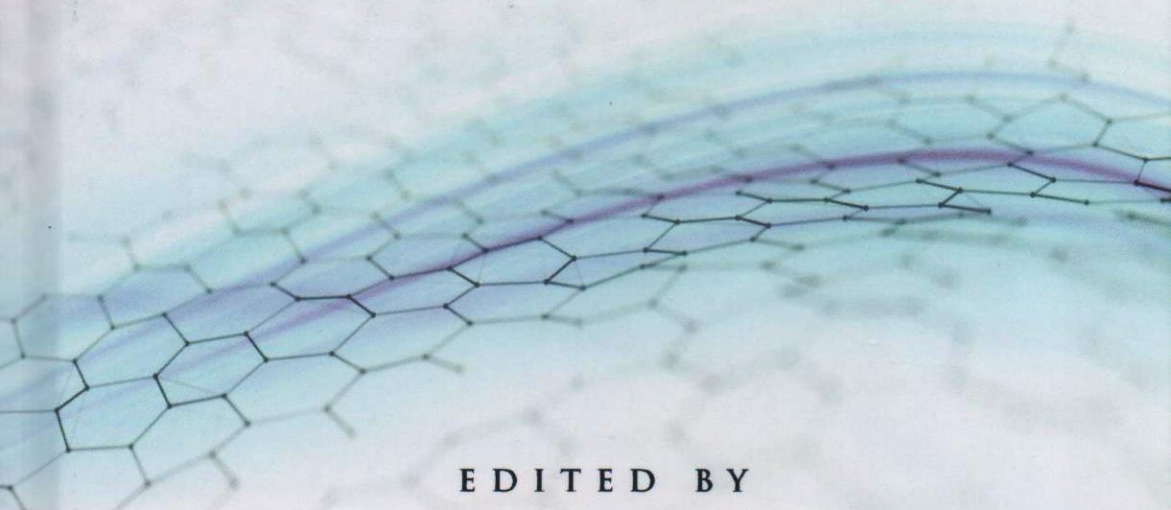
CONVERSATIONS ON CONSCIOUSNESS AND THE BICAMERAL MIND

INTERVIEWS WITH LEADING THINKERS ON JULIAN JAYNES'S THEORY



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Consciousness, Hypnosis, and Free Will

Edoardo Casiglia

Interviewed by Marcel Kuijsten

Edoardo Casiglia is Senior Scientist at the Studium Patavinum (Department of Medicine) at University of Padova in Italy. He is a specialist in cardiology, pharmacology, anesthesia and intensive care, a European Clinical Hypertension Specialist, an anthropologist and forensic archaeologist, and a criminologist/criminalist. He is also a trained hypnotist, hypnotherapist, hypnosis instructor, and is former Editor-in-Chief of the journal *Contemporary Hypnosis*. He has published 14 books and authored or co-authored over 700 scientific works on a range of diverse subjects such as cardiology, hypertension, hypnosis, hypnotherapy, and consciousness. Professor Casiglia has a longstanding interest in Julian Jaynes's theory and related subjects such as consciousness, anthropology, archeology, hypnosis, volition, and free will. He has published numerous books related to these topics, including *L'io e le sue Voci: Antropologia e Archeo-psicologia della Coscienza Egoica* [The I and its Voices: Anthropology and Archeo-Psychology of Egoic Consciousness], *Decisione, Volizione, Libero Arbitrio* [Decision, Volition, Free Will], and *I Mondi della Coscienza* [The Worlds of Consciousness].

Marcel Kuijsten: Can you tell us about your background and how you became interested in medicine and hypnosis?

Edoardo Casiglia: I have always been attracted by hypnotism,[1] since I was a kid, but I would never have become a graduate and professional

1. The set of means useful, but not essential, to rapidly reach the hypnotic trance in particular settings.

researcher in the field of hypnosis if I hadn't encountered Julian Jaynes's work. I had a serious approach to hypnosis when I was in high school, reading many books on the subject. However, they were unable to explain *what* hypnosis was or *why* hypnosis works — it was a mystery. In the meantime, I became interested in depth psychology, which I explored further during my studies at the Medical Faculty of the University of Padua (Italy). After I became a medical doctor and specialized first in cardiology, then in pharmacology, and again in anesthesia and intensive care, my interest in hypnosis grew to the point that I felt the need to formalize it. This happened at the Italian Centre of Clinical and Experimental Hypnosis in Turin (Italy), where I learned many of the various induction techniques, the meaning of Franco Granone's *plastic monoideism*,[2] and the methods of hypnotic trance management. I understood immediately that the techniques were not important — what was of paramount importance was the relationship, what psychoanalysts call "the *rapport*."

KUIJSTEN: What was the connection between hypnosis and theories of Julian Jaynes in your life, from both a personal and professional point of view?

