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# New View

Geometry of the Earth ~  
The Auroras

Nepal: Shanti Seva Griha

Cosmic Memories





## A New Understanding of the Geometry of the Earth

### The work of Frank Chester Part II

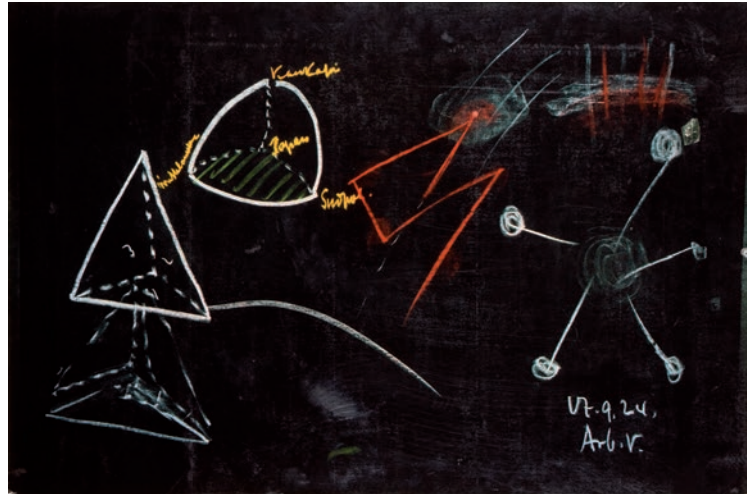
by Tom Raines

In the Summer 2010 issue of *New View* we explored the biography of Frank Chester and looked at his discovery of the seven-sided form, the 'Chestahedron' (see image above, sculpted by Frank). This form, having seven sides of equal area, led him to make a direct connection from it with the geometry underlying the human heart and to the esoteric fifth chamber of the heart, spoken about by Rudolf Steiner. In this second article we will look at how this form sheds new light on the geometry of the Earth. The basis for this article is a series of on-going conversations with Frank where he has explained how various insights and discoveries have come about.

In 2003, Frank's partner Yuko brought back an art exhibition catalogue from Japan. It was all in Japanese, but one illustration in particular stood out for Frank; it was a blackboard drawing by Rudolf Steiner. In the course of his many lectures some of his blackboard drawings had been preserved and these were later exhibited. Frank was deeply intrigued by the forms in this particular drawing. As a sculptor he had been originally inspired by sculptured capitals from the First Goetheanum in Dornach, Switzerland (designed by Steiner) and now it was as if Steiner provided another impetus to Frank's work.

Frank had developed the Chestahedron three years previously in 2000 and he recognised something of his work echoed in this blackboard drawing. In researching what the drawing was referring to he discovered Steiner's indications about the geometric origins of the Earth.

In a lecture given to the workmen at the Goetheanum in 1924 Steiner was asked to explain about volcanoes.<sup>1</sup> As with his answers to so many questions, Steiner began by 'clearing the decks' of materialistic assumptions that block a true understanding of the matter in hand. In this case, he immediately challenged the assumption, still taught in science textbooks today, that the earth globe was formed from inside-out as a concentration of swirling vapors and cosmic gas which condensed as it grew bigger to form a molten mineral mass which then finally cooled off at a large enough distance from the centre to create the solid crusty mantle of the earth. In this scenario, volcanoes are explained as the periodic eruptions of this hot molten core through the cracks

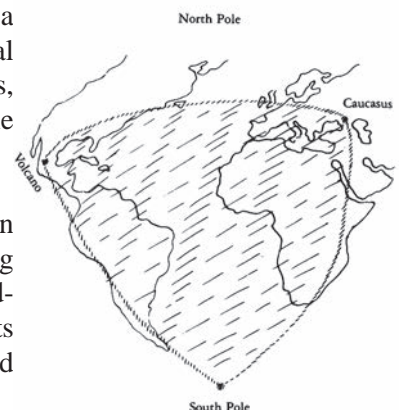
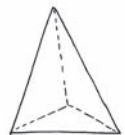
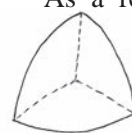


Steiner's Blackboard drawing, 1924

in the earth's mantle. However, Steiner emphatically rejects this process. Instead, he says we must first give up the idea of the earth formed as a sphere like a blown up balloon and then turn our thinking to what the earth truly is in cosmic space – a giant tetrahedron! He then proceeds to explain that the earth was formed in somewhat the same way as schoolchildren build a tetrahedron out of paper, by pushing together four equilateral triangles and 'gluing' them along their edges to make the solid, pyramidal form.

