligence, law of reversibility/feedback, law of circularity, law of resonance, law of consonance

INTRODUCTION

Stefan Odobleja, military doctor, post mortem member of the Romanian Academy (1990), the father of generalized cybernetics and the creator of psycho-cybernetics, was internationally recognized at the World Congress of Cybernetics and Systems, which took place in Amsterdam (August 21-25, 1978), where he could not participate for health reasons, and his work "Diversity and unity in cybernetics" was supported by the engineer researcher Stelian Bajureanu, a close friend of the scientist [1].

His reference work "Psychologie consonantiste", written in French, appears in two volumes in Paris, Librairie Maloins, vol. I, 1938, vol. II, 1939, totaling 880 pages and has been distributed to the great universities of the world. Odobleja argued and demonstrated that in fact Psychology is nothing but cybernetics [2].

In the lecture held in 1978 at the House of the Teaching Body in Drobeta-Turnu Severin, first broadcast by Iulius Tundrea in the show "Fonoteca de Aur" Scientists in the sound archive of the Radio, on December 20, 1980 he states the following: "Psychology consonantis" is a cybernetics because it revealed the important role of agreements and disagreements,

consonance and dissonance, as well as selectivity through resonance in the natural thinking machine, which otherwise constituted the model to be imitated for the realization of artificial thinking machines" [3].

OBJECTION

Through this work, I proposed that through an observational study, we would analyze the content of Stefan Odobleja's work, "Consonantist Psychology" and other lectures given by him, in order to highlight his contribution to the concept of artificial thinking.

DISCUSSIONS

Brief history of the emergence of the concept of artificial thinking/artificial intelligence

Artificial intelligence, refers to the phenomenon where a machine acts like a human mind, being able to understand, analyze and learn from data obtained through specially designed algorithms. Artificial Intelligence is also defined as the side of computer science that emphasizes the development of computer intelligence, to be able to think and work similarly to humans [4].

Since antiquity, the great philosophers, **Aristotle** (384 BC – 322 BC), student of **Plato** (427 BC - 347 BC), were concerned and laid the foundations of some philosophical fields such as metaphysics, formal logic, rhetoric, and ethics, in a word they studied natural human thought. Aristotle was interested in his desire to understand his own thinking [5,6].

Much later, with the Second World War, the event that led to the unprecedented development of neuroscience and computers, **Alan Turing** (1912 – 1954), British computer scientist, mathematician, logician, cryptanalyst, philosopher and marathon runner, was the most important man who Britain had and who, with a team of mathematicians and cryptographers, managed to break the *Enigma code* used by the Germans, creating a computer specially for this purpose in 1943, Walter Pitts and Warren McCulloch already published the first paper about a mathematical model for building an artificial neural network [6]. Turing explored the field of artificial intelligence, defining its logical criteria that are still in force today, devising In 1950 the famous “Turing test”, which he believed could answer the question: “will machines be able to think?”. In 1936, the scientist published an article in which he described the “universal Turing machine”. Thus, he was the first scientist who wanted to create programs for a machine that would allow it to perform several tasks at the same time, like today’s computers.

Kurt Gödel (1906 – 1978), a contemporary of Odoobleja, was an Austrian logician, mathematician and philosopher who in 1940 emigrated to the USA, where he continued to work, being considered an American mathematician. And Gödel reflected on mechanical intelligence. Like Turing, he was obsessed with the distinction between ingenuity, which is mechanical, and intuition, which is the prerogative of the mind. In 1931, Gödel published two theorems of mathematical logic known as incompleteness theorems. “The true proposition can be recognized by a human mind, but (the demonstrable thing) cannot be demonstrated by the system in which it is formulated” [7].

Isaac Asimov (1920 – 1992), was an American writer, Russian-born Jew, biochemist, highly successful and exceptionally prolific author, best known for his science-fiction works and science popularization books. In an article published in 1964 in *The New York Times* it was written: “Robots will be neither very good nor very popular until 2014, but they will exist”. “If computing machines are so intelligent today, with reference to IBM computers, then what could not be done in 50 years? There will be such much smaller computers that will become brains for robots” - wrote Asimov in the article for *The New York Times* with reference to the development of robots. These little brains are the smartphones we use today.