CASIGLIA: Well, at one point in my life, an event of great personal significance took place for me: I encountered the work of Julian Jaynes. His book, *The Origin of Consciousness in the Breakdown of the Bicameral Mind*, introduced me to a world that I had only touched on before, and without fully understanding it. I must say that I did not come to Jaynes as a novice, having previously assimilated all of Carl Jung and Erich Neumann's fundamental text *Ursprungsgeschichte des Bewusstseins* [The Origins and History of the Consciousness]. Both of these authors had introduced me to the subject of egoic consciousness[3] and the concept of the 'I'.[4]

Jaynes's book, along with the works of Jung and Neumann, sparked a deep interest in me in topics related to the origin and nature of consciousness. So while in daily life I continued to work as a cardiologist and a Professor of Internal Medicine and of Emergency Care at the University

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2. For the Franco Granone School, the basis of hypnotic trance is "plastic monoideism," or the realization of a mental image leading — thanks to the hypnotic condition — to such a high level of concentration and intensity as to become "plastic," in other words, able to produce both psychic and physical effects.
3. The term *consciousness* was introduced by John Locke in the seventeenth century. Initially there was no distinction between moral *conscience* and egoic *consciousness*.
4. Two entities that — given the confusion existing in this field — I will treat here as synonyms, although Jung, a couple of times in his *Opera Omnia*, speaks of "the consciousness of the I" and Julian Jaynes considers the I "an aspect of consciousness." See Julian Jaynes, *La Natura Diacronica della Coscienza* [The Diachronic Nature of Consciousness] (Aldephi 2014). I strongly prefer the 'I' because it seems to me the "ego" sounds too Freudian. For Jaynes the 'I' is an analog.

of Padua, deep down I began to feel more and more like an anthropologist and an archaeologist. I formalized these titles through a post-university Masters degree — as if medicine was no longer enough for me, as if it were only a part of my being. Wolfgang Goethe stated: "Who for three thousand years has failed to account for himself to himself remains inexperienced in the dark and can only live day by day." I realized that living day to day means being trapped in an eternal present, as nonconscious animals are — if you don't know what is bubbling inside you, then you're not aware of yourself and you don't know where you're going.

And if you realize that you don't know where you're going, you only have one option: turn around and see where you came from. So, my interest in hypnosis and my interest in Jaynes's work went hand in hand. And if I weren't afraid of sounding immodest by claiming to be a hypnotist of some fame and skill today, I'd say I owe it to Julian Jaynes as much as to Carl Jung.

Naturally, as a university professor and a researcher, my interest in the themes of the mind, egoic consciousness, and hypnosis took the experimental path that marked my entire academic life. For this reason, almost all of my articles and books on hypnosis have an openly and decidedly experimental stamp.[5] For the same reason, I developed a university course called "Hypnosis in Medicine and in Research," which has now been attended by hundreds of students of both medicine and psychology.

Together with my staff, using hypnosis we have produced — in both experimental and didactic settings — positive hallucinations, delusions, neglect (in the psychological sense), i.e., negative hallucinations (in the hypnotic view), age regressions and revivifications, increases in physical and mental performance, control of blood vessel diameter, and so on. I try to give to all this an archaic interpretation, well expressed by the *ancient gaze*, which in my experience is typical of people in hypnotic trance. I did this through the theoretical and practical hypnotic models that I was building, because at that time these did not yet exist.

In short, hypnosis has always been, during my entire academic and personal life, a very interesting tool[6] to study the mind and an extraordinary way to communicate with the unconscious — both my own and that of the

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5. See Professor Casiglia's Google Scholar profile for details: https://scholar.google.it/citations?user=-C34e8ocAAAAJ.

6. My first scientific publication on hypnosis, also presented to a congress of internal medicine, was titled "Hypnosis as a Tool for Evaluating the Cortical Component of Haemodynamic Variations." Many years later, with much more experience and many more experiments to my credit, I published an article titled, "Measured Outcomes with Hypnosis as an Experimental Tool in a Cardiovascular Physiology Laboratory," which was very successful.

subjects that I've worked with. My research convinced me that consciousness continuously emanates from the unconscious, and pushes into it many of its contents — such as repressions, forgotten memories, thoughts, psychic traumas, dreams,[7] and unresolved conflicts. Consciousness, therefore, is never the same, and only a single idea can occupy the mind in a given instant (whatever the mind is).

KUIJSTEN: That's interesting to hear how Jaynes's book had such a significant impact on you — I can certainly relate to that. While working as a medical doctor and professor, you've also published a number of different books in Italian based on your extensive study of pre-history, recorded history, anthropology, archaeology, hearing voices, and origin of our internal dialogue. Can you first talk about the concept of the self, or Jaynes's analog 'I'?

CASIGLIA: Yes, although I am not formally a historian, I am, as you said, a lifelong scholar of cultural and physical anthropology and archaeology, in addition to being a doctor. Consequently, the study of history and prehistory are now my daily bread. So, the present comes from the past, both my personal present and the collective present. When I say "the present," I mean "the unconscious of today" — because it is both from the personal unconscious and from the wider, collective unconscious that the egoic consciousness incessantly draws its source.

