

Henri Ey's Neojacksonism and the Psychopathology of Disintegrated Mind

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Key Words

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Abstract

The French psychiatrist Henri Ey developed his organo-dynamic theory of the mind function and consciousness 50 years ago incorporating Hughling Jackson's thinking, along with psychiatric and philosophical theorizations by Janet and Bergson. This model has not received the attention it deserved, but recent advances in neuroscience rekindled interest for Ey's theory. By overcoming the Cartesian mind-body dualism and treating the mind-body unit as an inseparable whole, this model opens the way for the integrated treatment of mental disorders. Ey's conceptualization of consciousness as being simultaneously both synchronous and diachronic anticipates current theories of consciousness (Damasio, Edelman, Mesulam).

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Introduction

The aim of this paper is to highlight the actuality of the French psychiatrist Henri Ey's reflections on psychopathology in the light of current neuroscience research [1, 2]. In particular, we believe that the organo-dynamic theory of mental illness (ODT), as formulated by this author in 1938, may provide several elements to implement the

intellectual framework that contemporary psychiatry aims to construct, in order to integrate psychopathology with the neurosciences [3, 4] and to overcome the classical Cartesian dichotomy of biology versus psychology.

The need to formulate a theory of mental disorders that integrates psychosocial and neuroscientific knowledge of human behavior is ever present in psychiatry [5, 6]. Freud himself used to state that 'we shall have to find a contact point with biology' [7]. However, up until the late nineties, psychopathologists were divided in promoting often dogmatically conflicting psychological and biological theories. This conflict proved to be detrimental to clinical practice [8, 9].

In the last years, neurosciences have provided evidence supporting an intrinsic and fundamental relational function of the mind [10, 11]. At the same time, a relational approach to psychological development allowed developmental theories based on ethological-evolutionary perspectives (for example, Bowlby's attachment theory [10, 12, 13]) to be constructed. This shared relational orientation, which is based on biological and psychological knowledge, permits to rejoin the margins lids of the conceptual laceration triggered by Cartesian dualism between *res cogitans* and *res extensa* [9, 14], a laceration which reveals all its weakness mostly in mental sciences [15] prompting Ey [2] to define it as 'psychiatricide'.

In particular, the theoretical formulations of 'affective neuroscience' [16, 17] and 'interpersonal neurobiology' [18] allow envisaging the construction of a common, consistent framework with developmental psychopathology.

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However, they have still not yielded a revision of clinical psychopathology, a revision which we believe might find its cardinal building blocks in Ey's psychopathology.

Ey's Psychopathology and Neojacksonism of ODT

ODT stems from an integration of Hughlings Jackson's and Pierre Janet's psychopathological theories.

Jackson's remarkably modern thinking is witnessed by the publication of more than 50 papers on his theories over the last decade; among them we cite the contribution of Meares and coworkers [19, 20], Hogan and Kaiboriboon [21], and Steinberg [22]. In particular, Meares states that Jackson's and Janet's psychology and psychopathology [23–25] are both similar to each other and modern [18]. Jackson's concepts of self and consciousness are echoed in theories by Damasio [26, 27], Schore [10], and Panksepp [28]. Meares, however, by stating that 'Jacksonian theory has been little used to understand mental illness' [18], underlines how Henri Ey's work is neglected by contemporary psychiatry.

The concepts of ODT, which we consider fundamental for actuality and innovation, may thus be summarized: (a) the evolutionary conception of the development of mind and the 'hierarchical-dynamic' view of mental functions; (b) the integrative function of mind and the pre-eminence of consciousness as the vertex of integration; (c) psychopathology as an expression of the disintegration of mind.

The following paragraphs of this paper will focus on each of these issues. Although these issues are strongly interconnected, we will treat them separately for the sake of greater clarity.

The Psychic Body: Evolutionary Theory of Mental Development and Hierarchical Organization of Mind Functions in the ODT

The core statement in Ey's theory of the mind is that the mind is the expression of the organization and structuring of the 'psychic body'. Paying tribute to the Jacksonian concept of psychic body, i.e., a natural reality that evolved with time, organizing and structuring itself in increasingly complex forms, Ey considers the mind as the final expression of the pathway of evolution of species. Hence, a mind which is not separated from the body, but rather its more advanced and modern part: '*...an onto-*

logical model of the body and mind that does not split them but rather overlaps them, not in space, but in temporal development and integrative organization of the body unto the formation of the person' [2].

This way, the mind-body dualism is overcome in both physiology related to the construction of the mind and in pathology, which is due, as we will see further, to the dissolution of such construction.

