

The Great Pyramid's Internal Acoustic Circuit

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Abstract

This paper presents a reverse-engineered model of the Great Pyramid of Giza and proposes how each of the internal components functioned as part of a cohesive acoustic-resonant cavity circuit. It begins in the King's Chamber, driving a continuous acoustic pressure wave that is filtered and amplified before ultimately being used to activate a metallic transmitter at the apex. This paper focuses on the function of each internal component and the progression of acoustic responses between them.

Unit of Measure

The engineers of the Pyramid appear to have used the Royal Cubit as the main unit of measure when designing it. This cubit is defined as 52.36cm which is remarkably identical to $\pi/6$ or 1/6th of π , and specifically when you define the circle as having a diameter of exactly 1-metre. Most of the structure's dimensions work out to simple integer units in cubits making it the most logical candidate.

Regardless of where the measurement came from, the fact that it is this specific unit of measure is incredibly convenient for designing resonant cavities and acoustics in open spaces when using the meter as your diameter. If you use the cubit as your primary unit of measure, then you automatically engineer spaces designed around acoustic wave physics that make it easy to visualize the wave phases and how they interact with each other. It makes visualizing harmonics also extremely easy as they are basic whole-number units of a 12-phase cycle.

A complete wave cycle in a resonating cavity is 2π radians or two times around the circle. Once for the wave travelling one way, and once for the return trip. If we divide this circle into six parts, each part is then equal to $\pi/6$ meters which is 1-royal-cubit. Since the angular frequency of a wave is defined as:

$$\omega = 2\pi\left(\frac{nc}{2L}\right) = \frac{n\pi c}{L}$$

Where n is the wave number (1, 2 3...), L is the room length in meters, and c is the speed of sound (~343 m/s) in dry air at 20C.

Since a cubit is defined as $\pi/6$ meters and when we substitute L for cubits instead of meters, flipping the fraction in the denominator, we get:

$$\omega = \frac{6nc}{L_{cubits}}$$

Where π is completely cancelled out.

This makes it incredibly easy to calculate and visualize sound waves in rooms and how the energy of that sound is behaving. It is a perfect calculator for converting angular movement to linear distances.

The King's Chamber

The King's Chamber is the primary resonator cavity driving the entire system. The physical dimensions of the room (10 x 20 x 11.18 cubits) are designed to maximize sustain by eliminating destructive interference of acoustic energy. This allows for very minimal input to maintain the reverberance. The granite walls cause a displacement node to build up pressure on the surface with each fluctuation. The high quartz content of the granite acts like a mechanical spring under this pressure. It absorbs the force of the compression and converts it into electrical charge and by using the reverse-piezoelectric effect, it pushes back into the room in order to reinforce the acoustic wave. It has been noted that the floor is composed of thick granite slabs that are resting directly on top of limestone. This would help isolate the low frequencies from the rest of the structure acting as a subfloor.

The Coffin

The coffin is a housing with specific geometry acting as a coupling chamber. Its outer-volume is exactly 16.22-cubic-cubits, and the hollow inner-volume is 8.22-cubic-cubits. This leaves exactly 8-cubic-cubits for the remaining stone volume. As far as a lid being originally on the coffin, it is up for debate but no lid was ever found or mentioned in history, as being there. A lid would weigh many tons and would not be easily moveable, yet not a single fragment was ever seen. From an acoustic perspective, it would function better without one.

The volume of a sphere with a diameter of π -cubits (3.14159) gives you the outer volume of the coffin. A sphere with a diameter of 16.22-cubits, has a volume equal to the Kings Chamber, or $1000\sqrt{5}$. The scaling spherical volume makes the coffin a volumetric harmonic ratio to the containing room. The ratio between the volume of the coffin and the room is about 137.8 or close to the inverse fine-structure constant as well as the golden angle.