Until my encounter with Jaynes's work, exactly how this happened remained a mystery to me. Why is egoic consciousness formed? Is it a necessity or a mere epiphenomenon? Is the 'I' something of a monolith or an aggregation? These questions kept me busy without finding an answer — until Jaynes's book appeared before me. The 'I' is certainly a mysterious phenomenon, even today, despite the widespread use of sophisticated tools such as functional magnetic resonance imaging that provide us with greater insight into precise brain activity.

Following my studies and research, which I will mix here for convenience but which actually occurred largely in parallel, I believe that the 'I' is an accident that the species *Homo sapiens* was predisposed to develop, but which could very well not have manifested at all. This predisposition is of a genetic nature, and has become evident over the millennia. It began with the evolution of the great apes, then the lowering of the larynx, then the development of the cerebral Broca's area (necessary to speak) and a few more millennia later that of Wernicke's area (to understand language),

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7. "Dream" is called "*traum*" in German, the original language of psychoanalysis.

then with the development of "the unconscious" — our ability for mental images, abstraction, narratization, constellation,[8] etc.

For the sake of brevity, I won't go into more depth here, with the genetic process roughly outlined. But genetics interact with our environment, and epigenetics — which I studied experimentally in an epidemiological setting at the population level — taught me that the environment itself affects genetics in what we have defined as "the echogenetic context."

The environment that led to the development of the epiphenomenon called the 'I' is represented by a myriad of factors, many of which are unknown. I will summarize here those that I can document scientifically: spontaneous mutations (each human birth involves about 6 mutations, which ensure genetic diversity for *Homo sapiens*, preventing us from being copies of our parents — as is the case with many animals); unexpected mutations such as those due to β- and γ-rays;[9] the bipedalism consequent to the African drought (a drought that may or may not have occurred); the consequent development of larger pelvises which allowed the birth of fetuses with larger skulls and brains; maternal care due to infantile underdevelopment, resulting precisely from these large brains that could not stay too long inside the uterus; and so on.

The development of the hands allowed *Homo sapiens* to nonconsciously build lithic tools, and then to manipulate them three-dimensionally from all points of view, thanks to the great mobility of the wrist. This allowed us, over time, to develop a three-dimensional conception of the world. The two-dimensional conception, typical of Neolithic wall artists, but also of our painters, and of cinema and television, paradoxically came much later — show Leonardo's Mona Lisa to contemporary Amazonian Neolithic aborigines[10] such as, for instance, the Brazilian Amondava, discovered in 1986 and studied by anthropologists a few years later, and they will see nothing in the picture.

The hands developed the way that they did because the forelimbs were now useless for walking and useful for work.[11] During these phases, we

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8. "Constellation" is the aptitude to group the things of the world, giving them an apparent meaning, a phenomenon called *pareidolia*. Four U.S. Navy ships were given the name *Constellation* in honor of the "constellation of the stars" of the American flag. My opinion is that all cognitive images of the world are constellations (of photons, if visual). See E. Casiglia, *L'Io e le sue Voci* ['The I and its Voices] (CLEUP, 2015), pgs. 66-67. Jung was the first to talk about "constellation of the unconscious."
9. Such as those due to Supernova W44, which around 20,000 years ago exploded only 6,000 light-years from the earth, for many millennia spreading protons that, on impact with matter, produce highly mutagenic γ-rays, contributing to rapid changes in the course of terrestrial biology.
10. Present day *ab origines*, "since their origins."
11. But the same did not happen with the analogous upper limbs of certain dinosaurs, also not necessary

know little or nothing about the mind of the primitive individuals of the genus *Homo*. But we know enough about the mind of the individuals of the more recent species *Homo sapiens* living after the Würm glaciation (called the Wisconsian glaciation in the United States), thanks to information coming from settlements, places and methods of burial, the beginnings of writing, and from the analysis of the furrows and depressions left by the archaic right hemisphere on the inner surface of the fossil skulls, by brain structures that no longer exist today.

After the development of language, it is now beyond doubt that the late *sapiens* experienced inner voices originating from right-hemisphere homologues of the left hemisphere language areas. That these voices existed can be deduced from several documents which can be dated in the period during the transition from the bicameral mind to consciousness, such as the Jewish Bible (דנת), the Assyrian Tukulti-Ninurta saga, the Greek *Iliad* (Ἰλιάς), the more recent "Song of Sad Days" of the North American Paiute tribe,[12] and from the description of the so-called "big dreams" of the pan-Asian shamans.[13]

Let's consider Abrāhām or Ibrāhīm (אַבְרָהָם or ابراهيم, whose meaning is "father of many"), a nonconscious man of the Bronze Age or perhaps a mere biblical character. A voice that he perceives as external tells him to kill his son, as sometimes happens today to modern schizophrenics: he heard the command and proceeded to carry out the action. Thanks to God — it is the case to say it — the voice also stops him in time. It is difficult to understand this biblical episode, which seems to be contrary to everything that the more recent books of the Bible say about God. And yet now a Jaynesian psychodynamic interpretation is evident: it was an auditory hallucination — one of the very common auditory and visual hallucinations that occurred at that time in bicameral people. Today, similar episodes of command hallucinations are an indication of pathology — although they are not always obeyed.

