

Pierre Janet & the Breakdown of Adaptation in Psychological Trauma

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Abstract

In this reappraisal of the work of Pierre Janet at the centenary of the publication of *L'automatisme psychologique*, the authors review his investigations into the mental processes that transform traumatic experiences into psychopathology. Janet was the first to systematically study dissociation as the crucial psychological process with which the organism reacts to overwhelming experiences and show that traumatic memories may be expressed as sensory perceptions, affect states, and behavioral reenactments. Janet provided a broad framework that unifies into a larger perspective the various approaches to psychological functioning which have developed along independent lines in this century. Today his integrated approach may help clarify the interrelationships among such diverse topics as memory processes, state-dependent learning, dissociative reactions, and posttraumatic psychopathology. *All the famous moralists of olden days drew attention to the way in which certain happenings would leave indelible and distressing memories-memories to which the sufferer was continually returning, and by which he was tormented by day and by night.*

- Janet (1, p. 589)

One hundred years ago, in 1889, Pierre Janet (1859-1947) published *L'automatisme psychologique* (2), his first book to explore the psychological processes involved in the transformation of traumatic experiences into psychopathology. During the preceding century, Benjamin Rush and various French psychiatrists, including Pinel and Briquet (3-6), had already suggested that certain mental disorders originate in traumatic experiences. Stimulated by Charcot's teachings at the Salpêtrière at the end of the nineteenth century, psychiatrists on both sides of the Atlantic attempted to define how psychological trauma affects the psyche (4,5); for both Janet and Freud this formed the basis of their early theories about the nature and treatment of psychopathology.

Even before acquiring his medical degree, Janet, while still a philosophy professor, studied several hysterical patients in exacting detail. Impressed with these investigations, Charcot encouraged him to come to Paris, where he continued his studies of hysteria on the wards of the Salpêtrière (4). By the turn of the century Janet had become an eminent psychiatrist; for example, William James was fascinated by his ideas and devoted much of the 1896 Lowell Lectures to Janet's dissociation theory, which he summarized with the statement "The mind seems to embrace a confederation of psychic entities" (7, p. 35).

However, interest in the effects of psychological trauma was short-lived and ceased being a central concern in psychiatry after the beginning of this century; for the next 60 years, attention to the psychological effects of trauma was relegated to a few studies of the "war neuroses" (8-10) and psychological sequelae of the Holocaust (11). After Charcot's death, French psychiatry gradually fell in step with the prevailing medical attitudes, and the exploration of psychopathology continued along increasingly divergent paths, with little communication between the biological, cognitive, and psychodynamic points of view. The advances in the natural sciences fostered study of organs and organic functions at the expense of such psychological phenomena as consciousness, emotions, and motivation, for which the only tool of exploration was clinical observation. Janet pursued his studies in increasing isolation. Well after he had lost his place at the Salpêtrière, he received an honorary doctorate at Harvard's tricentenary celebration in 1936 (4).

Psychoanalysis had its origins in the study of psychological trauma as well (12); following his sojourn in Charcot's clinic, where he became familiar with Janet's early work (5), Freud considered the core of pathology to be the internal impression of a traumatic experience that, because of its unbearable nature, was sealed off from the rest of the personality, much as a foreign body forms the nucleus of an abscess. After

having initially claimed that "the ultimate cause of hysteria always is the sexual seduction of a child by an adult" (13), he abandoned this "seduction theory" altogether in favor of the notion that what "hysterics" warded off from consciousness was not sexual trauma itself, but a childhood sexual wish. This shift in attention from the study of the effects of actual traumatic experiences to the psychology of repressed wishes and instincts marked the founding of psychoanalysis. While Freud's legacy took the intellectual world by storm, Janet became a mere historical curiosity, until Ellenberger, in *The Discovery of the Unconscious* (4), and others (5, 14616) revived interest in his work. Cognitive psychologists, in particular, have acknowledged their debt to Janet (17), and Piaget considered himself one of his disciples (18).

Starting about 10 years ago, studies of Vietnam veterans, victims of physical and sexual abuse, and other traumatized persons once again drew attention to the potentially devastating impact of actual overwhelming experiences. This recognition was reflected in the formulation and acceptance of the formal diagnoses of posttraumatic stress disorder (PTSD) and the dissociative disorders in *DSM-III* in 1980. The last few decades also have seen a vast increase in our knowledge about other issues that Janet thought relevant to the study of psychopathology, such as memory processes and cognitive development. Contemporary science has, with modern tools and in current language, rediscovered many of the central topics first spelled out for psychiatry by Janet. The revival of interest in the issues with which Janet was centrally concerned makes a reconsideration of his work at the centenary of the publication of his first major work particularly relevant.