The coffin is a quarter-wave resonator coupled directly to the room through the floor and open end. When you measure the height of the internal volume and use the speed of sound in air at 20°C, you get a fundamental frequency response of 98.3 Hz or an angular frequency of 617.4 rad/s which is nearly $\Phi \times 1000$. When you measure the fundamentals of the room, you will find that the height of the room responds to the 3rd harmonic of 98.3 (294.9 Hz) nearly perfectly. The fundamental frequency for the height of the room is 29.4 Hz and the tenth harmonic is naturally 294 Hz. The 3rd harmonic for the length of the room is 98.4 Hz, which is nearly a perfect match for the coffin. Because the room's width and height are a multiple of 2, the 6th harmonic of the width is also 98.4 Hz. Interestingly the width is being driven at double the pressure fluctuations as the length.

This device is responsible for creating a complex pressure profile in the room such that the ceiling and floor are experiencing the highest pressure swings. At the same time, it is activating the longitudinal

modes of the room, sustaining the reflections in the length and, consequently, the width as well. It creates a 3D grid that is 3-nodes long, 6-nodes wide and 10-nodes high.

The Relieving Chambers

This structure is a layered air-gap capacitor battery bank. The bottoms of the beams are flat while the tops of the beams are varying heights and rough, creating more surface area for scattering. This allows energy to move upward but scatters energy in the downward direction.

The beams are made of granite that contains a high percentage of quartz (~30%) and are piezoelectrically primed from the massive weight of the pyramid pressing down on the ends like a tuned piano wire or a stretched guitar string. Like an idle string, the beams sit dormant, but as soon as they are excited, they will ring like a bell and liberate charge upward and into the King's Chamber below. This is the main source of electrical energy used in the process. It doesn't need to be a lot of power but it does need to be strong enough to power the transducer in the coffer and the output at the apex.

Once the Kings Chamber is in full resonance, it causes the beams to ring and because the height of the room is creating a strong pressure fluctuation, the beams are constantly in a state of flux and produce an AC field in synchronization with the frequency of the room. The total height of the granite beam structure, to the peak of the roof, is 40-cubits. Another doubling of the room's length with the total height of the entire King's Chamber overall structure.

The Antechamber

The antechamber acts as an acoustic comb filter that receives the King's Chamber signal and filters out the destructive low-frequency resonance. The filter is connected to the bottom corner of the resonant cavity, thereby utilizing all room modes, and the highest pressure swings, as the filter input. Because the King's Chamber produces harmonics and sub-harmonics, it generates a high-amplitude, noisy signal that needs to be conditioned. The granite combs are suspended off the floor by a specific amount and have gaps between them to allow pressure to flow upward. Part of the pressure wave propagates through the antechamber, while each groove between the suspended slabs causes part of the wave to propagate into the upper part of the chamber. This splits the wave into two paths, causing a slight time delay between them, as one takes a longer path to reach the output. When they recombine on the other side, the delay causes the cancellation of specific frequencies leaving a clean stepped tone used in the Grand Gallery.

