

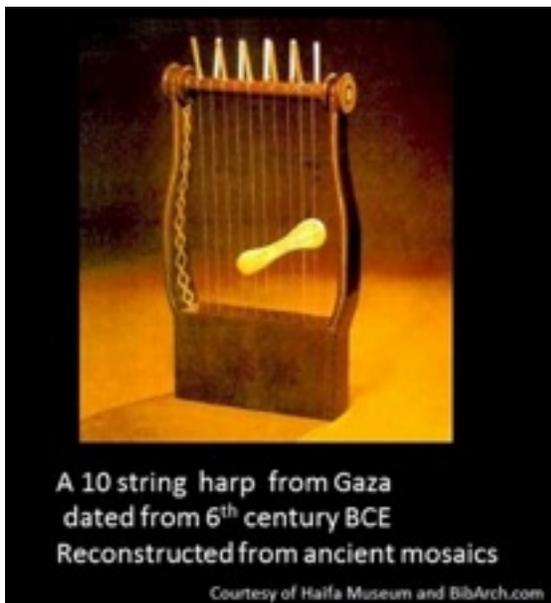
The Mystery of Music **Jerry Maday, Worship Leader** **Worcester, Massachusetts**

The Harp and the Flute

From ancient times, music has been a powerful part of God's creation. One of the earliest biblical references is in Genesis 4:21. Enoch had two great, great grandsons. These two brothers were named Jabal and Jubal. Jabal became the father of all who raise livestock, and Jubal became the father of all who play the "harp and flute". Even from this ancient reference, the mystery of music can be noted. Jubal's name has become an international word – JUBILATION. This word does not simply mean "joy". It means elation, euphoria, delight and triumph. Music energizes our being. It can connect us to profound emotional experiences.

Even earlier, in Job, which many scholars believe to be the oldest book in the Bible, the Lord records the harp and flute together as well. Job lamented "my body burns with fever, my **harp** is tuned to mourning and my **flute** to the sound of wailing" (Job 0:30-31). Again, we see the power of music connecting people to deep emotional recesses.

The harp generally accompanied singing. As a matter of fact, the word "Psalm" is derived from the word "*psallo*" which means "to pluck." This is a direct reference to the harp being used to accompany singing. Flute music was traditionally for dancing and rejoicing. Yet there are accounts for grieving as well in scripture as we shall see.



A 10 string harp from Gaza
dated from 6th century BCE
Reconstructed from ancient mosaics

Courtesy of Haifa Museum and BibArch.com

A Few Biblical words for "MUSIC"

Symphonia – Music, symphony
("harmonious sound"), Luke 15:25

Psallo – to touch or pluck the harp, Eph 5:19

Zamar – sing praise, make music, Ps 92:1

Higgayowm – mediation, resounding music,
musing, Ps 92:3

The Apostle Paul has this to say in I Corinthians 14:7: "Even in the case of lifeless things that make sounds, such as the **flute or harp**, how will anyone know what tune is

being played unless there is a distinction in the notes?”

**Anthropologists have yet to discover
a civilization that did not have music
and dancing in their culture**

Jesus referred to the profound power of music as well. In a blistering challenge to the people’s hard hearts to God’s message, Christ brought up the flute and singing. In Luke 7, people rejected John the Baptist AND they rejected Jesus using contradictory reasons. To call attention to their duplicity, Christ noted a common proverb used by “children in the marketplace... ‘We played the flute for you, and you did not dance; we sang a dirge and you did not cry.’” (Luke 7:30-35) Their hardheartedness was like people being unresponsive to the mysterious power of music! Jesus knew music was designed to have an impact on our hearts! Even a joyful flute was unable to get these hard hearted people to dance! Nor would they mourn if the music turned sad. They were fickle, duplicitous and insincere!



Music was created to somehow profoundly influence our heart and mind! And it is influential. It can make you dance! It can make you cry! Music is infused with dramatic mysterious potential! It has the ability to influence every fiber of our being. Our emotions can ignite at the sound of music. Our mind can become focused. Our souls can be inspired. Our strength can be renewed. Examples abound in God’s word! Music can rally an army to new courage. (I Corinthians 14:8) It can quiet a troubled mind. (I Samuel 16:16-23) On the other hand, music can help plunge people into revelry, sin and idolatry. (Exodus 32:19) Music can move God’s glorious presence into the worship of lowly serving disciples. (II Chronicles 5:13) Equally so, music can spellbind a people

away from God. (Daniel 3:4-5) Music can be used to mock others. (Job 30:9) It can soothe the savage beast. (Psalm 98:5) Music can make your heart swell with pride for your country's honor. (Psalm 137:1-3) Music can express your grief. (Job 30:31) And ultimately, music can praise the Lord! (Psalm 150) God created music for our good and his glory! May we use it for his noble purposes.

