RIGHT-HEMISPHERE PROCESSING IN DREAMS
AND FILMS

Bruce Kawin

It has long been observed that empirically films are like dreams: that both are experienced as predominantly visual hallucinations occurring while the subject is physically passive in a darkened environment. Dreams have been described as films that the dreamer generates and watches in a cerebral theater, as films have been described as dreams generated by artists or businessmen and rendered sharable through the technology of cinematography and projection. Although the dreamer is more actively creative than the filmgoer, the dreamer is not usually aware of generating the dream as it proceeds, with the result that, on a conscious level, both dreamer and filmgoer experience themselves as relatively passive observer/participants in the imagined and pseudo-autonomous (as-if-real) world of the image.

The suspension of disbelief is a conscious process that allows the filmgoer to become “involved” in the exterior-generated dream, unnecessary in the case of the dreamer since she or he is responding to intracerebral stimuli. According to Hobson and McCarley, the pontine brain stem is periodically activated during dream-sleep, preparing the forebrain (which includes the left and right hemispheres of the cerebral cortex) to process information as well as generating rapid-eye-movements. Since the posited intermediary between pontus and forebrain is the “midbrain reticular formation that is also responsible for its activation during waking,” these stimuli may be experienced as analogous if not identical to those which occur in response to conditions in the outside or waking world. The result is that the dream seems real as it proceeds and suspension of disbelief is not required.

Hobson and McCarley have reversed the psychiatric model of dream-formation as well as the usual understanding of the relation between REMs and dream imagery. Where it used to be posited that thoughts, emotions, and memories were the primary initiators of images that the eyes followed, it has now been experimentally demonstrated that the periodic (and therefore not triggered by unconscious or cortical desires to express anything) signals sent to the forebrain from the brain stem, coupled with the similarly generated REMs, prompt the forebrain to generate dream imagery. The cognitive areas thus invent a story or sequence of pseudo-concepts that corresponds (milliseconds after the fact) to the eye movements and to shifts in the pontine stimuli. This model of “where” dreaming occurs leaves open the question of the respective contributions of the left and right hemispheres—a question that may turn out to be highly relevant to an understanding of film and its relation to both language and dreaming.

In most right-handed subjects (the norm for this discussion) the left hemisphere is dominant for language and for related sequential processes, the right for such spatial processes as pattern-recognition and holistic intuition. Although there is extensive interconnection between the hemispheres, which renders these
distinctions of function somewhat oversimplified, studies of split-brain subjects nevertheless demonstrate their general validity.¹

The evidence that the right hemisphere may be dominant in generating and perhaps interpreting dream imagery is incomplete but suggestive. In 1951 Humphrey and Zangwill⁴ found that right-brain damage caused some subjects to lose the ability to dream along with the waking ability to form visual images. In 1946 Penfield and Roberts reported that “dreamy states” were produced in some subjects by stimulation of the right temporal lobe.⁵ In 1979 Honegger⁶ argued that the right brain often communicates to the left via “synchronicities” (coincidental or psychic correspondences noted in the waking world) that are comparable to “the string of associations that emerges from dreams,” and that the ability to recall dreams usually disappears in split-brain subjects. Hobson and McCarley’s hypothesis that the forebrain synthesizes imagery appropriate to almost random stimuli, “spatially specific but temporally disorganized,” implies that the right hemisphere is more likely than the left to be the image-generator, not only due to the obviously spatial rather than sequential quality of visualization, but also because of the holistic and pattern-recognizing nature of the process of synthesizing data into a dream. The latter point might be supported by the findings of Wada and Davis⁷ that babies, like adults, process “a click stimulus in the left hemisphere, a visual flash in the right. . . . They considered the click ‘highly structured auditory information,’ the flash ‘unstructured visual information.’” Their conclusion was that left-hemisphere process is “not only analytic and sequential, but also comparative, relational, and referential. And the right brain, with its handling of material for which there has been no previous reference, is not only holistic but non-referential and integrative.” Zaidel⁸ found the right hemisphere superior to the left at perceiving “a meaningful whole from incomplete or limited material,” while the left is better able to “hold a configuration in mind despite distraction—that is, to see a figure hidden or embedded in a larger, more complex pattern.” (This evokes the primal psychiatric scene of the left-brain analyst’s imposing his sense of the embedded figure on the gestalt of the patient’s dream, a situation endemic in film criticism.) Also there is, building on Hobson and McCarley, the manifestly reasonable hypothesis that the left hemisphere tends to be stymied by the reversal of cause and effect involved in generating movement after the REM has followed it. In other words, such a process would be possible only in a holistic and nonsequential frame of reference, and therefore the temporal component of dreams does not have the linearity of clock-time, but is a more complex structure of interaction that might need to be conceptualized as distributive or spatial. One final possibility is that the difficulty people have in recalling dreams may reflect their being asked to describe, i.e., in left-brain terms, an event whose terms and gestalt have been proceeding in an integrated and fundamentally nonverbal mode. This effort of translation is so difficult that it thoroughly engages the language centers (whether in a laboratory or at home, the demand and shift are the same) at the expense of that felt connection with the dreamworld of the right brain which alone could keep its imagery accessible. So while it may be true, as Hobson and McCarley suggest, that poor dream recall reflects “a state-dependent amnesia,” one might well add that that state is not necessarily sleep but possibly right-hemisphere dominance.