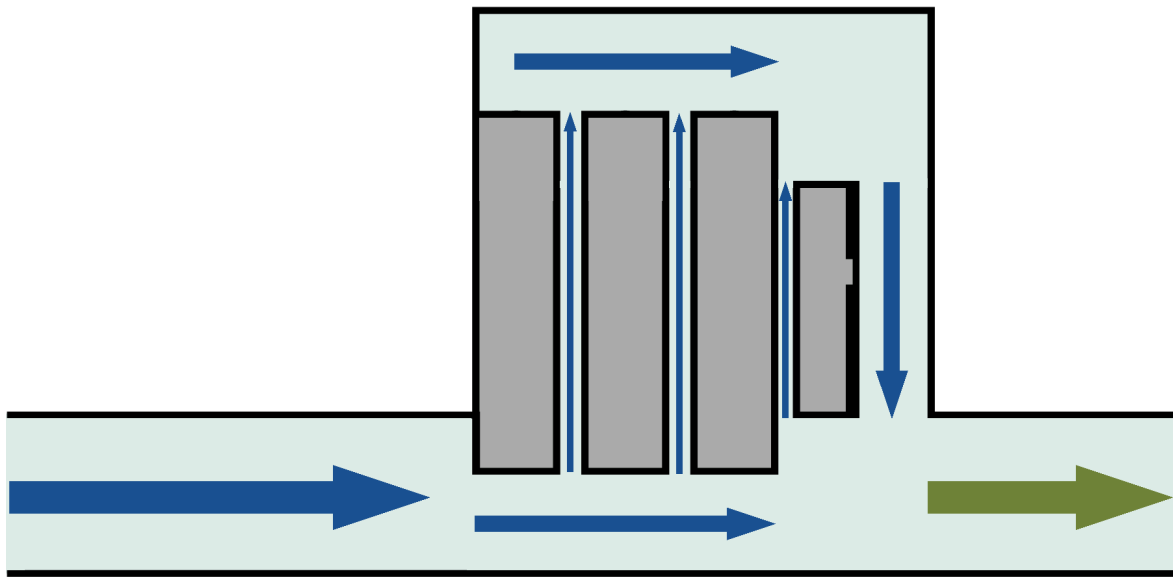


Image 1) How the Antechamber functions as a comb filter.

The Grand Gallery

This structure is an acoustic harmonic amplifier and waveguide. It is a multi-functional volume that does more than just convey pressure. Because the air in the pyramid is sealed off, all the rooms behave as a single complete unit. Reverberating one point in the system causes the entire volume to respond at once as the pressure has nowhere to go.

The Grand Gallery has a special design that allows pressure to be stronger in one direction than in the return direction. When the pressure tries to return during the vacuum cycle, it is defocused. So the wave moving down the gallery is compressed and the pressure increases but as it returns, the wave decompresses and pressure is decreased. The seven steps create a frequency selective interference pattern that strengthens and isolates a specific frequency band. The 2-cubit to 4-cubit step geometry amplifies the wave by effectively doubling the pressure.

The input into the Grand Gallery is a pulsed train where the frequency matches the geometry of the steps. Each pulse arrives in time with the next step, in-phase with the local standing wave. This incrementally builds-up pressure from the Antechamber end to the Queens Chamber end. The seven steps are constructive contributors where 7-waves meet in-phase with the original wave at the Antechamber side where a Bragg-reflection condition occurs. Consequently, the opposite end of the Gallery is an antinode, directly at the junction of the Queens Chamber and Ascending Passage.

The Ascending Passage

This is a critical part of the system. It is acting as a resonant stub tuned to the operating frequency. The purpose of the ascending passage is to create a high-impedance, pressure-antinode condition at the Queen's Chamber passage junction. This maximizes the pressure available to drive the Queen's Chamber. It is a phase-coherent resonant coupler that is critical to driving the Queen's Chamber using the Grand Gallery's source.

The Queen's Chamber

This is a secondary resonator, but it works in a different way from the King's Chamber. It takes the incoming signal from the Grand Gallery and causes it to alternate back and forth in the room at frequency. The pressure swings from north to south and back.

The input into the room is driving the dominant mode within the Grand Gallery's passband. The small step at the Queens Chamber entrance fine-tunes the impedance match at the junction to minimize reflections back toward the Gallery. This maximizes the forward coupling into the room.

Because the room is nearly square, the builders engineered the niche to offset the balance of the room. This forces the pressure to swing in the north and south direction where one wall has all the pressure while the other rests and the pressure alternates at frequency.