Music is Amoral (Neither Good nor Evil)

In spite of the wide spectrum of sentiments, dispositions and emotions that it can influence, music is amoral. It is neither good nor evil. As Paul said of musical instruments, they are "lifeless things that make sounds." (I Corinthians 14:7) It is what people make of music that defines its morality. It is a heart issue, whether in composing music and writing lyrics or in the amount of time people engage with it or depend on music. It can be idolized – as TV has rightly named its top music show! Music is so powerful that it should be regarded as such and treated with diligence, discerning boundaries and respect to Christ. It is a power to be bridled! And the potential for both good and harm lies within its capabilities!

We would do well to heed the scriptures dealing with the tongue in a like manner to our ears! It is a good thing to grow in our discernment towards the music we listen to – even in the background. Just as "fresh and salt water should not come out of our mouths" (James 4), both should not be allowed to freely run into our ears! From there, the music enters our minds and hearts without us even consciously being aware of it. Isaiah 33:15 is a great passage in the context of our God being a consuming fire. And Isaiah points out, that one who will be able to dwell with God, "walks righteously and **stops his ears** against plots of murder." Ephesians 2:1-2 speaks of a godless spirit adrift in the air. Are the airwaves controlled by "the ruler of the kingdom of the air"? The world can get a grip on us in many ways. Are we aware of what is going into our minds and our hearts through our ears? If we do not consciously pay attention to what we listen to, we risk becoming subconsciously infected and polluted by the world. We often mention the "lust of the eyes" and the "poison of the tongue." What about the things entering our minds and hearts through our ears? More needs to be said about the principle in Proverbs 18:15: "The heart of the discerning acquires knowledge; **the ears of the wise seek it out.**" God says, "Guard your heart!" Watch out for what is entering in through your hearing! Jesus often said – "He who has ears to hear, let him hear!" And "Consider carefully what you hear" (Mark 4:24).

Part of the mystery of music is found in Psalm 139:14. David said, "I am fearfully and wonderfully made." Solomon said: "Eyes that see and ears that hear; The Lord has made them both" (Proverbs 20:12).

The comparison between the miracles on the front of our head that bring light and sight into our mind with the miracles on the side of our head that bring sound and music in would take volumes of research and explanation. Regardless, Jesus did speak a lot about our eyes and our ears. The one thing they have in common, besides their designer and

creator, is their interaction with the brain. Suffice it to say, as David did, we are fearfully and wonderfully made!

Did you know like some animals like tropical birds and elephants can "dance to music and keep time?" Animals like dogs which have been around humans for centuries , cannot.

A new book came out within the past few years written by Elena Mannes. It is entitled, **The Power of Music: Pioneering Discoveries in the New Science of Song** (Walker © 2011). One of the points she brings out from researching neurological activity is this: Researchers believe that music involves more parts of the brain than any other functions people perform. Criminologists and detectives use hypnosis at times to help witnesses and traumatized victims remember what they experienced during a crime. The mind's retention and recall of what they *heard* is much higher than what they remember seeing. Our ears are very mechanical compared to our eyes. And our hearing is hard wired to our minds and emotions in deeper ways than our sight.

