

Is there Awareness Outside Attention?
A Psychological Perspective

Allan Combs, Stanley Krippner, & Eugene Taylor
Saybrook Graduate School

Abstract:

This paper approaches the question of awareness outside of attention through a broader psychological examination of human consciousness. Acknowledging that questions regarding the boundaries of conscious awareness, as well as the possibility of “subconscious” or “unconscious” awareness were widely discussed 100 years and more ago, we begin by reviewing the conclusions of such turn-of-the-century theorists as William James, F.W.H. Myers, Jean-Martin Charcot, and M. Pierre Janet, who were interested in dissociative phenomena such as hypnosis, hysteria, trance states, and motor automatisms, all suggestive of consciousness beyond the margins of attention, and at the time all were debated in terms of subconscious and parallel streams of thought. Here we discuss the usefulness of James’s metaphor of spotlight attention as surrounded by a penumbra of awareness that fades off into subconscious contexts. These ideas are linked with contemporary studies of dissociation, and expanded in the context of a dynamical model of consciousness already explored in a series of previous publications by two of the authors. The model is based in the sciences of complexity and views the mental and neurological processes that undergird conscious experience as self-organizing and self-creating (autopoietic) events. In particular, mental states are seen as chaotic-like attractors comprised of process elements such as emotions, memories, thoughts, and perceptions. Such elements are shown to mutually support and create each other in autopoietic interactions suggestive of self-sustaining mental ecologies. Within these ecologies, processual elements interact to form new elements that recombine with the originals, yielding novel and creative outcomes as first described by systems theorists George Kampis and Ben Goertzel, and suggestive of the creative evolutionary emergents described by Henri Bergson. With this model of consciousness in mind the paper re-visits the question of awareness outside of attention, both for ordinary states and for dissociative conditions such as those mentioned above. Lastly, it examines James’s idea, echoed in modern complexity oriented psychiatry, that there is a tendency in healthy and mature persons for previously desperate constellations of thought and feeling to come together to form a single unified mental process, and with it a single stream of experience.

Keywords: Consciousness, attention, awareness, dissociation, hypnosis, hysteria, trance, automatism, James, Wundt, Charcot, Janet

Is there Awareness Outside Attention?

A Psychological Perspective

Allan Combs, Stanley Krippner, & Eugene Taylor

Saybrook Graduate School

The parasitism [of psychoneurosis] is well brought out in the attitude of the patient towards these morbid mental states. He regards the whole system-complex as foreign to his personality... These states do not belong to the patient's normal associative life, but appear to the patient himself as opposed to his usual normal life-activities.

Boris Sidis, 1910; pp. 321-322.

This paper approaches the question of awareness outside of attention through a broader psychological examination of human consciousness. Questions regarding the boundaries of conscious awareness, as well as the possibility of “subconscious” or “unconscious” mental processes, were widely discussed 100 years and more ago when they played a central role in the thinking of turn-of-the-century theorists such as William James, F.W.H. Myers, Boris Sidis, Jean-Martin Charcot, and M. Pierre Janet, all of whom were interested in dissociative phenomena suggestive of awareness beyond the margins of attention. Such phenomena included hypnosis, hysteria, trance states, and motor automatisms, and for many scholars also sleep related conditions such as dreaming, hypnagogic and hypnopompic states.

To begin, it is useful to make a distinction between concepts of the “unconscious” mind, familiar in psychoanalysis and Jung’s “complex psychology,” and the idea of multiple states of consciousness to varying degrees aware or unaware of each other (Baruss, 2003; Levin, 1997; Wright, 1997). The former can be traced to the tradition of Schopenhauer and von Hartmann in Germany, and 19th century British writers such as Maudsley, Carpenter, and Lewes. The latter was especially well developed in what one of the present authors has termed the *French-Swiss-English-American therapeutic axis*, which

in Paris included Charcot and his foremost student Janet, in England Myers, Jung in Switzerland, and in Boston James (Taylor, 1996). Ernest Hilgard's (1977) *neodissociation theory* is a modern continuation of this tradition. Though the German concept of the unconscious gives some small consideration to consciousness on the margins of attention, for example with the idea of the "pre-preconscious" mind and Freud's late recognition of the importance of peripheral attention in the therapist, the theoretical ideas of the members of the French-Swiss-English-American axis seem remarkably more well-matched to contemporary views of mind and consciousness developed in the sciences of complexity (Combs, 2002; Combs & Krippner, 1993, 2002). The present paper is a step toward connecting these traditions, separated by a century.