The Queen's Niche

This is another harmonic amplifier, but it is conditioning the room and creating a larger depth on one half of the room. This causes an alternation where one half of the signal is conditioned and elongated or delayed. Within the niche there was possibly another smaller crystal than the one in the King's Chamber. This crystal would be responsible for driving the amplifier and helping to sustain the room's reverberance and alternation. The crystal would be driven by the continuous pulsing pressure from the Grand Gallery. It is a logical extension to think there was a crystal here. The niche is also in harmony with the Grand Gallery, where they create a natural tone progression between the two. The niche is a single recessed volume and its 3:1 width-to-depth ratio stands in a perfect fifth (3:2) relationship to the Gallery's 2:1 ratio. That means a signal driving both structures in sequence produces a fifth between them, reinforcing the harmonic chain of the circuit. The delay in the niche locks the room's oscillation to the north-south axis.

The Air Shafts

The King's Chamber Shafts

There are two shafts in the Kings Chamber. One on the North and one on the South walls. I am speculating that they were open at the room end and sealed off at the outer casing end by some kind of plug, potentially a granite one. The width of the room is being driven along with the length. Because of this, the shafts are acting as probes that couple the room's pressure directly into the stone matrix. I also suspect that both shafts are driven in-phase at the same pressure, at the same time. The entire mass of the pyramid above the King's Chamber is being driven in a longitudinal, upward, resonant pattern. They are

an interface between the acoustic signal of the room and the resonance of the pyramid as a whole. When you bisect the two shafts angle, you will notice the bisecting line intersects precisely at the apex.

The Queens Chamber Shafts

This chamber also has two shafts. One on the North and one on the South walls, similar to the Kings Chamber. These shafts were originally sealed off at both ends. At the room end, there was a specific thickness of limestone blocking the pressure from directly moving into the shaft. I suspect this limestone "cap" was impedance matched, to some degree, to allow the pressure vibration to transmit into the shafts. These shafts are also acting as probes that transmit the Queen's Chamber resonance into the stone matrix.

Because the room is oscillating across the north-south mode, these shafts are alternating back and forth. Instead of just driving the stone directly, this alternating pattern causes a torsion wave to rotate around the axis of the Pyramid as a whole. When you bisect the angle between the two shafts, you will find that the bisecting line also perfectly intersects the apex.

The Combined Effect

When these two resonant signals mix in the Pyramid's stone, above the chambers, they produce a helix displacement pattern throughout the entire mass. The combined waves cross directly through the granite beams above the Kings Chamber where the produced charge is conveyed upward via the acoustoelectric effect. The charge is carried upward, focused and collected at the Apex, where it is used at its final output.

The Apex

The apex of the pyramid was likely a stone pyramidion covered in electrum plates capable of handling the transmission of a massive electrical pulse. It is an exact geometric copy of the Pyramid's exterior at a smaller scale. Electrum was potentially used due to its anti-corrosion properties while still being highly conductive. The entire electrical production of the pyramid is focused onto this point for some purpose. There are potential reasons for doing this as detailed in *The Full Acoustic Circuit*.

The Stone Matrix

The pyramid's core has several known layers. All pyramids are built upon a core structure. On top of the core, the rest of the stone matrix is placed, depending on the design requirement. The inner core of the pyramid is nummulitic limestone while the surface is a layer of high-quality white Tura Limestone. This combination makes the matrix behave like a giant resonant capacitor. The boundaries of these layers can be seen in the Ascending Passage girdle stones, as well as in the Queen's Chamber shafts, which end right at the boundary of the inner-core structure.

The Pressure Relief System

Connected to the Grand Gallery and Queen's Chamber junction, there is a small shaft leading down, known as the Well Shaft. I suspect this part of the pyramid was completely sealed off originally but if it was part of the acoustic design I can speculate as to its function. At the connecting point, there may have been a granite block that would have pivoted on an off-center axis in such a way that the block would

open easily one way but would otherwise stay closed naturally by its own calculated weight. This block would have acted like a one-way pressure valve in the event of an overpressurization or even, every other cycle, to prevent back-pressure from returning through the amplifier (Grand Gallery).

The pressure would move down the Well Shaft and into the Subterranean Chamber, which is basically an acoustic sink. Once this room reached a specific pressure, it would open the pyramid's door, which is also a one-way pressure valve, and vent the Subterranean Chamber.

