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PASSIONENT MUSIC

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It controls our thoughts, our feelings, our instincts, and our dreams.

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00:00:31,560 --> 00:00:36,560

It is the most complex organ in the body without a doubt.

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It has helped us to solve a great many mysteries, yet it jealously guards its own secrets.

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To some degree the brain is still a bit of a black box.

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Its abilities seem infinite, but many remain untapped.

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They are the powers of the mind.

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What beyond was known was an untextured world of shadows and phantoms.

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A land that knows no limits of time or space.

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From the dawn of discovery to the nightfall of catastrophe,

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journey through a universe of the unexplained, the unforeseen, the unbelievable.

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A place beyond reality where no question will go unanswered.

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A place where myth and legend are law, superstition, and science.

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The End

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It's time for our journey to begin.

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The enchanted loom, the human brain.

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So much has been said about it, so little explained.

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Knowledge surrounds these lateral reveals, and with these instruments, that knowledge can be ours.

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To the naked eye, the brain is unimpressive.

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It weighs less than three pounds, a soft, grey-pink organ.

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It has been compared to a sponge, a walnut.

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And yet, science stands in awe of it.

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From what brain scientists are learning today, by the 22nd century, these products may be available.

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EJNC proudly announces three new mind alteration devices.

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Moodom, an emotional modifier that can change your mood from mad to glad.

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Infodet, an easy-to-use learning enhancer.

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And Memerall, a memory tickler that comes in a handy spray can.

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These three new brain boosters will be available on test markets soon, so have multi-card ready.

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EJNC, we do the thinking for you.

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Since prehistoric times, the brain has been explored, tested, even surgically examined.

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For example, this ancient skull exhibits a hole punched out in a crude operation called trephining,

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designed to release pressure, trapped by the unyielding bone.

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These simple tools were the last word in Peruvian medicine in 2000 BC.

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But it was in 600 BC that Hippocrates, the father of modern medicine,

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came to the then-starking conclusion that thought and emotion originated in the brain, not in the heart.

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During the Renaissance of the 1400s, Leonardo da Vinci poured melted wax into the brain ventricles of an ox,

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then peeled off the tissue to uncover the real shape.

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In the 1790s, a pseudo-science called phrenology swept the courts of Europe.

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A doctor named Franz Josef believed that the skull's shape had everything to do with personality traits and aberrations.

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He was sadly mistaken. But inside the brain, various areas do control different parts of our behavior.

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Typically speaking, the left hemisphere of the brain processes the information in a linear, sequential, rational mechanism.

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And that certainly is one that goes along with the dominant part of our culture.

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The right side of the brain often has been devalued because it tends to look at the whole of things.

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It's a more holistic or simultaneous, a more spatial functioning in terms of perceiving and organizing information.

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So more in music and dance and art, some of those capabilities seem to arise more from the right hemisphere of the brain.

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Now neither one can really work along, but together actually comes the most creative types of achievement and synthesis that represents the true functioning of the human brain.

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So it's the interrelation of the right and left sides of the brain that allows to perform the simplest and most complex tasks.

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What we see and hear and feel, what we remember, how we recall it, all these things vary depending on our brains.

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If we could perceive the world from another brain's perspective, it would be a very different place indeed.

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The world has been a difficult place for the mentally ill, and for centuries the same made little effort to understand that insane perspective.

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It was not uncommon to warehouse the mentally ill in grim asylums like England's infamous bedlam, where the inmates were put on display as if in a nightmarish zoo.

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Torture was occasionally inflicted upon these misunderstood souls, an ironic treatment, considering that some believe contemporary historical figures suffered from milder forms of mental illness.

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Abraham Lincoln might have been a manic depressive, adult Hitler a paranoid, and Van Gogh a psychotic.

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What we are finding out is looking at their lives, they had severe disturbances and mood, unremitting depression sometimes, self-destructive behavior like Van Gogh cutting off his ear, and it seems very clear that they may have had psychotic symptoms like paranoia and hallucinations and things like that.

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The so-called psycho-history is a very chancey sort of endeavor, because you're taking our own contemporary ideas of psychological explanation and we're applying them to a time when people thought differently, had different values, lived under different moral and different ethical and different political and different religious ideas,

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and then we're trying to imply that we can understand them, that we know why they acted the way they did.