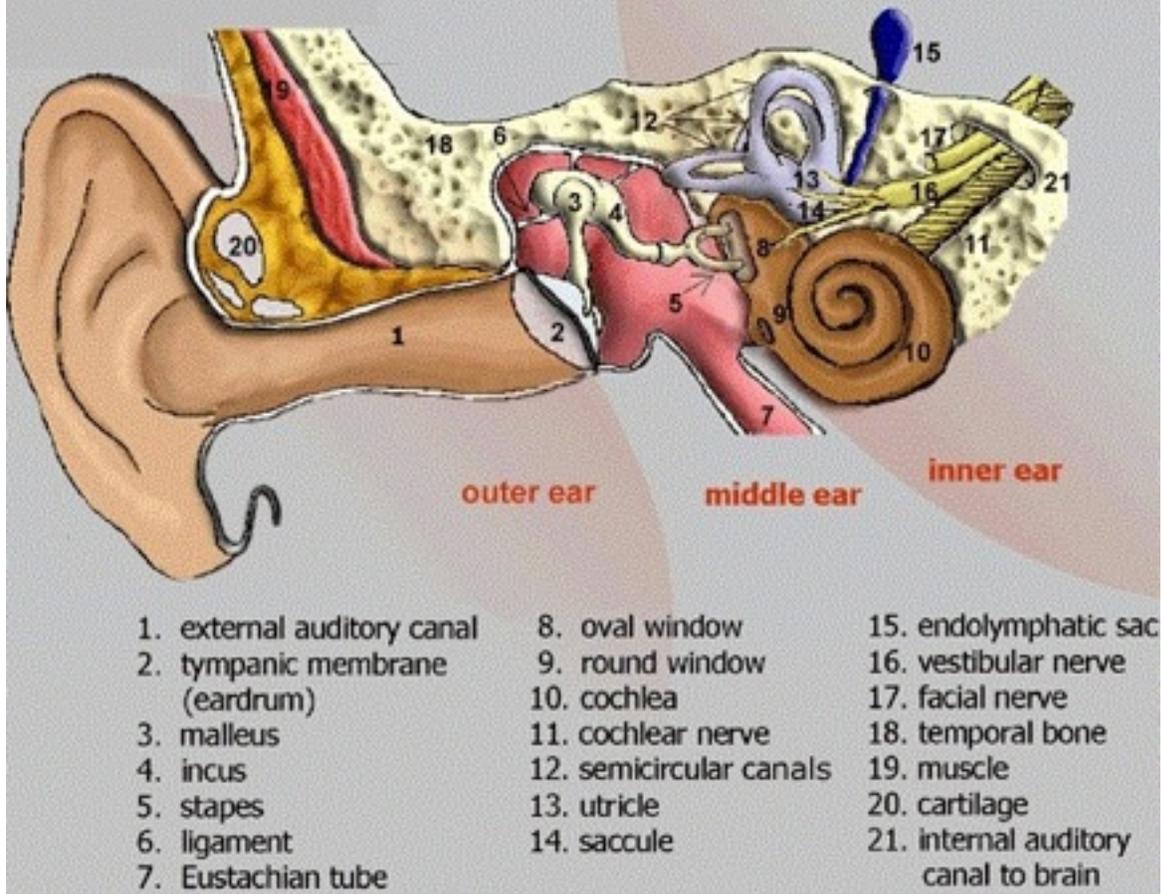
Through audio therapy with familiar sounds, patients with autism and with Alzheimer's disease can be temporarily brought back to reasonable cognitive process. The familiarity of their mother's voice or a favorite song from their past draws their minds to a place they were before these neurological maladies developed.

Below is a simple diagram of the amazing ear. It is clear that hearing is a very mechanical process. There are lots of moving parts! And tiny bones striking a drum like membrane help make it all happen. Nerves along the way are touched at every point! Activity takes place in three places: the outer ear, the middle ear and the inner ear. Remember, we hear in stereo too! So the impact is double.

Part of the mystery of music is this. It enters through our ears and "it sticks." Like pasta on the wall, every single sound we hear is stuck somehow in the deep recesses of our memory banks. It is "recorded history". Music enhances your mind's ability to retain... There is not only SOUND, but there is RHYTHM. There are often LYRICS. There are CHORDS. And musically, there can be DISSONANCES, SUSPENSIONS and RESOLUTIONS of harmony. VIBRATO adds even a deeper emotional impact. I'll cover more of these things further on in this article.

Additionally, when you are hearing music there are CIRCUMSTANCES all around you. Your ear takes it all in and your brain is processing thousands of signals at the same time from your eyes, tongue, nose, balance and skin as well.

Ear diagram



Have you ever heard someone say something like, “I remember when that happened: “I was driving down the road and listening to ‘Bye, Bye Miss American Pie’ when the special report came on the radio and the network announced the bombing of the twin towers!”

In recalling major events, many people remember what they were listening to and doing. If there was a song playing, every time that song comes on, there can be a reenactment emotionally of what happened years and years ago. That is part of the mystery of music. Through our ears it can leave a lasting imprint like nothing else can do.