In opposition to this earth-creating force was the cosmic force trying to bulge the earth out into a sphere. As a result the land masses of the earth retain the tetrahedral form, while the earth itself rounds off into a sphere. He then goes on to draw a diagram showing how one can see the edges of this 'rounded' tetrahedron on the Earth's landmasses. He draws a further diagram of Central America, the Caucasus, Japan and the South Pole and says the following:

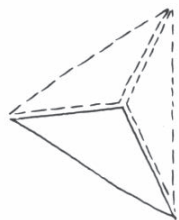
"If we picture the Earth in this way, we have it existing in the universe as a rounded-out pyramid that sends its apex over there to Japan and



has its base here, containing Africa, South America and the whole Southern Ocean. So the earth stands in the universe, curiously, as such a rounded-out tetrahedron, as a kind of

pyramid... And now if you take these lines that I've drawn forming the tetrahedron, you find that most of the volcanic mountains are located along the lines." He goes on to say: "If the earth is a tetrahedron, a regular solid, you'll have to explain it by imagining that a great master geometrician with plenty of knowledge had actually pushed the earth together from outside, along the lines which we still see today."

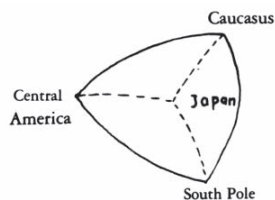
The 'seams' of the tetrahedron, where, as Steiner says, these four great triangles are 'cemented' together, are where the major lines of volcanoes occur. But the 'seams' do not fit perfectly, they are a bit leaky, as it were, and here you get the volcanic activity. At these leaky places it is possible for the cosmic heat from the



sun to get deeper into the earth more than at other places: "Now when the sun's power enters into these places beneath the surface of the earth, they become hotter and get soft – as is always the case when things, even metals, are consumed by fire – and

they make an outlet for themselves in the direction of those places which are not properly fastened together. Then through the combined cosmic action of the sun and the 'cemented' places of the earth there arise these regular volcanoes, the fire-belching mountains."

What struck Frank Chester most were the comments about some kind of tetrahedron in the Earth. He knew from his work with geometry and particularly the Platonic Solids, that a regular tetrahedron (constructed of four equilateral triangles) will fit perfectly inside a sphere. If you place a regular tetrahedron inside the sphere of the earth its base triangle will be at a latitude of around 20° with its apex at the South Pole. So he realised that Steiner's 'tetrahedron' could not have been a *regular* tetrahedron as its base triangle would have to be at a higher latitude to touch the geographic locations (like Japan) that Steiner had indicated and would then have to stretch down to the South Pole. He looked again at Steiner's drawing and saw that Steiner had in fact originally drawn an elongated tetrahedral shape. It also intrigued Frank that the points Steiner mentioned in his lecture – the South Pole, central America (the Colima volcano in Mexico), the Caucasus and Japan – cannot lead to a regular tetrahedral shape fitting inside the Earth. Frank pondered on this. His seven-sided form, the Chestahedron, fits perfectly inside a sphere. Frank therefore placed this in a sphere, with its apex pointing down and touching where the South Pole is on the Earth



and discovered, when he did the measurements, that the triangular base of the Chestahedron, now uppermost on his form in the sphere, did indeed lie along a line of latitude that passed through Japan. (Interestingly Steiner had mentioned Japan and the South Pole more times than any another of the other locations he spoke about). Frank found that the other two points on the triangle around this circle of latitude were in the Aegean sea and Kansas in the USA.

Curiously, although Steiner's drawing of this shape



*The uppermost equilateral triangle of the Chestahedron, sitting on a line of latitude of the Earth.*

was free-hand, it was almost the exact dimensions of a tetrahedron that would fit, with its upper base triangle at the line of latitude Frank had discovered, and its elongation culminating in an apex at the South Pole.