The mind as a chaotic attractor.

First, we introduce the idea of the mind as a dynamical process that can be characterized as a chaotic attractor.

Consciousness as a total event is, as William James (1890) pointed out in *The Principles of Psychology*, a constantly changing process, clearly not static or even following a fixed cycle, but nevertheless one that has an identifiable global character, at least for each individual. Memories come and go, thoughts pass through consciousness only to disappear and return again later, moods are continually changing, alertness and energy levels vary from hour to hour. These are the elements of a kind of mental weather, with the equivalent to the latter's constantly fluctuating temperature, humidity, wind, barometric pressure, and so on. It is not surprising that weather is chaotic. Indeed, the elements that comprise it oscillate in roughly identifiable cycles from hour to hour and day to day, but cannot be predicted with precision. What is more, it is unlikely, for example, that temperature fluctuations ever follow exactly the same course on any two days.

Now, much the same can be said about mental weather. It is comprised of the interactions of elements such as moods, thoughts, memories, and so on. For some of these, such as

moods, there is already empirical evidence that they are indeed chaotic (e.g., Combs, Winkler, & Daley, 1994; Sacks, 1973/1990; Winkler & Combs, 1993), while virtually all seem consistent with the general characteristics of chaotic processes (Combs, 1996). As a group, their interactions, like the interactions of the elements of the weather, yield an exquisitely complex process fabric that we know as the stream of experience. This fabric is far too complex to describe in detail, but efforts have been made to mathematically conceptualize it as a grand chaotic attractor. Chaos mathematician Ben Goertzel (1994), for instance, developed the broadly conceived mathematical expression that he calls the *cognitive equation* that represents the entire process structure of an individual's experiential life. He imagines this structure as operating on two levels, that of the mind and that of the brain, observing that "the brain, like other extremely complex systems, is unpredictable on the level of detail but roughly predictable on the level of structure. This means that the dynamics of its physical variables display a strange attractor with a complex structure of 'wings' or 'compartments'" (p. 157). These wings or compartments are in effect small attractors that reside in the larger attractor of the overall neurological activity of the brain. They might, for example, be associated with individual states of consciousness. Goertzel views mental activity as running on top of the brain process, creating the second level of the system. The mental level is somewhat less finely detailed, however, and more generalized than the neurological level of activity. "If physical level attractors are drawn in ball-point pen, process [mental] level attractors are in magic marker" (p. 158). Nevertheless, the same overall process structure is apparent at both levels.

Conceptualizing the natural flow of experience in the mind or the events of the brain as chaotic attractors takes us a good way down the road toward understanding something about their internal dynamics. For one thing, many complex chaotic systems are self-organizing. For example, each living cell is composed of a rich and complex matrix of chemical cycles which self-organize in such a way as to regulate the overall activity of the cell. In 1974 biologists Maturana, Varela, and Uribe carried this notion further, suggesting that the net ongoing product of this matrix of activity is no less than the living cell itself. In other words the principle activity of a living cell, when all its complex

metabolic activities are summed up, is the continuing creation of itself. The authors termed this process *autopoiesis*, or self-creation. Living cells are *autopoietic systems*. So are ecologies, as it turns out, as are many other complex systems such as the international economy and even human societies (Laszlo, Csányi, Combs, & Artigiani, 1996).