No eye has seen, no ear has heard...
 what God has prepared for those who
 love Him. I Cor. 2:9

In One Ear and Out The Other

On the other hand, even though our ears and music engage our emotions and memory banks deeply, the vast majority of its impact is actually perceived on a short-term basis. In Ezekiel 33, God made note of this. Here are verses 30-33:

*“As for you, son of man, your countrymen are talking together about you by the walls and at the doors of the houses, saying to each other, ‘Come and hear the message that has come from the Lord.’ My people come to you, as they usually do, and sit before you to listen to your words, but they do not put them into practice. With their mouths they express devotion, but their hearts are greedy for unjust gain. **Indeed, to them you are nothing more than one who sings love songs with a beautiful voice and plays an instrument well, for they hear your words but do not put them into practice.** When all this comes true—and it surely will—then they will know that a prophet has been among them.”*

I’m sure Ezekiel was a great preacher! And I’m sure there are a lot of love songs we can all recite the words to and sing to our significant others. Yet God points out, it’s just another “old fashioned love song, comin’ down in three part harmony.” I believe the point God is making here is this: When people merely listen to the word and do not do what it says, it’s like the impact of a love song. Not much changes in people’s lives. The music is enjoyed. Hearts are touched. And life goes on until the next song entertains us.

I always remind myself as a musician, that even though the singing and worship and all we do for public services are highly important and powerful, it’s not AT ALL about our singing and our playing. The impact we have in that hour or two is completely up to the Spirit and grace of God. And the essential ingredient is the heartfelt participation of the church members! I must give 150% and do all I can to engage my brothers and sisters. Just as John 14:6 shows that Jesus is the only way to salvation, it also means that Christians are the only people authorized and privileged to approach God in worship. Only because of Christ is our worship acceptable. Apart from him, our presence before God is impossible! All of our efforts are NOTHING if Christ’s righteousness is not infusing them by faith! (Romans 15:16, Ephesians 3:12, I Peter 2:4-5, Hebrews 13:15)

This is where teaching, prayer, flexibility and a willingness to utilize diversified styles of music genres are all important. Without active participation from the heart by as many partakers as possible in worship services, the impact of our music is limited. The music itself is nothing to God. Individual worship from the heart together with others is everything in this context. The more deeply disciples know God and his glorious attributes and appreciate the privilege to draw near to him by the death and resurrection of Christ, the better their worship will be! May we offer praise “acceptably with reverence and awe” (Leviticus 22:30-32, Hebrews 12:25-29).

The true worshippers will worship God in Spirit and in truth. These are the kind of worshippers the Father seeks. (John 4:23) Biblical preaching is absolutely essential as well. And our lyrics must promote truth. For as Paul predicted, “People will **turn their ears away** from the truth and aside to myths” (2 Timothy 4:2-4).

It is not good to have zeal without knowledge,
nor to be hasty and miss the way.
Prov. 19:2

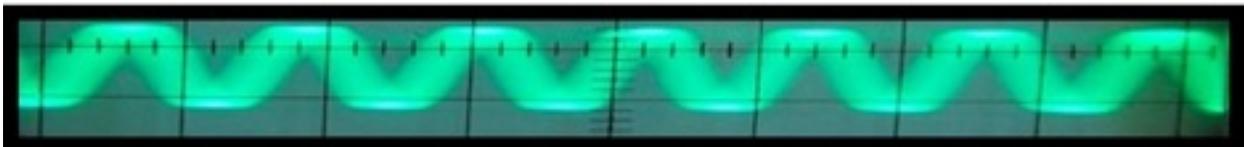
Our God of the Microscope, Telescope and Oscilloscope

As we study the mystery of music, we must look briefly at other parts of God’s creation. It is clear there is a designer out there. Our loving Lord is revealed as a builder and architect, (Hebrews 11:10) the creator, a potter, (Isaiah 64:8) and a weaver (Psalm 139). Even in a tiny strand of DNA, design is at the heart of its amazing structure.

Physics has shown that there is an incredible design similarity in the formation of waves. This can be seen in musical sounds, orbits of heavenly bodies and atoms as well. God’s design is everywhere at every level. In music, part of the mysterious beauty in God’s design is this: One musical note, all by itself, has Philippians 4:4 just pouring out into our ears, minds and hearts. “Rejoice in the Lord always. I will say it again. Rejoice!”