Darwinian evolution is thus at the base of the fundamental principles of Jackson's theory influenced also by the English positivist philosopher Herbert Spencer [18]. In neuroscience Edelman [29–33] introduces Darwinian dynamics inside brain mechanisms supporting the emergence of the mind; with Edelman [32], the '*mind's rooting in the brain and the latter's in the body*' is further underscored. However, Ey added to Jackson's Darwinism the relational sense of the 'psychic body', anticipating the ethological-evolutionary theories of modern psychology and psychiatry [6, 7, 12, 32, 34].

Mind, according to Jackson and Ey, is based on an organization of anatomic-functional levels hierarchically overlapping and integrated [2]. As Schore [35] recently observed, Jackson's conception of the brain overlaps with McLean's [36] evolutionary theory of the triune brain, and such organization allows the author to provide a theory of affective development based on the attempt to unify biological and psychological knowledge of the development of the mind [35].

The Hierarchical organization of brain levels, a both evolutionary and functional organization, parallels an integration ranging, as Ey described, '*from the most automatic centers to those most under voluntary control, from the most ancient to the most recent*' [2]. This conception entails that consciousness and the unconscious are not related by separateness or contrast, but rather developmental and functional continuity; according to Meares, it is assimilable to the relationship between procedural and declarative consciousness [18].

A neuroscientific example of the presence of distinct hierarchical levels in brain organization is detectable in studies carried out by LeDoux [37, 38] on systems involved in fear conditioning. Fear, according to LeDoux, triggers activity in two systems contemporarily. One, the thalamo-amygdalar circuit, is fast and direct, bringing sensory stimuli from thalamic nuclei to the amygdala, where it activates a motor homeostatic regulatory response in that part of the brain that McLean defines as reptilian [36]. Reflexes and motor immobility are potentiated, blood pressure, heart rate, stress hormone release increase, and pain sensitivity decreases.

The second pathway, the thalamo-cortico-amygdalar circuit, also has its origin in the thalamus, it is connected with the cerebral cortex and from here it reaches the amygdala with a certain lag, as compared to the first. Summarizing, the fear system allows for two modalities of reaction to danger, a fast and more primitive one, with a low cognitive stimulus-discriminating power, which activates an immediate response; and another, the thalamo-cortico-amygdalar circuit, which is slower because it is longer and more complex, but permits stimulus evaluation by using the cognitive abilities of the cerebral cortex and controls the reaction triggered by the thalamo-amygdalar circuit.

The two pathways, which appeared in different times during phylogenesis, are reciprocally integrated. This integration provides both their (relative) interdependence and their (relative) autonomy.

Overall, the most recent phylogenetic levels control and organize, i.e., modulate the most primitive levels integrating them; the latter continue their function. It was this kind of model of the mind that enabled Bowlby [12] to conceive his attachment theory and allowed many other investigators to conceptualize infantile psychological development [6, 35]. Bowlby [12], in particular, had identified in Konrad Lorenz's observations and in animal studies conducted by the Harlows those basic bonding mechanisms between children and their parents. Bowlby [13] saw in the ethological descriptions of these investigators the prototype of the motivational system that explains the innate bases of care seeking on behalf of children and the effects such care has on the development of a healthy [12, 35] or a dysfunctional mind [39]. According to attachment theory, the experience of a child of his/her relationship with his/her mother creates an internal working model, i.e., an unconscious model that will guide future relational experiences. Recently, Gabbard [9], referring to internal working model, stated that 'these relational configurations encoded in procedural memory are also implicit because they operate outside conscious awareness' and are also basic to transference phenomena. It is also in this conception of the unconscious and related phenomena that Ey's neojacksonism appears to have preceded by half a century the thinking of modern psychoanalysts.

Ey in ODT underlines and gives strength to the idea that such organization evolved to enrich inborn instinctive behavior (search for food, individual territory defence, etc., typical of the structural level which McLean [36] calls *reptilian*) with social behavior and the relative cognitive abilities needed for managing increasingly com-

plex relations with other individuals of the same species (a brain level which McLean [36] calls *limbic*), anticipating his contemporaries in figuring out the brain as a basically 'biosocial organ' [35].

According to Ey, this evolutionary pathway is related to the formation of increasingly refined mental representations of the world, of self, and of others, culminating in the birth of verbal language and consciousness.

At the apex of this hierarchical organization the highest levels are situated, which coincide with consciousness.

