

CLASSICAL MUSIC APPRECIATION FOR ENGINEERS: AN INTRODUCTION BY AN ENGINEERING EDUCATOR

Kai Fong Lee

**Dean Emeritus, School of Engineering, Professor
Emeritus, Electrical Engineering, University of Mississippi
and**

**Professor Emeritus, Electrical Engineering
University of Missouri, Columbia**

October 20, 2015

OUTLINE

- I. What has music to do with engineering education?**
- II. What is classical music?**
- III. Is classical music boring?**
- IV. My first serious encounter with classical music**
- V. Various types of compositions**
- VI. Brief comments on some major composers**
- VII. Examples of various human emotions evoked in classical music**
- VIII. A note on operas**
- IX. Suggestions for beginners**
- X. Concluding remarks and homework assignments**
- XI. Reference materials for further exploration**

I. What has music to do with engineering education?

- All ABET (Accreditation Board for Engineering and Technology) accredited engineering degrees are required to include a “General Education” component.
 - At MIT, part of this component is the HASS requirement, where HASS stands for “Humanity, Arts, and Social Sciences”.
- Eight semester courses are required, with some rules for selecting the courses to ensure a balance between breadth and depth. Naturally, one favorite art subject is music, and MIT has a strong music department offering many courses in music.

I. What has music to do with engineering education? (continued)

- Among the 33 music courses offered at MIT are:

M.030 Introduction to World Music

M.011 Introduction to Western Music

M.051 Fundamentals of Music

M.235 Monteverdi to Mozart: 1600-1800

M.250 Beethoven to Mahler

M. 250 Schubert to Debussy

M.262 Modern Music: 1900-1960

M.271 Symphony and Concerto

M.294 Popular Musics of the World

M.351 Music Composition

M.355 Musical Improvisation



I. What has music to do with engineering education? (continued)

- At Caltech, a recent survey of the student body revealed that nearly 25 percent of undergrads and graduate students are involved in the study or performance of music. Music plays a significant role in the lives of a large number of students.

- Among the 13 music courses offered at Caltech are:

Mu 21 Understanding Music

Mu 24 Introduction to Opera

Mu 25 History of Chamber Music

Mu 26 Jazz History

Mu 122 Life and Music of Mozart

Mu 123 Life and Music of Beethoven



I. What has music to do with engineering education? (continued)

• Engineering at City University of Hong Kong

Distributional Requirements:

Area 1: Arts and Humanities

Area 2: Study of Societies, Social and Business Organizations

Area 3: Science and Technology

12 credit units from 3 areas

(minimum 3 credit units from each area)



There is opportunity to take music courses.

However, the music courses offered at City U seem rather limited.

I. What has music to do with engineering education?

- The only music courses offered at City University of Hong Kong (as shown on the website) are :

GE1105 Chinese Music Appreciation

GE1117 Music and Human Values: Philosophical Investigations

SM5317 Digital Sound and Computer Music

EN2832 Popular Music and Social Life

SM2709 Building Interfaces for Ubiquitous Musical Expression

SM1210 Contemporary Sonic and Musical Practices



II. What is classical music?

- There is not a clear definition of classical music, but you know it when you hear it. Instead of a definition, Professor Craig Wright of Yale University offers the following comparison between classical and popular music.
“• Classical music relies on acoustic instruments (whose sounds are not electronically altered), such as the trumpet, violin, piano etc. Popular music often uses mechanically enhanced sounds such as those produced by electrically amplified guitars and basses, electronic synthesizers, and computers.
- Classical music relies greatly on preset written music, or musical notation, and so the work (a symphony, for example) is to some extent a ‘fixed entity,’ which will always be performed more or less the same way. Popular music relies more on oral and aural transmission, and the work can change greatly from one performer to the next, never do we see performers reading from written music at a pop concert.

- In classical music the rhythmic “beat” often rests beneath the surface. Popular music foregrounds a recurring, heavy beat.
- Classical music is primarily, but by no means exclusively, instrumental, with meaning communicated abstractly through sound. Almost all popular music is vocal and makes use of a text, called the lyrics, from which the listener extracts the meaning of the music.
- Classical music offers the listener a chance to escape from the everyday world into a realm of abstract beauty. Popular music exists in the real world, its lyrics embracing such issues of contemporary life as love and rejection, racism and social inequality.”

II. What is classical music? (Continued)

- For the purpose of this talk, I would take classical music as the music in Europe and America in the time span 1600-1950, by a certain group of composers, the representatives of which are listed below. Within this era, it can be divided into the following periods:
Baroque, Classical, Romantic, Modern.