In the early '70s, the chatbots Eliza and Perry were launched and are the most notable ancestors of today’s artificial intelligences, which could mimic intelligence, but did not actually possess it [8].

The term artificial intelligence came into use after a conference organized by John McCarthy at Dartmouth University in 1956. He and Marvin Minski founded the artificial intelligence laboratory at the Massachusetts Institute of Technology, becoming the forerunners of the field of artificial intelligence today, [9]

Stefan Odoobleja, with his work “Consonant Psychology” offered the technicians (those presented above), the principles, methods and ways to achieve: circularity, binarity, dichotomy, selectivity through chords, automatism, electromagnetism, etc., indicating the directions towards the desired and pursued goal, namely, artificial intelligence

FOUNDATION OF THE WORLD PRIORITY OF THE ROMANIAN SCIENTIST IN THE FIELD OF ARTIFICIAL THINKING

We believe that it is very relevant to present below the lecture given by Stefan Odoobleja at Casa Corpului Didactic in Drobeta - Turnu Severin in 1978, broadcast for the first time by Iulius Tundrea in the show “Fonoteca de Aur” Scientists in the sound archive of the Radio, on December 20, 1980 [3].

Stefan Odoobleja explains the contribution of his work “Consonantist Psychology” to the foundation of cybernetics and the concept of artificial thinking/artificial intelligence, recording made by the care of Professor Constantin Negreanu, director of the Mehedinti Didactic Body House.

Below are excerpts from the lecture given by the scholar:

Consonantist psychology was a cybernetics, because in addition to analogical thinking, it proposed and applied to itself its construction, circular thinking, another variety of thinking with the intensive use of the cyclical process, a method considered today a specific prerogative of cybernetics.

Consonantist psychology was a cybernetics, and because by conceiving the brain as a thinking machine it proceeded to analyze thought in a modernized machinist view. Because he did not limit himself to describing what is in the brain, he did not limit himself only to the study of the mind and natural thinking, but confidently predicted the transition from analysis to synthesis, page 500, he extended his concerns to artificial, instrumental thinking, page 735, of machine thinking, pages 734 and 857, strongly advocating to move on to its realization. She analyzed thinking on machine models with a view to mechanizing it, page 737, to make it into thinking machines. Because it was a science of information

