

~Chapter 1 Skeletal Cranial Plates~

The human skull is composed of a series of eight major cranial plates, all different in shape and all interrelated. Up until the mid 1970's it was widely believed that the skull was made up of one continuous solid bone instead of a series of different inner related and connecting plates. The theory known as the *right box* was accepted up to this point in time and until this point, no real in-depth studies had been conducted on the living. Ideals and summaries about the cranial plates were developed and formed by observing cadavers and from post mortem studies. In these studies, it was concluded that there was no movement between the cranial plates of the skull. It was further assumed, that these plates fuse together in the early stages of adult hood. The theories and assumptions presented under the *right box* model of the cranial plate structure developed in the 1800's and reinforced the vague claims of those who later studied the ideal that the cranial plates are fused and therefore unmovable. Sadly, this idealistic presumption and approach, the development of the *right box* model, is still accepted by many today, despite the technological advancements and discoveries in more modern medical science.

The idea and perceptions that the skeletal cranial plates fuse together in the early stages of adulthood were challenged and ultimately eliminated in 1974. The Department of Osteopathy at Michigan State University used the then newly developed tool of cinema-aroentgenography to record and demonstrate x-ray like movies of the cranial plates movement in living people. The use of this new cinema-aroentgenography technology and the further development of better x-ray equipment gave the medical community a new and yet different look at the cranial plate functions of the human skull. The idea that the skeletal cranial plates have movement can be traced back to the early 1930's, but it took until the mid 1970's before technological advances were able to prove these ideas. The development and use of cinema-aroentgenography reinforced the idea that the skull is made up of 8 major different plates, all moving in a specific direction, all are interrelated, and more importantly all are effected if one cranial plate is misaligned. Instead of the idea of one solid piece of bone as previously theorized.

The human skull is made up of 22 different individual bones. All of which are inter related and work together in a rhythmic motion. These bones/cranial plates are connected by a very fine layer of membrane or connective joint tissue. This membrane/joint is the spacing in-between the cranial plates, much like the joints/connective tissue between our elbow and arms and in our

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knees and legs. The skulls joints act as a rubber band having elasticity and in effect, it helps protect the brain from adverse impact, acts as cushion/flexes, and bends when struck by an outside force. It is well to mention at this point that when we breathe in and out our cranial plates move in accordance with the rhythmic pattern of our breathing. When the body is, functioning at its greatest capacity or when the body is functioning properly, with minimized distress the cranial plates will have micro movement capability in all of their recipient membrane/joints, the space between each cranial plate. Therefore, our craniums are always constantly expanding and contracting with every breath we take.

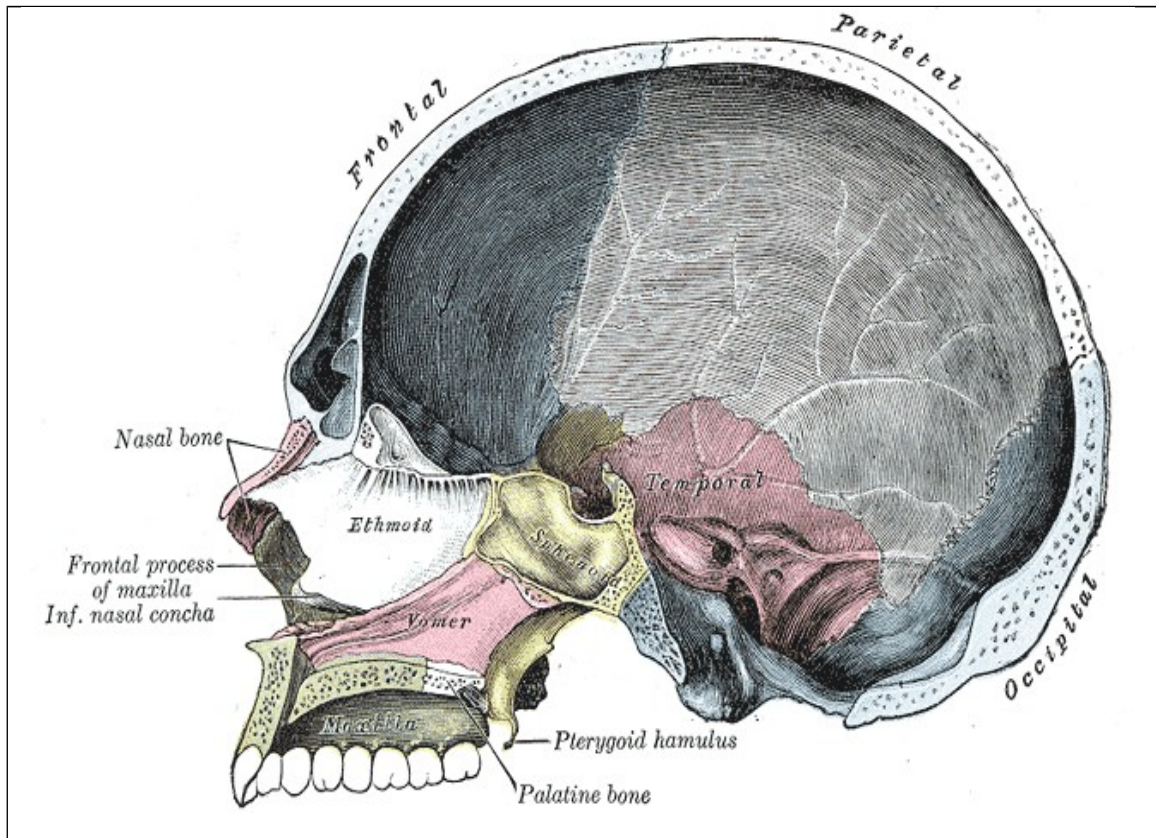
Effective and proper movement of the cranial plates is indeed critical for and proper brain function. The ability to breath in and out along with proper respiratory function directly affects the brain and its stimulating functions. The brain itself also expands and contracts. When the brain is expanding and contracting in its respiratory cycle, so to, must the cranial plates expand and contract along with the expansion and contraction of the brain. In many cases, such as with our bodies the inner layer structure is all inner-connected in one form or another, all has interrelated function. Meaning what effects one part will in some way have direct or indirect effect on another functioning part. Thus if the brain is expanding and contracting in rhythmic fashion, so to, must the cranial plates do the same. In a normal situation, the eight cranial plates are usually quite predictable in their intended and desired direction of movement. The harmonious movement of the brain along with the cranial plates is an absolute must for normal nerve pulsation and energy patterns that flow throughout the human body. This effect in the past has been referred to as the systematic process that lets *“the respiratory system move the membrane’s of the internal cranial vault.”* [21] All eight cranial plates and all fourteen facial bones must be in proper alignment in order for the body to maximize its full potential. This critical movement prevents the increase in intracranial pressure, which is increased pressure on the cranial nerves and on the cranial spinal nerves, the central nervous system. An increase in cranial plate pressure, such as when two or more cranial plates are locked together causes a disruption in proper brain function, this directly affects the cerebrospinal fluid, which in turn feeds and lubricates the spinal nerves and in many cases if not treated will lead to adverse conditions. These adverse conditions manifest themselves and are most noticeable in stiffness of joints, lessened mobility, loss or poor vision, speech impairments, and hearing impairments.