As implied above, we believe that the mind, undergirded by brain processes, is also an autopoietic event (Combs, 2002; Combs & Krippner, 2003). Like a living cell, it is made up of complex processes that interact in such a fashion as to create a stable mental regimen, or personality, as its net result. Indeed, it seems that self-regulating, essentially autopoietic activity, is seen at all levels of the system. For instance, beliefs rush to support each other even if they have to be invented on the spot, and even if they fail to form a logically coherent cloth (e.g., Festinger, Riecken, & Schacter, 1956). Reasoning processes are built up out of a self-supporting scaffolding of logical operations that mutually reinforce and sustain each other (Combs, 2002; Flavell, 1963), and emotional states tend to become self-reinforcing, supporting themselves by selective memory (Bower, 1981) and behaviors. All of this gives coherence to our own individual experience, and a day to day stability to who we are.

The coherence of the self.

This general approach to understanding the stream of consciousness offers an insight into how the natural flow of experience forms a continuous and coherent event. And it sheds light on what holds all the parts of the experiential moment together in something like a single self-resonance Gestalt. The question of how such unity of experience is brought about is most important for psychology. James (1890) makes it his first topic in *The Principles*. On the first page he outlines two broad approaches to its solution. According to the first of these:

The most natural and consequently the earliest way of unifying the [mental] material was, first, to classify it as well as might be, and secondly, to affiliate the

diverse modes thus found upon a simple entity, the personal Soul, of which they are taken to be so many facultative manifestations. (V. 1, p. 1)

The second is somewhat more complex:

Another and less obvious way of unifying the chaos is to seek common elements *in* the diverse mental facts rather than a common agent behind them, and to explain them constructively by the various forms of arrangement of these elements, as one explains houses by stones and bricks. (V.1, p. 1)

James referred to the first of these as the *spiritualist* and the second as the *associationist* approach. Years later in *The Varieties of Religious Experience* he noted that “Buddhists or humanists can perfectly well describe the facts [of the mental life] in the phenomenal terms which are their favorites. For them the soul is only a succession of fields of consciousness...” (1902/1929, p. 182) Nevertheless, throughout his career he seemed to have held both of these broad views in tension, sometimes appearing to favor one and sometimes the other. Here we note that the affinity of the second, associationist view, with the modern dynamical systems approach described above can hardly be missed. Lest there be any question about this, on the third page of *The Principles* James goes on to write that the multitude of our mental events weave “an endless carpet of themselves, like dominoes in ceaseless change, or bits of a glass kaleidoscope” (p. 3).

When we conceptualize the flow of mental events in terms of chaotic attractors we are led to the possibility of multiple states within the same individual, each representing a separate “basin” on a common dynamical landscape. Two ordinary examples are normal waking consciousness and dreaming sleep, though the latter may represent more than one possible state of consciousness (Krippner & Combs, 1998). Theorists of the French-Swiss-English-American axis were keenly interested in alternative states of consciousness such as trances and hypnotic states, pathological conditions such as hysteria, and dissociative phenomena including such motor automatisms as automatic writing. In *The Principles* James notes that Janet (1889) postulated the existence of

“secondary” or “subliminal” selves, suggesting that hysterical symptoms are “owned” by such selves outside the purview of ordinary consciousness. In his chapter on the stream of thought James recounts a report by Janet of the creation of such as secondary personality in a patient named Lucie. The latter exhibited a hysterically anaesthetic hand that could produce automatic writing. While engaging Lucie’s attention in a conversation with a third party, Janet whispered in her ear, receiving replies through such writing:

“Do you hear me?” he asked. “*No,*” was the unconsciously written reply. “But to answer you must hear.” “*Yes, quite so.*” “Then how do you manage?” “*I don’t know.*” “There must be someone who hears me.” “*Yes.*” “Who?” “*Someone other than Lucie.*” “Ah! Another person. Shall we give her a name?” “*No.*” “Yes, it will be more convenient.” “*Well Adrienne then.*” (V. 1, p. 222)

Janet observed that after being thus “baptized,” this secondary personality became more definite, displaying characteristics of its own.

This example is of special interest because it offers an insight into the process by which a dissociated subliminal personality might be created: that it does not start off full-blown, but seems to grow from a dim embryonic proto-personality. At least this was the case with Lucie, and it might occur when a naïve psychotherapist inadvertently creates an additional alter during well-meaning but mishandled work with an individual diagnosed with dissociative identity disorder. It is worth taking a moment to consider how such an event might occur from the complex systems perspective.

