The preganglionic parasympathetic neurons that form the Edinger-Westphal nucleus are located dorsomedially. Other such visceromotor neurons are located near the midline at more rostral levels also Sl. The axons of the Edinger-Westphal nucleus travel in the oculomotor nerve and synapse on cells in the ciliary ganglion which then give rise to postganglionic fibers that reach the eye via the short ciliary nerves. These postganglionic fibers terminate in the sphincter muscle of the iris and the ciliary muscle. Superior Salivatory Nucleus This nucleus consists of parasympathetic neurons scattered in the pontine reticular formation near the facial nucleus SlS. Its preganglionic fibers emerge from the brainstem in the nervus intermedius and travel in the facial nerve and via its major petrosal branch to the pterygopalatine ganglion and via the chorda tympani and lingual nerve to the submandibular ganglion. Postganglionic fibers from the pterygopalatine ganglion innervate the lacrimal and nasal glands, while those from the submandibular ganglion terminate in the submandibular and sublingual glands. Inferior Salivatory Nucleus This nucleus consists of parasympathetic neurons scattered in the reticular formation of the caudalpons and rostral medulla. Rostrally, these neurons intermingle with those of the superior salivatory nucleus and, caudally, they intermingle with neurons of the nucleus ambiguus. Most of the neurons are located near the rostral part of the nucleus ambiguus SlS. The preganglionic fibers from the inferior salivatory nucleus emerge in the rootlets of the glossopharyngeal nerve and, after traveling in the tympanic plexus and lesser petrosal nerve, they synapse in the otic ganglion, from whence postganglionic fibers reach the parotid gland via the auriculotemporal nerve. Dorsal Motor Vagal Nucleus Identify in the floor of the 4th ventricle the vagal trigone which is formed by the dorsal motor nucleus of the vagus nerve SlS. Other preganglionic parasympathetic fibers of the vagus nerve arise from neurons scattered in the reticular formation near the nucleus ambiguus at mid-medullary levels. The preganglionic components of the vagus nerve synapse in terminal ganglia distributed throughout the thoracic and abdominal cavities. Sacral Parasympathetic Nucleus Identify the sacral parasympathetic nucleus in the lateral part of the intermediate zone of spinal cord segments S. After emerging in the spinal nerves of these segments the preganglionic fibers form the pelvic splanchnic nerves which enter the various pelvic plexuses especially the inferior hypogastric. After synapsing on neurons in the pelvic plexuses vesical, prostatic, cavernous, etc. Sympathetic Nuclei All cell bodies of preganglionic sympathetic neurons are in spinal cord segments C. Identify the conspicuous lateral horn or intermediolateral nucleus Sl. Additional preganglionic sympathetic neurons are located in the more medial parts of lamina VII intermediomedial nucleus , in the area bridging these lateral and medial nuclei intercalated nucleus , and in the lateral funiculus near the lateral horn. The axons of these neurons are the preganglionic sympathetic fibers emerging in spinal nerves T. After entering the sympathetic trunk via the white communicating rami, these preganglionic fibers terminate on sympathetic trunk ganglion cells at all levels and on autonomic plexus ganglion cells chiefly along the abdominal aorta at the origin of its celiac, superior mesenteric, and inferior mesenteric branches. Postganglionic fibers from the sympathetic trunk ganglia are distributed via perivascular, spinal, and visceral nerves to the head, limbs, trunk, and the thoracic viscera, while those from the abdominal autonomic plexus ganglia pass via perivascular nerves to the abdominal and pelvic viscera. Cranial Paths Autonomic afferent impulses from certain regions of the head oral cavity, pharynx, etc. Such impulses from the thoracic and abdominal viscera enter the brainstem via the vagus nerve. The glossopharyngeal nerve carries visceral afferent impulses arising mainly from the mucous membranes of the posterior part of the tongue, the tonsil and pharynx, and from the carotid sinus and body. Impulses from these play a major role in reflexes associated with deglutition, gagging, circulation, and respiration. The cell bodies are in the petrosal ganglion and central connections are made through the solitary tract and its nucleus. The vagus nerve distributes visceral afferent fibers to all parts of the digestive tube from the pharynx to as far distal as the splenic flexure, to the heart and the walls of the great vessels and aortic bodies, and to the walls of the bronchial tree and interalveolar tissue of the lungs. The vagal visceral afferent
fibers initiate gastrointestinal, cardiovascular, and respiratory reflexes. Their cell bodies are in the inferior nodose ganglion and the central connections are also made through the solitary tract and its nucleus. Central Connections in the Brainstem Autonomic afferent fibers from the cranial nerves enter the brainstem and pass into the solitary tract Sls. Closely related to this tract is the solitary nucleus, in which the terminations of the cranial autonomic afferent fibers occur. The cranial autonomic afferents primarily initiate viscerovisceral reflexes and viscerosomatic reflexes. The course of the secondary fibers from the solitary nucleus to conscious levels is via the reticular formation. Those axons from the solitary nucleus that mediate the various reflexes terminate in the reticular formation where the circulatory, respiratory, vomiting, etc. Spinal Paths Most of the fibers conveying visceral afferent impulses to the spinal cord course in the sympathetic nerves. Those from the heart wall, coronary vessels, and lungs travel via the cardiac and pulmonary nerves to the sympathetic trunk, while those from the abdominal viscera pass to the sympathetic trunk via the splanchnic nerves. The visceral afferent fibers in the sympathetic trunk enter the spinal nerves via the white communicating rami of the thoracic and upper lumbar nerves. Hence, their cell bodies are located primarily in the dorsal root ganglia of the thoracic and upper lumbar nerves. Afferents from the pelvic viscera travel centrally via the hypogastric plexuses and splanchnic nerves and via the pelvic parasympathetic nerves. The latter have their cell bodies located in the dorsal root ganglia of S. The phrenic nerve also contains visceral afferents from the pericardium, diaphragm, hepatic ligaments and capsule, pancreas, and suprarenal glands. The afferent fibers from peripheral blood vessels travel centrally in all spinal nerves. Central Connections of Spinal Fibers The conduction pathways for general visceral afferent impulses within the spinal cord are uncertain. The fibers enter the cord via the lateral division of the dorsal root and terminate on cells located in the medial part of the base of the dorsal horn and intermediate zone of the thoracic, upper lumbar, and middle sacral cord segments. The ascending pathways are chiefly within the anterolateral quadrants of the spinal cord and reticular formation of the brainstem.