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And today, has our perception of mental illness changed?

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With recent scientific studies of the brain, we're beginning to see that many of the symptoms of mental illness are actually expressions of a biochemical dysfunction in the brain.

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And that's one of the reasons why one of the exciting frontiers is the development of specific drugs which can correct biochemical abnormalities.

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EJNC now announces Moodom. Are you sad, glad, or just plain mad? With a touch of a switch, we can change your mind permanently. Programming now available so you can take this product wherever and whenever the mood strikes. EJNC, we do the thinking for you.

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Scientists have discovered millions of astonishing facts about the brain. Yet overall, these facts are only pieces of a larger puzzle. Small areas of the picture have been fitted together, but the puzzle is far from complete.

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What are some of these facts?

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The human brain consists of microscopic cells called neurons which use electricity and chemicals to signal to each other in ways that still remain mysterious.

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In the adult brain, there are between 10 and 100 billion of these neurons, no one knows for sure. It might be easier to count the grains of sand at the beach.

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As each neuron connects with at least a thousand others, it almost seems as if every brain contains more connections than the universe has stars.

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Our science can use technology to cure, not condemn people who have suffered damage to their minds, is illustrated by the following story.

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I was working as a police officer for the Los Angeles Police Department. I was in a black and white

police car. My partner was driving the car and he was driving at a high rate of speed, lost control of the vehicle and struck a power pole.

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As a result of the accident, I sustained numerous injuries, mostly internal. I also sustained an injury to my head. I started doing strange things. If something went wrong at home, I would get angry.

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One night it was dark outside, maybe 9, 10 o'clock at night. I got very angry for no real apparent reason.

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I just took my gun and I started walking down the street just hoping that somebody would bother me so that I could take out my aggression on whoever it was.

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I felt strongly that she had suffered some kind of brain injury and in getting the beam done, it allowed me to identify that there were multiple areas of dysfunction.

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The beam is the acronym for brain electrical activity mapping and this essentially suggests a machine that allows us to see the electrophysiologic workings of the living brain.

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After we have the patient hooked up to the electrode, we flash the lights and we do the visual response, seeing how the brain responds to the flashes of light.

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And then we do the auditory work response where we have the patient hear some sounds and see how the brain responds to that and take a recording of that.

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We take all this information together. We don't have to combine the information but each of these individual tests give us an idea of brain functioning.

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He read the results and he says Anita there's something wrong with you and I was happy with the fact that there was something wrong and it wasn't all in my mind.

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I wasn't losing my mind. I'm not crazy. I'm just having a problem. I'm sick.

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Accurate diagnosis is only the beginning for the injured brain demands constant attention and even then recovery can be slow.

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But in Anita's case that recovery has been steady and mind becoming her own again.

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Of all the marvels the human brain performs, the most wondrous is the most common, accomplished by children ages 7 and younger.

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The learning of language.

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There's something quite wonderful occurring in this quiet classroom, something almost miraculous.

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These children are expanding their minds, learning how to communicate with each other to express their developing thoughts.

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But they may be able to learn faster.

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For breakthroughs are being made in understanding just how it is that we absorb and express information.

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The school system of course is set up to teach the three R's, reading, writing and arithmetic.

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And to teach things that are taught in sequences, French one, French two and so on.

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The school system is not very well organized to teach the visual perceptual way of thinking.

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Beni Edwards believes that it may be possible to trick the brain's different hemispheres into perfecting skills that seem impossible at first.

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Like drawing. This is accomplished by misdirection, by turning the subject upside down.

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When the person is presented with an unusual situation, here's something upside down.

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The normal response is thrown off base.

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In normal life we simply are naming things. We name our friends, that's a chair, that's a table, that's a pencil and so on.

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To draw those things, one has to make a shift in style of thinking.

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So what we teach is how to use one's own brain differently, to see differently.

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And then we find that the person can draw. There's a saying in the art business, if you can teach a person how to see, that person will be able to draw.

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We do not teach drawing at all, we teach seeing.

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Very nice drawing.

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If the conclusion that Dr Edwards is drawing from this research is true, it could have an enormous impact upon the learning process.

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We may be able to absorb and utilize more information than we dreamed possible.