The above picture is of models that Frank made. From left to right: a regular tetrahedron; Steiner's 'elongated' tetrahedron and the Chestahedron (this last form has four equilateral triangles and three 'kite shaped faces' where all the seven surfaces have the same area). All of these models have the same sized base triangle. The taller two are the same height. Why Steiner did not give the locations that Frank could now confirm remains a mystery, but Frank believes that Steiner understood more than he wished to convey in his lectures at the time.

The South Pole is 'capped', as it were, it is a land mass, whereas the North Pole is water and ice. Satellite scans have shown a huge triangular indentation in the land mass under the waters of the North Pole, it is clearly more 'open' than the South Pole.

Due to his discoveries with his seven-sided form, Frank researches a great deal about vortices. Through the geometry of the Chestahedron he had been able to show that it is the geometric form underlying the development of the human heart. The blood moves in spirals as it passes around the circulatory system. Frank's work confirms what Steiner stated: that the heart,



far from being a pump, is in fact a brake, regulating the acceleration and deceleration of the blood. The heart works not through the utilisation of pressure (pumping) but by suction (braking). The acceleration and deceleration of the blood is caused by two, opposite spiralling vortices; the heart is actually formed by the action of these vortices. For what comes later in this article this picture of these opposite spiralling vortices need to be borne in mind.

Every child knows that if you move your hand rapidly in a circular motion in water, you will form a spiralling vortex. A spinning circle at the top of the vortex! If you take an equilateral triangle, fix a stick through its centre and spin the whole shape, what you will see is not one, but two circles. This is because the apexes of the triangle form one circle and the edges form another, smaller circle when in motion. To your left is the outline of the Chestahedron form. Note its triangular base. If you put a stick through it and spin it (the figure on the right) you can see the two circles forming where the triangle is at the bottom. This Chestahedron shape is capable



of generating vortices, as we can see. Vortices have a cone-like shape. Frank discovered that the Chestahedron has a unique conical form that fits perfectly over it, such that it touches all its vertices, except the very top one. He also discovered through precise engineering drawings and much research that this self-same cone will also fit exactly into the inside of the Chestahedron, this time touching the apex.

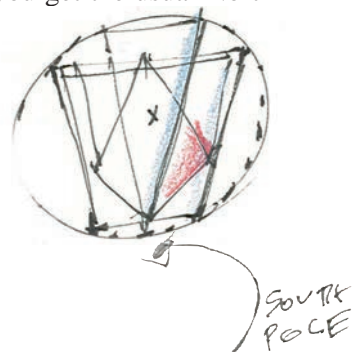


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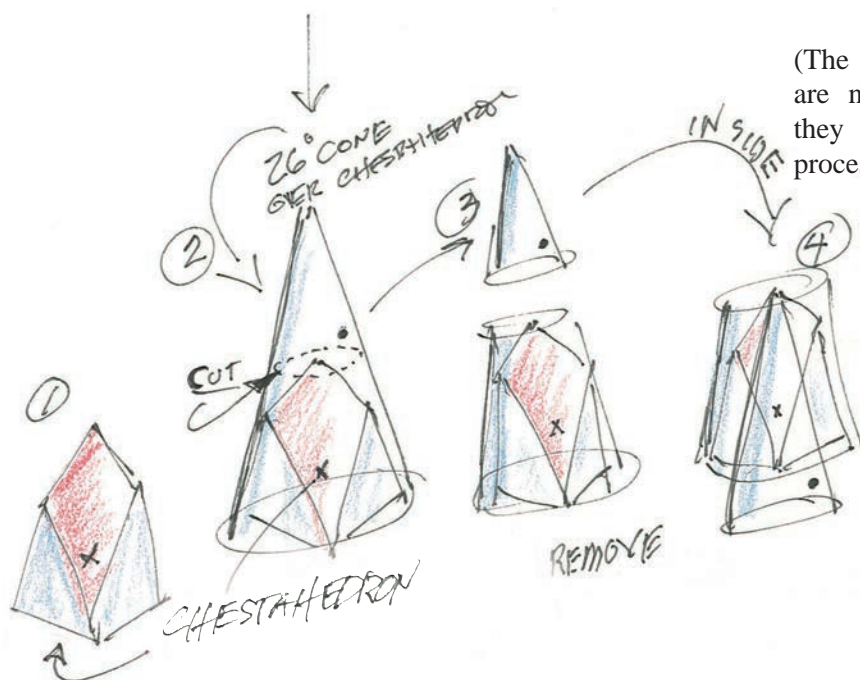
As a sculptor, Frank always does his investigations by making and experimenting with forms and drawings. Of course he thinks and imagines a great deal whilst doing this work. Only when he has results that satisfy him will he then have his findings checked mathematically. This process has led to the discovery that the angle at the top of the cone placed perfectly over the Chestahedron is exactly  $26^\circ$  (when drawn perfectly as a two dimensional figure). It seems rather astonishing that this is a whole number, because all the other angles to be found on the Chestahedron (apart from the  $60^\circ$  equilateral triangles) are fractions, never whole numbers.