Each cranial plate has its own unique shape and desired optimum position of movement. This movement is interrelated with the respiratory system, with ones breathing patterns and with each other. The overall standing ideal is that it is *'impossible to move any single bone of the skull without moving the bones adjoining it.'* [5] Unlike pictures of ridged bones the cranial plates of the skull are not as ridged, when we and the bones are alive. In fact, when we are living our bone structure and mass within that structure are living as well. Our cranium plates at this point are more smooth than ridged and have minute flexible capabilities. Much like a thick and heavy piece of plastic that has the capability to flex and bend so do our cranial plates have this micro flexibility, to be able to bend under great amounts of stress in attempts to protect the brain. The function of the membranes/joints in-between the cranial plates is the reason for the ability to not only expand and contract but, also acts as a cushion and allows for flexibility to shift and bend.

Cranial Subluxation, for our purposes here, cranial refers to the cranial plates and subluxation referring to the movement or the lack there of in the cranial plates. In essence, cranial subluxation is then the idea and study of movement in the cranial bones/plates. The lack of movement in these eight plates, such as when the plates become locked or frozen, leads to adverse health conditions. This locking leads to pressure upon the cranium nerves that in turn are directly tied into the entire nervous system, which in turn operates the motor skills and functions of the body.

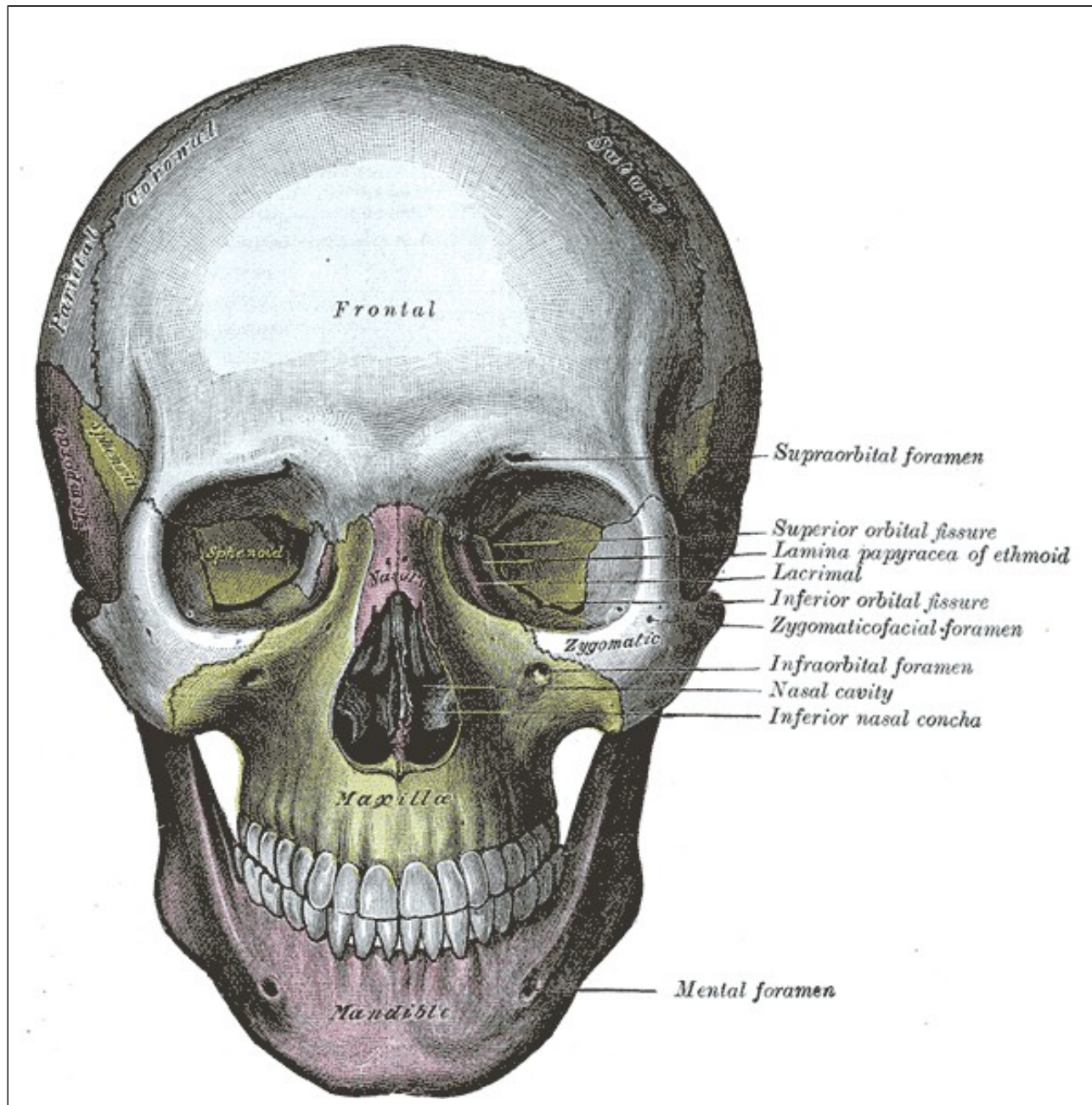
All most all of what we know today about cranium movement comes from the study and field of Osteopathy. Osteopathy was founded by Andrew Still in 1865, and is based on the ideals that misaligned bones are the source cause of interference within the normal fluid functions of the human body. Mainly the study of the vertebrae and the function of the nervous system, or the lack there of, were the beginning goals of the Osteopath. In 1930 William Sutherland demonstrated that cranial and spinal fluid could be altered at the brain level. This is done by adjusting the cranium plates of the skull and by locating the pressure points on the cranium and massaging them in attempts to release pressure and to unlock the cranial joints/membranes; this is called the art of Cranial Sacral Therapy. By doing so Sutherland minimized and in many cases eliminated the various states of illness his patients were in. The use of what is commonly called nasal specific also rose from the study of Cranial Osteopathy and we will focus our attention on this effect later on.