The Major Themes

Janet spent his professional life making meticulous clinical observations on hundreds of patients with a large variety of symptoms. From these observations he distilled two broad syndromes: hysteria (19) and psychasthenia (20). In hysteria the primary mode of adaptation is the dissociation of feelings or memories related to frightening experiences, which results in a narrowing of consciousness. In psychasthenia, roughly Janet's term for obsessional disorders, a decreased capacity for creative adaptation to reality ("psychological tension") interferes with effective action and deflects the mind into ruminations, phobias, and anxiety. In his analysis of Janet's contributions to the understanding of obsessive-compulsive disorder, Pitman concluded that Janet's observations and suggestions regarding treatment are as relevant today as when they were first made and "the full significance of Janet's contribution may have yet to be established by developments in the neurosciences" (15, p. 230).

Janet's early studies of patients with dissociative symptoms were published in *L'automatisme psychologique* (2). This book, the foundation of Janet's work, was reprinted many times but was never translated into English. It has three principal themes: 1) sensory perceptions, mental integration, and memory storage, 2) dissociative reactions as failures of information processing, and 3) psychotherapeutic interventions. Many observations anticipate our contemporary understanding of cognitive operations, memory processes, and the response to overwhelming trauma.

Memory Processing

Janet thought that only a small part of the interaction between an organism and its environment occurs within conscious awareness: under ordinary circumstances, people automatically integrate new information by taking appropriate action without paying much conscious attention to what is happening. Most experiences, values, habits, and innate and acquired skills are automatically integrated into existing cognitive schemata. These automatic adaptations, which Janet called "automatisms," are actions triggered by ideas and accompanied by emotions. They may range from simple reflexes, such as the grasping reflex, to complex executions of particular skills (2, 16). By combining cognition, conation, and emotion with action, psychological automatisms represent rudimentary elements of consciousness that are both psychologically and biologically encoded (2,21). Janet coined the word "subconscious" for the memories that are thus automatically stored.

The memory system maintains coherence of mental functioning and links the present with the past by continually organizing and categorizing new information. Its two basic functions are 1) processing and storing every new sensation from birth to death and 2) organizing and categorizing incoming data in the light of previously integrated memories (2, 16). Memories of innumerable simple visual, auditory, gustatory, or tactile sensations are synthesized into a perceptual system that provides a matrix for proper categorization and integration of subsequent internal and external stimuli.

The transformations involved in synthesizing and adapting new perceptions into existing schemes make it extremely difficult to later decode the precise nature of any particular memory and its role in subsequent behavior (22, 23). The interplay of memory system and temperament makes each person unique and

complex: "The personality is a human work of art: a construction made by human beings with the means at their disposal. . . good, bad, incomplete and imperfect" (24, p. 282).

According to Janet, harmonious operation of the memory system is essential for healthy personality functioning; consciousness consists of a unified memory of all psychological facets related to a particular experience: sensations, emotions, thoughts, and actions. He quoted his former classmate Henri Bergson: "What characterizes the man of action is the promptness with which he can call up relevant memories, and the insuperable barrier at the threshold of consciousness produced by unrelated memories" (25, p. 166). Janet thought that being able to reproduce memories verbally was very important: "It is not enough to be aware of a memory that occurs automatically in response to particular current events: it is also necessary that the personal perception &Eumil;knowsí this image and attaches it to other memories" (26, p. 135).

Dissociation

Janet believed that, under ordinary conditions, awareness of emotions, thoughts, actions, and sensations related to any particular experience is united in a single consciousness and is under voluntary control. Successful integration into the memory system depends on the cognitive assessment of new experiences. Frightening or novel experiences may not fit into existing cognitive schemes; memories of these experiences then can be split off from conscious awareness and voluntary control, and fragments of unintegrated events may later show up as pathological automatisms. For example, Janet described the case of a young woman whose blindness in the left eye could be traced under hypnosis to her having been forced during her childhood to sleep in the same bed as a child who had impetigo on the left side of her face. What the dominant personality had forgotten, a split off part of consciousness remembered (2).

As early as 1649, Descartes, in *Les passions de l'âme*, described traumatic events that affected behavior long after they were forgotten (16). Dissociative reactions were also described by various British and French psychiatrists during the nineteenth century (3, 6). But it was Janet who first clearly and systematically studied dissociation and claimed it as the crucial psychological process with which the organism reacts to overwhelming trauma and which results in the wide variety of symptoms then classified under the rubric of "hysteria" (2, 6, 19, 26-29).