Chapter 2: Bilateral Paramedian Thalamic Infarction Initially Presenting as a Convulsive Seizure

About the Book. This is one of the most magickal and insightful books ever written. It is a must have for metaphysical book collectors. If you are an energy or light worker, this book will support you in your skills development.

A foot, ton span of 17 girders collapsed into Sullivan Square â€” two minutes after two MTA buses loaded with passengers had passed under the foot high structure. An aerial view, looking north, of Boston before construction of the Central Artery. The present day Pine Street Inn building can be seen in the lower middle. Originally that building was Fire Department Headquarters until The building featured a tall drill tower that was used for training fire department recruits. Boston Globe Archives June 26, Feb. The Warren Bridge carried a branch of the aerial highway that eliminated a bottleneck at that point. It was estimated that about 13, motor vehicles that had entered Boston by way of the Mystic River Bridge and the Warren or Charles River bridges would use the artery by choice. Boston Globe Archive June 26, May 23. This mass of concrete arches was built to hold up the high level roadway that led to Somerville. Demolition began in the North End in the first few months of and workers began driving the concrete piles that supported the steel columns that would hold up the elevated roadway. This published graphic showed the pedestrian route to navigate parallel to Hanover Street, which was closed to traffic and pedestrians. Globe file photo June 26, May 17. Buildings walled in by often taller structures stood out clearly. Every building of major historical importance was saved. Here the view is looking south toward the Harbor Building on Atlantic Avenue left background. In foreground are three reinforced concrete piers for the future elevated, six-lane expressway. Boston Globe Archives June 26, June 25. Crowds gathered at Kneeland Street for the official opening of the downtown segment of the John F. Fitzgerald Expressway and the Southeast Expressway. Governor Foster Furcolo opened the new highway at exercises on the Central Artery near the tunnel entrance. The long-awaited access to the South Shore opened eight months ahead of schedule. Special equipment and machinery were used during the winter months to cope with elements that may have otherwise delayed construction. Boston Globe Archive June 26, Nov. A complete closed circuit television and paging system was installed in the tunnel, which linked the Central Artery and the Southeast Expressway. The TV system consisted of eight television pick-up cameras in each tube of the tunnel which were then connected to the television monitors in the control building. Charles Sperrazza monitored the system here for any motorist needing aid or other type of mechanical trouble. He could also call out instructions to motorists by means of a public address system. This was of special value in case of a bad accident or fire in which which panic and confusion could be a factor. After more than eight years of construction, the Central Artery and the Southeast Expressway were joined together on June 25, , when both expressways finally opened to traffic. During its first day of operation, some 60, vehicles used the new six-lane Central Artery. The first traffic jam was recorded only three months after completion. Boston Globe Archive June 26,
The reticular formation includes ascending pathways to the cortex in the ascending reticular activating system (ARAS) and descending pathways to the spinal cord via the reticulospinal tracts of the descending reticular formation.