On the basis of this highly abbreviated literature review, one can entertain the notion that the right hemisphere is significantly involved, and perhaps even dominant, in generating dream imagery and in making immediate—as distinct from
waking—sense of that imagery. It is not necessary to posit left-brain involvement in those dreams that turn on verbal information, puns, signs, and scenes of dialogue since it has been demonstrated that the right brain, while it is normally incapable of verbal expression, has a rich sense of the tone and rhythm of language. The right brain may be capable of generating and manipulating something analogous or symbolically equivalent to words. Doubtless it is involved in some aspects of response to poetry and is largely responsible for the emotional component of speech. This idea raises another aspect of the relations between dreaming and language.

Jaynes has observed that the area in the right hemisphere that corresponds to Wernicke’s Area (the most indispensable of the various language centers) in the left, has “no apparent function;” on this he has built his questionable notion that this area once produced auditory hallucinations in primitive man. In the 1959 Penfield study, those areas whose stimulation evoked dream-like states were in just that area of the cortex to which Jaynes refers. This suggests the possibility that the right brain does have a language center, that it is not at all vestigial, and that it “speaks” in dreams and in some visual complement to verbal language. That there is such a thing as visual language has been ably demonstrated not only by the history of “meaning” in the visual arts, but also by the discipline of semiotics, one of whose basic premises is that a word is simply one kind of sign. Verbal signs are of course easier to talk about than visual signs, since no categorical shift is necessary and, perhaps, because linguists tend to be analytical, left-brain types, who find themselves at sea when they attempt to discuss the nonverbal. This last problem is particularly noticeable in many contemporary French and British film theorists (see any issue of Screen, but I am thinking specifically of Christian Metz, Stephen Heath and Raymond Bellour) who have attempted to construct a semiotics of film in absolutely left-brain terms, thoroughly alienating themselves from the film experience as well as from many American readers. It is also evident in such writers as Lacan and Derrida, who so rigorously insist on the linguistic model that they are led to the conclusion that the self (and by distant implication the “transcendental signified”) can be conceptualized and discussed as an absence. A philosopher like Wittgenstein, on the other hand, had a clear sense of the limits and uses of language and advised that language be applied only to the logical, making it clear between the lines and at the end of his Tractatus that there were more things in heaven and earth than his or any philosophy could deal with. However, current European thinking holds that the inconceivable does not exist.

This conviction in no way restricts us from observing that the world is fashioned from more than words and that the right hemisphere may be as crucially and regularly involved in as many perceptive and expressive processes as the left; even if its activities are difficult to discuss. These difficulties range from the ancient problem of the impossibility of describing holistic intuitions (the ineffable, the nature of God, the direct experience of the higher self) to explaining what one means by love, or how to ride a bike, or what red looks like, or the way someone’s hand moved in the most strangely exciting moment of a dance. This right-brain involvement also has its effect on ordinary film criticism, of course, where left-brain terms are regularly applied to a world of moving images.