Subconscious Fixed ideas

Janet argued that dissociation results in the formation of new spheres of consciousness around memories of intensely arousing experiences, which he called "subconscious fixed ideas." These fixed ideas organize cognitive, affective, and visceral elements of the traumatic memory while simultaneously keeping them out of conscious awareness. Although subconscious, they continue to influence current perceptions, affect states, and behavior; they are usually accessible under hypnosis (1, 22, 23, 29). Since fixed ideas originate in a failure to make sense of a past experience, they fulfill no useful current function and lack further adaptive value (6). Dissociation often remains a way of coping with subsequent stress, causing subconscious memories to continue to affect behavior. People who react to stress by thus letting the event bypass consciousness become emotionally constricted and cannot experience a full range of affects within what we would call today the same ego state (28, 30). The most extreme example of this is multiple personality disorder, where fixed ideas develop into entirely separate identities (28, 30).

Janet noted that many psychiatric patients respond to stress by dissociating, reacting inappropriately and behaving "automatically," with irrelevant stereotypic images, ideas, emotions, and movements that seem to represent fragmented reexperiences of frightening past events: "These patients have a disturbance of action as well as a disorder of memory, and that hides the most serious trouble: that of will" (23, p. 532).

Vehement Emotion

Trying to account for what interferes with the integration of experience, Janet wrote, "I was led to recognize in many subjects the role of one or several events in their past life. These events, which were accompanied by a vehement emotion and a destruction of the psychological system, had left traces" (31, p. 128). Failure to master intense emotions made them react to stress with excessive and irrelevant responses (2, 29-31). This initial emotional reaction to the traumatic event ("vehement emotion") accounted for subsequent symptoms: "Traumas produce their disintegrating effects in proportion to their intensity, duration and repetition" (32, p. 1558).

Like contemporary trauma researchers, Janet noted that a long time might pass between the occurrence of a traumatic event and its full-blown psychopathological expression: "Rarely do the principal disturbances of the emotion appear exactly at the moment of the provoking event" (32, p. 1556). The latency of expression is determined by the time required to perceive the inescapable reality of the event, the time necessary for

the individual to expend useless efforts to fight the inescapable, and the occurrence of other stressful events that deplete the individual's last reserves (32).

Memory Disturbances

Janet claimed,

The individual, when overcome by vehement emotions, is not himself.... I have shown on numerous occasions that the characteristics which have been acquired by education and moral development may suffer a complete change under the influence of emotion Forgetting the event which precipitated the emotion ... has frequently been found to accompany intense emotional experiences in the form of continuous and retrograde amnesia They are an exaggerated form of a general disturbance of memory which is characteristic of all emotions. (32, p. 1607)

Patients try to deal with these memories and make them less frightening (22), but the more they work on neutralizing the memories, the more they are confronted with how horrifying and repulsive they are. When people become too upset to tell their story, these memories cannot be transformed into a neutral narrative: "the person is unable to make the recital which we call narrative memory, and yet he remains confronted by [the] difficult situation" (1, p. 660). This results in "a phobia of memory" (1, p. 661) that prevents the integration ("synthesis") of traumatic events and splits off the traumatic memories from ordinary consciousness (26, p. 145). The memory traces of the trauma linger as subconscious fixed ideas that cannot be "liquidated" as long as they have not been translated into a personal narrative and instead continue to intrude as terrifying perceptions, obsessional preoccupations, and somatic reexperiences, such as anxiety reactions (22).

Attachment to the Trauma

Janet described how traumatized people become "attached" (Freud would later use the term "fixated" [8]) to the trauma: "Unable to integrate the traumatic memories, they seem to have lost their capacity to assimilate new experiences as well. It is ... as if their personality which definitely stopped at a certain point cannot enlarge any more by the addition or assimilation of new elements" (23, p. 532). "All [traumatized] patients seem to have had the evolution of their lives checked; they are attached to an unsurmountable obstacle" (1, p. 660). "The subject is unable to recite the events as they occurred and yet, he remains confronted with a painful situation in which he was unable to play a satisfactory role and make a successful adaptation. The struggle to continually repeat this situation leads to fatigue and exhaustion which have a considerable impact on his emotions" (1, p. 663).

Numbing and Depletion

Janet noticed that many traumatized patients experience a slow decline in their ability to deal with both old and new stressors unless they become involved in actions that allow them to gain mastery over past failures to act appropriately (1). He thought that trauma-related impressions which have bypassed consciousness continue to plague the individual as internalized but unrecognized memories. This creates a further narrowing of consciousness and a progressive decline in the capacity to deal with current reality, creating progressively more severe pathological symptoms. More and more of mental life becomes drained by the increasing power of traumatic memories that are dissociated from the conscious psyche. This results in a failure to integrate new experiences as well: "[The emotion] has exerted a disintegrating influence on the mind" (26, p. 145). After struggling to master the traumatic memories, the patient is caught in a descending spiral of increasing emotionality and reenactments of the trauma ("somnambulistic crises"), loss of will to act ("abulia"), and psychosomatic symptoms. Eventually only a pervasive desire to get away from it all remains: "Complete avoidance is characterized by complete absence of allusion to sensitive objects or the anxiety associated with them. It is as if the event, or even the function never existed" (30, p. 352). The capacity to adapt breaks down and the patient ends in a state of chronic helplessness expressed through both psychological and somatic symptoms (20, 32).