As a result, the ARAS still functions during inhibitory periods of hypnosis. Neuroscience of sleep The main function of the ARAS is to modify and potentiate thalamic and cortical function such that electroencephalogram EEG desynchronization ensues. Low voltage fast burst brain waves EEG desynchronization are associated with wakefulness and REM sleep which are electrophysiologically similar; high voltage slow waves are found during non-REM sleep. Generally speaking, when thalamic relay neurons are in burst mode the EEG is synchronized and when they are in tonic mode it is desynchronized. During sleep, neurons in the ARAS will have a much lower firing rate; conversely, they will have a higher activity level during the waking state. In order that the brain may sleep, there must be a reduction in ascending afferent activity reaching the cortex by suppression of the ARAS. These results suggest some relationship between ARAS circuits and physiological pain pathways. If coupling were down-regulated, there would be a corresponding decrease in higher-frequency synchronization gamma band. Conversely, up-regulated electrical coupling would increase synchronization of fast rhythms that could lead to increased arousal and REM sleep drive. The exact role of the ARAS in each of these disorders has not yet been identified. However, it is expected that in any neurological or psychiatric disease that manifests disturbances in arousal and sleep-wake cycle regulation, there will be a corresponding dysregulation of some elements of the ARAS. It is mainly a dopaminergic disease, but cholinergic nuclei are depleted as well. Degeneration in the ARAS begins early in the disease process. These major disturbances of the intrinsic membrane properties of PPN neurons result in increased levels of arousal and sensory gating deficits demonstrated by a diminished amount of habituation to repeated auditory stimuli. It is hypothesized that these physiological changes may intensify attentional dysregulation later in life. Descending reticulospinal tracts[ edit ] Spinal cord tracts - reticulospinal tract labeled in red, near-center at left in figure. The reticulospinal tracts, also known as the descending or anterior reticulospinal tracts, are extrapyramidal motor tracts that descend from the reticular formation [38] in two tracts to act on the motor neurons supplying the trunk and proximal limb flexors and extensors. The reticulospinal tracts are involved mainly in locomotion and postural control, although they do have other functions as well. The reticulospinal tracts works with the other three pathways to give a coordinated control of movement, including delicate manipulations. The medial system includes the reticulospinal pathway and the vestibulospinal pathway, and this system provides control of posture. The corticospinal and the rubrospinal tract pathways belong to the lateral system which provides fine control of movement. The MRST is responsible for exciting anti-gravity, extensor muscles. The fibers of this tract arise from the caudal pontine reticular nucleus and the oral pontine reticular nucleus and project to the lamina VII and lamina VIII of the spinal cord BrainInfo The LRST is responsible for inhibiting excitatory axial extensor muscles of movement. It is also responsible for automatic breathing. The fibers of this tract arise from the medullary reticular formation, mostly from the gigantocellular nucleus, and descend the length of the spinal cord in the anterior part of the lateral column. The tract terminates in lamina VII mostly with some fibers terminating in lamina IX of the spinal cord. The ascending sensory tract conveying information in the opposite direction is known as the spinoreticular tract. Functions of the reticulospinal tracts[ edit ] Integrates information from the motor systems to coordinate automatic movements of locomotion and posture Facilitates and inhibits voluntary movement; influences muscle tone Mediates autonomic functions Influences blood flow to lateral geniculate nucleus of the thalamus. Clinical significance of the reticulospinal tracts[ edit ] The reticulospinal tracts are mostly inhibited by the corticospinal tract; if damage occurs at the level of or below the red nucleus e. Allan Hobson states in his book The Reticular Formation Revisited that the name is an etymological vestige from the fallen era of the aggregate field theory in the neural sciences. The term " reticulum " means "netlike structure", which is what the reticular formation resembles at first glance. It has been described as being either too complex to study or an undifferentiated part of the brain with no organization at all. Eric Kandel describes the...
reticular formation as being organized in a similar manner to the intermediate gray matter of the spinal cord. This chaotic, loose, and intricate form of organization is what has turned off many researchers from looking farther into this particular area of the brain. The term "reticular formation" is seldom used anymore except to speak in generalities. Modern scientists usually refer to the individual nuclei that compose the reticular formation. Physiologists had proposed that some structure deep within the brain controlled mental wakefulness and alertness. The direct electrical stimulation of the brain could simulate electrocortical relays. Magoun used this principle to demonstrate, on two separate areas of the brainstem of a cat, how to produce wakefulness from sleep. First the ascending somatic and auditory paths; second, a series of "ascending relays from the reticular formation of the lower brain stem through the midbrain tegmentum, subthalamus and hypothalamus to the internal capsule. Next, the significance of this newly identified relay system was evaluated by placing lesions in the medial and lateral portions of the front of the midbrain. Cats with mesencephalic interruptions to the ARAS entered into a deep sleep and displayed corresponding brain waves. In alternative fashion, cats with similarly placed interruptions to ascending auditory and somatic pathways exhibited normal sleeping and wakefulness, and could be awakened with somatic stimuli. Because these external stimuli would be blocked by the interruptions, this indicated that the ascending transmission must travel through the newly discovered ARAS. Finally, Magoun recorded potentials within the medial portion of the brain stem and discovered that auditory stimuli directly fired portions of the reticular activating system. Furthermore, single-shock stimulation of the sciatic nerve also activated the medial reticular formation, hypothalamus, and thalamus. Excitation of the ARAS did not depend on further signal propagation through the cerebellar circuits, as the same results were obtained following decerebellation and decortication. The researchers proposed that a column of cells surrounding the midbrain reticular formation received input from all the ascending tracts of the brain stem and relayed these afferents to the cortex and therefore regulated wakefulness.
artery enters and vein and the e"erent lymph vessel leave. There are large numbers of lymph nodes situated in strategic positions throughout the body in deep and superficial groups.

