

Hypnosis, Bicameral Mentality and the Theory of Mind

John F. Kihlstrom

Interviewed by Marcel Kuijsten

John Kihlstrom identifies himself as a cognitive social psychologist with clinical training and interests. He received his AB degree, with a major in psychology, from Colgate University in 1970, where he was introduced to hypnosis research by William E. Edmonston. He received his Ph.D. in psychology, with a focus on personality and experimental psychopathology, from the University of Pennsylvania in 1975, where he studied with Martin T. Orne. In the course of his doctoral training, he completed a clinical internship at Temple University Health Sciences Center. He began his academic career at Harvard University (1975–1980), and moved to the University of Wisconsin (1980–1987), the University of Arizona (1987–1994), and Yale University (1994–1997), before settling at the University of California, Berkeley (1997–2017). At the time of his retirement from Berkeley he was Professor in the Department of Psychology and Richard and Rhoda Goldman Distinguished Professor in the Division of Undergraduate and Interdisciplinary Studies. In addition to his extensive program of research on hypnosis, his 1987 *Science* paper on “The Cognitive Unconscious” is generally regarded as a landmark in the revival of scientific interest in unconscious mental life.

MARCEL KUIJSTEN: So to start with, we recognized coming into this that we have diverging views on certain aspects of Jaynes’s theory, and that this would be part interview and part discussion. I think that this type of

discussion helps to further elucidate and advance ideas, and will hopefully give readers greater clarity on some of the finer points of Julian Jaynes's theory. So I want to state up front that I appreciate both your willingness and your encouragement of this process.

JOHN KIHLSSTROM: Thank you. For my part, I really appreciate the efforts you've made to keep Jaynes's ideas alive. I don't think our differences are all that great because we both accept his fundamental insight: that a major change in consciousness occurred not just in evolutionary time, but in historical time.

KUIJSTEN: Julian Jaynes cites your work in *The Origins of Consciousness in the Breakdown of the Bicameral Mind*, in his chapter on hypnosis. How did you first encounter Jaynes?

KIHLSSTROM: I was surprised and pleased to see that footnote. I was a newly minted academic at the time, and this was almost my first recognition outside the relatively narrow circle of hypnosis researchers. Frankly, at this point I don't remember my discussion with him, some 50 years ago, but I do remember when I first heard his theory of the bicameral mind. Jaynes gave a colloquium at Penn when I was a graduate student — it may actually have been my first colloquium as a graduate student, in the fall of 1970. Penn had a very active colloquium series, everyone attended every week, and there was a tradition that the opening talk be something really special. At any rate, Julian got caught up in a debate with Frank Irwin, the *eminentia grise* in the department — a debate about Greek philology! (It may have been Morris Viteles, another member of Penn's Old Guard.) This in one of the highest-ranked psychology departments in the country — the place where the American Psychological Association held its first meeting, which housed the first psychological clinic, where industrial/organizational psychology was invented, where mathematical psychology was practically invented, where our understanding of subjects as basic as color vision and classical and instrumental conditioning had been completely revolutionized; where Ulric Neisser wrote *Cognitive Psychology*,¹ and they were also talking about classical literature. It was my ideal of what academic life should be.

1. U. Neisser, *Cognitive Psychology* (Appleton-Century-Crofts, 1967). Neisser wrote this pioneering textbook while on sabbatical from Cornell in Martin Orne's laboratory.

I wish that I remembered our discussion. Jaynes refers to my early research on posthypnotic amnesia, some of which had not yet been published.² His note suggests that we discussed hypnosis at Harvard, where I was an assistant professor in 1975, while *The Origin* was being finished, and Jaynes may have given a talk there as well — but again, unfortunately, I just don't remember. That colloquium at Penn, though, really sticks in my mind — almost like a flashbulb memory.

KUIJSTEN: That's a great story. It's a shame that more of his early lectures and discussions weren't recorded. Over the course of your long career, you've studied many different subjects that are very relevant to consciousness in general and to Jaynes's theory specifically. Let's start with conscious versus nonconscious (or unconscious) learning and perception. In the literature on consciousness, learning and perception are still often lumped in with consciousness, but Jaynes gives clear examples of how learning and perception can take place nonconsciously. In other words, we often attribute much more of our mental activity to consciousness than is warranted. In the literature on consciousness, there is still tremendous confusion on this point. You've explored these ideas in articles such as "The Cognitive Unconscious," and chapters titled "Perception Without Awareness of What is Perceived, Learning Without Awareness of What is Learned" and "Unconscious Processes."³ Can you describe some of your key insights on learning and perception without consciousness?

KIHLLSTROM: It's commonplace to identify consciousness with thinking, broadly construed. William James did that in the *Principles*, which led his position on unconscious mental life to be widely misunderstood. But even James acknowledged, from the studies on hypnosis and hysteria that were available to him, that all sorts of mental activity could go on outside of conscious awareness. He disliked the term "unconscious," but he freely embraced terms like "co-conscious" and "sub-conscious," which amount to the same thing.

2. F.J. Evans and J.F. Kihllstrom, "Posthypnotic Amnesia as Disrupted Retrieval," *Journal of Abnormal Psychology*, 1973, 82, 2; J.F. Kihllstrom and F.J. Evans, "Generic Recall During Posthypnotic Amnesia," *Bulletin of the Psychonomic Society*, 1978, 12, 1.

3. J.F. Kihllstrom, "The Cognitive Unconscious," *Science*, 1987, 237, 4821; "Perception without Awareness of What Is Perceived, Learning without Awareness of What Is Learned," in M. Velmans (ed.), *The Science of Consciousness: Psychological, Neuropsychological and Clinical Reviews* (Routledge, 1996); "Unconscious Processes," in D. Reisberg (ed.), *Oxford Handbook of Cognitive Psychology* (Oxford University Press, 2012).

Consciousness has two aspects. First, *monitoring* ourselves and our environment, so that we become aware of the outside world and our relation to it. The monitoring function enables percepts, memories, thoughts, feelings, and desires to be represented in phenomenal awareness. Second, *controlling* ourselves and our environment, so that we voluntarily initiate and terminate various mental and behavioral activities. It is through the controlling function that we exercise what the philosophers (and lots of other people, too) call free will or agency.

When we talk about unconscious perception or learning, we mean that they are unconscious in both senses: they occur outside of awareness and outside of control. Perception without awareness was once very controversial, but now has been established to the satisfaction of just about everyone. It often goes by the name of “subliminal” perception, but there are cases where the stimulus is not, technically, presented below the threshold of conscious perception. Still, there is an external stimulus, which for some reason the subject does not consciously perceive, but which has some objective effect on the subject’s experience, thought, or action. That effect must be mediated by some internal mental representation of the stimulus, and there’s nothing else to call it but an unconscious perception. Actually, I prefer to call it “implicit perception,” paralleling the concept of implicit memory.⁴

Now, one thing we’ve learned is that subliminal perception, and most other forms of implicit perception, is analytically limited. There is only so much processing you can devote to a subliminal stimulus, and only so much information you can extract from it. And the effect typically does not last too long, on the order of seconds. Hypnosis seems to expand these limits, as in the case of implicit perception during hypnotically suggested blindness, but that is a long story. The most important insights are (1) that unconscious perception is real, and (2) that it’s typically limited. It’s not the case that you can flash “Drink Coke” on a movie screen and have everyone run for the concession stand.

The same thing goes for unconscious learning — which, again following the example of implicit memory, I prefer to call “implicit learning.” Actually, learning was the first domain in which the explicit-implicit distinction was applied.⁵ We define learning as any relatively permanent change in

4. D.L. Schacter, “Implicit Memory: History and Current Status,” *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 1987, 13, 3.

5. A.S. Reber, “Implicit Learning of Artificial Grammars,” *Journal of Verbal Learning & Verbal Behavior*, 1967, 6, 6.

behavior — or, from a cognitive point of view, knowledge — which occurs as a result of experience. Again, there are still skeptics, but it's been pretty well established that people can use knowledge that they've acquired through experience, without being aware of the knowledge that's guiding their behavior. This is different from source amnesia, a variant on implicit memory, in which the subject has conscious access to newly acquired knowledge, but doesn't remember the episode in which that knowledge was acquired.

KUIJSTEN: Another interesting aspect of consciousness is the notion of “the self.” Julian Jaynes only touches on the idea of the self briefly in a few places in his book, but he did give a lecture on this topic that I've published in *The Julian Jaynes Collection*.⁶ You've published a number of articles on different aspects of the self. Can you give us a brief summary of your thoughts on the nature of the self and how it relates to consciousness?

KIHLLSTROM: I define the self simply as one's mental representation of oneself — a high-level cognitive structure that includes the person's knowledge of him- or herself.⁷ This knowledge structure can take a variety of forms. The self-concept can be thought of as a prototype whose characteristic features tend to distinguish a person from everyone else — at least from his or her point of view. The self-image is a perception-based, analog representation of what one looks, sounds, and feels like. The self can also be construed as a network of semantic and episodic memories referring to oneself. Or you can think of it as a theory, which explains not just what you are like, but also how you came to be that way. However you think of it, it's a knowledge representation stored in memory.

And this mental representation of the self is critical to consciousness — at least the kind of consciousness that Jaynes is talking about. In the *Principles*, William James wrote that “It seems as if the elementary psychic fact were not *thought* or *this thought* or *that thought*, but *my thought*, every thought being *owned*.” Without a sense of self, you can't have that. Jaynes's bicameral man has thoughts go through his head; after the breakdown of

6. J. Jaynes, “Imagination and the Dance of the Self,” in M. Kuijsten (ed.), *The Julian Jaynes Collection* (Julian Jaynes Society, 2012).