Vulnerability

What makes people vulnerable to these excessive arousal and depletion states? Janet thought that this depends on their capacity to grasp the totality of their experiential world. The prime reason for the pathological bypassing of consciousness by traumatic events and their establishment in the subconscious as fixed ideas is a failure of the synthesizing functions of the psyche to assimilate the totality of external reality. This capacity to creatively integrate new information (which Janet called "psychological tension") depends on temperament and prior experience, as well as on the novelty of the situation, speed of events, and the physiological state of a person, such as intoxication, illness, fatigue, depression, or the violent

emotions inherent in a traumatic event. Any one of these conditions may interfere with the correct appraisal of and effective adaptation to adverse reality (30, 32). The severity of "vehement emotion," which depends on both the emotional state of the victim at the time of the event and on the cognitive appraisai of the situation, determines the lasting impact of the trauma (6). The precipitating event itself is not necessarily dramatic (although Janet provided plenty of dramatic examples in his case histories) and may include such relatively ordinary stressors as financial or marital problems. Thus, the intensity of the emotional reaction, rather than the events themselves, precipitates psychopathology: "I have never claimed that all neuropathic weaknesses are exclusively the consequence of traumatic reminiscences" (31, p.128).

Relevance of Janet's Work for Contemporary Psychiatry

In recent years many different clinicians and researchers have rediscovered the role of past trauma in psychopathology and have attempted to find a coherent framework for their observations. Although there is a basic consensus on the accuracy of the *DSM-III-R* descriptions of PTSD and the dissociative disorders, the precise psychological and biological processes involved in the transformation of traumatic experiences into psychiatric disturbances remain to be identified. Janet provided a broad framework that integrated into a larger perspective the various approaches to psychological functioning which have developed along independent lines in this century. An overview like this can hardly do justice to how current knowledge in such diverse scientific disciplines as memory processing, neurobiology, developmental psychology, and the human response to trauma have rediscovered, confirmed, or disproven Janet's notions. However, we will try to illustrate how he anticipated contemporary developments in some of these areas, which may serve as a guide toward a better understanding of how the data from these disparate disciplines may be related.

Memory Processing

In the past few decades, research has begun to elucidate how environmental forces influence neurobiological development (33-35). Although heredity and embryonal development determine the basic structure of the CNS, the precise pattern of interconnections between neurons depends largely on experience (33). Janetís psychological formulations about memory processes, conceived 100 years ago, appear very modern when compared with contemporary neurobiological models. Janet said that the basic function of the memory system is the storage and categorization of incoming sensations into a matrix for proper integration of subsequent internal and external stimuli (2). Edelman pointed out that the CNS must "carry on adaptive perceptual categorization in an unlabeled world... that cannot be prefigured for an organism" (34, p. 7). He stated that after birth, when the basic neural structure is in place, the focus of development turns to modifications in the strengths of the synapses between neuronal groups. Thus, according to both Janet and Edelman, categorization is the most fundamental of mental activities. Using modern tools and research findings. Edelman has proposed a neurobiological model of how the creation of particular connections between the neuronal groups enable people to get around in the world. He views memory as "the enhanced capacity to categorize and generalize associatively, not the storage of features, not objects as a list" (34, p. 241) and suggested that "amnestic syndromes with semantic or linguistic defects will be found to have underlying defects in related procedural aspects of recategorization" (34, p. 327). Research on nonhuman primates promises to help elucidate the neurobiological processes involved in failures to make such categorizations and associative links because of traumatic events during critical stages of CNS development (35).

Janetís psychology was fundamentally a psychology of action. He went so far as to state that "memory is an action: essentially it is the action of telling a story" (1, p. 661). He thought that successful integration of memories depends on successful action of the organism on the environment: "The healthy response to stress is mobilization of adaptive action" (32, p. 1575). Edelman, employing the language of neurobiology, stated that "action is fundamental to perception: both sensory and motor ensembles must operate together to produce perceptual categorization" (34, p. 238).

Contemporary scientists agree with Janet that what memory processes best is not specific events, but the quality of experience and the feelings associated with it. As Minsky (36) put it, "So we shall view memories as entities that predispose the mind to deal with new situations in old, remembered waysóspecifically, as entities that reset the states of parts of the nervous system. Then they can cause that nervous system to be &Eumil;disposedí to behave as though it remembers."