To better understand this ideal of cranial plates let us look at a few diagrams so that we can have a better idea of not only where the plates are located but also how they interact with each other.

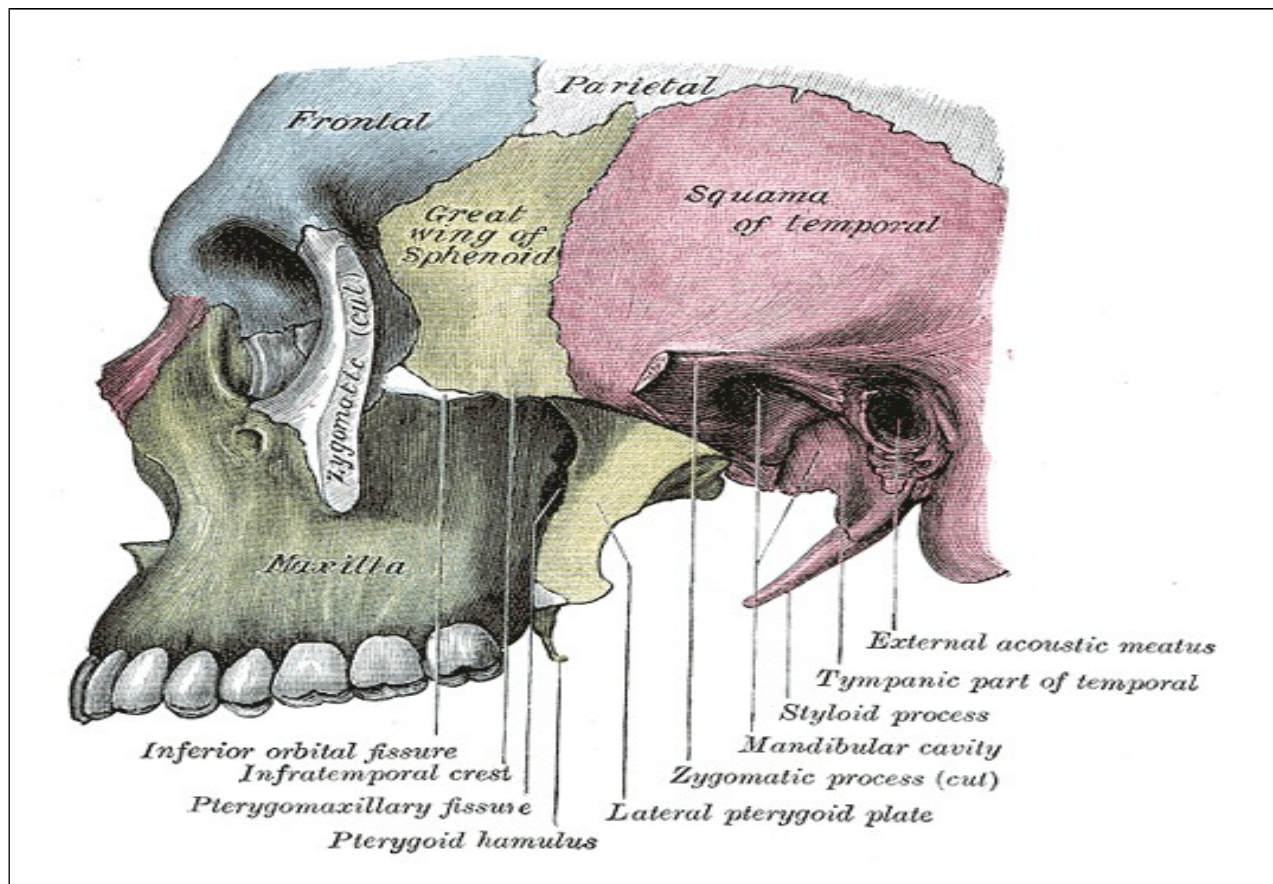


In this diagram we focus our attention towards the back of the head. We also see the right cranial plates, which are referred to as the Parietal bones. The lower part of the back of the head is referred to as the Occipital. From a back view, the Occipital is a triangular shaped cranial plate. It can be argued that when one experiences neck pain there is related compression of, not only the cranium not properly set on top of the spin, but also that there are pinched nerves that run through the membrane/joints at the base of the Occipital cranium plate. Therefore, if we experience a head jerking motion in the form of a whiplash, a fall, accident, or other event it may indeed result in the Occipital cranial plate shifting out of place thus compressing, adding stress to the membrane/joint between the left and right Parietal cranium plates. As well as, shifting and locking in a downwards motion placing direct pressure on the vertebra at the base of the skull, C1 through C2. This then causes neck tension due to the restricted and pinched movement of the cerebrospinal fluid.