Considering an individual’s self or personality in terms of the autopoietic psychological processes that create the ongoing structure his or her inner life, the appearance of a dissociated “secondary self” represents a significant change in the organizational structure of the system as a whole. In dynamical terms, the original self system might be said to undergo a *bifurcation* to a new structure. Though bifurcations can sometimes occur abruptly as is the case with “catastrophic” bifurcations, they are often initiated by small local changes in patterns of organization, “seed perturbations,” that spread into all

or significantly large portions of the whole system (Goerner, 1999). Many instances of this kind are seen in complex chemical, biological, and social systems. Strictly speaking, in Lucie's case the personality system, viewed as a whole, has not actually given birth to a new and completely independent secondary self, as would appear from casual observation, but has reorganized itself to include two attractor basins instead of one. An action graph of Lucie's personality structure would show a small secondary, or dissociated, center of activity growing beside the primary center, connected to it by a thin pathway or "trajectory." Were there no such connection Lucie would have no means to move between these centers. Interestingly, she already had developed a hysterically anaesthetic hand, which may have been the sufficient seed perturbation around which the secondary self coalesced. In other words, the already dissociated aspect of the mind which controlled the anaesthetic hand may have served as a ready vehicle for the evolution of the secondary self.

An interesting feature of cases such as Lucie's is that the different self-systems may not have equal access to all of the other systems' memories, suggesting that some of the trajectories are in fact one-way streets. James (1895) followed the tradition of Locke in suggesting that our sense of self-identity is based in memory. Janet and James both tell us that the creation of a secondary self outside of the attention of the primary personality results in the creation of a second, dissociated, thread of memories (Taylor, 1983, 1996). As this secondary self is given more time to become its own person it will develop its own trove of recollections, leading toward a full-fledged sense of independence. Thus we see the beginnings of an alternative self-system or "multiple personality" within the complex psychological structure of the person.

In a sense, a *dissociative identity disorder* is the most extreme of the entire spectrum of dissociation syndromes. In the late 19th century and the first decade of the 20th century psychology was intensely interested in all types of dissociation. Today, a century later, psychology is again seeing dissociation syndromes in large numbers and the topic has once more come under active discussion (Baruss, 2003; Levin, 1997). Interestingly, in the French-Swiss-English-American therapeutic axis it was well known even before Freud

that the roots of pathological dissociation were often to be found in childhood traumas as well as intrapsychic conflicts. In line with the dynamical approach proposed here, the 1910 quotation by Boris Sidis, seen at the beginning of this article, notes the independence of certain episodes of pathological behavior that seem to have a life of their own. Here Sidis even refers to such events in terms of “a whole system-complex” foreign to the individual’s ordinary personality—a secondary personality or perhaps a fragment of one, it would seem. Along these lines, James (1890) refers not only to secondary selves outside of awareness, and thus “sub-conscious,” but also to fragmented mental elements such as thoughts, emotions, and memories, that have not yet attached themselves to either the primary or to secondary selves.

Disaggregation and depletion of neural energy.

The idea of the loss of coherence of the self was at the center of much theorizing about psychopathology at the end of the 19th century. The basic notion was that the continuity of one’s mental life, and thus the self, relies on the association of ideas, meaning thoughts, feelings, memories and the like. The actual processes that undergird such associations were a matter for discussion, but in *The Principles* James attributes them to habits of experience supported by nerve action. For a person with insufficient strength or energy to maintain a coherent flow of associations there was a risk of dissociation, or *disaggregation* as it was sometimes called, leading to a variety of types of hysteria ranging from simple effects such as the anesthetic hand in Lucie’s case, to full-fledged dissociative identity disorders.