7. J.F. Kihlstrom and S.B. Klein, “The Self as a Knowledge Structure,” in R.S. Wyer and T.K. Srull (eds.), *Handbook of Social Cognition, Vol. 1: Basic Processes* (Lawrence Erlbaum Associates, 1994); J.F. Kihlstrom, “Searching for Self in Mind and Brain,” *Social Cognition*, 2012, 30, 4; “Consciousness and Me-Ness,” in J.D. Cohen and J.W. Schooler (eds.), *Scientific Approaches to Consciousness* (Erlbaum, 1997); “Consciousness, the Unconscious, and the Self,” *Psychology of Consciousness: Theory, Research, and Practice*, 2021, 8.

the bicameral mind, people recognize them as the products of their own mental activity. All conscious mental states have this link to the self as the agent or patient of some action, or the stimulus or experiencer of some state. In unconscious processing, this link to the self is absent.

KUIJSTEN: Indeed. The relationship between the self and consciousness is quite interesting, as well as how and why some thoughts are perceived as not being associated with ourselves. I think there is much more to explore here.

You have studied hypnosis for many years. In the past, I've argued — as have others — that one of the major obstacles to progress in the field of consciousness studies in general, and to understanding Julian Jaynes's theory specifically, is the fact that there is no widespread agreement over the definition of the term "consciousness." Consciousness theorists and authors define it in wildly different ways, or fail to define it altogether. Do you see similar disagreement with regards to how "hypnosis" is defined? How do you define the term — is hypnosis an altered state of consciousness?

KIHLSTROM: I define hypnosis, pretty conventionally, as a process in which one person, whom we call the hypnotist, offers suggestions to another person, whom we call the subject, for imaginative experiences entailing alterations in perception, memory, and action. In the classic case, these experiences are associated with a degree of subjective conviction bordering on delusion, and an experience of involuntariness bordering on compulsion. The persisting theoretical debates in the field, and they're related, are (1) whether hypnosis is anything more than suggestion, and (2) whether it is an altered state of consciousness. But there are several different forms of suggestibility, and not all of them are "hypnotic" in nature. They're different, for example, from the suggestion that we go to lunch at the Omelet House. For many clinicians, "hypnosis" is little more than progressive relaxation and instructed reverie. But hypnotized subjects see things that aren't there, and fail to see things that are there, they don't feel pain, and they can't remember these experiences later. So it seems obvious to me that hypnosis is an altered state of consciousness.⁸

KUIJSTEN: Yes, and from my own limited experience with practicing hypnosis, I share that view. It's now been more than 40 years since Jaynes first

8. I analyze the components of this definition in "The Domain of Hypnosis, Revisited," in M. Nash and A. Barnier (eds.), *The Oxford Handbook of Hypnosis* (Oxford University Press, 2008). See also "Hypnosis as an Altered State of Consciousness," *Journal of Consciousness Studies*, 2018, 25, 11-12.

published his book. How does Jaynes's discussion of hypnosis hold up in your view? Do you see hypnosis as a vestige of the bicameral mind?

KIHLLSTROM: I can understand why hypnosis appealed to Jaynes. Many aspects of hypnosis can be viewed within the framework of what he called the *general bicameral paradigm* (p. 323ff). There is a more-or-less formalized *induction* procedure, of course, resulting in an altered state of consciousness that some writers still call "*trance*," at least informally. And a transference-like "archaic involvement," which Ronald Shor thought was characteristic of deep trance, is similar to Jaynes's *archaic authorization*.⁹ All the cultural stereotypes and expectations surrounding hypnosis, including what Orne called its chameleon-like nature — the fact that the core features of hypnosis vary over time and setting — reflects something like the *collective cognitive imperative*. It's clear that Jaynes had read widely in the literature that was available to him — both the nineteenth century authorities, even going back to Mesmer and the Franklin Commission in the eighteenth century, as well as much of the more recent research and theory. And apparently, he did a little bit of experimenting with hypnosis himself.

At the same time, one shouldn't get carried away with the parallels. Close your eyes: that's what it feels like to be hypnotized, so "trance" is some kind of holdover from the language of a previous era. Besides, anything that can occur in hypnosis can also occur posthypnotically, after the subject is out of "trance." And there are lots of ways to induce hypnosis, some of which are downright "nonhypnotic." George Estabrooks, an authority on hypnosis from the early twentieth century, who was still a presence at Colgate when I was a student there, was the first to record a hypnotic induction — on 12-inch Victrola disks, as part of an early effort to standardize procedures for hypnosis research (he also invented the short-answer academic test, to the everlasting gratitude of all classroom teachers, but that's another story). Anyway, one day when he was working with a subject, he put on a record, left the room, came back at the appropriate time to continue the experiment in person, and found the subject deeply hypnotized. But when he was preparing for the next subject, he discovered that he had accidentally played a recording of a Swiss yodeler! Apparently, the voice of the hypnotist isn't all that important, provided that the subject has the appropriate

9. Ronald Shor was a graduate student of Abraham Maslow, and his phenomenological analysis of hypnosis was widely influential. See, for example, R.E. Shor, "A Phenomenological Method for the Measurement of Variables Important to an Understanding of the Nature of Hypnosis," in E. Fromm and R.E. Shor (eds.), *Hypnosis: Developments in Research and New Perspectives* (Aldine, 1979).

expectations (and is hypnotizable). This was probably an experienced subject, so he knew what to do.¹⁰

KUIJSTEN: That is very interesting. So for experienced subjects, a formal induction process is not always necessary. We see that with post hypnotic suggestions for trance as well.

KIHLSTROM: Yes. One parallel between hypnosis and bicameral mentality that Jaynes discusses is “trance logic,” which Martin Orne, who coined the term, liked to characterize as “the peaceful coexistence of illusion and reality.” For example, in the double hallucination, we suggest that there is someone, familiar to the subject, sitting next to him, when the chair is actually empty, and the person is actually standing *behind* him, out of view. After the hallucination is established, we draw the subject’s attention to the *real* person. Interestingly: the hallucination doesn’t disappear, and the subject may do a kind of double-take. And the hallucination itself may be transparent: that is, subjects may see through the hallucination to the back of the chair. In either case, the subject is maintaining the hallucination and the veridical perception simultaneously. Orne was probably wrong to think that trance logic is a unique signature of hypnosis, but everyone who has done hypnosis research has seen it. And that’s the sort of thing, I guess, a bicameral mind would do.¹¹

Jaynes also discussed the hidden observer, which Jack Hilgard employed in some studies of hypnotic analgesia leading up to his neodissociation theory of divided consciousness. One of the puzzles of hypnotic analgesia is that it greatly reduces the subjective experience of pain, but has little effect on physiological responses to the pain stimulus. One interpretation is that the pain is still being processed at some level outside phenomenal awareness, and that this unconscious perception is driving the physiological response. The hidden observer is a metaphor for the technique that Hilgard used to gain access to that parallel, subconscious, representation

10. G.H. Estabrooks, “A Standardized Hypnotic Technique Dictated to a Victrola Record,” *American Journal of Psychology*, 1930, 42. For his contribution to educational testing, see “A New Type of Objective Examination,” *Pedagogical Seminary*, 1927, 34.

11. M.T. Orne, “The Nature of Hypnosis: Artifact and Essence,” *Journal of Abnormal and Social Psychology*, 1959, 58, 3; K.M. McConkey, et al., “Trance Logic in Hypnosis and Imagination,” *Journal of Abnormal Psychology*, 1991, 100, 4. There are several demonstrations of trance logic on videos that Orne made for television in the late 1950s and early 1960s: “Psychology 1 with E.G. Boring” (National Educational Television) at <https://youtu.be/blZyGk-1K1U> and “The Nature of Things” (Canadian Broadcasting System) at <https://youtu.be/OVhGtrjgP7M>.

of pain. And again, it's definitely the kind of thing you might expect with bicameral mentality.¹²

A third relevant feature of hypnosis, which was first documented after *The Origin* appeared, are dissociations between explicit and implicit expressions of memory and perception. Posthypnotic amnesia affects explicit expressions of episodic memory, such as recall (and to some extent recognition), but spares implicit expressions of memory, such as priming effects — much the way priming is spared in neurological patients with the amnesic syndrome. Similar priming effects have been observed in hypnotic blindness, in which case they count as expressions of implicit perception. And you can think of the physiological response to the pain stimulus as evidence of the implicit perception of pain. Explicit-implicit dissociations are evidence of unconscious mental life — you have a memory or percept that affects your experience, thought, and action outside of conscious awareness.¹³

KUIJSTEN: That's fascinating.

KIHLLSTROM: Yes. These sorts of priming effects can provide the cognitive basis for intuition effects — which are definitely relevant to bicameral mentality.¹⁴ Priming, whether it's associated with hypnosis or not, brings things to mind automatically, unbidden. Suppose that you memorized the word *ashcan*, among other words, while you were hypnotized, and then got a suggestion for posthypnotic amnesia. Later, you're asked to recall the words you memorized, and you come up blank. But if you're given a recognition test, with *ashcan* as one of the items, you might endorse it simply

12. E.R. Hilgard, "A Neodissociation Interpretation of Pain Reduction in Hypnosis," *Psychological Review*, 1973, 80, 5; J.F. Kihllstrom and A.J. Barnier, "The Hidden Observer: A Straw Horse, Underservedly Flogged," *Contemporary Hypnosis*, 2005, 22, 3.

13. Priming effects in posthypnotic amnesia were first noted in J.F. Kihllstrom, "Posthypnotic Amnesia for Recently Learned Material: Interactions with 'Episodic' and 'Semantic' Memory," *Cognitive Psychology*, 1980, 12, 2. For a comprehensive review of posthypnotic amnesia, see "Posthypnotic Amnesia: Using Hypnosis to Induce Forgetting," in D. Groome and M. Eysenck (ed.) *Forgetting: Explaining Memory Failure* (SAGE, 2020). For priming effects in hypnotic blindness, see R.A. Bryant and K.M. McConkey, "Hypnotic Blindness: A Behavioral and Experiential Analysis," *Journal of Abnormal Psychology*, 1989, 98.