This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. Abstract Bithalamic infarctions initially presenting as a convulsive seizure are rarely reported and, to our best knowledge, have never been reported in China. Here, we present a patient with convulsive seizure at the onset of bilateral paramedian thalamic infarction. The diffusion-weighted imaging revealed that the infarct area is supplied by Percheron artery. Associated with the relationship between seizure and centrencephalic system and reticular formation as previously reported, we suggest that seizure could be the onset symptom of paramedian thalamic infarction. Physicians should recognize this condition, because both seizure control and early ischemic stroke management are required. Introduction Bithalamic infarctions represent 0. The anatomic etiology is presumed to be the occlusion of Percheron artery, an uncommon vascular variation, in which a single common trunk from one of the P1 segments of the posterior cerebral artery provides bilateral irrigation to the paramedian thalami [2]. Bithalamic paramedian thalamic infarctions initially presenting as a convulsive seizure are rarely reported. The mechanism of onset seizure is not clear but may be related to the lesions of centrencephalic system as well as the reticular formation. We are reporting, to our best knowledge, the first bilateral paramedian thalamic infarct case initially presenting as seizure in China. Case Report A year-old man, with two-year atrial fibrillation, ischemic stroke, and thirty-year smoking history, was admitted to the emergency department of our hospital. He was found to be unconscious and had bruised tongue and urinary incontinence after about 10 s clonic movements of all four limbs beside his bed in the morning. The neurological examination revealed that the patient was comatose and his bilateral Babinski signs were positive. Urgent computed tomography CT performed two hours after the onset of symptoms showed lacunar infarction in bilateral basal ganglia. Glucose levels were normal. Then he was admitted to the neurological ward. Trace diffusion-weighted imaging DWI showed bilaterally high signal intensity in paramedian thalami Figure 1, and the restriction of water diffusion was confirmed on the apparent diffusion coefficient ADC maps. Magnetic resonance venography MRV results were normal. The results of the following tests were normal: Echocardiogram and electroencephalogram EEG results were also normal. Five days after admission, he became conscious but sleepy throughout the day. He did not take the initiative to speak but could answer simple questions in a whisper with a few incorrect words. The vertical gaze paresis was observed in this patient. Follow-up DWI performed six days after the admission showed a larger area of high signal intensity bilaterally in paramedian thalami than before Figure 2. During the following week the patient experienced drowsiness accompanied with restlessness and he showed childish attitude and aggressiveness. He could not recognize his wife when he was transferred to the rehabilitation ward twenty days after his admission. Diffusion-weighted imaging obtained until 48 hours after the onset of symptoms showed high signal intensity bilaterally in paramedian thalami. Diffusion-weighted imaging performed six days after the admission showed a larger area of high signal intensity bilaterally in paramedian thalami than before. Discussion Onset seizure is rarely observed in bilateral paramedian thalamic infarction [3] and, to our best knowledge, has never been reported in China. Bithalamic infarctions are infrequently reported and represent 0. The anatomic etiology is presumed to be the occlusion of the artery of Percheron, an uncommon vascular variation, in which a single common trunk from one of the P1 segments of the posterior cerebral artery provides bilateral irrigation to the paramedian thalami [2]. Bithalamic infarctions can cause the bilateral ventromedial thalamic syndrome BVTS. The BVTS is characterized by the following elements: Early-onset seizure is thought to be caused by ischemic or hemorrhagic lesions in the cerebral cortex [5]. The mechanism is unknown but may be related to the acute focal metabolic derangement including local acidosis, brain edema, and altered electrolyte balance as well as neurotransmitter activity [6]. In general, early-onset seizure caused by cerebral infarcts is relatively more common when the anterior circulation, rather than the posterior circulation, is affected [7]. Penfield
suggested this system functioned as a causative center of seizures [8]. In addition, animal experimental studies have suggested that electrolytic lessoning of reticular formation RF also can cause seizure [9]. So the infarct lesions of Bithalamic, which are part of the centrencephalic system and the reticular formation, can induce seizure as well as unconsciousness. Giroud reported that In this case, the patient has no other risk factors except two-year history of atrial fibrillation without taking any specific medicines and thirty-year smoking history. We conclude that cardiogenic embolus is responsible for the occlusion of Percheron artery and the bilateral paramedian thalamic infarction. In addition, the damage of the centrencephalic system and the reticular formation may be related to the syndrome of seizure and unconscious. In summary, seizure could be the initial symptom of bilateral paramedian thalamic infarction. Physicians should recognize this condition, because not only seizure control but also early ischemic stroke management is required. Acknowledgment The authors thank the staff of neurological ward 3, Professor Jianzhang Li, Shuang Wang for case discussion. De Renzi, and G. Van Maele, and P.
A large vessel stroke of the posterior circulation occurs when either vertebral artery, the basilar artery, or the posterior cerebral arteries (PCA) are blocked. Less commonly, the smaller branches of the vertebral and basilar artery including the posterior inferior cerebellar (PICA), anterior inferior cerebellar (AICA) and superior cerebellar.