Janet spoke of these conditions in terms of psychological weakness, while G.M. Beard used the phrase *neurasthenic exhaustion*, putting the emphasis on the underlying neurological events (in Taylor, 1983, 1996). This was in line with James’s emphasis on neurological processes as the basis for the habits that largely determine associations. In all this it is apparent that speculation about the nature of neurological events in the brain cannot be separated from ideas at the psychological level. Here it is helpful to note that during the 19th century much theorizing about the nervous system was carried out in

terms of the vague concept of electrical "nerve force." In 1780 the Italian physicist Luigi Galvani had discovered that a static discharge to the nerve of a frog's leg caused the leg muscle to contract. By 1791 he had constructed the world's first "wet cell" battery by placing this muscle in series with two metals. Sometime later an electrical "current of injury" was found to flow from bare muscle tissue exposed in wounds received on the battlefield. From such observations it became apparent that muscles and nerves alike operated by electricity, or at least involved electricity in some essential way (Freeman, 1995).

Just how to understand the role of electricity in the nervous system was far from clear. As late as 1872, for example, Charles Darwin pondered, "Why the irritation of nerve-cells should generate or liberate nerve force is not known; but that this is the case seems to be the conclusion arrived at by all the greatest physiologists such as Müller, Virchow and Bernard, and so on" (p. 70). At about the same time, Herbert Spencer (1863), Darwin's spokesman for evolution, observed that it is "an unquestionable truth that, at any moment, the existing quantity of liberated nerve-force, which in an inscrutable way produces in us the state we call feeling, must expand itself in some direction" (p. 109) leading to motivated behaviors of one kind or another. Ideas such as these seem a far cry from today's notions of electro-chemistry that play an essential role in nerve action. Indeed, J. Hughlings Jackson, "father of British neurology," seems to have taken a physicist's view of electricity in the action of the nervous system. In 1884 he wrote, "A normal discharge starting in some elements of the highest centers [of the brain] overcomes the resistance of some of the middle, next the resistance of some of the lowest centers, and the muscles are moved" (pp. 42-44). Here we have gone from the vague notion of "nerve force" to the very concrete idea of electrical resistance, neither of which plays any significant role in modern discussions of the brain except in highly technical treatments of the bio-physics of the cell membranes. As a young neurologist Freud did not miss the potential implications for thinking of the brain in terms of nerve force, especially in the core structures of the forebrain. And it was natural at that time to suspect that hysterics, suffering from dissociations, were victims of weak, energy deficient, constitutions. It was only a short step further to formulate these ideas in psychological terms such as character

weakness, or an insufficiency of psychological energy. James's interest in such matters was especially apparent in his 1906 address to the *American Philosophical Association* (James, 1907).

Such ideas seem strange to us today because our metaphors for understanding the brain have changed. Now we speak of the "computational brain" and "neural networks." The first of these emphasizes the idea of the brain as a computer, stressing its function in terms of information processing. The second emphasizes the idea that the brain is a fluid dynamical system. Both metaphors commonly lead to theoretical representations in terms of algorithms rather than energy. They consider the electrical aspect of brain function as secondary, as is the electrical operation of a computer secondary to its program. Nevertheless, in either computational or network dynamical terms it is still not difficult to imagine that the self-organizing aspects of the brain might lead to the appearance of more than one attractor basin in the same person. Like our predecessors a century ago, we also look for the source of such dissociations in early traumatic experiences. But we view the situation in terms of the kinds of information received and processed by the individual's mind or brain.

Awareness and the spotlight of attention.

Another way to approach the topic of *disaggregation* is through an understanding of attention. Consider the metaphor of attention as a spotlight colored and given meaning by the mental processes that surround it just out of view in the penumbra.¹ This is the region of *consciousness beyond the margin* (Taylor, 1996), which fades into the sub-conscious realm of thoughts, feelings, and memories (as contrasted with the psychoanalytic notion of the *unconscious*). Forerunners of this notion had been anticipated in the *little perceptions* without awareness of Leibniz, the *obscure representations* of Kant, and the *sunken ideas* of Herbart (Orsucci, 2002). James, however, developed it richly in *The Principles* by calling up an image of the stream of