14. J.F. Kihllstrom, V.A. Shames, and J. Dorfman, "Intimations of Memory and Thought," in L.M. Reder (ed.), *Implicit Memory and Metacognition* (Erlbaum, 1996); J. Dorfman, V.A. Shames, and J.F. Kihllstrom, "Intuition, Incubation, and Insight: Implicit Cognition in Problem Solving," in G. Underwood (ed.), *Implicit Cognition* (Oxford University Press, 1996). For an analysis of priming effects supporting an intuitive "recognition by familiarity" in posthypnotic amnesia, see J.F. Kihllstrom, "Recognition in Posthypnotic Amnesia, Revisited," *International Journal of Clinical & Experimental Hypnosis*, 2021, 69, 3. For an analogous effect in tactile sensation, see D.J. Tataryn and J.F. Kihllstrom, "Hypnotic Tactile Anesthesia: Psychophysical and Signal-Detection Analyses," *International Journal of Clinical & Experimental Hypnosis*, 2017, 65, 2.

because it “rings a bell.” You don’t remember it, but it seems familiar to you somehow, and you infer that it does so because it was on the study list. This is, essentially, the judgment heuristic that Amos Tversky and Daniel Kahneman called “availability.”

Or suppose you’re asked to complete the stem *ash*___ with a legal English word: by virtue of priming you’re likely to respond with *ashcan* instead of the much more frequent *ashtray*. The experimenter asks you what made you think of that word. If you weren’t amnesic, you’d say “Well, that was in the list of words you just had me memorize.” But you are amnesic, so you don’t know what to say. You might confabulate something plausible, like “Oh, I don’t know, maybe there was a discussion of American art on the *PBS NewsHour* recently; and maybe they mentioned the ‘Ashcan School’.” Or, if you were a bicameral person, living in a bicameral society, you might say something like “The gods spoke to me.”

KUIJSTEN: Yes, that’s a great example of the role of information processing outside of conscious awareness.

KIHLSTROM: Along those lines, one feature of hypnosis that Jaynes did not discuss in any detail, probably because the main research on the topic was published only after *The Origin*, is what is known as “experienced involuntariness.” When you give subjects the suggestion that their outstretched hand is holding a heavy weight, pulling it down, they don’t just drop their arm; they hallucinate the weight, and they feel it pulling on them. Or you can give subjects a posthypnotic suggestion to touch their ankles when they hear a certain sound; when they do it, they will typically have no memory of doing so (not least because amnesia is typically included in the suggestion). To adopt a distinction introduced to hypnosis research by Theodore Sarbin, they experience the suggested effects as *happenings*, rather than as a *doing*.¹⁵ Whether they’re hallucinations or actions, the suggested effects are experienced as involuntary. But they’re not, of course. Nobody is taking hold of subjects’ hands and scratching their ankles. They’re doing it themselves, even if they don’t experience it that way. Again, this has some of the flavor of bicameral mentality — you can experience the effect as being instigated from somewhere outside yourself.

15. T.R. Sarbin and W.C. Coe, *Hypnosis: A Social Psychological Analysis of Influence Communication* (Holt, Rinehart & Winston, 1972). The distinction between doings and happenings was originally formulated in R.S. Peters, *The Concept of Motivation*, 2nd ed. (London: Routledge & Kegan Paul, 1958/1960).

KUIJSTEN: Indeed — very interesting, thank you for that explanation. For me, post-hypnotic suggestions are one of the most interesting aspects of hypnosis, as well as one of the aspects most relevant to Jaynes's theory. Do we have a better understanding of how they work?

KIHLSSTROM: Well, we don't have a good account of how posthypnotic suggestions work.¹⁶ They're often perceived as automatic, by both the subject and an onlooker, but they're not automatic in the technical sense of the term. In cognitive psychology, we define a process as automatic if it is inevitably evoked by a particular cue; if, once activated, it runs incorrigibly to completion; if it consumes little or nothing by way of attentional resources; and if its execution doesn't interfere with other ongoing processes. That's a kind of prototype of automaticity.¹⁷ And posthypnotic suggestion doesn't seem to have these features. If you present the cue outside of the experimental context, the subject may not respond. Most important though, execution of a posthypnotic suggestion consumes attentional resources, and interferes with other ongoing processes. That shows that it's definitely not automatic, even though it may be *experienced* as involuntary. And the literature is clear that, for all its apparent power, a posthypnotic suggestion elicits no higher rate of compliance than an ordinary "waking" request to do the same thing. The difference between a posthypnotic suggestion, an ordinary instruction, and polite compliance is the experience of involuntariness.

At the same time, Jaynes talks about the voice of the hypnotist being akin to the voice of a god, but subjects don't usually perceive hypnotists that way, nor do hypnotists present themselves that way — at least, not in the laboratory. In fact, the most experienced hypnotist of all time is a former public-radio announcer named Lee Dumas, who made the standard tape of the Harvard Group Scale of Hypnotic Susceptibility. Dumas had no training in psychology, and had never hypnotized anyone in his life, but through that tape literally tens of thousands of people have had an experience of hypnosis. I never met him, but apparently, he wasn't particularly charismatic or authoritative — he had a great speaking voice, to be sure,

16. P. W. Sheehan and M. T. Orne, "Some Comments on the Nature of Posthypnotic Behavior," *Journal of Nervous & Mental Disease*, 1968, 146, 3; I. P. Tobis and J. F. Kihlstrom, "Allocation of Attentional Resources in Posthypnotic Suggestion," *International Journal of Clinical & Experimental Hypnosis*, 2010, 58, 4; A. J. Barnier and K. M. McConkey, "Posthypnotic Responding: The Relevance of Suggestion and Test Congruence," *International Journal of Clinical and Experimental Hypnosis*, 2001, 49.

17. J. F. Kihlstrom, "The Automaticity Juggernaut," in J. Baer, J. C. Kaufman, and R. F. Baumeister (eds.), *Psychology and Free Will* (Oxford University Press, 2008); A. Moors, "Automaticity," in D. Reisberg (ed.), *The Oxford Handbook of Cognitive Psychology* (Oxford University Press, 2013).

and could read a script with expression, and I understand that he lived next door to the researchers who were developing the scale. Those were more important qualities.¹⁸

KUIJSTEN: Here I think you are perhaps taking the idea of the hypnotist's voice "being like a god" too literally. Jaynes doesn't suggest that the hypnotist speaks in a "god-like" way or a booming voice or anything like that. What I think is important to the theory is that we seem (bizarrely) predisposed to respond to an external, guiding voice, and that the hypnotist in this way is taking the role of the bicameral guiding voice. What seems so puzzling is that we can't simply "decide" to quit smoking, stop biting our nails, overcome a phobia, etc., but somehow through hypnosis, behavior can often be altered much more easily — when the suggestion comes from an external source — and why this predisposition exists in the first place.

KIHLSTROM: OK, I'll grant you that, but Jaynes does describe the hypnotist as an authority figure (pp. 393-394). And that's just not how subjects generally perceive the hypnotist. In some respects, sure, he's an authority figure — the hypnotist is in charge of the experiment, or the therapy session, or whatever. But that's no different from any other experimenter or therapist. Experimenters have some structural authority, because they're the ones who determine what goes on in the experiment; and they have some sapiential authority, because they are presumed to have some training and expertise. But they don't have the charismatic authority of a priest. Same thing with a psychotherapist. Even the most client-centered Rogerian psychotherapist says to the patient, at the end of a 50-minute hour, "Our time's up for today — see you next week."¹⁹

There may have been a time when the hypnotist was a charismatic, Svengali-like authority figure, but those days are long gone — if they ever were.²⁰ The hypnotist today functions more like a coach or a tutor, whose job it is to help subjects have experiences that they are perfectly capable of having all on their own, if only they knew how. The hypnotist teaches them how, and after a while they don't need the hypnotist anymore.

18. On one occasion, Dumas became hypnotized while listening to his own tape. He relates the experience in L. Dumas, "A Subjective Report of Inadvertent Hypnosis," *International Journal of Clinical & Experimental Hypnosis*, 1964, 12, with commentary in M. T. Orne, "A Note on the Occurrence of Hypnosis without Conscious Intent," *International Journal of Clinical and Experimental Hypnosis*, 1964, 12.

19. The distinctions among structural, sapiential, and charismatic authority come from M. Siegler and H. Osmond, *Models of Madness, Models of Medicine* (Harper & Row, 1974).

20. J.F. Kihlstrom, "The Two Svengalis: Making the Myth of Hypnosis," *Australian Journal of Clinical & Experimental Hypnosis*, 1987, 15, 2.

Which is probably why Estabrooks was able to hypnotize his subjects with a record that lasted only 4–5 minutes; and why that Swiss-yodeler episode happened.

Anyway, the reason that people can't just "decide" to quit smoking is that nicotine is an addictive drug, and once you're hooked, going cold-turkey isn't usually going to work. That's why we have nicotine patches for people who want to quit. While hypnosis is better than nothing, it's probably no more effective than other scientifically validated treatments. Perhaps the most popular hypnotic treatment program for smoking cessation is one developed by the late Herbert Spiegel, of Columbia University. Immediate results were pretty good, but on 24-month follow-up the success rate was back down to about 25%, which is a pretty ubiquitous result for a behavioral treatment. Hypnosis can be a useful adjunct to cognitive-behavioral therapy, and maybe even psychodynamic therapy, but it's not a magic wand.²¹

Another problem is self-hypnosis: people can hypnotize themselves by reading the very same script that would otherwise be read to them. Self-hypnosis is just as effective as hetero-hypnosis, especially if you're hypnotizable in the first place. There are some complications, to be sure: it must be hard to suggest to yourself that you won't remember the things you've just been doing. But however the suggestion works, it's coming in your own voice, not the voice of another person, much less a god.²²

KUIJSTEN: Yet on the most basic level, at least to me, there still seems to be something to the idea of self-authorization versus external authorization, and I don't think we have a good explanation for that. There are habits and behaviors that don't involve a physiologically addictive chemical, yet it seems easier to overcome with the aid of hypnosis, at least for the highly

21. J.P. Green and S.J. Lynn, "Hypnosis and Suggestion-Based Approaches to Smoking Cessation: An Examination of the Evidence," *International Journal of Clinical and Experimental Hypnosis*, 2000, 48, 2; I. Kirsch, G. Montgomery, and G. Sapirstein, "Hypnosis as an Adjunct to Cognitive-Behavioral Psychotherapy: A Meta-Analysis," *Journal of Consulting & Clinical Psychology*, 1995, 63; N. Ramondo et al., "Clinical Hypnosis as an Adjunct to Cognitive Behavior Therapy: An Updated Meta-Analysis," *International Journal of Clinical and Experimental Hypnosis*, 2021, 69, 2.

