

The Psychic Apparatus Architecture: A Review of Freud's Centenary Mind Model.

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Abstract. This article presents a comprehensive literature review on the concept of the Psychic Apparatus, the research aimed to provide an organized overview of Freud's model of mental activity, while highlighting the key works that contributed to its formulation. Originally proposed by Sigmund Freud (1856-1939) as a mind model to comprehend psychic activity, the Psychic Apparatus is "constructed of several parts, each of which performs a particular function, and which have a fixed, spatial relation to one another". Its development unfolded across several of his seminal works, such as "The Interpretation of Dreams" (1900), "The Unconscious" (1915), and "The Ego and the Id" (1923), leading this sophisticated concept to be frequently misunderstood or superficially comprehended even by psychologists, often overlooking, as Freud pointed out, its several parts, particular functions, and spatial relations. In this literature review, Freud's seminal works were analyzed along with relevant books and research papers obtained from open-access databases. As a result, this process enabled a systematic structuring of the Psychic Apparatus, organizing its architecture based on its distinct systems and functions, ultimately enhancing the overall comprehensibility. Remarkably, even a century after its last update, Freud's mind model remains fundamental in psychoanalytic theory, underscoring the significance of this review. Moreover, an organized approach also holds potential for future reinterpretations of the model, particularly within the context of contemporary neuroscience and cognitive research, considering the numerous advancements and attempts to bridge the gap between the psyche and the brain that has emerged since Freud's last works.

Keywords. Psychoanalysis, Psyche, Unconscious, Preconscious, Id, Ego, Super-ego, Literature Review.

1. Introduction

Perhaps, much like the aspiration of contemporary physicists to formulate a unified field theory or a theory of everything, modern psychology also holds a similar dream – the unification of human mental activity within a single comprehensive theory or model. Surprisingly, this ambition is not a recent development. Sigmund Freud (1856-1939), well before the consolidation of psychoanalysis, embarked on the task of systematically organizing all psychological phenomena into a unified framework. In 1895, the Austrian neurologist initiated the writing of a neuroscience book titled "Project for a Scientific Psychology" [1], it was intended to give a "natural science explanation of psychological phenomena in physical terms for neurologists and neuroscientists" [2] (p. 340).

Despite recognizing the neuroanatomical base of mental activity and being willing to perceive a

scientific psychology, the constraints of the neuroscience available at his time precluded his writing more than three chapters [2]. Subsequently, considering his first neuropsychanalytic endeavor a failure and never publishing the manuscript during his lifetime [3], Freud himself broke free from the limitations of his era by replacing most of his brain-centric explanations with metaphysical or symbolic interpretations for his psychological discoveries. Among these, the concept of the unconscious emerged as a central tenet, for which Freud, relying almost exclusively on empirical evidence, found it necessary to formulate a model or apparatus to elucidate its workings.

In this context, the Psychic Apparatus serves precisely as that, it's a mind model to represent all psychological activity. According to Freud, its architecture is "constructed of several parts, each of which performs a particular function, and which have a fixed, spatial relation to one another" [4]

(p.194). Its development unfolded across several of his seminal works, such as “The Interpretation of Dreams” (1900) and “The Unconscious” (1915), which introduced his first model or topography of the Psychic Apparatus, defining the unconscious, preconscious, and conscious systems and, subsequently, in “The Ego and the Id” (1923), presenting his second and final topography of the Psychic Apparatus, which delineated the id, ego, and superego.

This prolonged refinement led this sophisticated concept to be frequently misunderstood or superficially comprehended even by psychologists, often overlooking, as Freud pointed out, its several parts, particular functions, and spatial relations. These limitations represent an obstacle to Freud’s dream of unification and, moreover, scientific psychology, highlighting the pressing need for a comprehensive literature review.

The aim of this research was to confront this challenge and piece together Freud’s works, forging a comprehensive review of his Psychic Apparatus. If successful, it is expected to yield an organized overview of this central concept in Psychoanalysis, a celebration of Freud’s Herculean effort and ingenious achievement as we commemorate a century since its final model.

2. Research Methods

The following research is a literature review that aimed to provide a comprehensive overview of the concept of the Psychic Apparatus. The selection of a literature review as the research methodology is rooted in its widespread acceptance and frequent utilization for elucidating the evolution or “state of the art” of a subject from a theoretical or conceptual standpoint, while also facilitating the obtention and update of knowledge in a short period of time [5].