Encoding of Memories

Janetís notion that memories can be stored on various levelsóas narratives as well as sensory perceptions, visual images (nightmares and hallucinations), and "visceral" sensations (anxiety reactions and psychosomatic symptoms)óis supported by contemporary research. Cognitive psychologists have

demonstrated that memories determine the interpretation of the present, even when they are not conscious, i.e., encoded on a linguistic level (37). They have identified three modes of information processing; enactive, iconic, and symbolic/linguistic (21, 38), which closely parallel the stages of sensorimotor, preoperational, and operational thinking described by Piaget (39). These different modes of information processing reflect stages of CNS development. As they mature, children shift from sensorimotor (motoric action) to perceptual (iconic) representations to symbolic and linguistic modes of organization of mental experience. When people are traumatized, i.e., exposed to a frightening event that does not fit into existing conceptual frameworks, they experience "speechless terror" (40). Janet believed that when people are terrified, the usual cognitive schemata are inadequate to create a mental construct which places the experience in the perspective of prior knowledge schemes, causing it to be left unintegrated and to persist as a psychological automatism. Along similar lines, Kihlstrom said, "Dissociation is mediated by a disruption in the links between semantic representations and their contextual features: the critical item-to-context link can not be performed" (21, pp. 194-195). Failure to arrange the memory linguistically leaves it to be organized on a somatosensory or iconic level: as somatic sensations, behavioral re-enactments, nightmares, or flashbacks (41). As Piaget pointed out, "It is precisely because there is no immediate accommodation that there is complete dissociation of the inner activity from the external world. As the external world is solely represented by images, it is assimilated without resistance to the unconscious ego" (42).

State-Dependent Learning

Janet postulated an inverse relationship between the intensity of the emotional reaction ("vehement emotion") and the capacity to process traumatic memories conceptually (verbally) (29,32). Contemporary studies confirm that the intensity of emotional arousal affects the mode of memory storage (43). Recent research on state-dependent learning may shed light on the underlying mechanisms; the hippocampus, which records in memory the spatial and temporal location of experiences, does not fully mature until the third or fourth year of life. However, the system that subserves memories related to the quality (feel and sound) of things matures much earlier (44). Thus, in the first few years of life only the quality of events, but not their context, can be remembered. Even after that, the hippocampal localization system remains vulnerable to disruption: severe or prolonged stress can suppress hippocampal functioning (45), creating context-free fearful associations that are hard to locate in space and time. This results in amnesia for the specifics of traumatic experiences but not the feelings associated with them (44). These experiences then may be encoded on a sensori-motor level without proper localization in space and time. They therefore cannot be easily translated into the symbolic language necessary for linguistic retrieval.

Janet taught that information can be best retrieved in a state similar to the one in which the memory was encoded. Contemporary research in state-dependent learning has shown that retrieval depends more on the cue than on the nature of the trace (21). State dependency is roughly related to arousal levels and therefore can be affected by a large variety of stimuli, e.g., psychostimulants and depressants, meditative states, and terror. The more the contextual stimuli resemble the conditions prevailing at the time of the original storage, the more retrieval is likely. Thus, memories are reactivated when a person is exposed to a situation, or is in a somatic state, reminiscent of the one present when the original memory was stored (46).

Reactivation of past learning is relatively automatic: contextual stimuli directly evoke stored memories without conscious awareness of the transition (41,46), which may clarify Janet's observation that "[&Eumil;the hysterickí] has lost the mental synthesis that constitutes reflective will and belief; he simply transforms into automatic wills and beliefs the impulses which are momentarily the strongest" (28, p. xxii-xxii).

Although the significance of memory disturbances is recognized in contemporary research on trauma (40, 47-49), the vast recent expansion in our knowledge of memory processes has not been systematically applied to the study of posttraumatic psychopathology. Thus, we can neither confirm nor contradict most of Janet's observations on memory disturbances following traumatization. The standard texts on hysteria (e.g., 50) use formulations similar to those of Janet a century ago.

Dissociation

Janet used the concept of dissociation in a more restrictive sense than his contemporaries James (4, 6, 7) and Prince (6); for him it always was a psychopathological process. Modern studies (51-54) have firmly established that there is a continuum of dissociative reactions. Ludwig stated, "The widespread prevalence of dissociative reactions and their many forms and guises argues for their playing important functions in man and their possessing great survival value" (53, p. 95). He listed among the benefits of dissociation I)

the automatization of certain experiences, 2) efficiency and economy of effort, 3) resolution of irreconcilable conflicts, and 4) isolation of catastrophic experiences (53, p. 93). Frankel (54) has shown how dissociative mechanisms are used to cope with a variety of challenges, from daily stresses to catastrophic trauma.

Modern research has demonstrated that different dissociated states of mind are accompanied by distinct psychophysiological concomitants (52, 55), and contemporary definitions of dissociation follow Janet's in emphasizing the disruption of both psychological and physiological integrative functions. West defined dissociation as a psychophysiological process in which incoming, stored, and outgoing information is actively deflected from integration with its usual and expected associations (56, p. 890). Pathological, as opposed to normal, dissociation is identified by an alteration in the sense of identity and by memory disturbances (usually amnesia) involving events that occur in the pathological dissociated state (57).