22. R.E. Shor and R.D. Easton, "A Preliminary Report on Research Comparing Self- and Hetero-Hypnosis," *American Journal of Clinical Hypnosis*, 1973, 16; J.C. Ruch, "Self-Hypnosis: The Result of Heterohypnosis or Vice Versa?," *International Journal of Clinical and Experimental Hypnosis*, 1975, 23, 4; L.S. Johnson et al., "Self-Hypnosis Versus Hetero-Hypnosis: Order Effects and Sex Differences in Behavioral and Experiential Impact," *International Journal of Clinical and Experimental Hypnosis*, 1983, 31, 3; M.T. Orne and K.M. McConkey, "Toward Convergent Inquiry into Self-Hypnosis," *International Journal of Clinical & Experimental Hypnosis*, 1981, 29.

hypnotizable subjects, than what they're able to accomplish on their own. We seem to see a similar phenomenon at work with placebo effects.

I have heard that some people can hypnotize themselves by reading a script, but does that actually work? I think the far more common method of self-hypnosis is to listen to a recording. In that case, the recorded voice becomes the external authority — even if it's their own recorded voice.

KIHLSTROM: Yes, but that's not really self-hypnosis. It's "heterohypnosis," induced by a recording, no different in principle than the recording that Lee Dumas made for the Harvard Group Scale. In self-hypnosis, as it's been studied in the laboratory anyway, the subjects actually hypnotize themselves. They're given a script, similar to one of the standardized scales used to assess measure individual differences in hypnotizability, and they're simply instructed to follow it. In some studies, the subjects are just given an abstract description of what to do, and they make up the details themselves. It's amazing that it works, but it does. That's because, in a sense, all hypnosis is self-hypnosis. On several occasions I've worked with highly hypnotizable, experienced subjects, and as I've started to go through my script, they've stopped me and said, "Never mind — let me do it myself and I'll let you know when I'm ready to proceed."

Now, many clinicians train their patients to use self-hypnosis, but that technique often involves little more than instructed reverie, and does not involve the distortions of perception and memory that are characteristic of hypnosis. No motor suggestions, no analgesia, no amnesia, no posthypnotic suggestions. Just something that's closer to progressive relaxation and daydreaming, and that's not hypnosis. True self-hypnosis is where the same person takes the role of both hypnotist and subject.

Finally, Jaynes cited some preliminary neuropsychological evidence that seemed to suggest that hypnosis was some sort of right-hemisphere function, which again would be consistent with his view that "hypnosis is a vestige of the bicameral mind" (p. 396). To make a long story short, subjects who showed a tendency to make reflective eye movements to the left, presumably demonstrating the dominance of the right hemisphere, were more hypnotizable than those who did not. Another study, which was published after *The Origin* came out, found that subjects were more hypnotizable if they were seated on the right side of the room, so that the hypnotist was in their left visual field (projecting to the right hemisphere). But there's been a lot of contradictory evidence since then. For example, there are no differences in response to motor suggestions targeting the left vs. right side of

the body. Most important, there's no difference in hypnotizability between patients with left- and right-hemisphere damage. Our best guess now is that hypnosis involves the frontal lobe, not the right hemisphere — although a recent study did show right-hemisphere involvement in hypnotic visual hallucinations. But really, like pretty much everything interesting, hypnosis involves the whole brain.²³

Jaynes asserted that his theory provides a better account of hypnosis than any other extant theory (p. 380). I don't think that was true, even at the time he was writing, and it certainly isn't true now. There are several theories that provide a better account of hypnosis than *The Origin*, including some "sociocognitive" theories that I don't personally favor. *The Origin* explains features of hypnosis that aren't critical, such as cultural variability and the relationship between hypnotist and subject. Hilgard's neodissociation theory, which Jaynes cited favorably, explains features that are critical, such as the dissociation between subjective experience and objective behavior.²⁴

Now, to be clear, none of my critique undermines Jaynes's essential argument about bicameral mentality. His theory doesn't have to explain hypnosis in order to be viable — any more than it has to explain classical conditioning, visual illusions, or the five-factor structure of personality. It's a theory about the cultural evolution of consciousness — a contribution to cognitive anthropology — or cognitive archeology, if you will. It seems to me that Jaynes's theory stands or falls on philological evidence, about how Achilles and Odysseus, or Amos and Ecclesiastes, appear to think — or, I suppose I should say it better this way: how they appear to experience themselves thinking. *The Origin* would be just as good, just as provocative, just as convincing, if the chapter on hypnosis hadn't been included.

KUIJSTEN: Those are very interesting examples — it seems that our understanding of hypnosis is much more extensive and complex now than it was four decades ago. Let's turn to the topic of consciousness. You taught a course on consciousness at UC Berkeley for twenty years, and I think at other universities prior to that. What was your approach?

23. J.F. Kihlstrom, "Neuro-Hypnotism: Hypnosis and Neuroscience," *Cortex*, 2013, 49, 2; J.F. Kihlstrom, et al., "Hypnosis in the Right Hemisphere," *Cortex*, 2013, 49, 2; R.C. Lanfranco, et al., "Beyond Imagination: Hypnotic Visual Hallucination Induces Greater Lateralised Brain Activity Than Visual Mental Imagery," *NeuroImage*, 2021, 239, 1.

24. S.J. Lynn and J.W. Rhue (eds.), *Theories of Hypnosis: Current Models and Perspectives* (Guilford, 1991); P.W. Sheehan and C. Perry, *Methodologies of Hypnosis: A Critical Appraisal of Contemporary Paradigms of Hypnosis* (Erlbaum, 1976).

KIHLSTROM: My course focused on empirical research, and downplayed the philosophical issues. Personally, I haven't lost a single night's sleep over the "hard problem" of consciousness — nor the "easy problem," for that matter. I introduced students to the philosophical debates — Dennett vs. Searle, Chalmers, McGinn, etc., of course, but I didn't allow students to get bogged down in the philosophy — though I did have them read David Lodge's novel, *Thinks...*, which captures much of the philosophical debate. I began with introspective analyses of consciousness, especially William James's, in the *Principles*, which I think has never been equaled. I took students through psychophysics, which constituted the first scientific approach to consciousness. Then various aspects of the mind-body problem (there are at least four), the literature on conscious (controlled) and unconscious (automatic) processing, and the explicit-implicit distinction applied in various domains. Then surveys of various altered states of consciousness, such as coma and general anesthesia, sleep and dreams, hypnosis and hysteria, meditation, and drug states. Finally, the development of consciousness, which I approached from three different angles: ontogenetic, the development of consciousness in individuals; phylogenetic, across species; and finally cultural. That's where Jaynes came in: the idea that, in historical time, people were not conscious the way we are today.²⁵

KUIJSTEN: So having taught Jaynes's theory in your university courses for many years, what is your view of his theory now?

KIHLSTROM: I think it remains one of the most interesting, provocative ideas in all of psychology. It does have some problems, but they are the kinds of problems that occur whenever we try to learn anything from ancient artifacts. So much depends, as I learned from watching Jaynes and Irwin debate the meaning of *thumos* and *phrenes*, about how words are interpreted, and how language evolves. And then there's the problem of what the literary critics call the authorial or intentional fallacy — that is, the idea that we can attribute to authors the views of their characters. Actually, it's the reverse, isn't it? All we know is what Homer wrote (you know what I mean). He portrays Achilles as having one kind of consciousness, Odysseus as having another kind. We don't have any idea how Achilles or Odysseus actually thought (you know what I mean). We only know how

25. My course, "Scientific Approaches to Consciousness," is documented online at <https://www.ocf.berkeley.edu/~jkihlstrom/ConsciousnessWeb/index.htm>. My discussion of Jaynes is in the lectures on "Development."

Homer *portrayed* them as thinking, and he might have had reasons for doing this other than how they *really* thought.

On the other hand, I've always had a fondness for Karl Jaspers's notion of "The Axial Age." Jaynes doesn't cite Jaspers, whose treatise appeared in 1949, and Karen Armstrong, who popularized the notion, wrote long after *The Origin* was published. The essential argument is that, sometime in the first millennium BCE, the way we thought about thinking changed. Socrates taught that knowledge could be obtained by reason; Confucius that we should think for ourselves; Gautama Buddha that we could abolish suffering by changing the way we think. The dates don't exactly line up with Jaynes, but it's pretty clear that, by the middle of the first millennium BCE, something had seriously changed in the way we thought about ourselves, and about thinking itself. And it happened at roughly the same time, in very different places.²⁶

KUIJSTEN: Yes, this grand historical transition from polytheism to monotheism and the change we see in behavioral control transitioning from external direction to internal thought are compelling evidence for Jaynes's theory. We could add Jesus to your list of religious reformers, although he came slightly later, and I should mention here that scholars such as Michael Carr and Todd Gibson have looked at ancient China and Tibet through the lens of Jaynes's theory, and documented many of the same things that Jaynes observed in ancient Greece and Mesopotamia.²⁷

KIHLLSTROM: I'll have to look at their work. We think of consciousness as something that every normal adult human has. But the developmental question is: How did we get it? In the cultural view of development, *Homo sapiens* evolves, and children become adults, but even among adult humans there appear to be cognitive differences between different cultural groups. That's where Jaynes comes in, because he argues that there was a historical time when even normal adult humans were not conscious in the way that we are today.