¹ This metaphor was evidently first suggested by Helmholtz in his 1866 *Handbuch der Physiologischen Optik, Vol. III*, but is entirely consistent with James's view.

consciousness as a river in which containers of various sizes and shapes representing attention can be placed:

Every definite image in the mind is steeped and dyed in the water that flows around it. With it goes the sense of its relations, near and remote, the dying echo of whence it came to us, the dawning sense of whither it is to lead. The significance, the value, the image is all in this halo or penumbra that surrounds and escorts it,—or rather that is fused into one with it, and has become bone of its bone and flesh of its flesh; leaving it, it is true, an image of the same *thing* it was before, but making it an image of that thing newly taken and freshly understood. (V.1, p. 255)

Continuing with this metaphor, it is easy to imagine that a person who is too mentally or neurologically vulnerable to effectively regulate his or her own attentional process might lose focus, drifting beyond the container of ordinary consciousness through vague and dissociated states of in a condition Janet termed *somnambulism* (Taylor, 1983), perhaps even leading under certain conditions to the inception of two or more dissociated self-systems. In dynamical systems terms, the first might be described as a broad and poorly defined attractor basin representing an equally indefinite self-system, while the second as a distributed but more discrete self-system with multiple basins. Here we note that James, Janet, and Myers all entertained ideas of multiple simultaneous states of consciousness, or secondary selves, beyond the margin of attention. It is to these secondary selves that hysterical symptoms, often launched by traumatic experiences in childhood and tapped through hypnotism, dreams, and automatic writing, were attributed (Taylor, 1996, p. 67).

Is there awareness outside attention?

With all the above in the balance, we now ask whether it makes sense to speak of awareness outside of attention. Since *awareness* and *consciousness* often have overlapping meanings, we choose to reframe this question in terms of the present discussion as “Is there *consciousness* outside of attention?” Like the terms *awareness* and

attention, the word *consciousness* also has multiple meanings. Here we list of few of them, many of them proposed by philosopher Ned Block (2002):

1. *Phenomenal consciousness*: Subjectivity, e.g., "what it is like" to be a bat (Nagel, 1974). In this regard, consciousness is often said to be *intentional* or "about something."
2. *Self-consciousness*: To have a concept of self and to employ it. Human infants and most other animals may not display this form of consciousness.
3. *Monitoring consciousness*: Any form of internal scanning. This does not necessarily require phenomenal consciousness; e.g., desk top computers and car engines can do it. Higher order thought *can* be involved, e.g., one can be conscious (or aware) of one's state of mind.
4. *Access consciousness*: Access to information, e.g., in long term memory; so-called "unconscious material" can be accessed through hypnosis, free association, etc.

To these we would add:

5. *Field consciousness*: A mosaic or field encompassing an organism's memories, perceptions, cognitions (e.g., awareness, attention, thoughts), and affect at a given point in time.

Now, let us turn to the problem of multiple selves in the same person, as in Janet's case of Lucie's primary and secondary selves, or the instance of full-fledged dissociative identity disorders. We might ask, *is it like something to be one of these multiple selves?* Well, we presume it is; otherwise we would be dealing with automata. Next, we might ask, *are they self-consciousness?* Again, apparently they are. Even at Adrienne's nascent

stage of development she accepted a name, and we can assume from other cases that she had begun to acquire memories of her own.

Access consciousness and monitoring consciousness, however, are more troublesome. Many cases of hysteria seem to involve a failure of both monitoring consciousness and access consciousness, at least on the part of certain selves. The presence of Lucie's anaesthetic hand is an example of this, at least from the point of view of her primary self. As suggested above, cases of dissociative disorder, especially of the dissociative identity type, may involved multiple selves with complex asymmetric relationships regarding memory access and the monitoring of each other's activities (Baruss, 2003; Levin, 1997; Wright, 1997). This is one of the most perplexing aspects of such disorders from a complex systems point of view. Of course, such asymmetry is common in hierarchically organized artificial intelligence systems such as computers, where subsystems are monitored by higher-order executive systems. In his neo-dissociation theory, Hilgard (1977) proposes something very much like this in his description of the human psychological control system, with an executive self ordinarily at the top. In cases of dissociative identity disorder it is as if the executive self has lost, or perhaps had never gained, control over the other systems, and indeed the entire hierarchical regimen has failed, while privileged access remains in the hands of some subsystems but not others. It would seem that the task of the therapist is to rebuild this set of subsystems into something like a working hierarchy. In any case, it is apparent that the question of where access and monitor consciousness lie is complex and must be answered differently for each dissociative disorder.