Film is primarily a right-brain experience. A film whose only important statements are made in words, whether it be a monotonously “filmed play” or a commercial in which someone simply points to a product and describes its merits, is almost universally considered a bad film. (Jean Luc-Godard’s work successfully
qualifies this assumption.) Although words often provide significant information, whether spoken aloud, provided in titles, or read within the image, they are subsidiary to the more fundamental communications of the visual field. Silent films without titles (and there were many) depended so completely on the expressive qualities of gesture, composition, lighting, cutting, camera movement, and the rhythmic integration of all of these, that they could be considered almost exclusively right-brain events. I use "almost" since the left brain would still have been involved in systematizing and interrelating information. The reading of title-cards in the majority of silent films engaged the left brain, but the right brain was also involved at such moments, generating the tones and voices for those words—a process Brownlow has posited as essential to the active, creative component of watching a film. The more creative the filmgoer, the more he or she resembles the dreamer, which may contribute to the intensely visionary impression left by some silent films and by certain nonverbal sequences in the work of such masters as Dreyer and Herzog.

There has been little or no investigation, neither by brain researchers nor by film theorists, into this vital connection between film and the right hemisphere. One set of findings that may prove relevant is that "human beings shift cognitive styles every hour and a half, becoming alternately more efficient in verbal or spatial processing," that "these rhythms are involved in an oscillation of efficiency between the left and right hemispheres," and that this oscillation seems "to correlate with a known rhythm, the 'basic rest-activity cycle,' discovered some time ago via sleep research." What this material suggests is that the standard length of a feature film may have evolved in relation to the average period of time an audience could efficiently process spatial information—all of this being done, of course, on an empirical level. It should also be noted that the very earliest films were about as long as the average dream; this might represent a lower limit, with the audience and industry gradually adjusting to the upper limit of a right-brain efficiency cycle. The history of the double feature or the occasional three-hour film does not sufficiently challenge the theory, since the films are usually experienced as exhausting or as overloads, even by people who are otherwise able to sit for very long periods. However, these parallels suggest a basic link between dreaming and filmgoing that is much more significant than the question of duration.

It would be possible to go on citing points of connection between dreams and films: many films include dream sequences, some people's dreams are influenced by movies, some Surrealists turned to film as a means to express or mirror the logic of dreams, both dreamers and filmgoers impose meanings on visual experience, some people feel as if they "wake up" when they leave a theater, saccadic eye movements are basic to "reading" both dreams and films, shots present partial views which must be interrelated into a larger spatial and temporal construct (obviously by the right hemisphere) if the film is to be understood, and so on. Instead I would like to close by suggesting some implications of this connection between film and dream for film criticism.

One of the oldest battles between artists and critics is that of intentionality. A critic may invent a complex explanation of the meaning of a passage or sequence that the artist will insist was done that way simply because "it felt right." I suggest that critics start to believe artists when they say such things, perhaps keeping in mind the difference between riding a bike and explaining how it works, or between dancing and watching one's feet while counting. Nor is this just a question of cultivating an attunement with the creative process of an artist working in a right-hemisphere, often intuitive, mode; it is also a matter of inventing a critical vocabulary that is
adequate to the achievements and signifying structures in the actual film. If the critic is aware of applying left-brain terms to a predominantly right-brain artwork, he or she may do a better job of describing and interpreting the film. The critic may pay more attention to critical methods in the spatial arts, especially dance and painting, rather than concentrating so extensively on literature (like most American film critics) and linguistics (like most semioticians). The critic might try “reading” a film as a dream, without imposing Freudianisms. If the critic placed less emphasis on the statement or message (usually verbal constructs) she or he thinks the film may or ought to be conveying, and entered the world of the visual field as if it were simply a flow, then a visualized consciousness might result. This process may leave the critic with “nothing to say” about the work, and that quandary itself might prove the most reliable foundation for any subsequent analysis, since it would indicate genuine engagement with the film on its own terms. There is no need to interpret films exclusively in right-hemisphere terms, but it is essential to realize that a fundamental translation process is involved in most left-brain approaches and that this translation is comparable to the problem of describing music or recounting a dream. It is a matter of interpreting light.

REFERENCES


7. Wada/Davis Left, right brain differences are more fundamental than verbal, non-verbal, Brain/Mind Bulletin II, 22.

8. Zaidel Right, left brain may compete but need each other, Brain/Mind Bulletin III, 14.


11. Rhythm found for cognitive styles, Brain/Mind Bulletin IV, 17.