But I don't think it's right to think of consciousness as merely a sociohistorical construction, something that we've been taught to think we

26. K. Jaspers, *The Origin and the Goal of History*, trans. M. Bullock (Yale University Press, 1949/1953); K. Armstrong, *The Great Transformation: The Beginning of Our Religious Traditions* (Knopf, 2006); R.N. Bellah and H. Joas (eds.), *The Axial Age and Its Consequences* (Harvard University Press, 2012).

27. See M. Carr, "The *Shi* 'Corpse/Personator' Ceremony in Early China," in M. Kuijsten (ed.), *Reflections on the Dawn of Consciousness* (Julian Jaynes Society, 2006); T. Gibson, "Souls, Gods, Kings, and Mountains" and "Listening for Ancient Voices" in M. Kuijsten (ed.), *Gods, Voices, and the Bicameral Mind* (Julian Jaynes Society, 2016).

have, but really don't — which is what some skeptics seem to think. Nor, I think, is consciousness merely a product of language. My students often posed the question: "Which came first — consciousness or language?" I told them that I didn't know but that I was sure that consciousness gave us something to talk about. More seriously, I think that the Darwinian principle of evolutionary continuity requires us to ascribe at least some level of consciousness to nonhuman animals, who don't have language. Language is relevant to *The Origin* because it's by virtue of language that we communicate our mental states to other people — and, perforce, the means by which we learn that other people are thinking thoughts that are different from the thoughts we're thinking. At some point it sinks in that *My thoughts are my own; I'm thinking them all by myself.*

KUIJSTEN: This gets to the heart of the issue of definitions and exactly how we are defining the word "consciousness." As you know, Jaynes defines it very narrowly as introspection — or more specifically, possessing an analog T narratizing in a mind-space — relegating other, more biologically or evolutionarily based functions to nonconscious reactivity, learning, sense perception, etc. I think that the distinctions that Jaynes makes are extremely important, and that these distinctions are often lost by more broad definitions of consciousness, but this is a complex topic that is probably beyond the scope of our discussion today.

KIHLSTROM: I agree that the connection to the self is critical to the kind of consciousness we're talking about, and that such a connection is lacking in unconscious processing.

KUIJSTEN: I'd like to ask you about new developments in the field of consciousness studies over the past several decades. Since the publication of Jaynes's book, have there been new developments that you feel are relevant to his theory?

KIHLSTROM: Mostly, the literature on consciousness has been taken up with various aspects of the mind-body problem — mostly the "easy problem" of establishing the neural correlates of consciousness. Lots of theories, most of which don't define consciousness properly, the way Jaynes does; not too much by way of evidence. And nobody has any idea about the "hard problem" — *just how* this neural activity generates conscious experience. None of this has much bearing on Jaynes's ideas, I think. The developments that do bear on Jaynes have come from a different direction entirely.

The Origin was published at the height of interest in hemispheric specialization. The work on “split-brain” patients by Michael Gazzaniga, Joseph Bogen, and Roger Sperry became widely known in the late 1960s. By the time that Jaynes started giving the talks leading up to his book, like the one I heard in 1970, the idea that the two hemispheres had different operating principles — left brain analytic, right brain holistic, that sort of thing — and even that the right hemisphere was in some sense unconscious, with consciousness another function of the left hemisphere, had thoroughly wormed its way into both the professional literature and the popular press.²⁸

Any idea of bicameral mentality, in that atmosphere, naturally turns the mind toward hemispheric specialization, and some sort of hemispheric disconnection syndrome,²⁹ with “the speech of the gods” (p. 105) and other hallucinations arising from the right hemisphere and people listening and responding with the left. There are other ways to divide the brain in two — front-back, top-bottom, inner-outer, old-new. With all his rage, Achilles seems to be using his ancient “reptilian brain”; with his twists and turns, Odysseus seems to be all prefrontal cortex.³⁰ But none of these alternatives provides a normally silent right-hemisphere speech center, the way the left-right distinction does.

Jaynes was not immune to this attraction. After laying out what is essentially a sociohistorical argument based on philology, the reading of ancient texts, he immediately asks about the biological basis of bilaterality — he says that his argument “demands” (p. 100) a physiological mechanism. This may have seemed natural to him: he was, after all, trained as a physiological psychologist (what today we would call a behavioral neuroscientist). But psychological theories stand or fall at their own level of explanation: they never “demand” an account in terms of physiology. As one of my former colleagues at Wisconsin (himself a physiological psychologist) once said, physiology is a tool for psychology, but it’s not an obligation.

KUIJSTEN: I have some thoughts here, but can you elaborate on that further?

28. M.S. Gazzaniga, J.E. Bogen, and R.W. Sperry, “Some Functional Effects of Sectioning the Cerebral Commissures in Man,” *Proceedings of the National Academy of Sciences*, 1962, 48. Testifying to the enduring popularity of the left-right distinction, an Amazon search in June 2021 revealed over 1,000 titles on the subject.

29. N. Geschwind, “Disconnexion Syndromes in Animals and Man: Part I,” *Brain*, 1965, 88, 2; “Disconnexion Syndromes in Animals and Man: Part II,” *Brain*, 1965, 88, 3.

30. P. MacLean, “The Triune Brain, Emotion, and Scientific Bias,” in F.O. Schmitt (ed.), *The Neurosciences: Second Study Program* (Rockefeller University Press, 1970). But see J. Cesário, D.J. Johnson, and H.L. Eisthen, “Your Brain Is Not an Onion with a Tiny Reptile Inside,” *Current Directions in Psychological Science*, 2020, 29, 3.

KIHLSTROM: As Marvin Minsky put it, that “the mind is what the brain does,” and connecting the mental to the neural is an interesting and important project, but psychologists don’t *have* to do it. Psychology is, essentially, a dualistic enterprise in which psychologists can study mental structures and processes with behavioral tools, like self-reports and reaction time, and just assume that the brain does it somehow. Some theorists argue that psychological theories must be constrained by the findings of neuroscience, but in fact the reverse is the case: understanding neural function depends utterly on the findings of psychological research. As I’ve written elsewhere, “Psychology without neuroscience is still the science of mental life, but neuroscience without psychology is just a science of neurons.”³¹

Jaynes may have thought that some sort of functional disconnection of the two cerebral hemispheres was the biological basis of bicameral mentality, but then he has to account in biological terms for the loss of bicameral mentality, a functional connection made some three or four thousand years ago. And I just don’t think that there’s any basis for thinking that the structure of the brain, like the corpus callosum bridging the two hemispheres, has changed much, if any, over that period of time. In fact, there’s evidence that the structure of the brain hasn’t changed at all for at least 35,000 years.³² There are examples of fast evolution, admittedly, but it can’t be that the fast evolution of the brain was promoted by language. We had language long before Jaynes thinks we lost bicameral mentality.

KUIJSTEN: So this is an issue that has been raised by others, but in my view it’s a misunderstanding of Jaynes’s theory that biological brain changes — changes to the corpus callosum — are necessary in the transition to consciousness. Jaynes was adamant that the transition from bicameral mentality to consciousness could occur culturally — for example, as societies developed writing and the kind of complex metaphorical language Jaynes felt was necessary to construct an inner “mind-space.” In other words, to use the computer metaphor, consciousness was a new “operating system,” so to speak, using the same biological “hardware.” He cites studies of brain plasticity (pp. 122–125) — how brain function can change due to environmental factors — and this field has exploded since that time.

31. M. Minsky, *The Society of Mind* (Simon & Schuster, 1987), p. 287; J.F. Kihlstrom, “Social Neuroscience: The Footprints of Phineas Gage,” *Social Cognition*, 2010, 28, 6.

32. S. Neubauer, J.-J. Hublin, and P. Gunz, “The Evolution of Modern Human Brain Shape,” *Science Advances*, 2019, 4, 1.

KIHLLSTROM: Well, maybe I'm reading too much into Jaynes. But it's he who wrote that cultural-historical changes in consciousness "demand" a physiological explanation. They don't: the psychological level of analysis is valid on its own, and there is no requirement for any reduction to biology or physics. And, frankly, brain plasticity doesn't really work as a mechanism, either. Brain plasticity is the neural mechanism of learning, the idea being that when you learn something new, some aspect of the wiring of your brain changes. But the plasticity that enables learning — whatever structural changes take place — remains a feature of that individual learning brain. There's no inheritance of acquired characteristics, so it can't be passed down from parent to child. The learning can be transmitted from one individual to another, by social learning processes of example and precept — especially by the medium of language. But what is learned? It's not *how to be* conscious, as the social constructivists might put it. Rather, it's *that we are* conscious. We don't teach children to *think of themselves* as conscious, but that *they are* conscious.

KUIJSTEN: OK, there's a lot to unpack here, but let's come back to this in a moment. Let's talk about the new developments that you feel are relevant.

KIHLLSTROM: It wasn't long after Jaynes published *The Origin* before a new approach to psychological development appeared on the scene: the theory of mind — a term introduced by David Premack and Guy Woodruff in an article on language and cognition in chimpanzees like Premack's famous subject Sarah. Sarah had great symbolic skills: She learned to associate tokens with concepts, and she could string tokens together to form rudimentary sentences; she had simple concepts of number and proportion, she could perform some analogical reasoning tasks. And she also seemed to be able to impute mental states to other people — to infer what they knew or believed or wanted. In other words, Sarah had something like our folk psychology, with its vocabulary of mentalistic constructs like *belief* and *desire*. That's what Premack and Woodruff meant by a theory of mind.