The Integrative Function of the Mind and the Centrality of Consciousness

Jackson conceived the CNS as a hierarchical organization which, reflecting the history of evolution, integrates increasingly complex intercoordinated levels. Every superior level modulates and is coordinated with the lower ones, thereby constructing their representations [1, 18], and at the highest levels, the mind represents itself, integrating the activity of its lower components.

This basic ODT statement is detectable, albeit with different hues and nuances, in Mesulam's [40] and Edelman's [32, 33] modern neuroscientific theories.

Mesulam [40], in particular, in his voluminous paper titled *From Sensation to Cognition*, compiled a vast and detailed review of some 250 papers on the developments of cognitive neuroscience. He concluded proposing a model of the human mind as based on 'a hierarchical organization of synaptic levels' [40], where the working memory and consciousness networks are placed at its vertex. According to Mesulam, in agreement with Ey and Dennet [41], this hierarchical organization permits a multiple and parallel representation of the same event. It is on this representational plurality that the choice of which action to perform is based, which is at the base of free will and other aspects of human consciousness.

Thus, if Ey [2] had hypothesized that 'the highest level is not a localised or localisable center, and its dissolution regards its organization, its integrative function', Mesulam [40], 50 years later echoes him, stating 'Human consciousness is not a special faculty occupying a specific site of the brain but an integrative manifestation of many CNS systems...'. Neurophysiology confirmed this statement, showing the simultaneous activation of several distant brain areas when an individual becomes aware of some stimuli to which he is subjected and to which he is intentionally planning a motor response [42].

If what we have explained so far supports the centrality of consciousness as a function that integrates the activity of brain structures, Ey extends the centrality of consciousness also to the integration embedded in brain organization.

Ey stated that the term ‘consciousness’ denotes two distinct modalities of being conscious: the first, called synchronous, is identified in the current orientation in the world, which represents the constitutive axis of the field of consciousness of classical descriptive psychopathology (with the attached characteristics relative to amplitude, clearness, space-temporal orientation of the field itself); the second modality, called diachronic, is identified in self-consciousness, which represents the constitutive axis of personal identity, i.e., of what classical psychopathology defines consciousness of the self.

The synchronous and diachronic modalities are for Ey [2] interconnected and simultaneously present in being conscious, thus allowing him to state that *‘ultimately it is the same (...) to say I am conscious of something only if I am somebody’*.

In the same time, the two consciousness modalities possess different functional and neurophysiological properties. The field of consciousness is the expression of state synthetic-actualized activity (synchrony) of the system and refers to the structure of consciousness, intended as a set of simultaneously, distantly interacting elements [40]. Self-consciousness is instead the expression of process, historical-evolutional activity (diachrony) of the system, pertaining to its temporal organization.

Consciousness emerges at the convergence of an organizing process activity and a state-depending, structure-providing activity, as a function that is constituted thanks to the combined and inseparable contribution of both modalities. In this definition of consciousness, the unconscious finds implicitly its place, comprising system activities which are not or cannot be endowed with reflexivity, respectively, because of structural and organizational conditions of the system, but are nevertheless continuously operating in all acts of the mind.

In contemporary neurosciences, the attention to the relationship between organization (diachrony) and structuring (synchrony) of the nervous system for the comprehension of the emergence of conscious activity, constitutes one of the load-bearing tiles of the theory formulated by Edelman [31]. To Edelman, brain functions emerge thanks to the relationship between memory and category making: memory is identified with system organization (diachrony, according to Ey), which refers to interconnection networks between its various structures,

the fine details of which depend on experience. Category making is identified with system structuring (synchrony, according to Ey), which refers to the whole of structures and their interconnections, constantly activated due to interaction with the environment. Thus, according to Edelman, similarly to Ey, in being conscious, the organization and structuring of the system are inseparably interconnected and joined; the past and current relationship between the organism and its environment is embedded in both.

An example of this bidirectional need is the dissolution of consciousness in conditions where access to category making is restricted, as occurs in sensory deprivation experiments [43]. Another instance is the inability to construct new conscious categories when the process of memory storage beyond short-term memory is hindered by hippocampal lesions [27].

The Psychopathology of Disintegrated Mind

In Ey’s ‘consciousness’ both the field of consciousness and self-consciousness, as intended in classical psychopathology, are simultaneously present. In Edelman’s ‘consciousness’, system organization (memory) and structuring (category making) are also simultaneously present. It follows that, both in Ey’s and Edelman’s theories, the psychopathology of consciousness inevitably encloses the entire field of psychopathology. This layout of psychopathological thinking derives directly from Jackson [2].