Even today, a modern person diagnosed with schizophrenia, or even a non-clinical subject, can see whole hallucinated scenes or written words, as happened to Nebuchadnezzar (Nabû-kudorri-uṣur), or characters can hover before him as Athena (Ἀθηνᾶ) in front of Achilles (Ἀχιλλεύς). It is interesting to note that Abrāhām (אַבְרָהָם), more bicameral, incapable of

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for walking, because the echogenetic context was different as they lacked adequate brain development.

12. In: *Natives: Canti degli indiani d'America* [Songs of American Natives] (Mondadori, 2005).

13. Present even today among some preliterate peoples, who do not know the wheel or agriculture, and consequently of *civitas*.

feelings, is prepared to kill his son without asking questions. It is the son Yitzchak, or Isaac (יִצְחָק), of a later generation, or perhaps metaphorically of a more advanced evolutionary period — less bicameral, more subjective — who asks where the victim is.[14]

These voices and forms, perceived as external, that guided the life of archaic man, were real hallucinations. They appeared variously as voices, simple lights, and sometimes speaking figures — again, similar to the hallucinations of modern schizophrenics or to the physiological hallucinations that in particular conditions today also affect normal people.

According to Jaynes, to hear in the Bible the first subjective sentence ("vanity of vanities [...], everything is vanity") — a reflection that certainly implies an 'I' — it is necessary to arrive at Qohelet (קהלת, in Greek called ἐκκλησιαστής, Ekklesiastès, in Latin, Ecclesiastes). And in the original Greek *Iliad*, some statements of the so-called Mycenaean heroes (actually, mere unconscious puppets guided by externalized hallucinations) — statements which seem to prove the existence of an egoic consciousness[15] — are probably late glosses added afterwards, in a period that was now proto-conscious or conscious.[16]

These documents that have come down to us (no one knows how many have been lost) give substance to the theory of the breakdown of the bicameral mind. But this breakdown can also be deduced from the fact that these voices are still in us, albeit in a different form.

KUIJSTEN: Indeed — there are many great examples of voice hearers throughout history, such as some of the biblical prophets, the prophet Muhammad, Joan of Arc, Emanuel Swedenborg, William Blake, and Joseph Smith, just to name a few. I don't think it's an exaggeration to say that bicameral voices have shaped the modern world. Yet, there has always been an odd disconnect between the voice hearers of the past, who were often seen as prophets, and those of the present, who are typically viewed as suffering from mental illness — although we also now know that many people who hear voices are able to function quite normally. Jaynes was one of the first to connect the dots in this regard, demonstrating that there is this long trajectory from voice hearing during the ancient world, up through the Middle Ages, and continuing on to this day. We now know so much

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14. Genesis, 22, 7.
15. For instance, *Iliad*, XXI, 663 or XXII, 99.
16. Julian Jaynes, *The Origin of the Consciousness in the Breakdown of the Bicameral Mind* (Houghton Mifflin, 1976/1990). See also the interview with Boban Dedović, "The Evolution of Mental Language in the *Iliad* and the *Odyssey*," in this volume.

more about the experience of auditory verbal and visual hallucinations in a wide variety of populations than we did even twenty years ago, yet no one seems to be able to offer a convincing explanation for why hallucinations that command or direct behavior still occur, outside of Jaynes's bicameral mind theory. Can you explain what you mean by the idea that the voices are still with us, but in a different form?

Casiglia: Yes. The bicameral voices, which we no longer hear in their pure form even if we are schizophrenic,[17] did not die, did not dissolve, but they organized themselves into a new function, a new organ, which we call the 'I' or the "egoic consciousness." Using hypnosis, for example, we can bring to light these voices.[18] Another more complicated way to evoke the voices is to electrically stimulate certain cortical areas, a process that requires opening the skull, which today is practiced less and less.

Without the "death of voices" between 1500-1200 BCE, the 'I' would not have formed, because the 'I' is an aggregation of the voices. My experience with hypnosis has convinced me to view the 'I' not as a monolithic, Ptolemaic, stable, monarchical, centralizing entity as Renée Descartes imagined it, but rather as a federal republic, a fictitious identity whose parts change incessantly, as hypothesized by David Hume, or even as a parasite that presides over exchanges with the outside world as suggested by Schopenhauer.

Indeed, in hypnotic trance it is not difficult to dissociate the 'I' or produce many versions of the 'I' simultaneously active and present to themselves. Hume says that when we delve into what we call our inner space we can only grasp a perception. His idea is that when we sleep and have no perceptions, we do not exist, and we mask these voids with a fiction of continuity that we call the 'I', which unifies and holds together the bundle of perceptions. All this is ephemeral, because one thought drives out another one, and is in turn rapidly expelled.