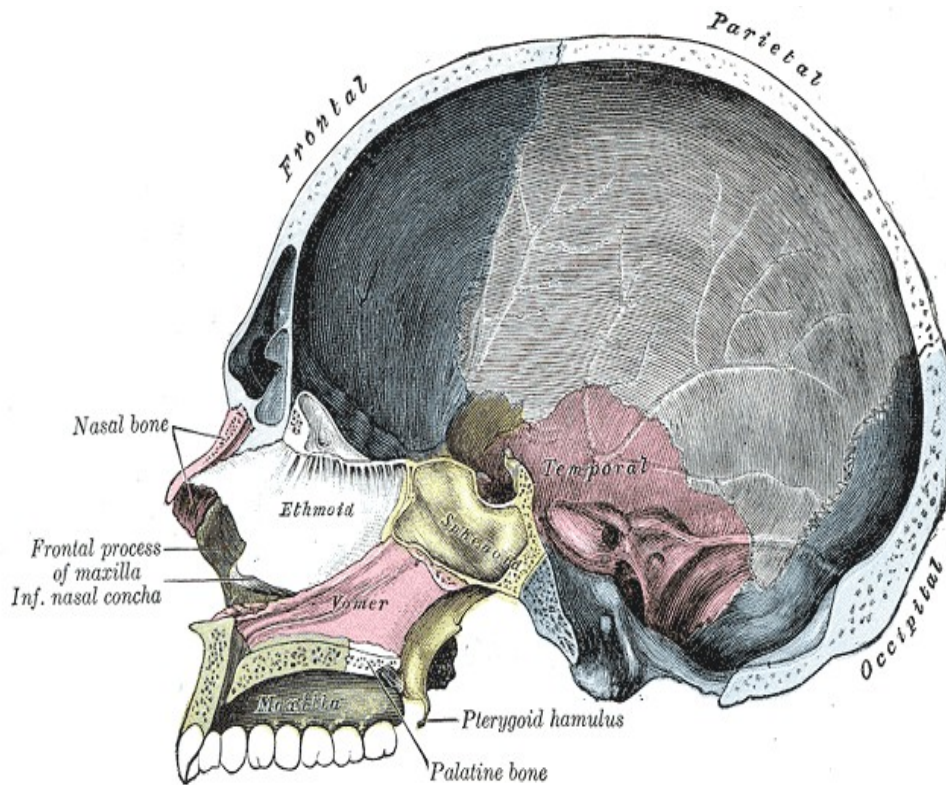
In this next diagram we look at the different segments of the cranium from the front/face view.



The large bone across the top of the forehead is referred to as the Frontal bone. The large plate that runs in back of the eyes is referred to as the Sphenoid bone. There are also other various membrane /joints here that we see lying across the bridge of the nose.

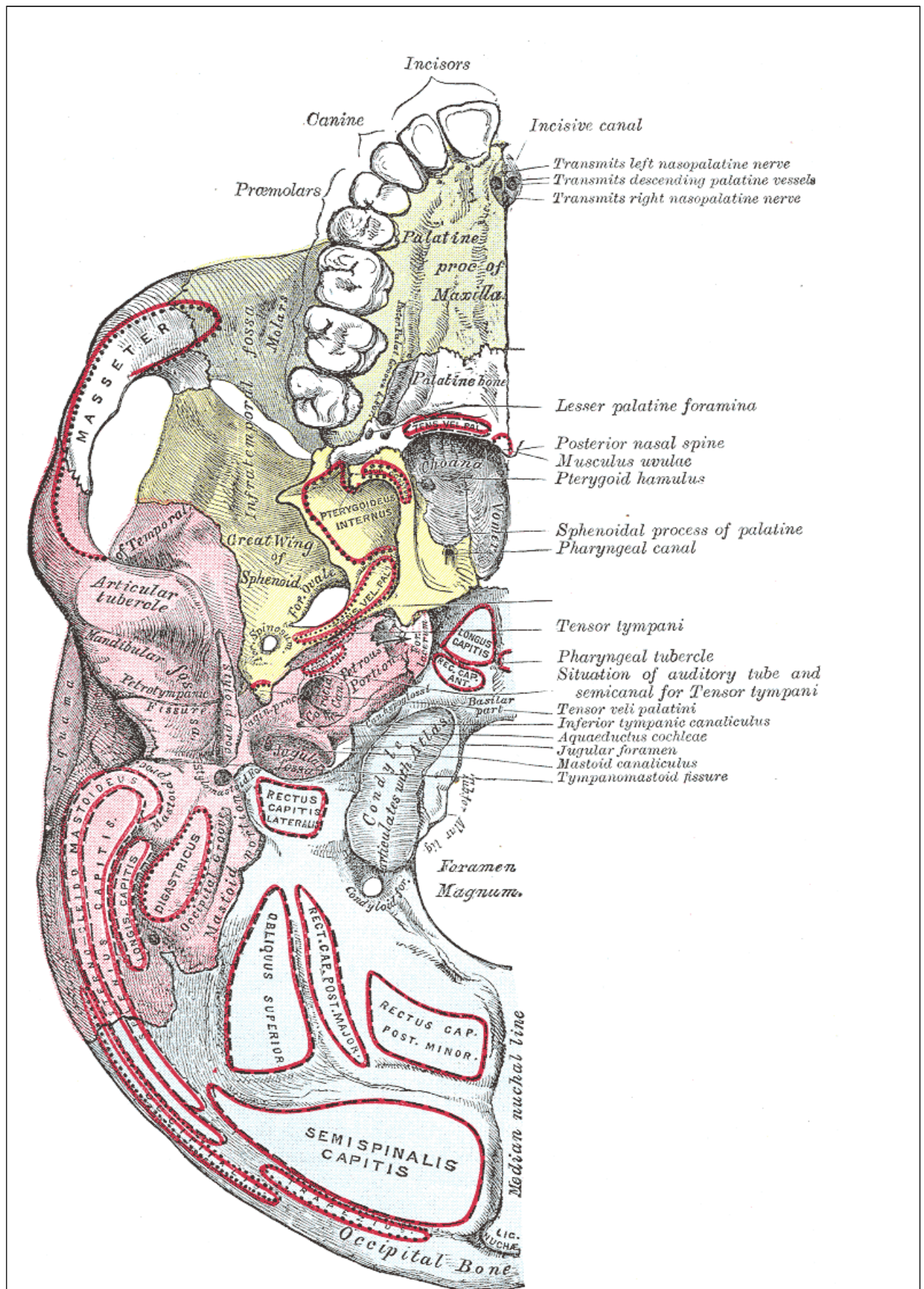


In this diagram we take a look at a side view of the cranial plates. By looking at this view we can start to see the correlation between each of these plates and how they inner-connect at key joint/membrane junctions. As seen in this diagram we can easily get a clear idea of how these cranial plates inner-act and where there related joints/membranes intersect and run along the skull. Here we are looking at the Frontal bone, which is the forehead.