The theory of mind was imported into developmental psychology by Henry Wellman, among others, resulting in a raft of studies trying to pinpoint exactly when children acquire it. The general finding is that, by the time children are four or five years old, they understand that what they know, want, and feel is not necessarily what other people know, want, and feel. The theory of mind was subsequently elaborated into a "theory theory" which views the developing child as formulating, testing, and revising

theories that will predict events in various domains, including physical, biological, and social, as well as psychological. Debate continues as to whether nonhuman animals have a theory of mind. Sarah was a very special animal; attempts to demonstrate the theory of mind in other chimpanzees with nonverbal variants on the false-belief test, for example, have generally yielded negative results; but that may be the wrong way to ask the question.³³

What does all this have to do with consciousness? The theory of mind is usually characterized as the ability to impute mental states to other people, and the understanding that other people's mental states might differ from one's own — fundamental aspects of social cognition. But the awareness that others' mental states might differ from one's own assumes the prior awareness of one's own mental states as such — that is, consciousness in exactly Jaynes's sense. This does not mean that children younger than five are not conscious. Nonverbal tests indicate that infants as young as 15 months can make inferences about other peoples' beliefs. But whenever it happens, the recognition of mental states as such, as something we possess, that we create, that our thoughts are our own, and not necessarily someone else's thoughts too — that's a cognitive achievement. When children come to that realization, it's at that point that they truly become conscious.

So, the theory of mind can be taken as one marker of consciousness in Jaynes's sense — that is, as Jaynes puts it in his very first chapter, “consciousness of consciousness” (p. 21). Or I suppose you could say, *metacognition*. In fact, the concept of metacognition provides a related perspective here. The term, coined by Lila Gleitman in an article on language development, is another approach to consciousness which is compatible with my interpretation of Jaynes's view. “Metacognition” means cognition about cognition, or knowledge about cognition, and it quickly became a center of the post-Piagetian turn in developmental psychology toward the theory of mind. For example, John Flavell argued that cognitive development was marked by quantitative and qualitative changes in children's understanding of how their minds worked — a kind of intuitive psychology. Later, Thomas Nelson pointed out that another important aspect of metacognition was monitoring and controlling what goes on in (or through) our minds — in

33. D. Premack and G. Woodruff, “Does the Chimpanzee Have a Theory of Mind?” *Behavioral & Brain Sciences*, 1978, 4, 4; H.M. Wellman, *The Child's Theory of Mind* (Bradford Books, 1990); A. Gopnik and H.M. Wellman, “The Theory Theory,” in L.A. Hirschfeld and S.A. Gelman (eds.) *Mapping the Mind: Domain Specificity in Cognition and Culture* (Cambridge University Press, 1994); J. Call and M. Tomasello, “Does the Chimpanzee Have a Theory of Mind? 30 Years Later,” *Trends in Cognitive Sciences*, 2008, 12, 5; F.B.M. deWaal, “Apes Know What Others Believe: Understanding False Beliefs Is Not Unique to Humans,” *Science*, 2016, 354, 6308.

other words, metacognition could be identified with consciousness itself. Developmental psychologists think of metacognition as an individual achievement, but we can also think of it as a cultural achievement.³⁴

The idea of a theory of mind came along after *The Origin* was published, but I like to think that, had Jaynes been writing 15 or 20 years later, he would have viewed it as another important framework for his theory. That is to say, the origin of consciousness comes with the acquisition and cultural proliferation of a theory of mind — of a folk psychology based on mental states of belief, feeling, and desire. The people in the *Iliad* don't seem to have a theory of mind: there's a lot of rage, and other emotions, but not a lot of thinking and deciding, not too much thinking about what other people are thinking. Achilles makes one decision — to live a heroic, if short, life. The people in the *Odyssey* definitely do have a folk psychology: Odysseus is the man of twists and turns, always thinking ahead, always trying to outwit someone else. The Trojan Horse was his idea.

And that's what seems to be happening in Jaynes's theory. In my view, consciousness isn't a social construction. At some point in historical time, people discovered that what was going through their heads were their own thoughts — that what they have been thinking has not been injected into their minds by gods and demons, but rather that they have been thinking for themselves — sort of like Moliere's Bourgeois Gentleman who discovers he's been speaking prose all his life. It's not unlike what children discover when they acquire a theory of mind. Language is important because that's how we find out what other people are thinking. But, I think, the cerebral hemispheres, nor any other aspect of brain structure, don't have anything to do with it. So, the theory of mind is not just an individual cognitive achievement — it's also a cultural achievement. And it's a genuine discovery. Consciousness was always there, just like the New World was there before Columbus and the Pacific Ocean before Balboa, just like black holes were there before John Wheeler and Stephen Hawking. We just had to realize it. But once we realized it, there was no going back.

In my take on Jaynes, this discovery happened beginning about 3,000 years ago, and was consolidated by the time of the Axial Age. But apparently some people didn't get the memo. In a very interesting line of

34. The term "metacognition" was coined by Lila Gleitman in L.R. Gleitman, H. Gleitman, and E. Shipley, "The Emergence of the Child as Grammarian," *Cognition*, 1972, 1. See also, J.H. Flavell, "Metacognition and Cognitive Monitoring: A New Area of Cognitive-Developmental Inquiry," *American Psychologist*, 1979, 34, 10; T.O. Nelson, "Consciousness and Metacognition," *American Psychologist*, 1996, 51, 2.

research, Angeline Lillard has found that there are some cultures which have a very different theory of mind than we do in the West. In some cases they don't seem to have made the discovery yet. In other cases they just may not find the theory of mind useful. To give another historical analogy, these societies are a little like the Tokugawa period in Japan up to the mid-nineteenth century: they knew about the West, but they didn't want anything to do with it. In any event, the very fact that in the twentieth and twenty-first centuries there is still cultural variation in the theory of mind lends support to Jaynes's idea that, while consciousness is universal among adult humans, "consciousness of consciousness" is not. And if it's not universal now, after three thousand years, there's no reason to think it was universal then.³⁵

KUIJSTEN: Yes, that's a great point. I agree there are some strong connections between Jaynesian consciousness and theory of mind — this is something that is discussed in another interview as well.³⁶ With regard to theory of mind in humans, I think that Jaynes might have viewed it as one of the features of consciousness, and perhaps also a metric for measuring the development of consciousness in children. With regard to theory of mind in animals, Jaynes discusses it briefly in a commentary on "cognition and consciousness in non-human animals," published after his book, stating:

If the term simply means the recognition of a particular mental state in another animal and by mental we do not imply conscious, I do not disagree. But then we can apply such a phrase much more widely: to a dog that cowers to his master's scolding tone or wags his tail to praise; or to a four-year-old child who can choose appropriate gifts for a two-year-old. Both dog and four-year-old are recognizing the mental states of others, and I suggest that this is more automatic than introspective.³⁷

Jaynes makes an important point here, and I agree that some of the research has been over interpreted — for example, I think that the inferences about other's beliefs as seen in 15-month old infants can be done

35. Angelina Lillard, "Ethnopsychologies: Cultural Variations in Theories of Mind," *Psychological Bulletin*, 1998, 123, 1; "Ethnopsychologies: Reply to Wellman (1998) and Gauvain (1998)," *Psychological Bulletin*, 1998, 123, 1.

36. See Bill Rowe's interview, "The Development of Consciousness in Children" in this volume.

37. J. Jaynes, "In A Manner of Speaking," *Behavioral and Brain Sciences*, 1978, 1, 4; reprinted in *The Julian Jaynes Collection*. Here and in the Afterword (which appears in the 1990 and later editions of Jaynes's *Origin*), Jaynes also refutes the popular misconception that the mirror recognition of one's body is evidence of consciousness in non-human animals.

nonconsciously — at least by the Jaynesian definition. These are things that can also be observed in some nonhuman animals. I agree with the view that one has to take care to parse out the differences between implicit (or nonconscious) versus explicit (conscious) inferences. Others have suggested that language acquisition plays a critical role in false-belief understanding.³⁸

While I am certainly not up-to-date on all of the literature on theory of mind, my sense is that there is still a large degree of both confusion and debate in the literature as to what aspects of theory of mind require Jaynesian-type consciousness and what aspects can be accomplished nonconsciously. But in any case, I do agree that the connections between theory of mind and Jaynesian consciousness certainly deserve a great deal of further exploration, perhaps both as one of the features of consciousness and as a method of measuring the development of consciousness.

KIHLLSTROM: Maybe 15-month-olds don't have a full-fledged theory of mind, but you've got to start somewhere, and what infants do nonverbally is a precursor to what four- and five-year-olds do verbally. I'm sure that language facilitates the process immensely. Consciousness does give us something to talk about, after all, and talking is the most efficient way for us to share our thoughts with others — and, therefore, the most efficient way to learn that our thoughts belong to us, and other people's thoughts belong to them.

KUIJSTEN: As to whether consciousness was always there, as you say, I think this brings us back once again to exactly how we're defining the term. Certainly things like learning, attention, and our ability to perceive and respond to our environment were always there. But I think the analog 'I' narrativizing in a mind-space as described by Jaynes — for example, our ability to mentally visualize ourselves in other places doing other things, or the kind of mental rehearsal that is becoming popular among athletes — is indeed something more like a learned skill that I think requires metaphorical language as a prerequisite, although the details of this process are complex and certainly require further exploration.³⁹

38. J. Perner and W.A. Clements, "From an Implicit to an Explicit Theory of Mind," in Y. Rossetti and A. Revensuo (eds.), *Beyond Dissociation: Interaction between Dissociated Implicit and Explicit Processing* (John Benjamins, 2000); J.E. Pyers and Senghas, "Language Promotes False Belief Understanding: Evidence from Learners of a New Sign Language," *Psychological Science*, 2000, 20, 7.