II. What is classical music? (Continued)

Baroque Period (1600-1750)



Preceding the Baroque period were the Medieval period (800-1400 AD) and the Renaissance period (1400-1600). These earlier periods were dominated by church music (Hildegard; Palestrina). In the Baroque period, music flourished in complexity and scope. Baroque music is characterized by an expressive melody and a strong support bass. In addition, a single musical piece tended to project a single mood or expression of feeling.

Composers in this period include:

Johann Sebastian Bach (1685-1750)

George Frederick Handel (1685-1759)

Antonio Vivaldi (1678-1741)



Classical Period (1750-1830)

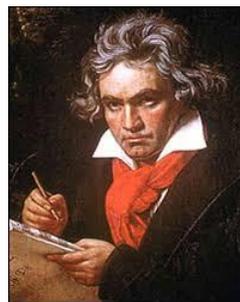
In this period, music settled into several well-defined forms. Main forms were the sonata, the symphony, the concertos, the quartets. Compositions in the classical period were balanced, structured and orderly. Unlike the baroque period, there are strong contrast (moods, keys etc) within a music piece or even a within a movement. The prominent composers in this period include:

Joseph Haydn (1732-1809)

Wolfgang Amadeus Mozart (1756-1791)

Ludwig Van Beethoven (1770-1827)

Franz Schubert (1797-1828)



Romantic Period (1830-1910)

Beethoven, although commonly regarded to be in the classical period, was actually the composer who initiated the Romantic period, which broke out of classical strictness, and became more expressive and emotional. Themes are longer and more expansive, and rhythms are less strict. Composers in this period include:



Frederic Chopin (1810-1849)

Hector Berlioz (1803-1869)

Felix Mendelssohn (1809-1847)

Giuseppe Verdi (1813-1901)

Alexander Borodin (1833-1887)

Johannes Brahms (1833-1897)

Pyotr Tchaikovsky (1840-1893)

Giacomo Puccini (1858-1924)

Jean Sibelius (1865-1957)

Robert Schumann (1810-1856)

Franz Liszt (1811-1886)

Richard Wagner (1813-1883)

Johann Strauss II (1825-1899)

George Bizet (1838-1875)

Antonio Dvorak (1841-1904)

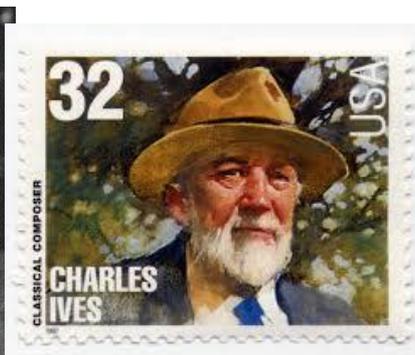
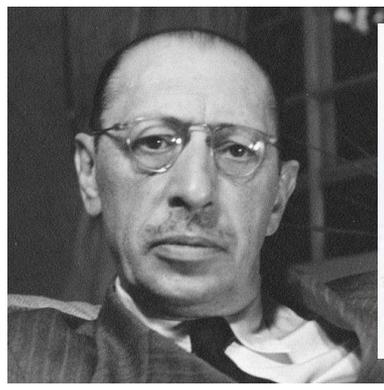
Edvard Grieg (1843-1907)

Gustav Mahler (1860-1911)

Sergei Rachmaninov (1873-1943)

Modern Period (1910 – mid 20th Century)

In this period, while some composers remained in the Romantic style, most composers moved on. New music, new styles and new ideas evolved – the only rule was there were no rules. Irregular rhythms and dissonant sounds are common. Composers in this period include:



Edward Elgar (1857-1934)

Richard Strauss (1864-1949)

Maurice Ravel (1875-1937)

Arnold Schoenberg (1874-1951)

Dmitri Shostakovich (1906-1975)

Charles Ives (1874-1954)

Benjamin Britten (1913-1976)

Claude Debussy (1862-1918)

Sergi Prokofiev (1891-1953)

Bela Bartok (1881-1945)

Igor Stravinsky (1882-1971)

Aaron Copland (1900-1990)

Samuel Barber (1910-1981)

Leonard Bernstein (1918-1990)

III. Is Classical Music Boring?

- Many people stay away from classical music because they have the notion that it is only for elites and it is boring.