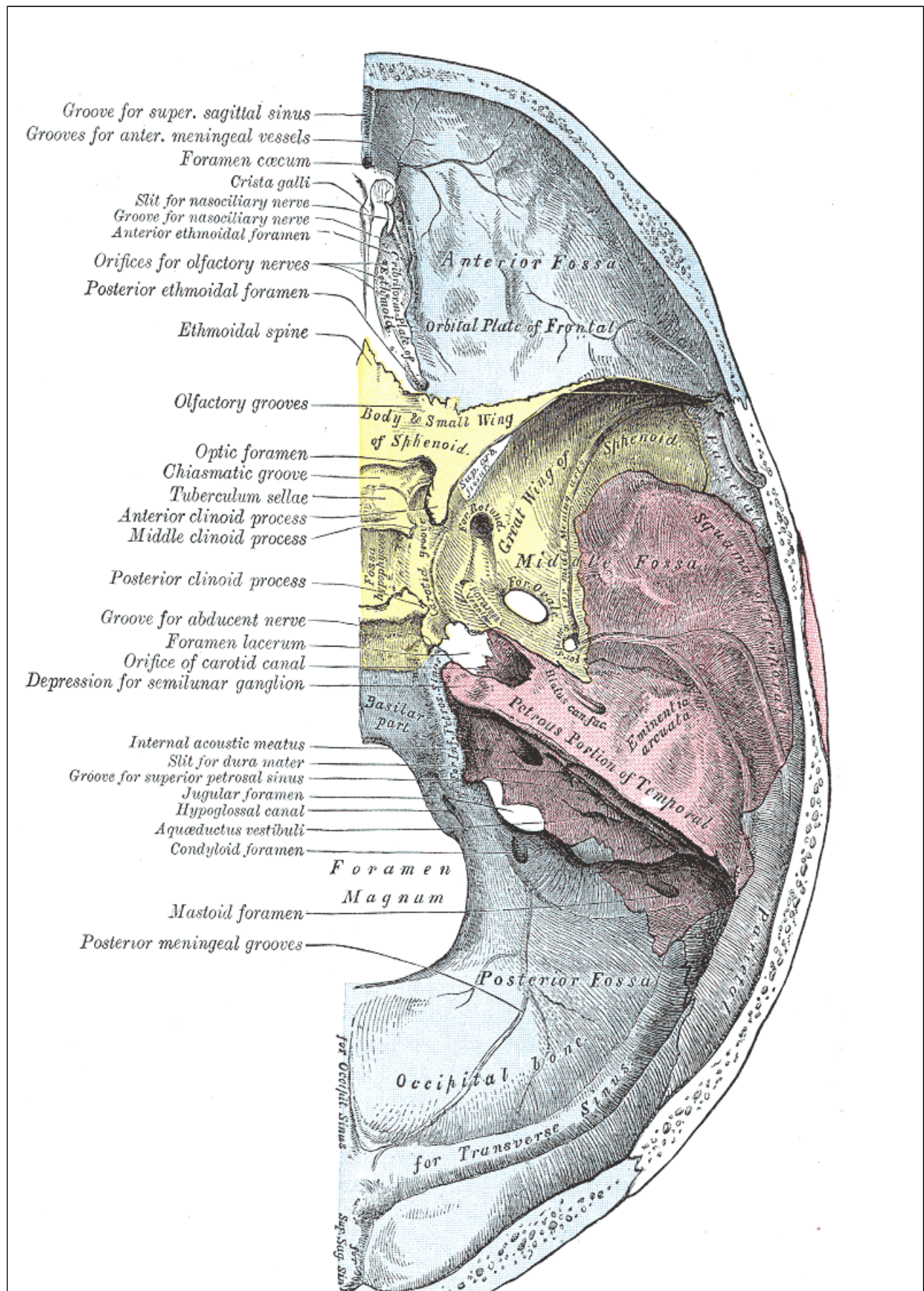


Behind the frontal bone is the right Parietal bone. Behind the Parietal bone is the Occipital located at the base of the skull. The bottom plate is the right Temporal bone and the plate right behind the eyes is part of the Sphenoid bone.

From underneath we get an inside view of how these different cranial plates inner-connect with each other. In the following diagram the cranial plate at the top is the frontal bone. The tong shaped area below the Frontal bone is the Ethmoid bone. The butterfly shaped bone below the Ethmoid is the Sphenoid Bone and directly behind the Sphenoid is the left and Right Temporal bone. At the base of this diagram is the Occipital. The large hole in the center of the Occipital is where the Spinal Cord passes through and attaches to the brain. This large opening is referred to at the *Foramen Magnum*.