In order to make it possible, Freud’s seminal works “The Interpretation of Dreams” (1900), “The Unconscious” (1915), and “The Ego and the Id” (1923) were analyzed along with relevant books and research papers obtained from open-access databases. An organized approach was employed in the research to categorize the parts, functions, and spatial relations of the Psychic Apparatus into distinct sections, aligning them according to its first and second models or topographies.

3. Results

While poets and thinkers such as Friedrich Schelling (1775-1854) and Samuel T. Coleridge (1772-1834) had long known of the existence of the unconscious, Sigmund Freud postulated this key system of his Psychic Apparatus based upon his early 1895 work along with Josef Breuer (1843-1925) “Studies on Hysteria” [6].

Their research revealed that people with hysteria had repressed their traumatic memories, ideas, and impulses, that is, they were removed from their consciousness yet operative and under certain circumstances, as hypnosis, and eventually, free association, could be brought back from this place of unawareness. Freud discovered that these repressed contents produce effects, their symptoms, he called this mechanism of “repression” and, this place of unawareness, “the unconscious”.

Later on, encouraged by those findings, he not only proposed a scientific existence of the unconscious, as well as its topography or structure along with, as posteriorly would be known, the Psychic Apparatus’s first model. It was initially presented in his “The Interpretation of Dreams” (1900) and “The Unconscious” (1915) publications, which will be discussed next.

3.1 The Psychic Apparatus first model: perception and motricity

The first Psychic Apparatus topography, as shown in **Figure 1**, was first presented in Freud’s 1900 work “Interpretation of Dreams” [7]. His work shows a model based on the concept of a reflex arc, which is a special type of neural circuit that begins with a stimulus being received by a sensory neuron at a receptor (e.g., a pain receptor in the finger) and ends with a motor neuron at an effector (e.g., a skeletal muscle), allowing the muscle reaction [8]. According to Freud, this comparison is reasonable because similarly:

“All our psychical activity starts from stimuli (whether internal or external) and ends in innervations. Accordingly, we shall ascribe a sensory and a motor end to the apparatus. At the sensory end there lies a system which receives perceptions; at the motor end there lies another, which opens the gateway to motor activity. Psychical processes advance in general from the perceptual end to the motor end”. [7] (p. 539)

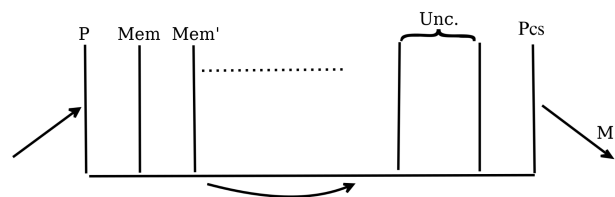


Figure 1. Freud’s first model of the Psychic Apparatus. Pcpt = Perceptual system; Mnem = Mnemonic systems; Ucs = Unconscious system; Pcs = Preconscious system; M = Motor system (also known as Conscious system, abbreviated Cs). **Source:** Reproduced and altered from Wikimedia Commons (Public Domain).

3.2 Memory

Between the perceptual (*Pcpt*) and motor (*M*) systems ends, there are memory systems (*Mnem*), in which “the percepts that come to us leave in our

Psychic Apparatus a trace, which we may call a memory-trace" [7] (p. 540). Nonetheless, these memory traces are also connected with one another in the memory system, that is, they establish associations. Those associations can vary in their combinations, as association through simultaneity or similarity, for example, and being so, Freud assumes not one but many such memory systems (*Mnem*'), in which the same excitation transmitted by the perceptual elements undergoes a diversified fixation and arrangement [7].

Freud also states that the perceptual system (Pcpt), besides receiving the stimulus and furnishing to consciousness the complexity and variety of the sensory qualities, retains none of them, that is, it has no memory. "On the other hand, our memories are in themselves unconscious. They can be made conscious; but there can be no doubt that they can produce all their effects while in an unconscious condition" [7] (p. 541).