It is the sower of all true art and science. He to whom this emotion is a stranger. Hovering near the brink of death, an ordinary person suddenly finds him or herself locked in an immersive visionary experience of shadowy figures, muted voices and blinding luminescence. The cosmos opens its enfolding arms and infinity spreads out in a timeless panoply that dissolves all fear, all separation from the Divine. Overwhelming conviction arises that this is the more fundamental Reality. The welcoming gates of a personal heaven open… Suddenly back in the body, returned to ordinary reality, one is left to interpret that transcendent experience to oneself and others. This near-death experience may not have resulted in physical demise, but it has led to the death of the old self – the personal self -- and the rebirth, rapture, or resurrection of the soul or spirit. It brings a surge of emotions, conviction and even transformation in its wake. The soul has taken a journey from which one cannot return the same. A descent into psychobiological hell can lead to a transcendent journey toward Heaven; or perhaps the yawning abyss of the Void. Shamans, priests, prophets, mystics, and gurus arose to show the Way of navigating these nether regions, of finding healing, the eternal moment, a peaceful heart, and unity. Our human progenitors had to directly confront existential issues of survival, adaptation, stress, mating, birth, loss, and death. They gradually developed stories about the basics of life – social, physical, emotional, mental, and spiritual existence. They created myths, beliefs about creation and our creation to give meaning to life. They developed rituals, ceremonies, and practices to heal body and mind, mark life passages, and placate forces beyond their control. These accounted for their origins as well as voices, visions and experiences that seemed to come from the great Beyond. The brain is hard-wired for mystical experiences to modify the threat of our hostile existential reality Alper. Metaphysical explanations developed for the essentially unknowable, for sudden and irresistible seizures of ecstasy. Some of these accounts were more sophisticated than others depending on their cultural background, but all shared a common core by defining the mystery of the relationship between mankind and the Unknown. It might be called a peak experience, spirit possession, epiphany, religious rapture, nirvana, satori, shaktiput, clear light, or illumination. The difference is only one of degrees of absorption, of fulfillment. The god-experience is a process, a subjective perception, rather than an objectively provable reality. Distractions cease, replaced by the direct impact of oceanic expansion, sudden insight, childlike wonder, ecstatic exaltation above bodily and personal existence, dissolution in a timeless moment, fusion, gnosis. It is direct perception coupled with high emotion and deep realization of what appears to be ultimate truth. It rips away the veil of illusion, revealing the pure ground state of our existence without any emotional, mental, or belief filters. Left with only pure awareness, the natural mind is finally free of earthly trappings. Bathed in emotions of joy, assurance and salvation, Cosmos becomes a living presence. Immortality is sensed, so fear of death vanishes. Many called that numinous mystery God. In some sense, religion is a reaction to what actually is. But to many, when it comes to their religion, those are fighting words – for theirs is the true way, the only way. Heaven on Earth cannot be achieved so long as those two realms are separated. God comes down to earth in our own psychophysiology, dwelling within us. Neurotheology is the marriage of brain science and theology, which systematically studies the relationship of God and the universe. Religion is the expression of theological attitudes and actions. Tradition says God created the heavens and earth, and God created man in his own image. But did God create man and the brain, or does the brain create God? Revelation is the act of God manifesting, disclosing himself, or communicating truth to the mind. These subjective experiences are the basis of mysticism. The religious element of our nature is just as universal as the rational or social one. Could altering brain chemistry by playing some visual and pleasure circuits, while quieting those governing self-image, cognition, orientation, and time sequencing give rise to a transcendental bliss, a god-experience? Can they give rise to the electrochemical supercharge described as kundalini, the serpent power that rises up
the spine in illumination? How can we journey along the continuum from pleasure to enthusiasm, to joy, ecstasy and enlightenment? This is the question posed by both theistic and non-believing scientists alike, in an attempt to comprehend our spiritual urge. Religious division is still the global root of conflict in the modern world. Even within ourselves we can experience crises of personal faith, as our worldly outlook vies with our spiritual beliefs. Since then it has come to mean the emergent field that describes the neurological phenomena that underlie classical mystical experiences from all spiritual practices. We can journey within and explore our inner world, just as we can the outer world. Rather, this transdisciplinarian science simply seeks to describe the mechanisms involved in that process. It explores how the divine is translated into the human realm, from the archetypal to the material world. It combines aspects of religion, psychology, and neurology. It bears heavily on our image of our Self, our relationship with others, and our place in the cosmos and world. It is the source of our faith and the ground of our beliefs. Religious dogma has been created over eons to interpret or account for these dramatic personal encounters with spirit. Taxonomies of religious experience have been created in anthropology, sociology, psychology, and religious studies. They form maps of the territory of spiritual experience from shamanism, to artistic expression and all forms of creativity including transcendent states of consciousness Gowan; Tart; Grof; Wilber. But knowing about them is not the same as direct experience of those states, purposefully induced or spontaneous. The former is a conceptualization, while the later is a grace, an epiphany. These states range from spirit possession to simple communion and nature-awe, to loss of self in awesome unitive cosmic consciousness. The God Program Belief and biology are entwined like mind and matter, like the twin serpents of the Caduceus, which represents enlightenment. Neurology, ritual and religion all join in what psychologist Carl Jung pioneer of the collective unconscious called a Mysterium Coniunctionis, or Royal Marriage with the divine. The soul becomes lost in the Self; all duality is erased. We have a natural human capacity for spiritual experience, just as we have one for comprehension of language or mathematics. Transpersonal experience, myth, ritual, morals and ethics are undergird by a comprehensive religious ecology. The cognized environment is the stage of experience. Networks of neurophysiological structures orchestrate the play on the stage. Intricate electromagnetic and biochemical mechanisms underlie human ritual, myth, mysticism, and religious phenomena. Whether