So the cone, which is the vortex shape 'generated' by the geometry of the Chestahedron, announces itself as a whole number in degrees at its pointed tip.

If you cut this same cone at the point just below the apex of the Chestahedron and take the top part of the cone and insert it through the bottom of the Chestahedron form, it will fit perfectly. (Frank found the right place to cut this through the geometry of placing a circle around the form of the Chestahedron and projecting a cone from it). If you now place a sphere around the configuration of the two parts of the cone (one outside, one inside the Chestahedron) it fits perfectly. Even though it seems that there is this bit sticking out of the inside of the cone, the whole shape fits perfectly into a sphere. If you imagine this sphere as being the Earth, then the rim of the bit of the cone sticking out the bottom becomes a circle of latitude around the Earth. And, if you turn the whole form upside down, you get the usual North-South orientation we are used to and the rim is now a circle of latitude near the North Pole.



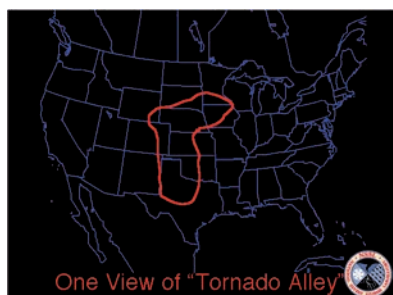
(The illustrations shown here are not drawn to scale but they give some idea of this process).



What we have here are two vortices, spiralling in opposite directions. If we recall Steiner giving the origin of the Earth as a tetrahedron, one can build up a certain picture. It is well known that a regular tetrahedron will sit perfectly in a cube. Frank has shown that if you rotate this form geometrically within the cube it will gradually transform into the Chestahedron's seven-sided form. The 'spinning' of the forms are clearly important; the Earth also spins. The Chestahedron generates vortices that fit into a sphere; therefore, applying all this in attempting to discover insights as to the inner working of the Earth might be a

fruitful exercise. This is what Frank has done. He has never been convinced that the Earth is like a giant magnet; he believes that to be just one thought form, a notion, that people wish to put forward to explain things. He has a different idea. Thinking about vortex cones inside the Earth, along the north-south axis, his attention was drawn to the phenomenon of the Aurora Borealis and its southern counterpart, Aurora Australis. Scientists do not really know what causes them. Frank has developed his own picture.

It began with his considering the possibilities of a Chestahedron form inside the Earth. As already mentioned, one of the three points that the form's upper equilateral triangle touches, on the latitude that



runs through Japan, is in the state of Kansas, USA. This area in the USA is known as Tornado Alley. Tornadoes regularly advance up the state in a northerly direction, before suddenly turning to the right; for no apparent reason. They also