The Missing Transducer

I speculate that the system is incomplete without some kind of energy source. What I purpose this is, was a transducer that was housed in the coffer. This highly-pure, nonlinear transducer, takes the incoming acoustic wave and combines it with the alternating electrical signal to produce a parametric amplification. The acoustic wave is reflected back on itself and amplified via the electrical input.

The crystal has piezoelectric properties and is tuned to the exact frequency of the coffer's height fundamental (98.3 Hz), requiring the crystal to have a thickness of ~3 cm. The coffer is positioned directly under an antinode applying maximum acoustic pressure at the resonant frequency. As the room reverberates, the granite ceiling beams generate an AC electric field phase-locked to the room's height mode which drives the transducer.

The Full Acoustic Circuit

The pressure driving the system originates in the King's Chamber. In the coffer is the transducer that, once active, parametrically amplifies the acoustic source in the room driving the room at a resonant frequency. This activity causes the granite beams above the Kings Chamber to ring and generate an electric field alternating with the acoustic signal.

The Kings Chamber feeds the Antechamber that filters the signal before feeding it into the Grand Gallery. There it is amplified and accelerated down toward the Queen's Chamber junction. A strong antipressure node forces the pressure into the Queens Chamber where it drives that chamber also with the filtered and amplified Gallery signal.

From the King's Chamber the signal is directed into the shafts, where it transfers the energy into the stone matrix as a mechanical vibration. Both shafts are in-phase and drive a strong pressure upward. The Queen's Chamber shafts are alternating back and forth with the Queens Chamber signal, transferring the energy into the stone matrix. This action is creating a torsion vibration in the stone matrix that rotates around the axis. The shafts are in tune with the structure itself and easily transfers the energy into the mass.

The shafts, together, create a spiraling vibration within the stone matrix directed at the apex. The electric charge of the granite beams uses this spiral and is carried along toward the apex where it is collected and focused onto the electrum point. From there, the entire electric potential is transmitted.

Discussions

I want to speculate on the possible purpose for such a device. There are two ways the system could work. One way is highly speculative, proposing that the crystal was not natural and was engineered to be an exceedingly efficient parametric amplifier with an exact cut. The King's Chamber would be brought to resonance by using a sound source (could be a human voice or a signal generator through a speaker), and once an electric field were established and the crystal is powered, it would self-sustain the room indefinitely.

In this example the pyramid would work as an active driver of the resonant cavity of the Earth, pulsing it to reinforce the resonance and to create a steady standing wave around the world. It would set up nodes and antinodes at locations around the world so that building at another antinode would allow it to be powered by aeriels or two columns beside each other. So the Great Pyramid would be the primary driver of a network of antinodes that would reinforce the resonance with other constructions around the world. The energy system would be entirely based on resonance.

The second possible purpose would be a passive system that listens to the Earth's resonant field and is already in harmony with it since the Pyramid is built to a ratio of the Earth itself. The crystal remains inactive as long as the field is in balance but as soon as there is a perturbation or a disturbance of some kind, the Pyramid activates from the surge of energy and creates a counter wave to cancel out the anomaly. Just like how a crystal radio is powered by the incoming radio signal, this system only activates when there is an increase of signal. This does not require any active power source and still has a definite world-wide effect on the environment.

Some other ideas would be a beacon that the world could use as a marker for mapping and timekeeping. Or even, more simply, a shining light.