God exists as an overarching cosmic entity or not, there are certain mechanisms in the brain which mankind has harnessed over thousands of years to facilitate the process of non-ordinary experience. They lead us toward seeing, hearing, touching and feeling the Lord in an experiential, rather than conceptual way that culminates in fusion. Biologically, heavenly states are dependent on the limbic system or emotional part of the brain, and hormonal secretions. Mystical states are not fantasies, delusions or intangible events â€” they are the end result of complex chemical and neurological processes. They begin with instinctive awe and indefinable thrills, floating sensations, and perhaps spiritual hunger. Cortical and subcortical activity become indistinguishably merged. Thus, dualism is paradoxically obliterated in the maximal excitation of both the hyper- and hypo-arousal systems. Because they produce personal euphoria and creative inspiration, these initial states are common to poets, artists, and mystics. But mystics tell us these ecstasies may be nothing more than overloading of the emotional channels. Ecstasy is a desire for contact, a striving after union. Entering these regions in full consciousness indicates greater spiritual maturity. Stabilizing them at the personality level means the phase of emergence is over and enlightenment becomes a steady state. The neurological changes have become integrated and permanent. The oldest shamanic techniques include fasting, drumming, trance dancing, inner journeys, and mind-altering plants. The relaxation techniques for transcendence include meditation, imagery, prayer, postures, and chanting. Similarly, at some point, meditation can release an intense rush of energy and emotion, partly through the limbic system. One methodology produces sensory overload, while the other empties the sensory field by withdrawing attention from sensory signals. Fear and shame give way to grace, a sense of Presence, perception of sanctity, response to realization of the divine. Time, space and the separate ego seem suspended or transcended in the experience of cosmic consciousness. Beyond the unity experience is the nondual experience of the Void. If perceptual intake is restricted or expanded beyond certain limits, the normal state of consciousness gives way to altered states, each of which has certain characteristics. This universal experience has nine typical qualities: A direct and unmediated encounter with the source level of
reality is felt as Holy, Awful, Ultimate and Ineffable. Re-creational Ego Death The alchemists sought eternal life by consuming the panacea cure all, universal medicine, the elixir vitae. Death always sits on our shoulder, patiently awaiting each of us in turn. And we are acutely aware of that fact, more so as we age or experience loss and infirmity. We are self-consciously aware that we exist, and that one day we will not. We can react to our knowledge of our own mortality with denial, pragmatism, or unshakeable faith in an afterlife, or reincarnated life. We cannot directly know the nature of that experience until we have gone through it. But even before physical death, the soul can die gradually to outward things; the self is release and transcended. When the senses and mind stop actively functioning, the body becomes like a corpse. Ego-death mirrors the process of the near-death experience NDE.
Chapter 6: The New Zarrow Miracle Psychic Healing Power | Open Library

Introduction: Action of the ascending reticular activating system (ARAS) on the cerebral cortex is responsible for achievement of consciousness. In this study, we attempted to reconstruct the lower single component of the ARAS from the reticular formation (RF) to the thalamus in the normal human.

You should look at both stains. Locate the atrioventricular sulcus that contains a branch of the coronary arterial system a muscular artery that exhibits moderate intimal thickening embedded in the epicardial fat. Look at the connective tissue present between the ventricle and atrium. This is part of the cardiac skeleton into which cardiac muscle inserts. A leaflet of an A-V valve takes origin from the cardiac skeleton. Look at the atrial and ventricular endocardium. In some areas the endothelium has been lost during the preparation of the slide. In this section use the endocardium just superior to A. These conducting fibers are larger and paler staining than the cardiac muscle fibers. Note the arrangement of the cardiac muscle myocardial fibers and the investing connective tissue. In these slides, the bundle fibers are cut in cross section and they are similar in size and staining to that of normal cardiac muscle fibers, although in some of your sections the fibers may more closely resemble Purkinje fibers which is what they are. On one side of the section, a leaflet of the aortic valve [example] is present. On the other side, portions of an A-V valve [example] are present, as are bits and pieces of collagenous chordae tendinae. In slide 99HE, there is a piece of chorda tendineae actually attached to the valve [example], whereas in slide 99M, the pieces are unattached and out in the ventricular lumen the attachment site is out of the plane of section [example]. Heart aortic valve W pg, 8. Note the histology of the semilunar valve and the wall of the aorta [example] at the root of the aorta, both of which may be seen in close association with the fibrous cardiac skeleton. Check the heart slide. The core of the valve contains loose connective tissue near the surface of the atrioventricular orifice and a thick, dense connective tissue plate on the opposite side. Note the absence of smooth muscle cells or capillaries within the substance of the valve. What covers the valve leaflets? The small dense spherules in the connective tissue represent the beginning of a calcification process - an aging phenomenon. In this electron micrograph, study the arrangement of collagenous and elastic fibers in this small tendon. The endocardium is reduced to the layer of endothelial cells. Where are the cardiac muscle fibers? Note the alternating layers of connective tissue and smooth muscle cells in the media. If there are no fibroblasts in the media, which cell is involved in the synthesis and maintenance of the collagen and elastic fibers as well as vascular proteoglycans? CV7 The junction between the intima and media is difficult to identify! Note that the intima in this type of artery consists of only the endothelium. Note also, the obvious internal elastic lamina, the paucity of elastic components within the media and the arrangement of smooth muscle cells. An adventitia may not be present. Although this arteriole contains a complete, albeit thin, internal elastic membrane, many arterioles do not. Remember that tight junctions restrict the transendothelial passage of metabolites and fluid. Observe the addition of pericytes to the wall of the venous capillary those capillaries that empty into venules and the postcapillary venule - as opposed to the situation in true capillaries. You do not have to distinguish subtle differences in microcirculatory bed structure! Remember that this is the segment of the microvascular bed where lymphocytes and polymorphonuclear leukocytes exit the vascular systems by traversing the vessel wall by the process of diapedesis.