3.3 Conscious and unconscious state of a content

Regarding the state of a content, Freud addresses, in his 1915 work "The Unconscious" [9], three mental systems that also compose the Psychic Apparatus topography: "The Unconscious System" (*Ucs*), "The Conscious System" (*Cs*), and "The Preconscious System" (*Pcs*), as well as their relationship. He also presents the concept of "censorship":

"[...]In general a psychical act goes through two phases as regards its state, between which is interposed a kind of testing (censorship). In the first phase the psychical act is unconscious and belongs to the system *Ucs*; if, on testing it is rejected by the censorship, it is not allowed to pass into the second phase; it is then said to be 'repressed' and must remain unconscious. If, however, it passes this testing, it enters the second phase and thenceforth belongs to the second system which we call the system *Cs*. But the fact it belongs to that system does not unequivocally determine its relation to consciousness. It is not yet conscious but it is certainly capable of becoming conscious (to use Breuer's expression) – that is, it can now, given certain conditions, become an object of consciousness without any special resistance." [9] (p. 173)

In this paragraph, Freud distinguishes two different kinds of non-conscious mental states of a psychical act, regarding three systems. The first unconscious state consists of immoral or painful psychical acts which, since they did not pass the censorship test, we cannot access, remaining in the system *Ucs*, the first phase, as repressed impulses.

In this scenario, a special resistance is further applied in the System *Ucs* in order to ensure the continued repression of these contents, preventing them from passing into the System *Cs*. This resistance, complements Freud, is employed by the

very same system as those which, earlier, made the material concerned into something repressed, that is, applied the censorship test, which Freud calls the Preconscious System (*Pcs*) [9].

The other kind of non-conscious mental state of a psychical act refers to contents that, despite passing the censorship test and arriving in the System *Cs* (second phase), are still in an unconscious state. This occurs because they first arrive in a system situated within the Conscious System (*Cs*) that interposes the awareness, the exact same Preconscious System (*Pcs*). However, as Freud says, the contents that arrive in the System *Pcs* are not yet conscious, but are certainly capable of becoming conscious and, as they already passed its main censorship test, with a much mild resistance, essentially, a certain level of attention [9]. As an example, Sugarman points out that "although we may not be thinking at the moment about what we had for breakfast, we could easily retrieve the information" [10] (p. 75).

Not only the Conscious System, which includes the System *Pcs*, controls the repression, resistance, and awareness of a content, that is, its passage from the system *Ucs* to System *Cs*, but also controls the motor system (*M*) [9]. Is not a coincidence that Freud represented in his Psychic Apparatus the Conscious System in the Motor system end:

"It is of especial interest to us to have established the fact that repression can succeed in inhibiting an instinctual impulse from being turned into a manifestation of affect. This shows us that the system *Cs*. normally controls affectivity as well as access to motility; and it enhances the importance of repression, since it shows that repression results not only in withholding things from consciousness, but also in preventing the development of affect and the setting-off of muscular activity". [9] (p.178-179)

3.3.1 Ideas, emotions, memories, and instincts

What about the differences in the content nature between what remains in the System *Ucs*, or passes into the System *Cs*? First of all, Freud defines the censorship test as a defensive mechanism applied by the System *Pcs* that prevents, by withdrawing and repressing, the consciousness from being aware of harmful instinctive impulses, emotions, memories, ideas, or thoughts that must stay in the unconscious [9].

Nonetheless, he distinguishes that, while ideas, which are "projections" of our memory traces and the contents of our thoughts, can belong as much to the unconscious as to the conscious system, depending on their content [10], an instinctive impulse can never reach consciousness without being attached to and represented by an idea, that is, a memory image or a thought. As he points out:

“An instinct can never become an object of consciousness - only the idea that represents the instinct can. Even in the unconscious, moreover, an instinct cannot be represented otherwise than by an idea. If the instinct did not attach itself to an idea or manifest itself as an affective state, we could know nothing about it”. [9] (p. 177)

Regarding emotions, Freud states that an emotion “is by definition something that is felt, and he couples feeling with sensation and sensation with consciousness” [10], as Sugarman highlights. However, besides being conscious by definition, it is often common for people to have emotions that they are unaware of, it happens because an emotion is also associated with instinctive impulses. As their energy manifestation, emotions, while attached to their representative ideas, can be repressed if threatening [10].

The emotion, when repressed, may separate from the ideational content of the impulse in order to overcome the repression and become conscious, this is what Freud calls Displacement [10]. In this case, the original emotion can follow either way: attaches to a different idea, replacing the previous for a more acceptable one, or, the emotion can be replaced for an unconsciously different emotion, commonly towards an opposite direction to the prior, maintaining the original idea associated, which Freud calls a “transformation of affect” [10].