DSM-III-R recognizes four dissociative disorders: 1) psychogenic amnesia, 2) psychogenic fugue, 3) depersonalization disorder, and 4) multiple personality disorder. Putnam (58) reviewed a number of studies that indicate a role for dissociative processes in other mental disorders, such as PTSD (41, 59, 60), eating disorders, phobic disorders, and obsessive-compulsive disorder. He identified three types of traumatic precipitants of dissociative reactions: 1) situations in which it is impossible to either fight or flee, 2) the loss of a loved one, and 3) an overwhelming, panic-inducing impulse, such as a powerful homicidal or suicidal urge (61).

Psychological trauma has been best studied in combat veterans. There is a direct relationship between the severity of combat stress and the frequency of dissociative reactions (61, 62). Dissociation also has repeatedly been noted after other trauma, such as concentration camp experiences, incest, and other acute and life-threatening danger (40, 41, 61, 63, 64).

For most of this century, dissociative disorders have been described as acute reactions to single traumatic events. Only recently has chronic dissociative pathology been rediscovered, either as a primary disorder (such as multiple personality disorder) (57, 64-66) or as part of other psychiatric conditions, such as PTSD (40, 41, 59, 60). Dissociative reactions in response to acute trauma usually are brief and resolve spontaneously (57). In some people, however, anxiety attacks, flashbacks, and nightmares or behavioral reenactments of the trauma may occur many years after the original trauma in response to minor stress, physiological arousal, or situations reminiscent of the trauma (40, 41, 59, 67-69). People who have been exposed to repeated severe trauma in childhood are most vulnerable to development of a chronic dissociative disorder (55, 57). Thus, the initially adaptive function of dissociation, i.e., blunting the trauma's emotional impact, may be transformed into a chronic maladaptive process, along the lines described by Janet. Putnam (58) wrote, "Dissociative disorders thus can be conceptualized as highly discrete states of consciousness in the context of severe trauma. The amnesias that separate these states from normal consciousness are an extreme form of state-dependent memory. In response to a single acute traumatic experience, one dissociative state may be created. In the face of sustained trauma, a range of dissociative states may arise."

In recent years we have become increasingly aware that even under ordinary circumstances most people, but particularly those with hysterical, narcissistic, or borderline personality disorders, can experience distinctly different recurrent states of mind (58, 70). These discrete states of consciousness, which share certain basic properties, often can be linked to particular earlier reactions or states of mind (70). Wolff's investigations of physiological state changes in infants (71) led him to conclude that discrete states of consciousness are basic building blocks of human behavior; this is remarkably similar to Janet's concepts of psychological automatisms (2).

In children, and in people who continue to suffer from extreme state changes, switches between discrete states are associated with changes in affect, attention, and cognition, access to memories and skills, autonomic physiology, and sense of self (58). Marked alterations in state of consciousness ordinarily become less common as people mature and only occur in response to highly arousing events. Putnam (72) has suggested that personality development includes bridging these discrete states of consciousness and that childhood trauma interrupts the normal developmental process of smoothing out transitions between states, leaving the individual with abrupt state transitions that resemble those of infants and small children.

PTSD

Although Janet never formally delineated a posttraumatic stress syndrome per se, his observations on the effects of trauma closely parallel contemporary descriptions of PTSD. He called the generalized agitation and reenactments of the trauma in response to later stress "somnambulistic crises." These alternate with

emotional exhaustion and loss of the will to act effectively ("abulia") (30). He thought that abulia resulted from a failure to act effectively in response to past traumatic events. Janet stated that a range of visceral, perceptual, emotional, or motoric (reenactment) symptoms could represent an involuntary reliving of elements of the trauma. Fugues, amnesias, reduced interest and involvement, constricted affect, and the abulias represent ways of avoiding having to deal with traumatic memories.

Since Janet, this alternation between intrusive and avoidant symptoms has been noted by Freud (8), Kardiner (9), Lindemann (73), Krystal (11), Horowitz (48), and many others (41, 69, 74, 75). This biphasic quality of the trauma response is the cornerstone of the *DSM-IH-R* definition of PTSD. Modern studies also support Janet's contention that posttraumatic reactions originate in "vehement emotions" that are biologically encoded. Kardiner (9) called the trauma response a "physioneurosis." He said that sufferers from PTSD remain in a state of physiological preparedness for the return of the trauma, which causes an enduring vigilance for and sensitivity to environmental threat. Contemporary research shows that in situations reminiscent of combat stress, war veterans with PTSD show chronically increased autonomic arousal (67, 68, 76) and abnormalities of the catecholamine (77) and endogenous opioid (78) systems. Many studies of traumatized populations have confirmed Janet's observation that they often suffer from psychophysiological symptoms of the respiratory, digestive, cardiovascular, and endocrine systems (11, 79).