Route 28 is a mostly a two-lane undivided highway, with several divided, four-lane sections in populated areas as well as one freeway section. The south end of Route 28 is at the Orleans Rotary just north of the Orleans-Eastham town line, where it intersects with U. Route 6 and Route 6A. Northbound Route 28 initially heads south towards the town of Chatham before turning west to run along the south shore of Cape Cod until Falmouth. From there, Route 28 turns north, running for several miles along a freeway, later downgrading to a four-lane divided surface arterial. Route 6 as a two-lane highway until Wareham. North of Wareham, Route 28 heads north towards Boston passing through the southern suburbs of the city, including Middleborough, Bridgewater, Brockton, and Randolph. Mugar Way to Embankment Road. The four-lane Fellsway crosses the Mystic River into Medford. Route 28 continues north through the Middlesex Fells Reservation and the northern suburbs of Boston, including Reading, Andover, Lawrence crossing the Merrimack River, and Methuen, from which it then crosses into the state of New Hampshire. Route 28A parallels the freeway section of Route 28 in the Upper Cape, providing a scenic alternative for travelers and direct access to the localities bypassed by the freeway. Route 28A begins and ends at Route 28 with an intermediate junction with Route Early turnpikes[ edit ] Many of the roads leading from Boston to the surrounding towns were first laid out as privately owned and operated turnpikes at the beginning of the 19th century. One of the roads used by modern Route 28 leading from the northern suburbs of Boston in the direction of Manchester, New Hampshire was the Andover and Medford Turnpike. The turnpike corporation was chartered in June and had authority to build from the marketplace in Medford to a point in the town of Andover. An act by the General Court in February allowed the Andover and Medford company to maintain a toll gate at the Essex-Middlesex county line jointly with the Essex Turnpike corporation. In March, another turnpike corporation, the Blue Hill Turnpike Corporation, was chartered with authority to lay out an improved road from the meeting house in the town of Randolph, through the Blue Hills Reservation, to a point in the town of Milton. A second act in June allowed for a slight alteration in the terminus in Milton. In, the Blue Hills Turnpike company was allowed to impose a fine on any persons who tried to avoid paying the tolls. The turnpike was discontinued in, when the Norfolk county commissioners declared the road as a public highway. The company reported an average net income of per cent per year during its existence. Two other sections of modern Route 28 were also parts of early turnpikes. In Cape Cod, most travel was by water and roads were not improved until late in the 19th century. Route numbering and original alignment[ edit ] In, the New England states adopted a region-wide road marking system. Primary routes were to be assigned route numbers between 1 and 99 and marked as black numerals on yellow bands painted on poles along the route. Route 28 utilized the main road between Wareham and Middleborough Wareham Street, from which it then traveled along Everett Street and Summer Street until the center of Bridgewater. The triple-concurrency of Routes 1, 6, and 28 continued through the Emerald Necklace following the Jamaicaway, the Riverway, and a short section of Boylston Street to Charlestown, and then crossed the Charles River using the Harvard Bridge. From there, Route 28 continued along the Fellsway towards Medford Center. The route in Cape Cod was also assigned in as a primary New England route. At the end of, the U. Highway system was established and several of the primary New England routes were redesignated as U. Route 1; New England Route 6 became U. In Cape Cod, however, this was not the case. Former New England Route 3 was assigned as a southern extension of Route 28, while former New England Route 6 was assigned as an eastern extension of U. Realignments[ edit ] Driving the entire length from New Hampshire to Orleans, the highway layout and design has not changed much since its construction and designation in the early 20th century. The major exceptions are in Boston, where some of the original routing was changed over the years, and on the Cape, where a freeway section between Falmouth and Bourne was completed in the mids. In, several projects to relieve congestion in the Boston area were completed. The opening of this new bridge over the Charles River resulted in the relocation of the triple.