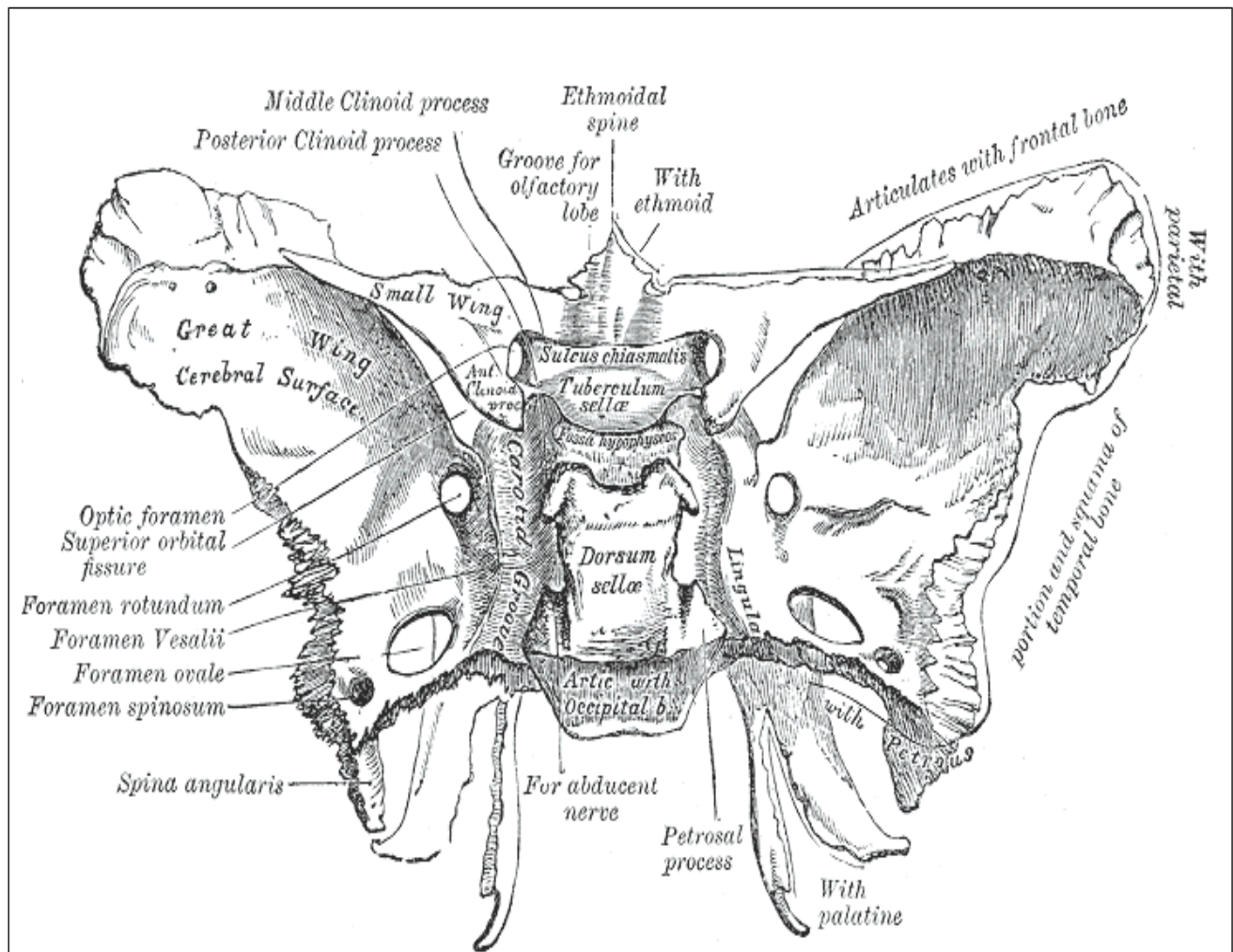
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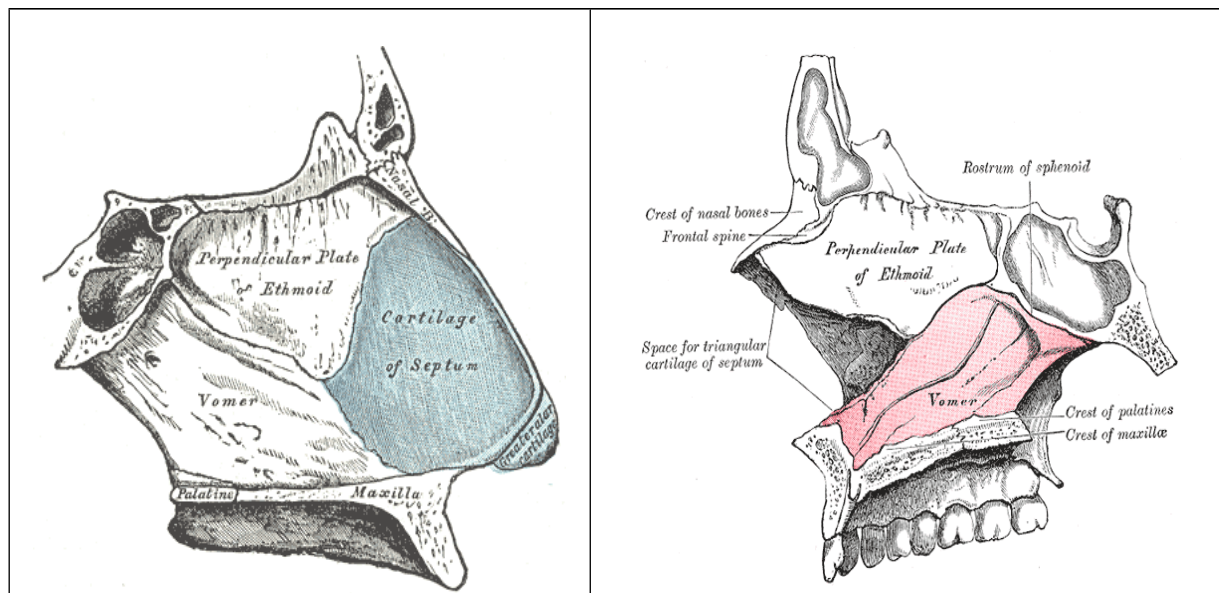
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Our focus here as well as being the key piece to the puzzle is the Sphenoid bone. The Sphenoid bone is the only bone that has direct correlation and structural joint/membrane contact with the eight other major cranial plates. At some point on each of these plates they come into contact with the Sphenoid bone.

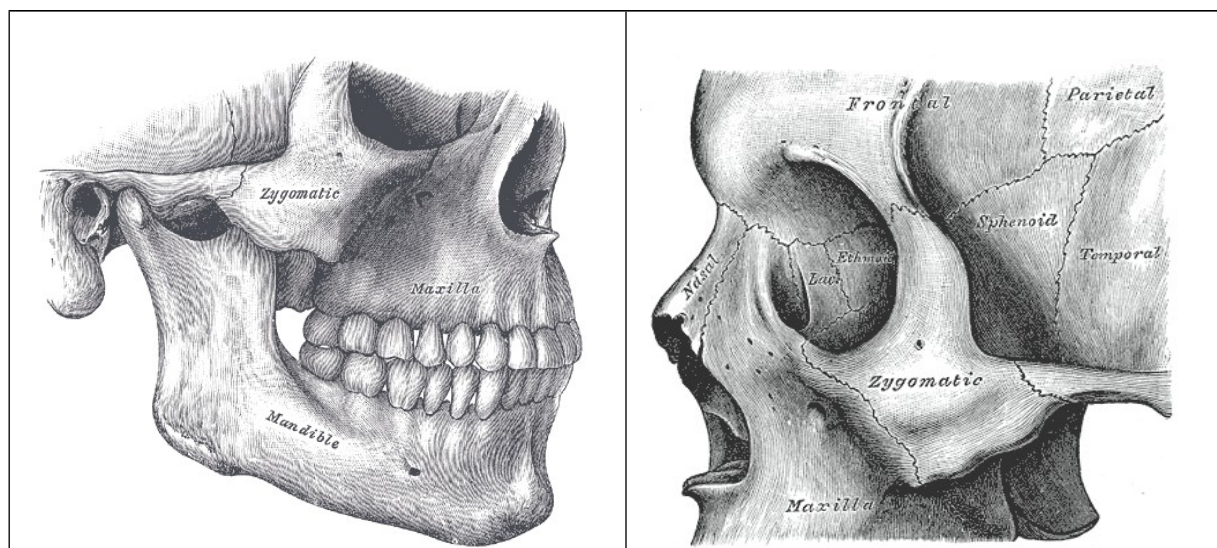
The Sphenoid Bone:



The Sphenoid bone takes the shape of a butterfly and is most notably located behind the eyes. The Sphenoid has a *Vomer*, a valve that rests along the side of the hard pallet.