Hence, for Ey, any type of psychopathological disorder (delusions, hallucinations, obsessions, mood changes, somatization, various anxiety disorders, etc.) is the expression of an alteration of the integrative functions of consciousness [1]. This principle, now present in many domains of contemporary psychopathological research, was derived by Ey not only from Jackson, but also from Janet [22, 44] and the Nobel prize winner Henri Bergson. Bergson, considering positive (florid) symptomatology (delusions, hallucinations, etc.), wondered how a disorder could add something new to the mind. He hypothesized that a part of the mind has the task not to produce anything, but rather to modulate and limit what others parts yield. The failure of this modulating and limiting function induces the onset of phenomena which do not appear in healthy individuals [45]. This function for the mind coincided, according to Bergson [46], with consciousness: ‘...the main task of psychology will not be in such cases to explain how these phenomena are produced in the ill person, but why they are not encountered in healthy men’.

The analysis of the various metacognitive functions in mental disorders has recently prompted investigators to define patterns of metacognitive deficits in many disorders: schizophrenia [47], anxiety disorders [48], autism [49], personality disorders [50, 52] and of course dissociative disorders [51]. Metacognitive [52–54] and self-narrative functions [55] (metacognition, theory of mind, mastery, metacognitive monitoring, autobiographic self, etc.) refer to the whole of most refined integrating functions of the mind, to which classical psychology hinted with the term consciousness.

Ey's general psychopathological model appears to be in line with some current neurobiological speculations. Edelman [32] discriminates two different complexity levels of consciousness organization-structuring, that he calls primary and higher order consciousness. Damasio's [26] reflections, grounded on the definition of hierarchical levels in activity of the nervous system, support the identification of a third level of complexity of consciousness, intermediate with respect to the former two, defined by the author as extended consciousness [26]. Both Edelman and Damasio propose pathophysiological models related to psychopathological and clinical pictures. Damasio [26], in particular, proposed a model that poses accent on the alteration of different structural hierarchies of the system. Beyond particular content specifications, it seems important to underline that Edelman's and Damasio's work witness the special attention of neuroscience to the identification of the same various levels of complexity of consciousness to which Ey was referring in his original psychopathological speculations, and furthermore, in the specification of the various levels of consciousness, the possibility to specify the different levels of complexity of the nonreflexive representation of self and the environment, i.e., unconscious representations.

In the psychopathogenetic context, Ey endorses the basic principles of Jackson's thinking, which can be summarized in the dissolution concept. With such a concept it is stated that pathology, independently from etiology and from the irritative or destructive nature of the lesion, represents the reverse of integration of the psychic body.

Dissolution may be distinguished in two basic types: local and uniform dissolution. The former regard alterations of lower levels of integration; as a result, disorders of the integrated function ensue.

Uniform dissolution regards the dysfunction of superior integration levels; hence, disorders of integrating functions result. Even more than integrated functions, the integrating ones are the expression of coordinated activ-

ity of vast areas of the nervous system; due to this, it is not possible to identify specific areas univocally responsible for these alterations [2].

In this type of pathogenic perspective, Ey's reflections relate to the relationship between neurology and neurological disorders and psychiatry and psychiatric disorders. Neurology, in its classical sense, deals with local dissolutions and related disorders of integrated or instrumental functions. On the other hand, psychiatry, in its classical sense, deals with uniform dissolutions and related disorders of integrating functions. This pathogenetic differentiation simultaneously defines the unity between neurology and psychiatry.

The reference to a hierarchical model of the different levels of consciousness permits the hypothesis that, pathogenetically, any dissolution, of whatever type, is accompanied by negative effects, related to the disorder of the area interested in the pathological process, and to positive effects, related to the activity of underlying and overlaying centers with respect to the affected level. In other words, when a mental function is defective, other functions undergo a process of reduced integration in the psychic body in its whole, i.e., we may say that they dissociate.

Under this perspective, the symptom is not to be interpreted as the direct effect of the lesion. *The symptom is the expression of disorganization of a certain integration level of a functional system, disorganization that brings about reorganization of the entire system.*

Finally, the reference to a theoretical perspective supporting intrinsic relationality of the various organizational-structural levels of the mind within the therapeutic context allows to state that the intervention on dysfunctionality may be performed using both types of treatment, i.e., modalities acting upon the endogenous elements of the system (somatic treatments) and those that affect its exogenous elements, which refer to interpersonal environment (psychosocial therapy). The ODT is compatible with the types of treatment of mental disorders that consider drug treatment and psychotherapy as equally worthy and support a possible synergic effect of the combination of the various treatments, as realized in combined or integrated therapies [4, 9].

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