The notion that "traumas produce their disintegrating effects in proportion to their intensity, duration and repetition" (32, p. 1558) is a recurrent theme in contemporary research. The intensity of the initial physiological response (vehement emotion), combined with its cognitive interpretation, is probably indeed the most significant predictor of long-term outcome in PTSD; its severity has now been correlated with the initial degree of hyperarousal and dissociative reactions (80), developmental maturity (81, 82), unfamiliarity with the environment (83), severity of interpersonal loss (82, 84-86), length of exposure to the trauma (75), degree of life threat and personal injury (85, 86), and participation in abusive violence (75).

Janet was the first to note that traumatized people become attached to the trauma and seem unable to go on with their lives (1, 29). Freud called the same phenomenon "fixation" (8), others have called it "traumatophilia" (48) or "addiction to the trauma" (87). Janet's extensive descriptions of traumatization ending in emotional depletion are consistent with the contemporary notions of learned helplessness (87, 88) and posttraumatic decline (89).

Childhood Trauma and Psychiatric Illness

Analysis of the 591 case reports in his first four major works has shown that Janet identified a traumatic precipitant in 257 (90), a proportion strikingly similar to that found by contemporary studies of the traumatic antecedents of mental illness (91-94). Reexamination of Janet's many detailed case histories of hysterical patients within the *DSM-III* diagnostic framework reveals a variety of diagnoses: borderline personality disorder, dissociative disorders, somatization disorders, major affective disorders, PTSD, and histrionic personality disorder (6). The recent studies which have shown that about 50% of psychiatric inpatients have childhood histories of severe chronic physical and/or sexual abuse (91-93) do not link childhood trauma with a specific psychiatric diagnosis, although there is a preponderance of affective disorders on axis I and borderline personality disorder on axis II (91, 92, 94).

Contemporary researchers have found that while the many acute psychological symptoms and maladaptive behaviors usually obscure the pertinence of childhood traumatic stressors, these patients react to stress the way Janet described: with irrelevant stereotypic images, ideas, emotions, and movements that seem more relevant to past threats than to current exigencies. They react with "vehement emotions," "somnambulistic crises" (agitation and uncontrolled outbursts of violence against the self or others), and "abulia" (chronic passivity resulting from having given up hope of actively being able to influence the outcome of their lives). They rarely meet all *DSM-III* criteria for PTSD, principally because the relevance of the original traumatic stressor has been lost in the current clinical picture, to both patients and clinicians (93, 94). These recent studies indicate that the hallmark of psychiatric patients with chronic childhood trauma is the multiplicity of clinical presentations and the variety of diagnoses and different medications over time (91-93).

Studies remain to be done to more precisely map out the differential effect of trauma on people at varying stages of development. The clinical evidence suggests that as people mature, stressful life experiences are more likely either to be effectively processed and overcome or to be walled off and to affect only isolated aspects of functioning. The age of the victim, predisposing personality factors, and the nature and severity

of the trauma all seem to play roles in the particular way in which the trauma is processed (40). Recent studies have implicated childhood trauma as an etiological factor in such diverse conditions as somatoform disorders, panic disorder, borderline personality disorder, and multiple personality disorder (40, 57, 64-66, 80, 94). Besides the full-blown PTSD that follows traumatization in adults, there appears to be a range of adaptations to childhood trauma, or "trauma spectrum disorders," with multiple personality disorder at one end of the spectrum, representing an extreme adaptation to very severe chronic childhood abuse, borderline personality disorder as an intermediate adaptation, and some forms of somatoform, conversion panic, and anxiety disorders representing dissociated somatic reexperiencing of more circumscribed traumatic events (80, 94). Work is currently in progress to define the propensity to dissociate along this spectrum (55,58).

Janet's Therapeutic Principles

Janet was a very careful and much sought after clinician. Since he believed that patients cannot be properly treated without a detailed understanding of their past, he took very careful personal histories, which he called "psychological analyses" (1, 23, 24, 26). To get as complete a picture as possible, he often interviewed the patient's family and acquaintances as well. He had an eclectic treatment approach; in addition to psychotherapy, he advocated a variety of active interventions, such as changing the patient's lifestyle to fit his emotional strengths and weaknesses and trying to prevent intergenerational transmission of trauma (1).