Remember Jubal? Hearing just one beautiful note brings us joy. It is “music to our ears!” Let me try to explain this wonderful truth. This section will introduce you to some basic music theory and physics of sound.

The Overtone Series



Natural musical sounds, whether a voice, a violin, a trumpet, a flute or a harp carry **OVERTONES** with them as they oscillate in the air waves. When you hear a human voice, sing one note, for example, there are actually SIXTEEN tones being produced. Your brain perceives these through your ears. Strings vibrating and air columns oscillating produce the best overtone sound waves.

What is an overtone? An overtone is a secondary pitch that is present in all vibrating sounds. Wind instruments, the human voice and stringed instruments make the most complete overtone wall of sound over the fundamental note. A trained ear can hear some of the overtones, although not all of them are readily perceptible. There are fifteen overtones above the root. The root or fundamental note is what you aurally (audibly)



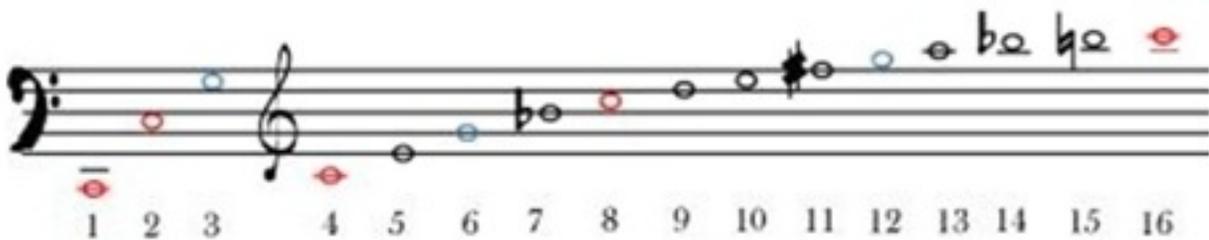
recognize. All of the overtones are not audible, but they are substantial sound waves reaching your brain.

Your ears and brain do register them all – in varying degrees – and the sound is unique. A good example is to compare an oboe to a clarinet playing the same pitch. The overtone mix produced by an oboe will be perceived as brighter or “nasal” to most ears. However, you will be able to hear the same note from both.

Overtone series are always present and their perceptibility depends on the main pitch, the instrument that is making the pitch, and the health of our ears!

Here is a diagram of the overtone series starting from C2 on a piano. These overtones are also called the “Partials” or “Harmonics.”

DIAGRAM #1



Note #1 is what you hear. It is the “**root**” or “**fundamental.**” In this example, it is a “C”. But any note can be the fundamental. The fifteen overtones are above it.

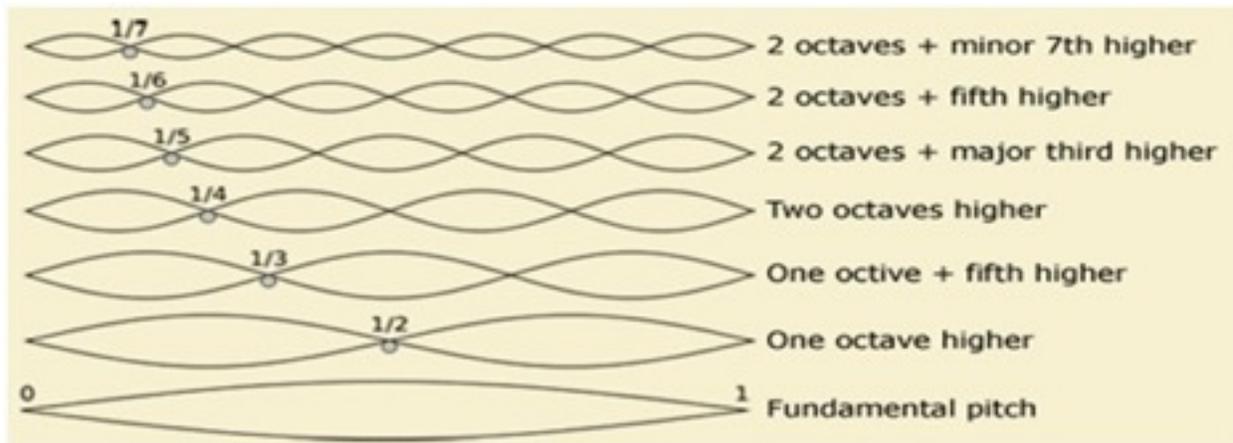
Here is how the overtones are created. An air column or string vibrates at a certain **FUNDAMENTAL FREQUENCY.** (Note #1) This is also called the “**root**” or “**fundamental**” note.