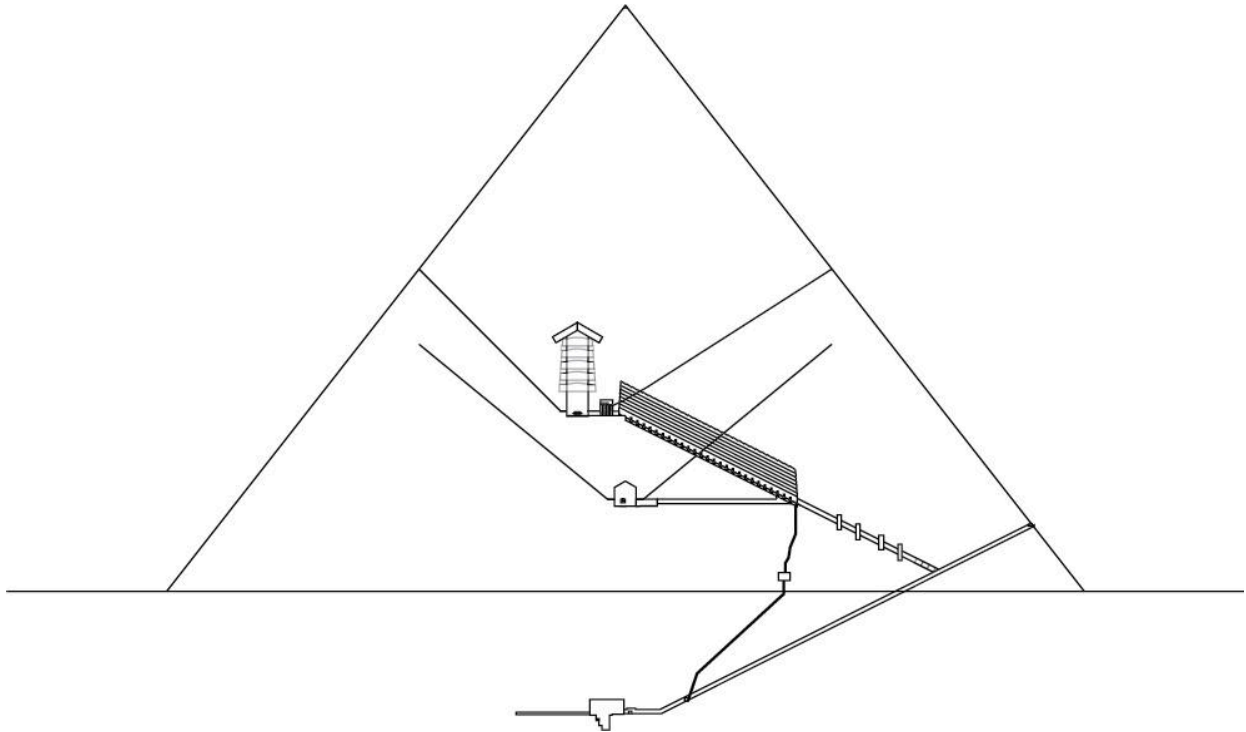
Conclusion

The internal structures of the Great Pyramid were originally designed to be a complete acoustic resonant circuit, that powered the apex with an electric charge for transmission. This hypothesis proposes a holistic solution to the Pyramid as a whole without adding or removing any features (other than a transducer and metallic apex). It demonstrates how the Pyramid's internal components are working together acoustically, from King's Chamber to Apex, and how the builders utilized the science of acoustics and resonance in every part of the process.

Given the current condition of the structure, it is impossible to simply place a new transducer in the coffer and expect it to work again. The integrity of the system was catastrophically compromised by a sudden internal field collapse and/or violent earthquake. The damage includes, but is not limited to: broken granite beams above the King's Chamber, the shafts are no longer air-tight and have shifted in some places, catastrophic settling of the King's Chamber, the antechamber granite combs are gone, the stripped-away outer casing stones that are crucial for insulating the internal resonance and charge, and the missing apex transmitter.

In order to make it functional again, the entire structure would need to be disassembled, documented, and reconstructed from the ground up. The builders would have to maintain the highest degree of precision on par with the original design.

Until acoustic models can simulate the original geometric response or an exact scale model is constructed and tested, the hypothesis of the pyramid internal acoustic resonant circuit, must remain an unproven but compelling theory.



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