39. See Ted Remington's interview, "Metaphor and the Rhetorical Structuring of Consciousness," in this volume.

KIHLSTROM: I agree that a lot depends on how we define “consciousness.” It’s certainly not tantamount to perceiving, learning, or responding behaviorally to environmental stimuli, as all of those functions can go on unconsciously, as I have been at pains to argue in my work. About attention, I’m not so sure: attention and consciousness are intimately related, and the argument that consciousness and attention can be dissociated is, I think, not all that compelling.⁴⁰ But this is not the place to have that discussion. I think I define consciousness the same way Jaynes does. The phrase “consciousness of consciousness,” which forms the title of his first chapter, implies that consciousness is something that we are *conscious of* — or not. It seems very likely to me that many nonhuman animals, and infant humans, have sensory experiences associated with vision, hearing, equilibrium, pain, hunger, and the like — what the philosophers call *qualia*. But at some point, at least in human development, these qualia get linked to the self as the one who’s having the experience, so that the child realizes that *I’m seeing something, I’m hearing something, I’m upside down, I’m hurt, I’m hungry* — and, just as important, that somebody else *is not seeing* the same thing, *is not upside down, is not hungry*. When you realize that you’re having experiences, and thinking thoughts, that others are not: that’s when you’ve begun to acquire a theory of mind, and that’s when you’re conscious of consciousness.

KUIJSTEN: I agree with most of what you’re saying there in terms of how consciousness is defined, other than to say many of these sensations and perceptions are often experienced nonconsciously. To put it another way, even after developing a sense of self, or the realization that we are the experiencer of our experiences, only a small fraction of those experiences are held in consciousness at any given moment.

Attention is another one of these somewhat slippery terms. I think of it as *focused perception*. So, if I take a break from working and sit in my backyard, I can, nonconsciously, direct my attention to all of the various birds, while thinking (consciously) about the tasks necessary to complete the book where this discussion will appear. In the Jaynesian sense, my visual perception and focused attention are happening nonconsciously, while my consciousness is occupied in that moment with planning, deliberating, etc. The birds, in turn, nonconsciously direct their attention toward me, or perhaps some seed that I’ve placed on the ground. Or a dog can,

40. C. Koch and N. Tsuchiya, “Attention and Consciousness: Two Distinct Brain Processes,” *Trends in Cognitive Sciences*, 2007, 11, 1.

nonconsciously, direct its attention to searching for a ball. Jaynes suggests that the conscious analog to sensory attention is *concentration*.⁴¹

I'd like to go back for a moment to some of the points you raised earlier. You touched on a few different critiques of Jaynes's theory that I've seen come up before, so I'd like to take this opportunity to attempt to clarify them, or at the very least offer a different perspective to consider.

After the publication of his book, Jaynes further clarified his theory by breaking it down into four separate hypotheses that can each stand or fall on their own: (1) that consciousness (as he defines it) is based on language, (2) that prior to the development of consciousness, humans had a bicameral mentality, (3) dating the transition from bicameral mentality to Jaynesian consciousness to roughly 1500-1200 BCE in places like Egypt, Greece, and Mesopotamia (the transition occurred at other times in other places), and (4) Jaynes's neurological model for bicameral mentality — what he thinks may have been taking place in the brain.⁴² I think that framing Jaynes's theory as these four, separate hypotheses makes it easier to discuss and understand. I'll come back to this in a moment.

Let me first say something about your comment on Jaynes's use of the split-brain research. I don't want to overstate or misrepresent your view on this in any way, but I've heard variations of the suggestion before that either Jaynes made too much of the split-brain research or that the split-brain research had undue influence on his theory because of its popularity at the time, etc. — so it's that more general theme that I'd like to address.

I have a different view on this for two reasons. First, while I certainly agree that some of the right/left brain hemisphere differences were misunderstood or taken to extremes in the popular press and elsewhere, in my view many of the fascinating, legitimate findings that came out of the split-brain experiments remain valid to this day, including those most relevant to Jaynes's bicameral mind and neurological model hypotheses.

Let me provide some examples. In split-brain patients, after the surgery, experiments suggest that (1) the brain hemispheres can operate more independently than they typically seem to in non-split-brain individuals, (2) two distinct "selves," or "spheres of consciousness" seem to be present, one per hemisphere, (3) actions or responses initiated by the right or non-dominant hemisphere (for language) often feel alien to the person, and (4) our conscious sense of self seems to be associated with the left hemisphere,

41. See Jaynes, *The Origin*, pgs. 447-452 of the Afterword.

42. J. Jaynes, "Four Hypotheses on the Origin of Mind," *Proceedings of the 9th International Wittgenstein Symposium*, 1985, 135-142; reprinted in *The Julian Jaynes Collection*. See also the Afterword.

likely because of the left hemisphere's dominance for language.⁴³ (This last point seems to apply to both split-brain and non-split-brain individuals.) I recognize that there is a great deal of ongoing debate with regard to each of these points, but, when viewed as a whole, I find the overall body of evidence supporting these claims to be persuasive.⁴⁴

So while perhaps the right/left brain hemisphere differences were overblown by the public, the backlash against the overreach has actually had the effect of overshadowing some of the stunning findings of this research. So the pendulum has now swung the other way: the dominant theme is that "right/left brain hemisphere differences were exaggerated" and the important discoveries of the split-brain experiments to a certain extent have been ignored — at least by those not still actively investigating the topic.

Perhaps there is something of a recency bias at play here as well.⁴⁵ Because the majority of the experiments were done decades ago (severe epilepsy now more often treated with the more effective pharmaceuticals that have since been developed), the findings are perhaps perceived by some as somehow being less valid or less important. Or perhaps the findings are simply too strange or counterintuitive for many to seriously entertain. But of course the evaluation of hypotheses should be based on evidence, regardless of when they were proposed or how they make us feel. Whatever the reason, many of the key findings from the split-brain research have never been fully explored, and I was pleased to see that the philosopher Elizabeth Schechter, specializing in the philosophy of neuropsychology, recently provided a new, comprehensive discussion of the subject.⁴⁶

KIHLSTROM: I actually don't have a quarrel with the role of hemispheric specialization in bicameral mentality. I'm skeptical about the right-hemisphere theory of hypnosis, but as I said before, I don't think that's a problem for Jaynes's theory. I do think that the theory of mind offers an alternative, non-physiological framework for thinking about bicameral mentality. But of all the ways to bifurcate the brain, left vs right is the only one that will easily account for the auditory hallucinations that are central to Jaynes's theory. Maybe I'm picking a point, but what concerns me more is Jaynes's assertion, which is all too common, that a psychological phenomenon

43. For the sake of simplicity, my discussion here assumes a person that is right-handed.

44. Cases of hemispherectomy provide further supporting evidence, showing that the brain hemispheres can operate independently. See A.M. Battro, *Half a Brain is Enough: The Story of Nico* (Cambridge University Press, 2001).

45. A cognitive bias that favors recent ideas or events over those that are older or that are not being actively promoted.

46. E. Schechter, *Self-Consciousness and "Split" Brains: The Minds' I* (Oxford University Press, 2018).

“demands” a physiological explanation. It doesn’t. As psychologists, we assume that the brain does it, somehow, but no psychological theory is required to specify a physiological mechanism, and the findings of neuroscience don’t constrain psychological theory. Psychological theories stand or fall on their own, at their own level of explanation. Many psychologists, neuroscientists, and philosophers of science don’t understand this, so I’m very sensitive to it and take every opportunity to make the point.

KUIJSTEN: Understood. So that was my first point — that in my view, many of the findings of the split-brain experiments, including those relevant to Jaynes’s hypotheses, are still valid. My second point is that we have to be clear that Jaynes only uses the insights that came out of the split-brain experiments to support his second and fourth hypotheses: bicameral mentality and the neurological model for bicameral mentality. The split-brain research isn’t directly relevant to his ideas on the origin of consciousness. However, I think there’s a temptation people have to think that, if bicameral mentality involved the hemispheres operating more independently than they do today, then the shift to consciousness must have required changes to the physical structure of the corpus callosum, thus facilitating greater hemispheric integration.

However, Jaynes’s argument is that consciousness, as he narrowly defines it, developed as a consequence of both writing and, more importantly, the development of metaphorical language that facilitated the creation of a metaphorical “mind-space” where we could visualize an analog ‘I’ and a metaphor ‘me’ engaging in virtual action, spatialize our lives on a timeline, etc. I suspect there was something of a see-saw effect, where as the various features of consciousness were cultivated via metaphorical language over generations, the right or non-dominant hemisphere language areas — the source of the auditory hallucinations — were correspondingly suppressed (for the many individuals who still hear voices, this process is still ongoing today).

Jaynes argues that this was all happening culturally. And yes, brain plasticity operates on the individual level, but if the majority of individuals in a culture are learning to use new technologies, in this case writing and more complex language — using metaphors of physical space to, for the first time, create an inner mental space — then conceivably the new skills would result in “software” changes to the brain that could spread throughout the culture. The new skills could then be taught to each successive generation.

So to sum up my second point: Jaynes only uses the insights from the split-brain experiments as evidence to support his hypotheses of bicameral mentality and his neurological model, and these hypotheses should each be evaluated separately from his hypotheses about the origin of consciousness based on language or dating the transition from bicameral mentality to consciousness.

KIHLSTROM: I agree that the split-brain experiments provide a good biological model for the sorts of things that Jaynes is talking about. And there's no question that consciousness requires some reference to the self — Jaynes's "narratizing I," if you will. All introspections take the form of "I think", or "I feel", or "I want." And there's no doubt but that the breakdown of the bicameral mind was facilitated by language because that's such an important modality for the transmission of knowledge within and across cultures — knowledge like "My thoughts are my own, and yours are yours."

So I accept two and a half of Jaynes's four hypotheses: I accept his reading of ancient texts, and his conclusion that ancient humans were bicameral seems very plausible to me. And, based on the same philological evidence, I think he's right that the breakdown in bicameral mentality occurred in historical time. I agree that the division of the brain into two hemispheres provides a neurological model of bicameral mentality, a way to think about the bicameral mind, but I don't agree that it provides a neurological explanation for either bicameral mentality or its breakdown, because bicameral mentality doesn't need a neurological *explanation*; psychological facts require only psychological explanations. And I worry about the idea that consciousness requires language: Invoking the Darwinian principle of evolutionary continuity across species, we have to consider the possibility that other species have consciousness too — and no other species has anything like human language.