The wave pattern of the fundamental note follows the natural laws of physics that God ordained and this vibration creates simultaneous sub-vibrations at various intervals



with the vibrating string or air column. The diagram below is a simplification of what is happening.

DIAGRAM #2

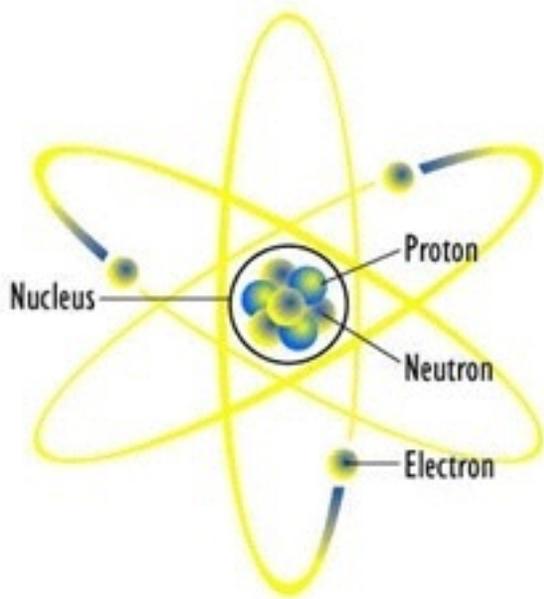


Compared to Diagram #1, this represents Notes #1 – #7. These are the fundamental and the first six overtones. #7 (the 6th overtone) ends at two octaves and a minor seventh higher.

The reason the overtones are inaudible, especially the higher partials, is that the energy is expended creating the faster frequency more than the volume. The volume is soft because the physical energy is being poured into the increased wave frequency (vibrations per second) of each higher overtone.

The vibrations will divide the fundamental out all the way into a 16th of the original vibrations per second.

For example, following the pattern in Diagram #2, the next overtone would be 1/8. This corresponds to #8 in Diagram #1. That note is three octaves higher than the fundamental. 1/16 corresponds #16 in Diagram #1 and that is four octaves higher! It is the same note name as Note #1, the fundamental “C”, but it is vibrating four times faster. There is little energy left to create volume!



These ratios and the wave pattern phenomena are natural. They are God designed patterns seen all over in similar waves described in Physics. If you look at a Bohr model of the atom, and the distances of the electron orbits away from the nucleus, these ratios are the same. And in the telescope, you will see that moons orbit planets. And the planets orbit around the sun. All of them are orbiting at these same ratios designed by God. And, just as the higher overtone notes are softer, the planets farthest from the sun orbit more slowly.

"Where were you when I laid the earth's foundation? Tell me if you understand. Who marked off its dimensions? Surely you know! Who stretched a measuring line across it? On what were its footings set, or who laid its cornerstone-while the morning stars sang together and all the angels shouted for joy?"
Job 38:7

A good exercise you can do to demonstrate the overtone series can be done on a piano. Choose one lower (left side) note on a piano. If you push the right foot pedal down it will open the string dampers. Press on the right foot pedal, then, play one lower note **LOUDLY**. As you listen closely, you will hear the sympathetic vibrations of the overtone



series strings. They will of course, be softer than the one fundamental key you play. If you listen closely, the different notes are there.

Vibrato

Let me share an amazing thing about vibrato. Think of a sound that strikes your heart as warm or beautiful – a sound that puts a lump in your throat, like a soprano’s voice or violin’s sweetness. When you hear the vibrato, this adds excitement in your emotions, doesn’t it? The reason is because your brain is registering the vibrato of all fifteen overtones, with the note you hear and it can melt your heart! Talk about mystery and drama! Your soul is being flooded with the magic of music. God loves us dearly and is pleased to give us this gift to enjoy in his creation. (See I Timothy 6:17)