concurrency of US 1, US 3, and Route 28 onto it. The routes left the Riverway using Park Drive and Mountfort Street both now designated as part of Route 2 to reach the bridge. In Cambridge and Somerville, a new boulevard known as the Northern Artery was built over part of Somerville Avenue and Medford Street, continuing north on a new roadway cutting across Somerville to Fellsway East, which was also paved over by the new Northern Artery. US 1 and Route 28 were relocated off of local streets in Cambridge and Somerville onto the Northern Artery when it opened to traffic. In the mids, the city of Boston marked several alternate routes of Routes 1, 9, 28, and 37 that ran through the downtown area. C28 met back with mainline Route 28 at Memorial Drive in Cambridge. Route 28 was also later shifted to use its modern alignment along Embankment Road and the Charles River Dam Bridge In , a new bridge over the Cape Cod Canal, the Bourne Bridge, was opened to traffic, replacing an earlier drawbridge at the same location. Between and , the road south of the Bourne Bridge was widened to a four-lane, divided highway to the Pocasset Rotary and renamed General MacArthur Boulevard. The Route 28 expressway in Falmouth opened to traffic in Route 28 was relocated to the new expressway soon after, with the former surface alignment being renumbered to Route 28A. Around , several minor realignments had also taken place in Brockton, Bridgewater, and Middleborough. By , a new bypass road in Buzzards Bay was completed and resulted in the relocation of Routes 6 and 28 to the new roadway. Route 28 itself is no longer utilized as a long distance through route because of the opening of several parallel expressways along the Route 28 corridor since the s. Interstate 93 serves the Route 28 corridor north of Boston, while the combination of Route 24, the southern end of Interstate , and Route 25 serves the corridor south of Boston to the Bourne Bridge. The construction of Route 25, in particular, resulted in a reconfiguration of the connection from the Bourne Corners traffic circle to the Route 25 expressway. Major intersections[ edit ] This section contains a table that is missing mileposts for one or more junctions. Please help by adding the missing mileposts.
Which of the 3 layers sees the most change in structure (when comparing veins, arteries, etc).

The iraculous mental formulas of ZARRONICS have finally been recorded -- a potent, self-healing system that releases omnipotent powers within your own mind, bringing about perfect organic health Anna Billion is also a master of many occult and metaphysical disciplines, including: About the Book This is one of the most magickal and insightful books ever written. It is a must have for metaphysical book collectors. If you are an energy or light worker, this book will support you in your skills development. Explicit descriptions and illustrations all the way throughout the book. Easy to follow instructions and learn how to manifest anything you ever wanted in your life. It all comes down to mind over matter Thank you Anna Billion for authoring this book! First Sentence Are you a victim of poor health? Table of Contents 1. How to help yourself to instant vibrant health 2. The metabolic transformation system for removing metal rings from the body 4. The dyna-matic technique for removing symptoms of arthritis and bursitis 5. The selecto-matic system for stomach harmony 6. The fail-safe monitor for your nerves 7. The psychic blood-elixir purifier 8. The permi-systematic lung rejuvenator method 9. The medi-presto healthy heart rejuvenator system The viba-designator hose for vacuuming the body clean The counter-procto technique for the liver The sonic synchronizer kidney method They mystic artery reticular system The strato-adapter technique for the breast area The spinal power modulator system The x-factor method for removing an unknown sickness from the body The magic meteorol technique for the eye The meta-impulse system for organic toothache The pericardial protect-all method for prevention of strokes The demonic repulserator technique for severe muscle spasms The stragospheric compensator system for vacuuming liquids Edition Notes Zarrow miracle psychic healing power.
Chapter 9: Post Circ Stroke

The overpass was designed to carry traffic from Mystic Avenue and Broadway, Somerville, over Sullivan Square to Rutherford Avenue in Charlestown and connect with the Boston Central Artery and.

This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in other forums, provided the original authors and source are credited and subject to any copyright notices concerning any third-party graphics etc. This article has been cited by other articles in PMC. Action of the ascending reticular activating system ARAS on the cerebral cortex is responsible for achievement of consciousness. In this study, we attempted to reconstruct the lower single component of the ARAS from the reticular formation RF to the thalamus in the normal human brain using diffusion tensor imaging DTI. Twenty six normal healthy subjects were recruited for this study. The reconstructed ARAS originated from the pontine RF, ascended through the mesencephalic tegmentum just posterior to the red nucleus, and then terminated on the intralaminar nuclei of the thalamus. The results of this study might be of value for the diagnosis and prognosis of patients with impaired consciousness. The ARAS is composed of several neuronal circuits connecting the brainstem to the cortex. These neuronal connections originate mainly in the reticular formation RF of the brainstem and project through synaptic relays in the intralaminar nucleus of thalamus to the cerebral cortex. In addition, several brainstem nuclei locus coeruleus, dorsal raphe, median raphe, pedunculopontine nucleus, parabrachial nucleus, non-specific thalamic nuclei, hypothalamus, and basal forebrain are also included in the ARAS system. Thorough evaluation of the ARAS is important for diagnosis and management of patients with impaired consciousness, such as patients who are in a vegetative state or those with minimal consciousness. Because the ARAS cannot be clearly discriminated from adjacent neural structures, accurate identification and estimation of the ARAS in the human brain can be problematic when using these methods. In contrast, diffusion tensor imaging DTI allows for evaluation of white matter because of its ability to image water diffusion characteristics. Several recent studies have attempted to demonstrate the usefulness of DTI for evaluation of lesions in patients with impaired consciousness and connectivity of specific ARAS nuclei in the human brain. Diffusion tensor image DTI data were acquired using a 6-channel head coil on a 1. For each of the 32 non-collinear diffusion sensitizing gradients, we acquired 67 contiguous slices parallel to the anterior commissure-posterior commissure line. Imaging parameters were as follows: Affine multi-scale two-dimensional registration was used for correction of head motion effect and image distortion due to eddy current. Fiber tracking was performed using a probabilistic tractography method based on a multifiber model, and applied in the current study utilizing tractography routines implemented in FMRIB Diffusion streamline samples. Of samples generated from the seed voxel, results for contact were visualized at a threshold minimum of 1 streamlined through each voxel for analysis.