This Vomer/valve then articulates or rocks back and forth in sequence with the Sphenoid and the Occipital. This articulation, rocking back and forth, is referred to as the *Sphenobasilar Symphysis*. This rocking motion is made possible by proper breathing and repertory function. Proper breathing and repertory action is critical for the rocking movement of the Sphenobasilar Symphysis/Vomer (valve). The rocking motion of the vomer gently rocks the Sphenoid. This gentle rocking motion pumps the *Pituitary Gland*, which is the master gland that contains the cerebrospinal fluid that feeds/lubricates the entire nervous system from the brain down through the spinal column and into our extremities. It is located and cradled in a small inner pocket on the inside of the Sphenoid plate right behind the bridge of the nose. This little pocket is referred to as the *Stella Tursica*. Usually and in many cases this rocking motion is either, frozen stuck or erratic in motion.



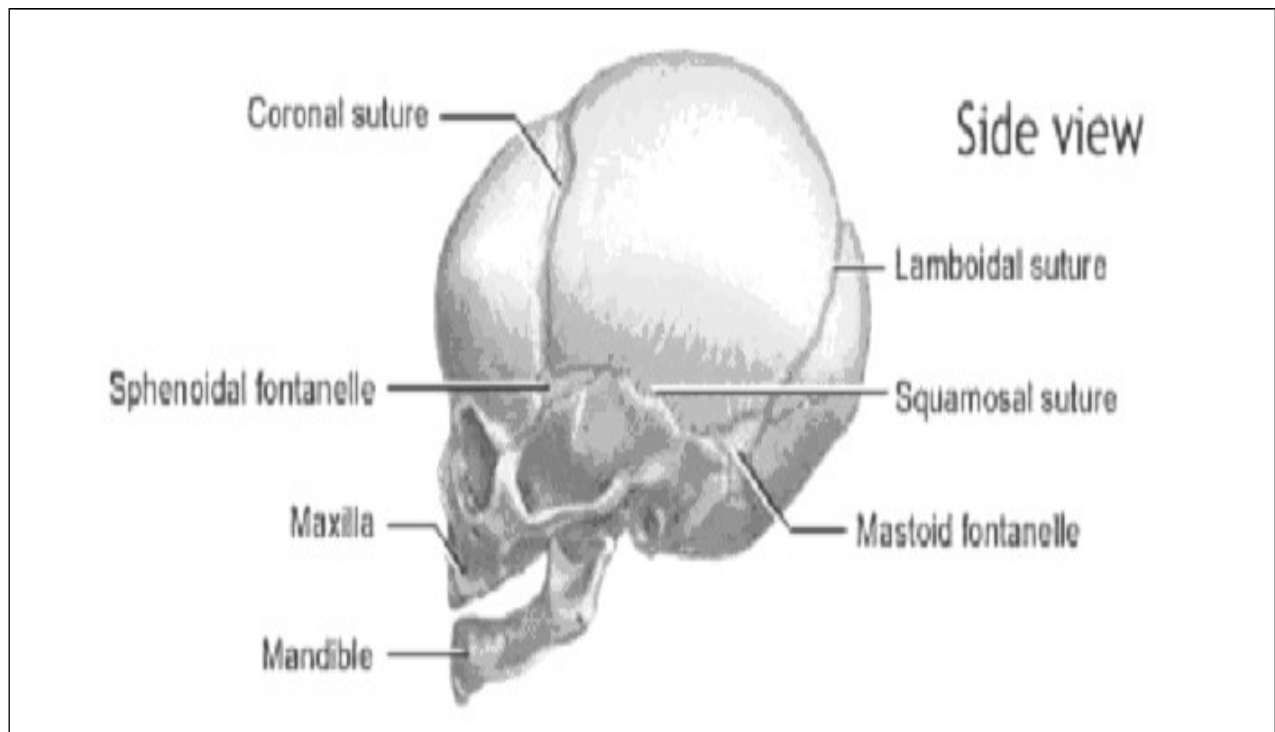
Distortion of the cranial plates, such as the plates locking or knocked out of place/sequence, may result in any level of interferences with any given cranial nerve. Furthermore, due to the coloration of the Facial bones and the connection between the Sacrum and the Occipital abnormalities or disturbances can easily occur in the function of the sacral nerves. For example; a fall that results in someone landing on there pelvis/tailbone will have an adverse jarring effect on the placement of the sacrum within the Iliac bone. This will then offset the Occipital and hence affect all of the cranium plates. The shifting of the Occipital will cause the other cranial plates to shift, in an adverse direction causing them to lock or sections to be pinched off. In this case, the Occipital will directly have an impact on the Left and Right Parietal bones. In turn, this will affect the Frontal plate and the Temporal plate. The impact from the fall will travel up the spinal column to the point of entry into the base of the skull, the Foramen Magnum, causing the Sphenoid plate to also shift in an adverse direction. This will cause the flow of the cerebrospinal fluid to be pinched or even cut off, thereby depriving the body of the needed cerebrospinal fluid needed to stimulate functional mobility. We may not notice that this has happened, but we can feel the results. The result of adverse impact manifests itself in the form of pressure on any given part of the head usually, most noticeable along the lines of the cranial plate joints/membranes. The result can be tension pressure/soreness in the neck, strain or stress on the eyes, headaches, and various joint discomforts throughout the body. If this event goes untreated or uncorrected the other cranial bones within a short time frame will also be affected, such as the Zygomatic and the Maxillary. With this shifting of the cranial plates from an adverse impact, within a short time the normal repertory expanding and contracting functions and the cerebrospinal fluid flow of the cranium nerves can become blocked or disrupted when they pass