Like contemporary clinicians, Janet understood that stabilization of symptoms needs to precede active exploration of the patient's past (1, 95, 96). He advocated the use of medications for control of florid symptoms, although he was frustrated by the limitations of those available to him (1). Psychotherapy started only after patients became less symptomatic and had gained some voluntary control over their actions. Janet encouraged emotional awareness of feelings and attitudes about both past and present, including exploration of traumatic memories and related subconscious (dissociated) phenomena. Like contemporary clinicians who use hypnosis (95) or flooding techniques (97) in the treatment of traumatized patients, Janet felt that patients could only remember if they were brought back to the same state of consciousness as that produced by the traumatic incident itself (2, 31). He made extensive use of hypnosis to gain access to subconscious ideas and memories that continued to influence the patient's current behavior and emotional distress. He used nonhypnotic instructions to consolidate psychological improvement and to put newfound insights into action (1, 26, 96).

Janet thought that merely uncovering memories was not enough; they needed to be modified and transformed, i.e., placed in their proper context and reconstructed into neutral or meaningful narratives. Janet saw memory as an act of creation, rather than as a static recording of events. He used hypnosis not only to help patients recover memories, but also to transform traumatic images into personal history (1,2, 96). If recovering the trauma and telling the accompanying details was impossible or did not provide relief, Janet, like Milton Erickson later on (98), used hypnosis to substitute neutral or positive images for traumatic memories. For example, he asked the woman with hysterical blindness in her left eye to imagine that she was sleeping in the same bed with a "very nice child who was not sick" (2, p. 440). Janet also used reframing techniques, especially with patients whose obsessional ruminations persisted despite awareness of the trauma. The purpose was to allow patients to forgive themselves for ineffectual behavior at the time of the trauma and thus decrease emotional attachment to the trauma (99).

Putting traumatic memories behind is only part of the therapy: Janet repeatedly said, "The tendency to dissociate in the face of stress continues" (1, 6,19,22). To overcome the legacy of helplessness and feelings of inability to affect the outcome of their lives, he used directive techniques to help his patients expose themselves to situations in which they could learn new modes of adaptation and integration. This meant involving them in meaningful activities, which consisted of increasingly prolonged and complex tasks (96, 99).

Janet was very much aware of the special patient-therapist relationship, which had already been recognized by the old hypnotists under the name *rapport magnétique*. He deemed a therapeutic alliance ("rapport") indispensable for a cure but recognized that with severely traumatized patients it can develop into an intense, almost addictive "somnambulistic passion" (26, 100). He was aware of the tightrope the therapist must walk between promoting a passionate attachment and satisfying the patient's need for direction and guidance. Therapists must pursue two apparently contradictory goals: educating patients to accept their authority and guidance and at the same time decreasing their own importance by encouraging patients to control their own lives (96, 99, 100). Like many contemporary therapists, Janet learned the hard way that if one neglects the dimension of control, passion is likely to get out of hand. In several case reports he tried to

demonstrate how *rapport* could be used even with severely disturbed patients to foster independent action rather than excessive dependency and misdirected passion.

Conclusions

The study of the role of traumatic events in the genesis of psychopathology was central in the discipline of psychiatry during the nineteenth century, culminating at the Salpêtrière with the work of Charcot and Janet. Janet's principal legacy may prove to be the first systematic understanding of how the mind can dissociate in the face of overwhelming threat. He hypothesized a biologically based trauma response resulting in a fragmentation of mental cohesion, causing biological, behavioral, cognitive, and emotional residues of past experience to continue to govern current behavior. A dedicated professional observer and a serious amateur botanist, Janet was disposed to coolly collect facts rather than to establish a school of psychiatry. While this made him a superb scientist, it did not help inspire his contemporaries to retain a passion for the study and treatment of psychological trauma and dissociation (17).

In some regards, Janet's theories coincide with (and often antedate) the early formulations of psychoanalysis. However, while Freud viewed trauma as rooted first in infantile sexual experiences and later in childhood sexual fantasies, Janet noticed that a large variety of different experiences could overwhelm the psyche. While Freud emphasized the unavoidable conflict between biological drives and societal prohibitions in the genesis of pathology and focused on repression of instincts in his later explication of both normality and illness, Janet saw psychopathology as the product of a weakened and dissociated psyche that continues to be traumatized by even the smallest demands. These different conceptualizations of psychopathology have yet to be reconciled.

Given the tradition of careful scientific examination in the major academic centers of Europe at the end of the last century, it is not surprising that many contemporary observations about psychological trauma had already been made during that era. Janet's understanding that vehement emotions impair the capacity to think, feel, and act in a purposeful, unified way, combined with his realization that this must be reflected in biology, is so basic that it had to be rediscovered. His crucial notion, first formulated in 1889, that traumatic experiences are stored in memory in ways different from ordinary events, is as challenging today as it was to William James almost 100 years ago. One century later, much remains to be learned about how memories are stored and keep on affecting emotions and behavior, as well as how they and their permutations can be successfully retrieved and mastered in order to diminish their hold over current experience.

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