Perhaps an even more enigmatic question concerns the possibility of truly simultaneous streams of consciousness, perhaps associated with different self-systems within the same person. Strangely, Myers (1903) seems to have considered this a normal situation, even in healthy persons, let alone those with dissociative disorders. And Janet as well as James seems to have been persuaded in this direction as well. Rare cases such as that of Lucie and Adrienne seem to support this possibility, and there have been reports of one self dreaming while another is awake (Barrett, 1996)! There is nothing in dynamical systems

theory to prohibit the possibility of two or even more centers (or fields) active at once, though they would be considered two basins within a single larger attractor. Such cases, however, would be unlikely if monitor consciousness were available to either self during their simultaneous activation; otherwise it seems they would not report entirely separate phenomenal conscious experiences.

It would appear from all of the above that the human brain and mind are capable of many complex and sometimes enigmatic processes, sometimes to the consternation of those who experience them. However, a complex systems-oriented approach to consciousness and its components (e.g., attention, awareness) can clarify much of the existing confusion because it works with a non-linear model in which several events can occur simultaneously without challenging the viability of the system's organization. In other words, there can be awareness outside of attention, there can be attention outside of awareness, both can occur simultaneously, and some form of consciousness can be ongoing without either attention or awareness taking place. Two different self-systems can be attending to two different aspects of the same set of stimuli, implying that awareness is not necessarily a unitary phenomenon. All of these alternatives are possible phenomena that may characterize a given person's field of consciousness, depending on whether that field is well-organized or haphazardly organized, linear or non-linear, economically layered or multi-layered, static or dynamic. Of course there can be awareness beyond the boundaries of ordinary attention. But this model permits one to pay attention to events without recourse to ordinary awareness.

References

- Barrett, D. (1996). Dreams in multiple personality disorder. In D. Barrett (Ed.), *Trauma and dreams* (pp. 68-81). Cambridge, MA: Harvard University Press.
- Baruss, I. (2003). *Alterations of consciousness: An empirical analysis for social scientists*. Washington, D.C.: American Psychological Association.

Block, N. (2002). Some concepts of consciousness. In D. Chalmers (Ed.), *Philosophy of Mind: Classical and Contemporary Readings*. New York: Oxford University Press.

Bower, G.H. (1981). Mood and memory. *American Psychologist*, *36*, 129- 148.

Combs, A. (1993). The evolution of consciousness: A theory of historical and personal transformation. *World Futures: The Journal of General Evolution*. *38*, 43- 62.

Combs, A. (1996). Consciousness: Chaotic and strangely attractive. In W. Sulis & A. Combs (Eds.), *Nonlinear dynamics in human behavior*. London: World Scientific.

Combs, A. (2002). *The Radiance of being: Understanding the grand integral vision; Living the integral life*. St Paul, MN: Paragon House.

Combs, A., & Krippner, S. (1999). Spiritual growth and the evolution of consciousness: Complexity, evolution, and the farther reaches of human nature. *International Journal of Transpersonal Studies*, *18*, 9-19.

Combs, A. & Krippner, S. (1998). Dream sleep and waking reality: A dynamical view of two states of consciousness. In S. Hameroff, A.W. Kaszniak & A.C. Scott (Eds.). *Toward a science of consciousness: The second Tucson discussions and debates*. (pp. 487-493). Cambridge, MA: MIT Press.

Combs, A., & Krippner, S. (2003). Process, structure, and form: An evolutionary transpersonal psychology of consciousness. *International Journal of Transpersonal Studies*, *22*, 47-60.