From an economic perspective, those association replacements in the unconscious happen because, when an emotion, along with its ideational impulse associated, is repressed, its energy, which Freud calls “Cathexis”, is also repressed along them. In this sense, the Displacement facilitates the discharge of this energy that, repressed in the Unconscious System, tends to reattach to a less charged idea related to the original one, forming a new and more acceptable combination, enabling the idea to surpass the resistance and the emotion energy or “affect” to be discharged [9].

Another dynamic related is “Condensation”, which is also a mechanism for overcoming the censorship, thus discharging the energy or cathexis. It happens especially in dreams when the displacements merge in only one symbol, combining several latent impulses that find expression in a single or small group of ideas appropriating the energy of several others, along different chains of association, as Sugarman brings out in her book [10].

3.4 Unconscious system functions: primary process thought and pleasure principle

Those two mechanisms of the Unconscious System, Displacement and Condensation, consist of what Freud named “Primary Process Thought”, which is basically the System Ucs mental activity

in which there is a free, uninhibited flow of psychic energy from one idea to another.

This unconscious energy flow through ideas is guided by the “Pleasure principle”, the innate orientation by which the unconscious always seeks the discharge of energy (or emotions) and, in doing so, the gratification of unconscious instinctual, or libidinal, impulses, such as sex, hunger, and thirst, either by hallucinatory fulfillment of wishes, such as in dreams, or through our passionate behaviors. As Freud summarizes: “The nucleus of the Ucs. consists of instinctual representatives which seek to discharge their cathexis” [9] (p. 186).

Along with the Primary Process and the Pleasure principle, Freud also attributes the following functions and characteristics to the unconscious system: exemption from mutual contradiction, contrary impulses exist in the unconscious side by side and do not influence one another; timelessness: the unconscious does not register time and is not influenced by it; and replacement of external by internal reality [10].

3.5 Conscious system functions: secondary process thought and reality principle

On the other hand, according to Freud, the Conscious System is responsible for the “secondary process thinking”, which refers to the rational mental activities in the System Cs, like problem-solving, judgment, planning, and systematic thinking. In contrast to the Unconscious System, the secondary process thought is not driven by the pleasure principle, but instead, by the “reality principle” [9].

The reality principle is a system Cs regulatory mechanism that allows people to meet both the external demands of the environment and the internal demands of their instincts in rational and effective ways. It includes requiring the individual to forgo or modify his instinctual gratification or to postpone it to a more appropriate time, that is, to control his impulses, enabling him to deal rationally and effectively with the situations of life.

Lastly, the System Pcs, as much as applying the censorship test, also bound the unconscious representative ideas (thing-presentations) of the primary process by the secondary processes of language (word presentations), a prerequisite for their becoming available to consciousness [9]. In this matter, Sugarman discusses that:

“Thought, which he [Freud] presumes to begin in the unconscious, is lifted to consciousness when transformed into a medium - language - that secondary-process-thinking can assimilate”. [10] (p. 86)

3.6 The Psychic Apparatus second model

Later on, in Freud's 1923 seminal work "The Ego and the Id" [11], most of the Unconscious, Conscious, and Preconscious system functions were condensed to the Id, Ego, and Super-ego agencies. Although in continuity with his previous model, Freud, primarily, starts his text by arguing that:

"There is nothing new to be said... the division of mental life into what is conscious and what is unconscious is the fundamental premise on which psycho-analysis is based". [11] (p. 13)

Furthermore, he also expresses that the complexity of human psychodynamics extends beyond a simple interplay between unconscious and conscious contents [11], stressing the need for a framework update that takes personality into account. Therefore, while preserving the original structures, a complementary model of the mind was proposed, that is, the second topography and final version of the Psychic Apparatus, similar as shown in **Figure 2**.

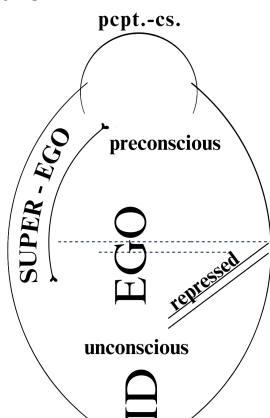


Figure 2. Freud's final model of the Psychic Apparatus. **Source:** Reproduced and altered from Wikimedia Commons (Public Domain).

3.7 The Id

According to Freud, the Id represents our unconscious basic drives, life and death, and its instinctual impulses, such as survival and reproduction, as well as aggression and risky behavior, respectively. Those, both inherited and repressed, as they arise by investing or attaching their energy, and libido, to objects and Ideas, in common parlance, consist of our passions and behaviors [11].