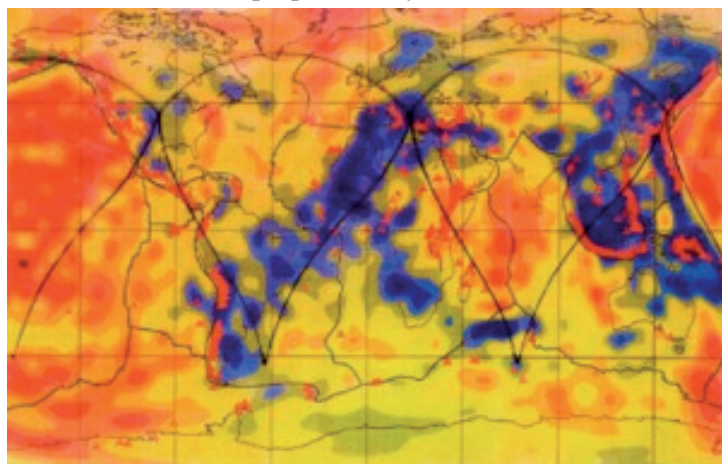


often follow each other in lines. No real explanation has sufficed to explain this strange behaviour. Frank mapped out the edges of the Chestahedron and found that the movement of the Tornadoes followed the edge of the form and then turned right, where the Chestahedron's edge turned onto the line of latitude.

Around this time (it was 2001) *Scientific American* printed a cover story about new ways to investigate the nature of the Earth's core. Using seismic imaging, a team of researchers from the California Institute of Technology produced a map of the Earth's temperature gradients, using blue colourings to represent cool areas, red for the hottest and yellow in between. Seeing this, Frank made a visit to the Institute to speak with Jeroen Ritsema who was part of the research team. Mr. Ritsema said that they had no idea of the meaning behind the data. Frank then mapped his Chestahedron edges onto the map (see the following illustration with the rounded triangular lines drawn on it) produced by Mr. Ritsema. This produced many striking correspondences.

Later, in 2008, scientists at Uppsala University in Sweden published findings that appeared to confirm that the core of the earth is a cubical iron crystalline

structure. The Earth's core is also considered to be the same size as the moon. Inside the Chestahedron, the first form that can appear when joining various inner points together is an icosahedron. Then inside this form appears a cube. If you put a sphere around this cube it is the same size, proportionally, as the moon. (This is

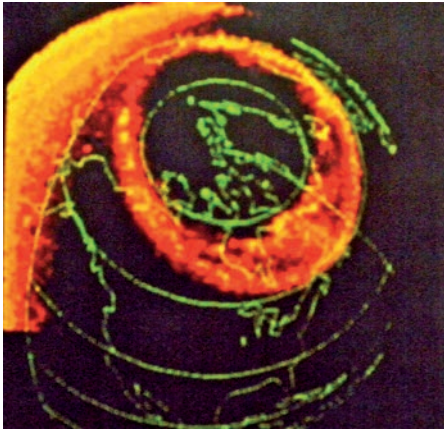


based on the proportions of the Chestahedron inside the Earth). These are remarkable concordances.

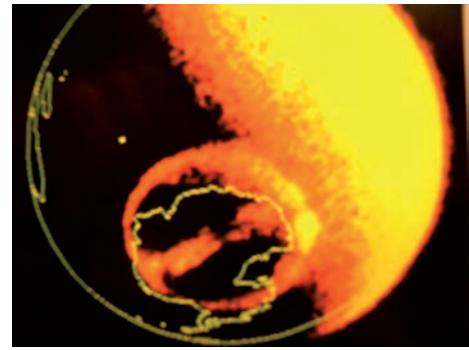
Frank maintains that what is important is not the fixing as proof the knowledge that flows from maths and geometry and other sciences, but rather through research and discoveries we can come towards a bigger picture of what is the real nature of the forces behind manifest existence.