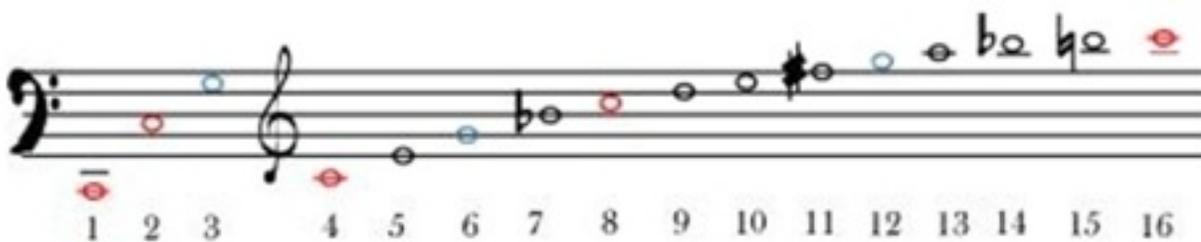
Back to Jubal

I want to look at the overtone series again and show to you how **just one fundamental note** is a Philippians 4:4 “happy note.” As you look closely at the notes in Diagram #1, you will see a predominance of three notes ... “C” “E” and “G”. These three notes form a chord. A chord can be categorized as one of two common types. It is either a “major” chord or a “minor” chord. When we categorize the “keys” of music, these two common types are also used. A song is either in a “major key” or a “minor key.”

Just as the harp or flute can make us dance or mourn, the chords, or key of a piece of music determine if the music is happy or sad. Major chords are received by our hearts as “happy” and minor chords are felt as “sad.” For example, the composer for the flutes in Matthew 9, at the death of Jairus’ daughter, would have written the music in a minor key. See Matthew 9:23. A major key would produce happy music. That would be inappropriate for a funeral. The melodies would need to revolve around notes of minor chords.

Why does a major chord sound happy to us and a minor sad? The answer can be seen in the overtone series. Out of sixteen notes, ten of them are the notes that comprise a simple major chord. And the strongest, loudest overtones, #2 through #6, are this major chord.

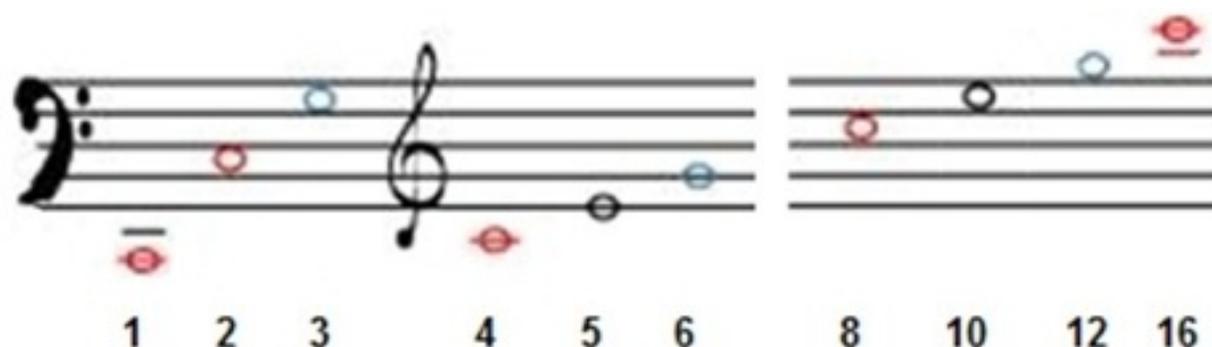
Diagram #1



Our example has “C” as the fundamental note. The C major chord is made up of the notes “C”, “E” and “G”.

Diagram #3 shows this below. C is RED, E is BLACK, and G is BLUE.

Diagram #2



The prevailing overtones create a MAJOR chord

In a minor chord, using this example in “C”, the “E” would have to be dropped down in pitch to an “E flat” to make a c minor chord. **“The third”** over the root note is what determines the main type of chord we are hearing. In the overtone series for “C”, not any of the overtones are an “E flat.” As a matter of fact, two of the overtones are “E natural” (Overtones #5 and #10)

What does this mean? Simply, it means every time you hear a note your brain registers a major chord – which is a “happy” chord. Just one note, carries with it the pleasant, familiar and joyful sensation our mind and heart recognize as normal and “harmonious.” Just **one note** strikes a chord with us: a jubilant chord.