Schopenhauer notes that in what should constitute the core of the 'I', in what appears as the hearth of identity, there is the absolute 'non-I'. As soon as one wants to know the 'I', one loses it in a void, from which a voice speaks with the words of an unknown, a parasite. We therefore have no real possession of ourselves, and we are not the owners of our existence, being mostly

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17. Contemporary schizophrenics are "living fossils of bicameral people."
18. Which are many and could express the concept "My name is Λεγιὼν (legion) because there are many of us" as reported in the Gospel of Mark 5: 8-9. Note that in Greek δαίμων (*dáimon*, then usually translated into *demon*) is the equivalent of the Latin *spiritus* (spirit, i.e., a numinous agent, not necessarily negative, even divine).

in a state of turbid unconsciousness.[19] It is the first, confused perception of an Unconscious.

Furthermore, according to Rudolph Virchow, in the progressive ascent from mono- to multicellular organisms, the prerogatives of each single cell are assumed by a central hegemonic power that receives a delegation to represent it. This center, which in humans gives rise to the 'I', does not exist as an independent entity; it does not possess autonomy outside the system of proxies granted by the individuals of which it is composed.[20]

The 'I' therefore ceases to be a monolithic unit to become an unstable compound, an archipelago of islands of consciousness, a *coalition consciousness* not unlike coral polyps. The 'I' experienced by an individual at any given time is therefore the strongest one, not the only one. Its hegemony is based on a system of built alliances and balances that require a continuous expenditure of energy (*libido* in psychoanalytical terms).

Today, using a modern metaphor, we could say that the 'I' is not a monarchy, but rather, like the United Kingdom, *a family aristocracy tolerating a hegemonic sovereign*: the aristocracy is represented by what remains of the integrated bicameral voices. Julian Jaynes called the mind of primitive *Homo sapiens* "bicameral" not only because the two brain hemispheres were more independent than they are today, but also as a magnificent metaphor of many modern parliaments that are formed by different voices gathered in a bicameral structure acting as a unique entity.[21] Therefore, the items to which one had to obey in the bicameral period were the absolute preliminary condition to the modern conscious phase, to the 'I'.

The so-called "death of the voices" was a necessary premise for the birth of the 'I'. In fact, we are conscious because we became our own voices. Today the voices no longer speak to me as they did to my ancestors, because 'I' am those voices. They no longer arise from the right hemisphere to speak to the left, but they speak to each other by creating the 'I'. They coalesced in an internal space calling themselves 'I'.[22] So, modern people no longer usually hear voices in a direct and nonconscious way, as the bicameral person did.

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19. Arthur Schopenhauer, *Der Handschriftliche Nachlaß* [The Handwritten Legacy] (Arthur Hübscher, ed.) (1885/1985).
20. Rudolf Virchow, *Die Cellularpathologie in ihrer Begründung auf physiologische und pathologische Gewebelehre*, 1858, in *Nederlands Tijdschrift voor Geneeskunde*, 2003, 147, 2236-2244.
21. See Jaynes, *La Natura Diacronica della Coscienza* [The Diachronic Nature of Consciousness].
22. In the absence of adequate semantics, I don't know how to better explain this concept. I think it is impossible, mainly because "being" is also a verb and 'I' is also a pronoun.

But there is a very important way for us modern people to hear bicameral voices, even if we don't perceive them as such; indeed, sometimes we do not perceive them at all, because the listening takes place *sub limine*,[23] but nevertheless they make us act. We have an unwelcome taste of it in neuroses: what is an obsessive-compulsive neurosis if not a condition due to unconscious voices that tell us "*wash your hands, wash your hands, wash your hands*"; these voices speak — it would be better to say they whisper — below the threshold of consciousness. We hear them without being aware of them, and often we obey.

But the same voices also speak to us in daily life and make us act. These are the admonitions of parents, teachers, grandparents, the catechist — admonitions that now act as conditioning which we may have lost conscious memory of, but which operate in us, giving rise to choices and actions. "*Don't run in the street, don't smoke, don't take drugs, avoid bad company, crime doesn't pay, be careful with boys, don't get pregnant at 16*" or even "*choose Medicine after graduation*" — these are conditioning, subliminal voices, true clockwork mechanisms that we often presume to consider conscious and the fruit of a presumed free will. As Homeric heroes or biblical patriarchs, we submit to their will without realizing it; and the mysterious process of volition is nothing more than acquiescence to our unconscious residual archaic voices.

KUIJSTEN: You're drawing an interesting connection between the nonconscious bicameral voices and modern, guiding voices that are not quite hallucinations but are still experienced as dissociated from our "self." I've always viewed bicameral hallucinations and our internal dialogue more as running in parallel, yet indeed much of our internal dialogue consists of these same types of behavioral admonitions. This brings to mind something Jaynes once said, in response to a question from the audience — that our modern conscience is like "a faint and wayward echo" of the bicameral voices.[24] I think there is much more to explore here, in terms of this relationship and the trajectory from bicameral voices to the varieties of internally perceived thoughts we experience today, some of which are dissociated. Drawing on your study of anthropology and archaeology, what

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23. To be precise, we hear them in inner speech, on the occasion of silent reading and during some physiological hallucinations such as the hypnagogic and hypnopompic ones, which can be reproduced with hypnosis.