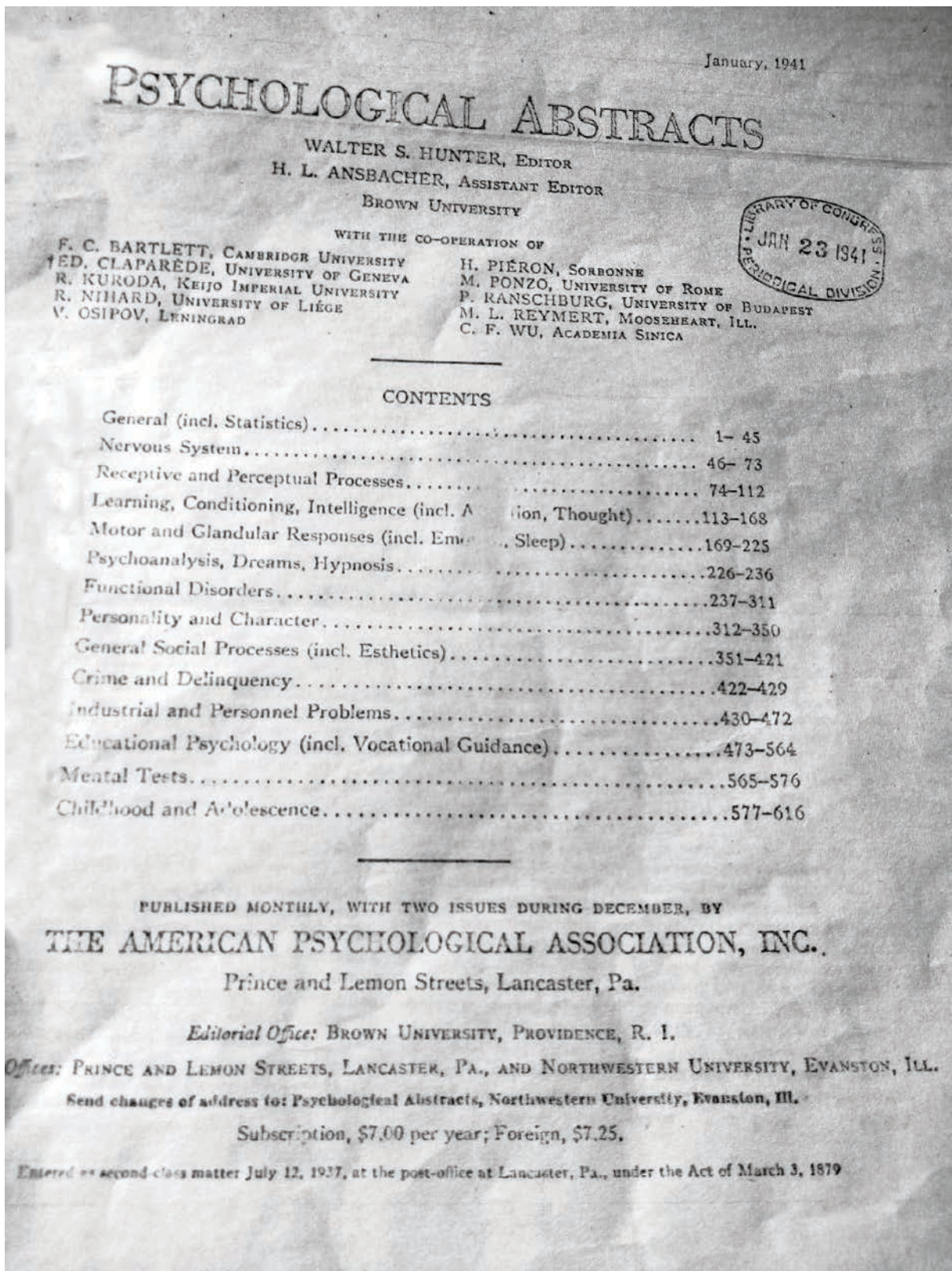


FIGURE 1. Psychological abstracts

machines, both natural and artificial. Because she was permanently concerned with the mechanization of thought. Because he also tried to achieve it in part, in the methodological sector as a kind of preliminary small mechanization, pages 715 to 763.

Consonantist psychology anticipated the artificial thinking machines, saw them, foresaw their immi-

nent appearance, suggested them, appreciated their opportunity and feasibility, giving the technicians the call to action. Because he provided them with the psychological model. Because he offered the technicians, the principles, the ways, the ways to achieve: circularity, binarity, dichotomy, selectivity through chords, automatism, electromagnetism, etc., indicating the

directions towards the desired and pursued goal. Because, in addition to analogical thinking, he proposed and applied to his own construction, circular thinking, another variety of thinking with the intensive use of the cyclical process, a method considered today, a specific prerogative of cybernetics.

Consonantist psychology was a cybernetics, and because it conceived the brain as a thinking machine, it proceeded to analyze thought in a modernized machinist view. Because he made the cyclical process a real science of feedback, proceeding to a massive circularization of all sciences, contributing to the even more intensive circularization that followed after 1938. Because he did not stop at revealing and studying dynamic, psychological and extrapsychological circularities and passed from description to realization, from theoretical exposition to practical application, from analysis to realization, proposing the use of feedback in the law of reversibility, for utilitarian purposes, among others, and for the technical achievement of artificial thinking, page 733".

Consonantist psychology is a work of thought, a philosophy of mental processes and science, the author seeking a number of general laws that apply to all fields, all sciences of inert and living nature, psychology and economic social life. Of these, it is true, the more strongly brought out in his book is the law of reversibility, also illustrated by a large number of figures. This is the reason why Stefan Odobleja insisted so much in the last part of his life on the cybernetic aspects of his work [10].

HOW HE MADE HIS WORK KNOWN

In 1937, Stefan Odobleja participated in the 9th International Congress of Military Medicine and Pharmacy that took place in Bucharest, communicating his: "Demonstration of phonoscopy", received with great interest by doctor W.S. Bairbridge, head of the American delegation. On this occasion, offering the participants of the congress, a prospectus in French, announcing the publication of the work: "Consonantist Psychology" [1].