Combs, A., Winkler, M., & Daley, C. (1994). A chaotic systems analysis of circadian rhythms in feeling states. *Psychological Record*, *44*, 359- 368..

Darwin, C. (1872). *The expression of emotion in man and animals*. London: Murry.

Festinger, L., Riecken, H.W., Jr., & Schacter, S. (1956). *When prophecy fails*. Minneapolis: University of Minnesota Press.

Flavell, J. H. (1963). *The developmental psychology of Jean Piaget*. New York: Van Nostrand.

Freeman, W.J. (1995). *Societies of brains: A study in the neuroscience of love and hate*. Hillsdale, NJ: Erlbaum.

Goerner, S. (1999). *After the clockwork universe: The emerging science and culture of integral society*. Edinburgh, Scotland: Floris.

Goertzel, B. (1994). *Chaotic logic*. New York: Plenum.

Helmholtz (1866). Handbuch der Physiologischen Optik, Vol. III. In G, Karsten (Ed.), *Allgemeine Encyklopädie der Physik*.

Hilgard, E.R. (1977). *Divided consciousness: Multiple controls in human thought and action*. New York: Wiley.

Jackson, J.H. (1958). Evolution and dissolution of the nervous system: Lecture III. J. Taylor (Ed.). *Selected writings*. New York: Basic Books. (Original work published 1884)

James, W. (1890). *The principles of psychology*. Cambridge, MA: Harvard University Press.

James, W. (1895). Person and personality. In C.K. Johnson's *Universal Cyclopaedia*, 6, (pp. 538-540).

James, W. (1929). *The varieties of religious experience: A study in human nature*. New York: Modern Library. (Original work published 1903)

James, W. (1907). The energies of men. *The American Magazine*. [Reprinted by Kessinger Publishing; www.kessingerpub.com]

Kampis, G. (1991). *Self-modifying systems in biology and cognitive science*. New York: Pergamon.

Kauffman, S.A. (1993). *The origins of order*. New York: Oxford University Press.

Laszlo, E., Csányi, V., Combs, A. L., & Artigiani, R. (1996). *The evolution of cognitive maps: New paradigms for the 21st century*. London: Adamantine Press.

Levin, R. (1997). The body and modernity in MPD/DID. In S. Krippner & S. M. Powers (Eds.), *Broken images, broken selves: Dissociative narratives in clinical practice*. Washington, DC: Brunner/Mazel.

Maturana, H. R., Varela, F. J., & Uribe, R. (1974). Autopoiesis: The organization of living systems, its characterization and model. *Biosystems*, 5, 187- 196.

Myers, F.W.H. (1903). *Human personality and its survival of bodily death*. New York: Longmans, Green.

Nagel, T. (October, 1974). What is it like to be a bat? *The Philosophical Review* LXXXIII, 4, 435-450.

Orsucci, F. (2002). *Changing mind: Transitions in natural and artificial environments; Studies of nonlinear phenomena in life science, Vol. 9*. New Jersey: World Scientific.

Sidis, B. (1910). Fundamental states in psychoneurosis. *Journal of Abnormal Psychology*, 5, 321-327.

Spencer, H. (1863). *Essays: Moral, political, and aesthetic*. New York: Appelton-Century-Crofts.

Taylor, E. (1983). *William James on exceptional mental states: The 1896 Lowell Lectures*. Amherst, MA: University of Massachusetts Press.

Taylor, E. (1996). *William James on consciousness beyond the margin*. Princeton, NJ: Princeton University Press.

Winograd, E., & Neisser, U. (1992). *Affect and accuracy in recall*. Cambridge: Cambridge University Press.

Winkler, M., & Combs, A. (1993, July). A chaotic systems analysis of individual differences in affect. Paper presented at *The 24th Interamerican Congress of Psychology*, Santiago, Chile.

Wright, P. A. (1997). History of dissociation in western psychology. In S. Krippner & S. M. Powers (Eds.), *Broken images, broken selves: Dissociative narratives in clinical practice*. Washington, DC: Brunner/Mazel.