The North Pole is 'open' as it were, whilst at the South Pole is a capped landmass. Picturing the two vortices in the Earth arising from the Chestahedron, Frank pondered on what this might mean for the Auroras around both poles. We can only see these Auroras at night, but you can see from the images on the following page that the aurora is somehow connected to the sun (shining on the daytime half of the planet). In the North, the Aurora Borealis generally forms itself around two circles, such that it is often elliptical in shape. It never enters the small inner circle. Yet, around the South Pole, the Aurora Australis often appears inside the circle and does not tend to an elliptical form, staying in its circular form. Looking again at the cones as bringing a vortical activity through the Earth, Frank realised that the cone open to the cosmos at the North Pole was receiving, or pulling in, forces that we see then occasionally lit up as the auroras. This force spirals down to the base of the vortex cone at the South Pole. Here it passes out of the point of the cone and is taken up by the ascending vortex of the surrounding outer cone. This returns the force to the North Pole where it passes out into the cosmos again. Therefore, at the North Pole we only see the Aurora when it is streaming away from the Earth. At the South Pole we sometimes can see the Aurora Australis as the force emerges from the first vortex to begin its journey back to the North. Studying the geometry of the vortex forms in the Earth further, Frank realised





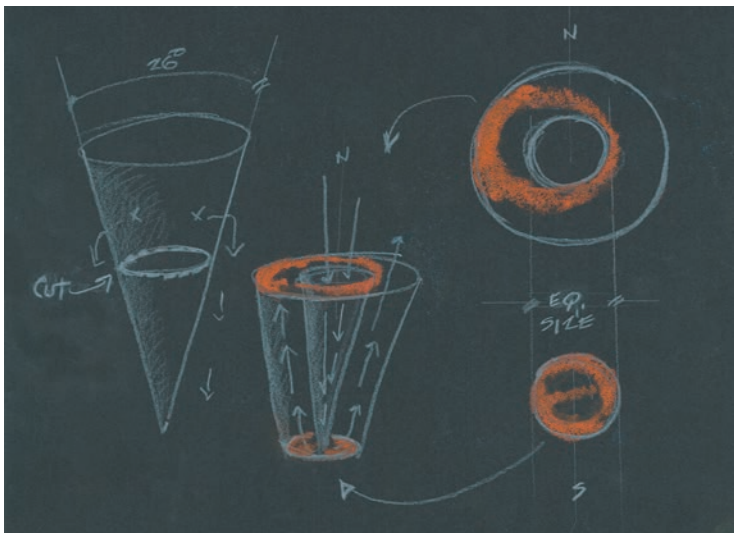
*The Aurora Borealis*



*The Aurora Australis*

that the circles where the north and south auroras are located much of the time suggested a direct relationship with the sizes of the opened circular mouths of the two cones. The diameter of the two cones is the same at the place where it was cut. Placed in the Earth, one of these 'cut' circles is at the South Pole, the other is the mouth of the cone by the North Pole. These circles correspond

oval becomes larger than the geometric cone in the chestahedron, the vortex is slowing down. The geometric cone with straight lines is fixed and can not account for accelerating or decelerating vortex movements."



strongly to those that the auroras form around, North and South. How the elliptical shape of the Aurora Borealis sometime occurs gains some measure of understanding when seen straddling, as it were, the two circles of the cones. Of course it needs to be borne in mind that whilst geometry can be worked with in seemingly very accurate ways, nonetheless it is only a means to discover meaning and understanding and not to fix things so fast that it cannot go on to reveal deeper knowledge to us. Frank had this to say about the cone as compared to a vortex:

"A cone is a geometry based on straight lines made with a ruler or straight edge. The cone represents the vortex in nature. A vortex is never straight, but rather expanding at the top. A vortex is restricted at the top if it is accelerating. A vortex is wide at the top if it is decelerating. The cone by the top of the North Pole would grow larger in diameter if the vortex is decelerating. When the aurora

Energy flowing in unseen at the top of the Earth, spiralling up and down its body, carried by vortices themselves spiralling in different directions, is a picture of circulation; like the blood in the human heart. Only here, it seems it is the forces of life itself, etheric energy, sustaining a living organism, a heart planet in the Universe where we are able to live out our lives and learn much in the process. There is a hope that this work of Frank Chester will gain better recognition in time, enabling more people to work and research on the questions that his approach to applying geometry in a living and creative way bring to light.

*Frank Chester lives and works in San Francisco, USA*

## Endnotes

1. Lecture 12 of the cycle *Evolution of the Earth and Man* (GA 354), Rudolf Steiner. 18th September, 1924

The last word to Aurora Borealis – the white specks are stars over Greenland!