24. Julian Jaynes, "Consciousness and the Voices of the Mind: Open Discussion," *Canadian Psychology*, 1986, 21, 2; reprinted in M. Kuijsten (ed.), *The Julian Jaynes Collection* (Julian Jaynes Society, 2012).

can you say about the origin of language and the relationship of language to the development of consciousness?

Casiglia: An anthropological and archaeological view allows us to answer this question with some certainty. It is clear that egoic consciousness derives from language. Just reflect on the fact that it is nearly completely verbal. Most of our thinking is done verbally.[25]

We don't know how the mind of the oldest human species of the genus *Homo* worked, because they have not left any documents or myths. Because modern man has an 'I' and animals do not, we must assume that there was a progressive process of self-training, and that this took place over a long period of time. For millions of years, the first human species certainly acted following symbolic instinct, but when humans somehow became *Homo faber* (builder, craftsman), when they began producing tools and other artifacts, handmade articles — usually lithic and useful in daily life — following the indications of a mental image, something similar to the unconscious had to exist. These archaic human species obviously did not yet have an 'I', so they acted in a coordinated way thanks to unconscious commands of the *perceive* → *execute* type, without any intervention of an egoic consciousness (which had not yet developed), a mechanism not different from the neurological commands that constitute modern conditioning.

This system worked very well for a very long period of time — as it still does today for non-human animals. But, according to Jaynes, as language developed, the unconscious began to express itself in a verbal form, with the right hemisphere giving orders *ipso facto* executed by the left, like conditioning does today. So as the Wernicke center for language comprehension developed, the coordinated activity of the unconscious must have begun to be perceived as voices, which obviously were nonconscious, as man had no interiority.

Hence the projection of the bicameral voices on tombs, totems, monuments, mountains, natural phenomena, which gradually assumed the unconscious role of divinities and also ensured — thanks to a uniform and habitual behavior — the social cohesion of groups of limited size, such as tribes or small settlements (a *civitas*). This mechanism also worked well for a long period of time. Only much later, due to natural upheavals, mutagenic factors, enlargement of social groups, negative and positive selections,

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25. The price of this verbalization was *Homo sapiens'* renunciation of the non-mediated understanding of the symbols of the unconscious. These symbols are now free to act but often are not understood, frequently generating neuroses and other pathologies, but also generating the egoic consciousness.

and, most importantly, the development of writing and more complex language, did the voices integrate, forming what we now perceive as the 'I' and we call the "egoic consciousness." In deep hypnotic trance we can both evoke these voices and collapse them into an alternate self or 'I' (some psychologists refer to this phenomenon as "dissociation").

KUIJSTEN: As you said, there is an interesting interplay between biological evolutionary processes and cultural and environmental factors, such that cause and effect can often be difficult to determine. In other words, language could not develop until the necessary underlying biological prerequisites were in place, but these biological changes were likely driven by earlier behaviors that conveyed survival value. Once developed, culturally driven, complex abilities such as early language do not only have a transformative effect on the psychology of an individual and of a culture, but can also in turn influence further biological changes to the brain over many generations, as these skills spread through a culture and are taught to each successive generation. You've written a book that discusses decision-making, volition, and free will. Can you say something about your views on these topics?

CASIGLIA: Ah, free will! How many things can be said about free will! One fact is certain: many people will be dissatisfied with what I will say now. To get straight to the point, I will say that there is no conscious personal freedom. The question is, "Who writes the story?" If you ask different people, they might answer God (or any god) writes the story, or the 'I', or "it is we as a people who write history" (this last interpretation is very American), etc. In my opinion, logically, the answer is that history is already written.

I'm afraid that I am a determinist. Any superior animal can perform an action (eat, move, reproduce, etc.). For this to be intentional and voluntary, however, the animal must be aware of the consequences of this action, that is, it must be able to narratize. Jaynesian narratization is a prerogative of modern *Homo sapiens*, and today we know, also thanks to some experiments of my research group with functional magnetic resonance imaging (fMRI), that it depends on the anterior cingulum and on the limbic structures responsible for emotions (or at least, these structures must be intact).[26] Only *sapiens*, thanks to the narratization function, can be assumed to act freely.

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26. E. Casiglia, et al., "Granone's Plastic Monoideism Demonstrated by Functional Magnetic Resonance Imaging (fMRI)," *Psychology*, 2019, 10, 434-448; E. Casiglia, et al., "Hypnosis Meets Anaesthesia: Mechanisms of Hypnotic Analgesia Explained by Functional Magnetic Resonance (fMRI)," *International Journal of Clinical and Experimental Hypnosis*, 2020, 68, 1-15.

But is it really so or is it just an illusion? Is volition possible within the context of Newtonian determinism? Although I wish that were the case — I don't like feeling like I'm a puppet — it would seem that it is not so! Of course, we have the subjective feeling of being free. Nevertheless, from a naturalistic, scientific point of view, 'I' is an inconvenient pronoun because it forces us to confront a problem, that of personal identity, which, as long as we remain in the realm of naturalism, has only two alternatives: either it is reduced to the mere brain (which is also part of the Newtonian deterministic universe) or it is an illusion.