By attaching cathexis, allocated libido energy, to other contents, as a Ucs system agency, the Id acts according to the pleasure principle, the innate psychic orientation for immediacy gratification of impulses and desires. In this sense, in consonance with the Unconscious System characteristics, Freud points out that the Id "knows no judgements of value: no good and evil, no morality... instinctual cathexes seeking discharge - that, in our view, is all there is in the id" [12] (p. 74).

3.8 The super-ego

On the contrary, the Super-ego is the moral component of the psyche, which "reflects the internalization of cultural rules, mainly learned as parents exercise their authority" [13] (p. 481), but also from the general cultural ethos. The super-ego aims for perfection, it performs the task of seeking the narcissistic satisfaction from the "ego ideal" - an image of the perfect self towards which the ego should aspire, observes Freud [11].

In order to ensure it, the Super-ego criticizes and prohibits the expression of drives, fantasies, feelings, and actions, working to confine the ego to socially acceptable behavior [14]. Those inhibitory judgments, in response to which we feel remorse or guilt, can have a harsh and punishing essence [10].

3.9 The ego

For last, The Ego, the individual we refer to when we say "I" [10], is a modified portion of the Id developed through the influence of the external world by the intermedium of our Perceptual consciousness (*Pcpt-Cs*) [11]. The Ego operates both consciously and unconsciously, attempting to exact a balance between the impractical hedonism of the Id and the equally unattainable idealism of the Super-ego.

In this sense, on one hand, the Ego acts according to the reality principle, attempting to satisfy Id impulses through safe and moral activity in the world, being responsible for secondary process thought, such as rational thinking and common sense, as well as exclusively controlling the approaches to motility, perception, and memory - both *Pcpt-Cs* System-related functions [11].

On the other hand, the Ego also operates by repressing unconscious contents and suppressing Id impulses in the Ucs system that don't fit Super-ego standings - a *Pcs* System-related function. As Freud's anecdote analyses the Ego's control over motility, this ambiguous dynamic between the Ego and the Id is like a rider over a horse. The Ego should act as the rider, maintaining control over the Id, but occasionally, as driven by a horse, it must also steer in the direction the Id desires [11].

In perspective, the function differences between the Id and the Ego in the second topography reflect, respectively, the function differences between Unconscious and Conscious/Preconscious systems in the first topography, as shown by Boag [15].

4. Discussion

The main results have shown the robustness of Freud's model, as well as its high internal coherence, through which the research was able to organize and present it in a comprehensive manner. However, it is important to acknowledge that, as a

literature review, the goal of organizing information naturally carries some limitations. In light of the vast extent of Freud's body of work, condensing such a central and extensive concept into a single paper required a systematic yet selective approach, aligning the results with the researcher's perspective, thus facilitating the organization of the material.

At the same time, a literature review is invaluable for swiftly obtaining and updating knowledge. In this regard, Freud's mind model remains fundamental in psychoanalytic theory, underscoring the significance of this work. Moreover, an organized approach also holds potential for future reinterpretations of the model, particularly within the context of contemporary neuroscience and cognitive research. For instance, Freud emphasizes in *The Unconscious* (1915) that, despite being well evident that a relationship exists between the Psychic Apparatus and neuroanatomy, such a challenge had not yet been fulfilled.

Nonetheless, 100 years after his final model, new research fields have arrived. In order to achieve Freud's dream of a scientific-based psychology, many advances were made to explain, neuroscientifically, what he once represented by the "Psychic Apparatus". In this context, neuropsychology has been relatively successful in integrating the psyche and brain by reviewing Freud's body of work.

Those efforts align with the contemporary trend in therapies, incorporating a neuroscientific foundation to enhance their comprehension of the human psyche. In the long run, this positive integration has the potential to prompt a reassessment of psychoanalysis as a neuroscientifically grounded therapeutic approach.

5. Conclusions

The research aims were to provide an overview of the Psychic Apparatus. As the outcome, the results were able to furnish a comprehensive organization of Freud's mind model, presenting its first topography, which includes the perceptual, motor, memory, conscious, unconscious, and preconscious systems as well as their respective functions and underlying principles. Additionally, the second topography was also elucidated, encompassing the Id, Ego, and Super-ego, along with their associated functions and principles. Lastly, the models' relationship was also explored.

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