Emotionally, all music with a basic MAJOR tonality is familiar and happy to us! It is in harmony with what our ears have heard for thousands of years – from birds singing to people singing and from flutes to harps and violins! **Every note is percolating, brimming with this joyful undertone – made up of overtones!**

But, (suspenseful chord!), as soon as we lower the third to a minor third in our chord, and create a minor chord, **we disrupt the whole overtone continuum!** Our happy note is gone! Immediately, our heart senses this deviation and our mood saddens! The effect is instantaneous. Our musical happy place is defiled by one “minor” change! Not only is the minor chord irregular from what we normally sense from the major chord in the overtone series, the whole familiar, joyous overtone series is ruined! And we feel it! The mood goes from joyful and secure to sad and bewildered immediately! The natural endowment of joy J that underlies the sound of each note is kidnapped! And that is exactly how we feel!

Jazz: Majoring in Minors

Incidentally, the more changes you make to the chord by adding 7ths, 9ths and 13ths, etc... the less jarring the noticeable impact is on the overtone series is. The c minor7 chord is pretty mellow! That is the reason why jazz music feels so smooth and mellow. The “ruined” overtone series actually gets some compromised repairs with these types of chords. The c minor7 chord has a major chord overlapping a minor one and they are blended nicely; and just waiting for a cool walking bass line. A c minor7 chord is “C, E flat, G, and B flat”. The last three notes are an E flat **MAJOR** chord.

Perhaps that went right over your head – especially if you’re not a musician. Suffice it to say, part of the mysterious power of music, is the overtone series of sounds that exist over every note that is played!

Dissonance

Dissonance wants to resolve back to the innate harmony of the overtone series as well. Each note carries in itself that underlying major chord – and dissonance wants to resolve back to it. A suspended chord or interval causes us to feel like it wants to resolve back to the third and come to rest - in order to reestablish the harmonious continuum of the overtone series. This phenomenon, and the innate tendencies of musical notes creates a certain inevitability in music. And as we listen to music we can sense that a resolved chord is “right.” It brings us pleasure when the sonic universe gets realigned. Our brain intuitively senses it and returns to its musical happy place. (Even if the music is in a minor key!)

I want to close with a scripture and a quote about music from one of the greatest musical minds and classical violinists of the 20th century – Yehudi Menuhin. This is the opening paragraph from one of his many books, **Theme and Variations** (Stein and Day ©1972).

“Music creates order out of chaos: for rhythm imposes unanimity upon the divergent, melody imposes continuity upon the disjointed, and harmony imposes compatibility upon the incongruous. Thus a confusion surrenders to order and noise to music, and as we through music attain that greater universal order which rests upon fundamental relationships of geometrical and mathematical proportion, direction is supplied to mere repetitious time, power to the multiplication of elements, and purpose to random association.”

And the Lord will have the final word for us to reflect upon:

“There is a mine for silver and a place where gold is refined. Iron is taken from the earth, and copper is smelted from ore. Man puts an end to the darkness; he searches the farthest recesses for ore in the blackest darkness. Far from where people dwell he cuts a shaft, in places forgotten by the foot of man; far from men he dangles and sways.

The earth, from which food comes, is transformed below as by fire; sapphires come from its rocks, and its dust contains nuggets of gold. No bird of prey knows that hidden path, no falcon’s eye has seen it. Proud beasts do not set foot on it, and no lion prowls there.

Man’s hand assaults the flinty rock and lays bare the roots of the mountains. He tunnels through the rock; his eyes see all its treasures. He searches the sources of the rivers and brings hidden things to light. “But where can wisdom be found? Where does understanding dwell? Man does not comprehend its worth; it cannot be found in the land of the living. The deep says, ‘It is not in me’; the sea says, ‘It is not with me.’

It cannot be bought with the finest gold, nor can its price be weighed in silver. It cannot be bought with the gold of Ophir, with precious onyx or sapphires. Neither gold nor crystal can compare with it, nor can it be had for jewels of gold. Coral and jasper are not worthy of mention; the price of wisdom is beyond rubies.

The topaz of Cush cannot compare with it; it cannot be bought with pure gold. “Where then does wisdom come from? Where does understanding dwell? It is hidden from the eyes of every living thing, concealed even from the birds of the air. Destruction and Death say, ‘Only a rumor of it has reached our ears.’ God understands the way to it and he alone knows where it dwells, for he views the ends of the earth and sees everything under the heavens.

When he established the force of the wind and measured out the waters, when he made a decree for the rain and a path for the thunderstorm, then he looked at wisdom and appraised it; he confirmed it and tested it.

And he said to man, “The fear of the Lord—that is wisdom, and to shun evil is understanding.” Job 28