If we affirm that man is a consciously free entity, that he can make free conscious decisions, then where does this free will come from? From the brain? But if free will is determined by the brain, then it is preordained deterministically, therefore it is nothing more than an illusory freedom. This *free will* believes itself to be free, but this belief also belongs to determinism, because the succession of *cause* → *effect* obviously has never stopped from the Big Bang to this precise moment, albeit with the interposition of chaos and its laws.

So while I am a determinist, I am certainly not the first. Pierre Laplace affirmed in 1812:

> We ought to regard the present state of the universe as the effect of its antecedent state and as the cause of the state that is to follow. An intelligence knowing all the forces acting in nature at a given instant, as well as the momentary positions of all things in the universe, would be able to comprehend in one single formula the motions of the largest bodies as well as the lightest atoms in the world, provided that its intellect were sufficiently powerful to subject all data to analysis; to it nothing would be uncertain, the future as well as the past would be present to its eyes.[27]

In short, it would not be free. But this question was raised even earlier by Lucretius (99-55 BCE), who in *De Rerum Natura* [On the Nature of Things], discussed for the first time the problem of the material world, in a rational and surprisingly modern way. He found himself forced to hypothesize random "swerves" of atoms to justify human freedom. But the naturalistic universe does not make swerves.

KUIJSTEN: How is the concept of determinism best explained to the average person, or non-philosopher?

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27. Pierre-Simon Laplace, *A Philosophical Essay on Probabilities* (1814), translated from the sixth French edition (John Wiley & Sons, 1902).

Casiglia: The point is that of the *event antecedents*. The knowledge of all the antecedents would make easily explainable what appears obscure — the inexplicable turns of nature and events. It is precisely by knowing the trajectories that mankind arrived on the moon and sent the Mariner probes to Mars. Even more incredibly, by knowing the trajectories, it was predicted decades ago — at the beginning of the Rosetta mission — that on November 12, 2014, at 17:03 local time in Frankfurt, and after a journey of 6.4 billion kilometers, the Philae probe would touch down on the surface of comet 67P/Churyumov-Gerasimenko, at a precise point called Agilkia, 511 million kilometers distant from Earth.

In Newtonian terms, it can be said that your decision to continue reading now was already decided immediately after the Big Bang — to be fulfilled in this moment. You seem to freely decide to continue reading by virtue of a free decision of your brain, but your brain too depends on naturalistic determinism. Determinism dictates why your brain operates in the way that it does.

Now, interpreting the thought of the Italian philosopher and theologian Vito Mancuso, if we accelerate the course of the birth of the universe — for example, if we were watching a film in fast forward — at some point we would see a mineral start talking and saying "I am," because this is exactly what happened: inanimate inorganic elements have progressively organized themselves and become organic, and they became life and then conscious life, without any interruption,[28] only over the course of a very, very long period of time. Of course, the biological trajectories — particularly the mental ones — are not linear and mechanistic like the cosmic ones, and the laws of chaos play a big role. But chaos is not freedom.

Kuijsten: I understand your explanation, and yet I think most people would object that this seems to be contrary to our perceived experience of making decisions. Are there experimental data in this regard?

Casiglia: It is quite scary to accept that, in philosophical terms, freedom does not exist. In everyday life we are sure to make free decisions. To tell the truth, the whole system represented by social life, work, individual responsibility, subjective merit, many religions, not to mention the judicial system, is based on this certainty. The freedom of the French Enlightenment is considered an achievement. The United States is founded on the

28. An interruption of the *cause* → *effect* principle should have the rank of a Big Bang or of a miracle. These events do not belong to the naturalistic Universe; they are outside of the Universe.

values of freedom and individual responsibility. The state of New Hampshire has the motto "Live Free or Die," which certainly dates back to the days of independence, but which today could be reworded more precisely as "live with the subjective and illusory feeling of being free or die." Paradoxically, I would die for my freedom, but I'm afraid I don't have it.

Unfortunately, the inner, subjective certainty of being free is the only proof of the existence of freedom: everyone can, mistakenly, experience it in himself. Yet, as I explained earlier, this is in conflict with the deterministic nature of the naturalistic universe; anyone who studies this cannot fail to recognize it. This poses insurmountable problems, because either (1) we accept the *cause* → *effect* principle which is the basis of our life, or, (2) we are satisfied with the mere feeling of being free, which is in any case the basis of our life. We are sure of being free on an experiential level, just as we are certain of existing on an experiential level. It is not a question of applying logic, but of feeling something intimately, even if it is clearly false and illusory.

And if philosophy with its determinism were not enough or unconvincing, experimental data now indicate that our decisions are not made consciously. Scientists have shown with both an electroencephalogram and fMRI that if I decide, for example, to move a finger or a hand at a certain moment, apparently *freely chosen by me*, the decision was made seconds before.[29] Indeed, they can predict whether I will move my right or left hand when I haven't decided yet![30] Decisions, even if not predetermined, do not belong to the domain of consciousness.