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through the tinny holes/*foramina* in the cranial plates the drainage passageways of the sinuses. When the cranial plates are jammed together, usually by adverse outside impact it results in a closed head injury, immediately restriction occurs in the pumping of the cerebrospinal fluid. This then causes abnormal pressures to build in various locations of the cranial plates. We feel these effects in the form of tension pain, headaches, and if not corrected and resolved later anomalies present themselves, such as leg and shoulder pain and stiffness in the joints throughout the body. Just because there is an adverse impact, the brain and cranial plates don't stop moving. They continue to go through there cycle of expanding and contracting in accordance with there energetic pulsations and with our respiratory breathing patterns. When the cranial plates become locked/fused/stuck together the brain continues to expand and contract. This puts direct pressure on the locked segments of the cranial plates, it also adds to the restriction of the amount of cerebrospinal fluid flow. Likewise; if the sacrum becomes stuck or traumatized on one or on both sides of the Iliia the movement becomes partially frozen. Movement will continue to occur but at a much lower level. The result is that one or more areas of the reciprocal tension membrane become tight thus lessening the flow of cerebrospinal fluid. As well the portions of the cranial plates that still have flexibility/movement will also contribute to the build up of pressure and further lockage of the segments that are damaged. As well it puts added stress/tension upon the inner-cranial sinuses, the inner-cranial veins, and upon the cranial nervous system. [5, 6, 9, 11, 14, 22,]

A Small Childs Skull:

Up to this point we have been referring to the adult cranial plates, but what about the skull of a small child. The illustration below gives us an example of what the skull of a small child looks like.



We can easily see that the joint/membrane compound located in-between the cranial plates is well defined. As the child grows older this cushion lessens and the plates gradually grow closer together. However, what if the child's cranial plates are locked together or if there is relatively no joint/membrane cushioning present. This may be caused by a difficult birth due to pressure upon the cranium during contractions during the birthing process. The skull and cranial plates of a newborn baby are very soft and moveable. The trip down the birth canal can jam and lock these cranial plates. A difficult birth where forceps are used may also lead to the development of cranial plates locking. Locking of these plates can also be caused by bumps on the head, from an auto accident or cases where a child has fallen down a set of stairs. This locking and/or shifting of the cranial plates is caused by an outside blunt force and is made possible by the adverse impact upon the head coming from any given angle/direction and is predominately possible when the person is breathing in. When a person takes a breath in the cranial plates expand ever so slightly. When someone is taking a breath in and at the same time receives a blow to the head or a jarring effect in the neck, back of head, body, due to a fall or whiplash it causes the cranial plates to shift adversely out of place. When outside force or impact is implied upon the head at this point, the cranial plates are vulnerable to miss alignment and lock once the person exhales. When a person exhales, the cranial plates contract if they are indeed bumped out of place when the persons exhaling the cranial plates will become locked. Overall, any impact directly related to the head, neck, or the spinal region will cause the cranial plates to shift and/or cause locking

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that will lead to dysfunction of the cerebrospinal fluid flow. This then leads and contributes to the condition of impairing and damaging/restricting the child's abilities to have functional limb movement, hearing, speech, mental enhancement, and vision. It is true that there are children who are born without eardrums and who are born blind or both. In such cases or in cases where there is a defined brain dysfunction other steps need to be taken to insure medical and therapeutic means for the child. However, there are many cases that with, over time and with therapy can unlock the nerves and joints/membranes, allowing the cerebrospinal fluid to flow, thereby enabling the child to develop and grow in more of a normal fashion. I know this to be true because I was one of these children. I will talk more in-depth about this therapy later in this book. Right now we are in the picture painting stage. So that we can understand the diverse, essential functions of the cranial plates.

Craniosynostosis is a defined medical condition used to describe the sutures of the skull. Craniosynostosis is the joint/membranes in a small child that are either closed, locked, compressed, or frozen. As described above this compression puts direct pressure upon the cerebrospinal fluid, therefore, when this happens in a child and in infancy it will cause diversions in the development of the brain. It will affect the normal expanding and contracting of the brain and normal skull growth. When the brain starts to grow and the cranial plates are locked it does not allow room for the brain to grow normally. Put the added pressure of the brain's expansion and contracting cycles into the mix and we can see that the child's neurological system starts to show signs of dysfunction. Since the cranial plates are locked and the brain is trying to force its way into growth it puts direct pressure on the cerebrospinal fluid and in turn puts pressure upon the whole system. This pressure can then build and adds up to the point where the nerves can be entirely pinched off. Lack of cerebrospinal fluid leads to stiffness in the child's limbs, decreases mobility, may cause speech, vision, and hearing loss, and it drastically limits the mental growth capacity of the developing brain in a growing child. As well it leads to stunted growth and contributes to larger than normal head growth (water on the brain referred to as melon heads, the build up of cerebrospinal fluid unable to properly exit into the body.)

Let me propose a question. Have you ever seen a child or a picture of a child, whose sides of their head are narrow, the temple region right above and in front of the ears. Or it looks like their head has been put in a vice and squeezed? Many of us have, and though we try to ignore this dysfunction and try to ignore special needs, because it makes us uneasy, it does us well to

understand why they are this way and look for a means to be able to correct this dysfunction. Indeed when we see a picture of a person either as an adult, child, or infant that has there temporal plates compressed thus making them appear like there head has been placed in a vice. We can easily say that there is adverse intracranial pressure upon the brain where the Sphenoid intersects with the right and left Temporal cranial plates, with the Frontal plate, and with the left and right Parietal plates, as well as with the Occipital plate. This adverse pressure varies differently in person to person; however the overall results are the same. It is the lack of cerebrospinal fluid flow due to locked/compressed cranial plates. If untreated, the child's head and body will remain in a constant state of pressure that is unable to correct itself. This state of constant intracranial pressure is so great that in many cases sinus problems, headaches, and migraines. However, it also leads to life long disabilities, loss of hearing, loss of vision, loss of speech, neck disorders, spinal misalignment, loss of mental capacity to reason, as well as effects the normal growth of the child. Usually the longer these dysfunctions persist without treatment the longer it will take to correct itself once series of treatments/therapy begin. However, there have been cases where speech, vision, and hearing have been restored with only a small hand full of treatments.

Think of it this way, when our leg or foot goes to sleep and we finally realize it, it takes longer to wake it up by restoring blood flow and circulation than it took to pinch off the nerve to the leg that put it to sleep in the first place. The same is true with any part of the human body and the head is no exception. It takes time for the body to heal and it takes time to correct these dysfunctions. Results and improvement with treatments and physical therapy vary widely. Some improvements are immediately noticeable others take time even years to correct. The key is that there is a procedure, a non-medical procedure that works to unlock these locked cranial plates and restores functional capabilities to those who have lost it or to those who have never had it before. [5, 6, 8, 7, 10, 13, 21]