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And this paints an exciting picture for our future.

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Using recent scientific discoveries, we may one day be able to alter our lives in ways that now seem impossible.

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EJNC, we do the thinking for you.

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EJNC now announces Memoral, a memory booster that stops that brain drain on its tracks, giving you all the recall you'll ever want, improving both short and long term memory.

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Not recommended for using combat regions or data banks as brain cram may result.

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Memoral now comes in a handy aerosol format, perfect for getting at those pesky tip of the tongue facts.

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Just remember, EJNC does the thinking for you.

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Much of what we do depends on memory. Another great mystery of the brain.

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Why is it that we suddenly recall a trivial event or a familiar face from long ago, and yet cannot remember the name of someone we met only yesterday?

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Every single day in work or in play, the human brain is called upon to interpret a galaxy of information, some conscious, some unconscious.

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In order to cope with this complicated world, the brain selectively stores data which it can recall it will, a function called memory.

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There are different kinds of memory. One which we call short term memory is the ability to learn new information.

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Long term memory is really something of a different sort. It's the ability to remember information which was learned in the distant past.

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As we age, our memory seems to fade. Why is this so?

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The memory of the older person starts to become less efficient. For one reason, the process breaks

down. The neurons have been there in place for 60 or 70 years, and like any mechanical device, it begins to wear out.

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But when the brain begins to malfunction, there are very few tools that we have to help us understand that.

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That is the kind of work that we're trying to do here in the electrophysiology laboratory, trying to develop new kinds of diagnostic tests which can help us get a window into the brain and see what might be going wrong with these illnesses.

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The electroencephalogram or EEG is a test that has really been around for more than five decades.

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Even back then, we recognized that in certain disease states, there were abnormalities that became apparent in the EEG tracing with the advent of the modern microcomputer.

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We have a real advantage though in the potential for real breakthroughs because we can analyze the brain waves by computer if slowing the scene diffusely over the entire brain.

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It can indicate the presence of a global process, something like Alzheimer's disease, multiple strokes, or even a viral infection of the brain.

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The brain can cure itself either by directing a surgeon's hand or by guiding scientists as they explore the secrets of memory, secrets that are beginning to be uncovered.

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This is how some scientists think memory works. Our senses convert outside stimuli into signals sent to a holding area until the brain decides how they should be dealt with.

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Now, some impressions go straight from temporary storage to short and long-term memory.

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Most information, however, has to go through a complicated process by which it is categorized and then filed with previously remembered material.

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By the time a human brain is seven years old, it has done something no computer can match.

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It has started to ask questions about its purpose and has begun to search for their answer.

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When the human brain reaches the age of seven, it is capable of higher thought of being able to understand not only the world around it, but itself.

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There is an element of the mystical in this. And past the frontier where scientific thought ends, there is a land where the infinite begins.

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So much of our study of the brain, unfortunately, has focused on the diseases and symptoms that result when the brain doesn't function properly.

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What I find most amazing is given the billions of things that can go wrong how few actually go wrong.

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The British scientist, Sherrington, gave a beautiful image of the brain, which he called the enchanted loom.

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And there is some notion that perhaps the human brain is really studying itself and trying to understand itself.

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We really don't know what the human brain and mind are capable of.

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Computers are something of a help in understanding the brain, but the brain is far more complex than any computer that we have currently.

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I think that we have made tremendous strides in the last decade and we are going to continue throughout the rest of this century to gain more and more understanding.

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But I think that to really understand how thought actually happens is going to take us decades would be optimistic.

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What makes us unique is the organization and functioning of our brain. It has to because this is what separates us from other beings, other animals.

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So how the brain is organized and the way it functions somehow or other is the mystery by which we understand what it is to be a human being, to be who we are.

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No doubt most of us would like to change our brains in some way.

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Science assures us that this will be possible, but the most important discovery was made long ago.

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Inside each of us is the most complicated, mysterious system in the universe.

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The human brain.

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The more we learn about it, the more in awe we should be.

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Secrets and mysteries presents information based in part on theories and opinions, some of which are controversial.

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The producer's purpose is not to validate any side of an issue, but through the use of actualities and dramatic recreation relate a possible answer, but not the only answer to this material.

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Thank you for watching.