KUIJSTEN: Yes, the famous and controversial experiments by Benjamin Libet, and others. Because these findings run so contrary to our everyday perceived experience and common sense intuitions, they have been difficult for many to accept.

CASIGLIA: They are difficult to accept and they collide with common sense and with subjective experience. A solution commonly accepted by the philosophical community and by almost the entire scientific community is that, although we live in a naturalistic universe which is necessarily deterministic, human beings are not really determined because the number of

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29. Benjamin Libet, et al., "Time of Conscious Intention to Act in Relation to Onset of Cerebral Activity (Readiness-Potential): The Unconscious Initiation of a Freely Voluntary Act," *Brain*, 1983, 106, 623-642.
30. C.S. Soon, et al., "Unconscious Determinants of Free Decisions in the Human Brain," *Nature Neuroscience*, 2008, 11, 543-545.

covariables acting on us — on our brain or on our psyche[31] — is so high, so overwhelming, that it does not allow us to foresee an effect from its causes. According to this view, the *cause* → *effect* principle, well understood, exists, but the great majority of effects depend on causes that are not the result of direct causal principle, but rather enormous degrees of uncertainty.

This uncertainty would be such as to touch on indeterminacy (apparent absence of determinism) to avert the bugbear of predestination. When you have many, indeed many, choices available, these can *falsely* appear infinite, which would explain the widespread tendency we have to perceive ourselves as free agents, rather than as actors governed by a director. In support of this hypothesis, chaos theories are often cited. In the past, between 400 and 40 BCE, with the arrival of the Roman Empire in Greece and the fall of certainties, providence of the gods has failed and the fallacious concept of chance was born.[32] Even today, most people believe in chance. For those who are satisfied by this, the *freedom of chance* is fine. But it is always determinism, even if masked by uncertainty: it is the vain freedom of chaos.

KUIJSTEN: Fascinating. Another topic that often comes up in the context of free will is quantum mechanics. There's also been a lot of talk about quantum mechanics with regards to consciousness in the past few decades, and things like so-called "quantum consciousness." Most — if not all — of this I think represents very confused thinking, albeit in some cases by otherwise very smart people. It often seems to boil down to little more than wild speculation and the basic idea that "Well, consciousness is highly complex and poorly understood, and quantum mechanics is highly complex and poorly understood, so perhaps the two are related, or one explains the other" — that's a paraphrase of a quote I once read, but I no longer remember where.

To be clear, these theories also tend to suggest a definition of "consciousness" that is very different from how Jaynes carefully defines it. And I say "suggest" because rarely is an actual definition provided. But putting that aside and getting back to free will — in your opinion, can quantum mechanics help to save free will?

CASIGLIA: This is a very good question. Actually, at an even greater level of uncertainty, today it is customary to refer to quantum physics. The brain, in the final analysis, is composed of atoms and these atoms are composed of

31. Externalized by the ancient Greeks as the goddess Psyché (Ψυχή).
32. Chance was externalized by the ancient Greeks by attributing it to the goddess Tyche (Τύχη).

subatomic particles, and it is now known by physicists — and to a certain extent even by the general public — that these particles (which perhaps are waves or vibrations or fields, or perhaps not) do not behave in a deterministic way. In particular, it is and it will always be impossible to determine (i.e., to reduce to determinism) all of the characteristics of a particle while leaving it undisturbed: when we observe it, the function collapses from "quantum" to "determined" — having been modified.

The highest degrees of uncertainty lead to the uncertainty principle, which can be explained in this way: at a fairly small level, which however exists and makes us up, we are indeterminate. The subatomic particles have unreliable aspects and do not allow excessive familiarity. For example, a particle can appear in the kitchen and then in the bedroom without going through the corridor, because in the interval from one room to another, in the corridor, it simply does not exist.

In this sense, the future can be considered unpredictable, which however does not reassure me about my freedom. And the quantum case is a true case, not ignorance of antecedents. Heisenberg's uncertainty does not confer freedom, however. At the most it makes the uncertainty total, as in the well-known theoretical experiment of the "cat in the box." The indeterminacy inherent in this experiment is now supported by a mathematically monolithic formula; however, the cat is not at all free to decide whether to be alive or dead, it can only experience or not its own existence while it is in the box, and it also loses this faculty when the box is opened.

KUIJSTEN: You've certainly given us a lot to think about! Do you have any final thoughts on Jaynes's theory?

CASIGLIA: Jaynes's theories provide a solid basis for the nature of hypnosis, which is still largely unknown. My experimental studies, my experience as a hypnotist, medical doctor, and my studies of anthropology and archaeology lead me to consider Julian Jaynes as a scientist who studied not only consciousness, but the mind in its totality. In ancient Latin, "*scientiă*" (science) and "*conscientiă*" (consciousness) have the same verbal root, but it is clear that the mind (whatever it is) cannot be studied with empirical science alone, but must also be informed by human disciplines such as literature, archaeology, art, museum conservation, and so on. There is still so much to do and to discover. *Ad majora!*