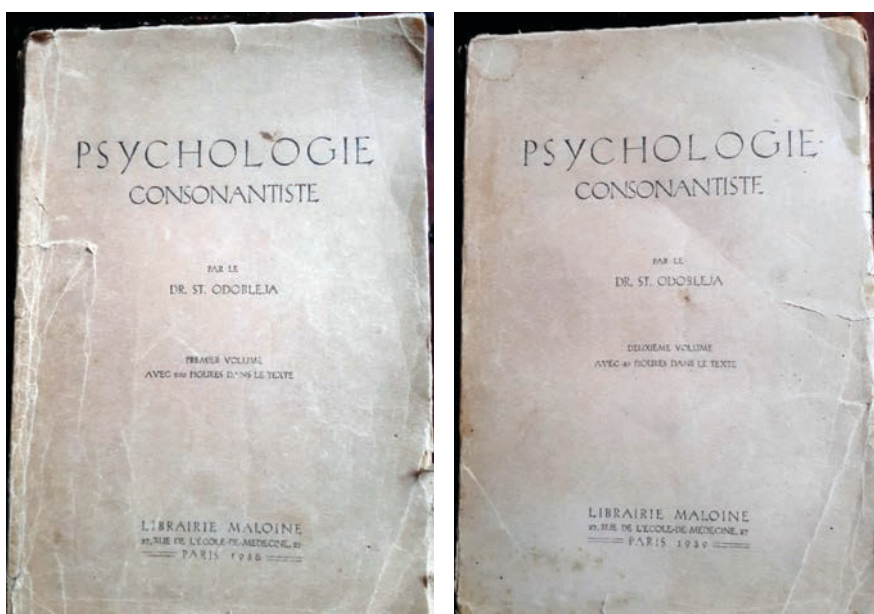
In 1941, in the most prestigious psychology magazine in the world, *Psychological Abstracts* (Figure 1), at position 643, page 59, a summary of "Consonantist Psychology" appears, which we reproduce below:

643. Odobleja. S., Consonantist psychology. (A unified psychology), Paris 1938, 2 vols., p. 880 (abstract summary, original). Ac-

ording to the author's classification, psychology can be seen conceptually integrated as follows: (1) animistic, finalistic and rational psychology, (2) causal and empirical psychology (a) deterministic-causative, physical-chemical, (b) total physicalism, dynamic and harmonious psychology as formulated by Sollier, Clemenceau and Odobleja. Psychology is thus considered to be the science that studies mental activity, as an internal perception of a physical phenomena. The author recommends psychic study [11] as such, isolated in space and time (a) by introspection (b) by analyzing its intrinsic elements, that is, its similarities and differences) [12]; in relation and comparison with its causes and effects. The psyche is thus studied in its two aspects: static and dynamic. The static psyche consists of senses, memory and reaction organs, the dynamic psyche being a multiplicity (dynamic process) is studied analytically. The conclusion emphasizes the fact that not only is the psyche integrated, but so the organs of the body are also interrelated, through direct and reciprocal relationships which do not depend exclusively on the brain. S. M. STRONG (Howard).

CONCLUSIONS

About Stefan Odobleja, we could say without making a mistake, that he is the first scientist in the world, who in his work "Consonantist Psychology" elaborates the principles, methods and laws that underlie the realization of artificial intelligence. He did not limit himself to describing what is in the brain, he did not limit himself to the study of mind and natural thought, and confidently predicted the transition from analysis to synthesis, and extended his concerns to artificial, instrumental, machine



A. Vol. I - 1938

B. Vol. II - 1939

FIGURE 2. Psychologie consonantiste

thinking, advocating with warmth to move on to its realization.

Perhaps the scientists dealing with the realization of artificial intelligence would no longer be afraid of its negative effects on humanity, if they had respected the principles and laws elaborated by

Odobleja, as natural tendencies to preserve the existing normal and balance, the law of inertia, as a defense against interference, by rejecting them, the law of reaction, or as a defense of disturbed equilibrium, the law of compensation.

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