KUIJSTEN: The relationship between language and consciousness is certainly a complex subject that could benefit from further study and empirical evidence. Your next point about theories in psychology not requiring — or "demanding" — a neurological explanation is certainly well taken. I completely agree — psychological theories certainly don't require that their underlying neurological mechanisms be known or understood — and from your comments I suspect there is something of a larger, ongoing debate here. Yet, on the other hand, if a plausible neurological explanation for a

psychological observation presents itself, then it certainly also makes sense to offer a conjecture or a hypothesis as to what is going on in the brain, does it not?

In this specific case, I think it was a good thing that Jaynes did speculate about the possible underlying neurological mechanism for bicameral mentality — his neurological model — because (1) his initial speculations helped inform future investigations and (2) the evidence from neuroscience now suggests that he was in fact correct.

Beginning in 1999, brain imaging studies began to show the right/left temporal lobe interaction of the language areas during auditory verbal hallucinations that Jaynes predicted.⁴⁷ Of course the brain is complex and difficult to research, and not every study has demonstrated the same result. But a growing number have, to the point where it is now emerging as the most widely accepted view of the neurological mechanism of auditory verbal hallucinations.⁴⁸

So while we can indeed divide the brain in different ways, such as the older, “reptilian” brain vs. the prefrontal cortex, etc., it now seems clear that Jaynes’s neurological model was in fact accurate — it’s the non-dominant (usually right) language areas that are responsible for auditory verbal hallucinations, which then travel across the corpus callosum and are “perceived” by the dominant (usually left) hemisphere language areas. In other words, the voices or behavioral commands aren’t being generated in the limbic system, for example — even if that is where the initial “fight or flight” impulse is generated.

So to reiterate, bicameral mentality is a psychological hypothesis that may or may not be correct, independent of whether or not the neurological model for bicameral mentality is correct or incorrect. I think that this has been a major point of confusion for many people — because the two hypotheses are so closely related, there is a tendency to equate the two. In any case, I think that identifying the right or non-dominant temporal lobe language areas as the probable locus of auditory verbal hallucinations (and the “voices of the gods”) — Jaynes’s fourth hypothesis — along with recognizing that we likely operated under a more hemispherically dis-unified, nonconscious mentality based on auditory hallucinations in the past — Jaynes’s second hypothesis — were two of Jaynes’s greatest insights

47. B. Lennox, et al., “Spatial and Temporal Mapping of Neural Activity Associated with Auditory Hallucinations,” *Lancet*, 1999, 353, 644.

48. L. Zmigrod, et al., “The Neural Mechanisms of Hallucinations: A Quantitative Meta-Analysis of Neuroimaging Studies,” *Neuroscience & Biobehavioral Reviews*, 2016, 69, 113-123.

(his other two hypotheses are equally important). So, at least from my perspective, I don't think we should wave off these two hypotheses — or the supportive evidence from split-brain research — as in any way outdated or misguided.

KIHLMSTROM: Don't get me wrong: I have no stake in the disconnection hypothesis either way. The role of the two hemispheres in consciousness is a very interesting topic for research, and I think that investigators would make more progress if they paid more attention to Jaynes.⁴⁹ I think about the origins of consciousness in terms of an alternative framework, the theory of mind, which is compatible with Jaynes's philological findings, and his ideas about the origins of consciousness, but doesn't involve any physiologizing. I like to think that Jaynes might have considered the theory of mind as a framework had it been available to him. Perhaps I'm overreacting to what Jaynes wrote, but all too many psychologists, neuroscientists, and philosophers think that the only legitimate explanations of psychological phenomena are at the biological level of analysis. So when I see someone write that a psychological finding "demands" a physiological explanation, I feel compelled to object.

KUIJSTEN: That does clarify why that aspect of Jaynes's argument stood out to you. And I agree that it is unfortunate that researchers studying the split-brain have thus far not connected their work to Jaynes. I also would like to emphasize that we can observe much of what Jaynes describes in action today. Children appear to develop Jaynesian consciousness as they learn language, and we can watch this process unfold. For example, what the developmental psychologist Philip Zelazo refers to as "reflective consciousness 2" (*refC2*) in his "levels of consciousness" model of children's conscious development equates roughly with some of the features of Jaynesian consciousness.⁵⁰ Many more people today experience behaviorally-oriented, often commanding auditory verbal hallucinations than was previously known, and there doesn't seem to be a persuasive explanation as to why this occurs, other than Jaynes's bicameral mind hypothesis. We now have the brain imaging studies that show that

49. R.W. Sperry, E. Zaidel, and D. Zaidel, "Self Recognition and Social Awareness in the Deconnected Minor Hemisphere," *Neuropsychologia*, 1979, 17, 2; E.H.F. de Haan, et al., "Split-Brain: What We Know Now and Why This Is Important for Understanding Consciousness," *Neuropsychology Reviews*, 2020, 30; T. Bayne and E. Schechter, "Consciousness after Split-Brain Surgery: The Recent Challenge to the Classical Picture," *Neuropsychologia*, 2021, 160.

50. P.D. Zelazo, H.H. Gao, and R. Todd, "The Development of Consciousness," in P.D. Zelazo (ed.), *The Cambridge Handbook of Consciousness* (Cambridge University Press, 2007).

there is in fact a left/right temporal lobe (“bicameral”) interaction that takes place during this experience.

Finally, with regard to consciousness and bicameral mentality, I think that the evidence suggests that two separate systems are involved. In other words, I don't think that bicameral hallucinations were first experienced as external and then slowly became recognized as one's own internal thoughts. The reason that auditory hallucinations are experienced as “alien” seems to be that they originate in the non-dominant hemisphere. On the other hand, inner speech seems to involve activity in the pre-frontal cortex — by some accounts specifically the left inferior frontal gyrus.⁵¹ We have to keep in mind that some people still experience both thoughts that they attribute to themselves and auditory hallucinations that they experience as “external” or “alien.” So to use the computer metaphor, whereas most people replaced one operating system with another, some individuals are still running both in parallel.

So I wanted to take a moment to offer those perspectives — as I've seen some of these objections or general themes raised before, I think it's important to at least attempt to address them. There is still a great deal of confusion as to these more nuanced aspects of Jaynes's theory, and it's challenging to try to move the theory forward without first clarifying some of these issues.

So first your thoughts on that — if there's anything that you'd like to add or respond to, or anything you think I'm getting wrong on this — and then, any final thoughts on Jaynes's theory or anything else that we've covered? You have the last word.

KIHILSTROM: I appreciate your clarifications. I think that Zelazo's ideas about the development of consciousness are quite interesting. Antonio Damasio has offered similar notions.⁵² I'd only note that other things seem to develop as children develop consciousness, like the theory of mind. And I really doubt that language is critical for the development of consciousness. If Jaynes is right (and I think he is), we had language before we had consciousness in his sense. And just because chimpanzees don't typically pass the false-belief test of theory of mind, doesn't mean that they don't have a theory of the chimpanzee mind. Based on evolutionary theory,

51. A. Morin and B. Hamper, “Self-Reflection and the Inner Voice: Activation of the Left Inferior Frontal Gyrus During Perceptual and Conceptual Self-Referential Thinking,” *The Open Neuroimaging Journal*, 2012, 6, 78-89.

52. A. Damasio, “How the Brain Creates the Mind,” *Scientific American*, 1999, 281, 6; A. Damasio, *Self Comes to Mind: Constructing the Conscious Brain* (Pantheon, 2010).

they've got to have something like human consciousness — the notion that “I think” and “I feel” — even though they don't have language.

I agree that the split-brain model, and hemispheric specialization in general, offered Jaynes an excellent heuristic model for what he was talking about. I also agree about the role of the self in consciousness, and about the role of language in consolidating the theory of mind in individuals and propagating it through cultures. I still disagree about the role of language in the “origins” of consciousness, because I assume that there is some level of consciousness, in Jaynes's sense of “consciousness of consciousness,” in nonhuman animals who lack the human capacity for language.

Otherwise, I'm sticking to my story: Jaynes offered important insights into the history and cultural evolution of consciousness, based on his reading of ancient literature. But just as his theory doesn't stand or fall on its ability to explain hypnosis, it also doesn't stand or fall on any neurobiological facts. It stands or falls at the psychological and sociocultural levels of analysis — basically, on the philology. I don't read Greek, but my reading of the *Iliad* and the *Odyssey* in English translation (first Fitzgerald, later Fagles) comports with his. And I think that the framework offered by the theory of mind and metacognition offers a new perspective on the cultural evolution of consciousness that is fully compatible with Jaynes's insights. There's a point in life when individuals realize that their thoughts, feelings, and desires are the product of their own minds — which of course was always the case; and there's a time in history when that discovery was embraced by an entire culture.

KUIJSTEN: You've been extremely generous with your time — thank you again for discussing these topics and for sharing some of your very relevant research. I'd like to also thank you for your willingness to have more of a back and forth discussion. I think that's an important part of the process, and I enjoyed hearing your different perspectives on some of these issues — it helps with understanding where there are opportunities to extend Jaynes's theory into new areas, as well as to understand where some of the obstacles are in terms of the acceptance of Jaynes's theory.

KIHLSTROM: You're welcome, and thank you for asking me to participate in this project. I taught about Jaynes for almost 40 years, in one way or another, but never had a chance to get my thoughts in print, or to discuss them with someone who has a deep knowledge of Jaynes's theory.

CONVERSATIONS ON
CONSCIOUSNESS AND THE
BICAMERAL MIND

INTERVIEWS WITH LEADING THINKERS
ON JULIAN JAYNES'S THEORY

Edited by
Marcel Kuijsten

Julian Jaynes Society

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