To address this notion, let me first play a few tunes:

<https://www.youtube.com/watch?v=xCFEk6Y8TmM>

<https://www.youtube.com/watch?v=XFX8S9aAgvw>

<https://www.youtube.com/watch?v=aYl4Xb4cDQ8>

<https://www.youtube.com/watch?v=GcFMw-nEx2E>

<https://www.youtube.com/watch?v=e5qmSEvDEGs>

English Translation of "La donna e mobile" (Woman is Unstable)

**Woman is unstable
like the feather in the wind
she changes tone
and thought.**

**Always a loveable
cute face
in tears or smiling
it says lies**

**Woman is unstable
like feather in the wind
she changes tone
and thought!**

III. Is Classical Music Boring? (continued)

Most of us are familiar with these tunes which we learned early in school. The tunes played are all rooted in classical music:

- 1. La Dona e mobile in the opera Rigoletto by Verdi**
- 2. Ole to Joy in Symphony No. 9 by Beethoven**
- 3. New World Symphony 2nd Movement by Dvorak**
- 4. Cradle Song by Brahms**
- 5. Toreador Song in the opera Carmen by Bizet**

I guess it is safe to say that they are not boring and are not elitist. However, this does not disprove that some classical music may be boring.

III. Is Classical Music Boring? (continued)

For myself (a lay person), I would put classical compositions in several categories:

A. Immediately appealing

Examples: most of Haydn, Mozart and early and middle Beethoven

B. Appealing only after repeated listening

Examples: Most of Brahms' and Bach's compositions

C. Require serious effort (listen repeatedly, read articles, attend lectures)

Examples: Beethoven late quartets and late piano sonatas,
Some of Bach's religious music

D. Very inaccessible – impenetrable even after much effort

Examples: Many compositions in the modern period

A Note on Beethoven's Late String Quartets

“It is not easy to come away from a first hearing of these quartets with a desire to hear them again. But if we do survive the first shock of this ascetically shaped art, and go back to it again and again, we are almost certain to end up thinking the last five quartets among the most soul-satisfying music even composed.”

-From the book “Men of Music” by Wallace Brockway and Herbert Weinstock

P.S. I would add the second movement of Beethoven's Piano Sonata #32 to this category.

OUTLINE

I. What has music to do with engineering education?

II. What is classical music?

III. Is classical music boring?

IV. My first serious encounter with classical music

V. Various forms of compositions

VI. Brief comments on some major composers

**merge with
Section VII**

VII. Examples of various human emotions conveyed in classical music

VIII.A note on operas

IX.Suggestions for beginners

X.Concluding remarks and homework assignments

XI. Reference materials for further exploration

VII. Examples of various human emotions conveyed in classical music

- Beauty of nature
- Peaceful/serene

----- Section IV -----

- Joyful
- Heroic
- Patriotic

----- Section V -----

- Romantic love
- Religious
- Longing/homesick

----- Section VI -----

- Reflective
- Melancholy
- Overwhelming grief

Pieces with * in the slides which follow, will be played (partially) during the lecture.

Beauty of Nature

Beethoven Pastoral Symphony 田園交響樂 (Category A)

**1st mvt: Awakening of cheerful feelings upon arrival in the countryside*

2nd mvt : Scene by the brook

3rd mvt : Merry gathering of country folk

4th mvt: Thunder. Storm

**5th mvt: Shepherd's song; cheerful and thankful feelings after the storm*



[*https://www.youtube.com/watch?v=EdfnW5DT7Vg](https://www.youtube.com/watch?v=EdfnW5DT7Vg)

<https://www.youtube.com/watch?v=RvoTz1rdO3A>

<https://www.youtube.com/watch?v=3c5cSRaCN9s>

<https://www.youtube.com/watch?v=cC0t3Y2y5t0>

[*https://www.youtube.com/watch?v=EM8RICZP0KQ](https://www.youtube.com/watch?v=EM8RICZP0KQ)

Beauty of Nature (continued)

Beethoven Sonata for Violin and Piano #5 (Spring Sonata) –
– (Category A)

[*https://www.youtube.com/watch?v=mAcWGVC4Nqc](https://www.youtube.com/watch?v=mAcWGVC4Nqc)

<https://www.youtube.com/watch?v=cmuNr7yqapE>

<https://www.youtube.com/watch?v=O5zh1OLgZDc>



Peaceful/serene

(All of the following are Category A)

*Air in G String by J. S. Bach

<https://www.youtube.com/watch?v=U7RYSQvrUrc>

*Mozart Violin Concerto #4, 2nd movement

<https://www.youtube.com/watch?v=4nV5Dd4YVUI>

Nightingale serenade by Toselli

https://www.youtube.com/watch?v=YmDNhi07_Ho

Mendelssohn Violin Concerto, 2nd movement

<https://www.youtube.com/watch?v=Hr0ixoV8mtc>

Haydn String Quartet in F major, 2nd movement

<https://www.youtube.com/watch?v=qgPQKI2VfL4>

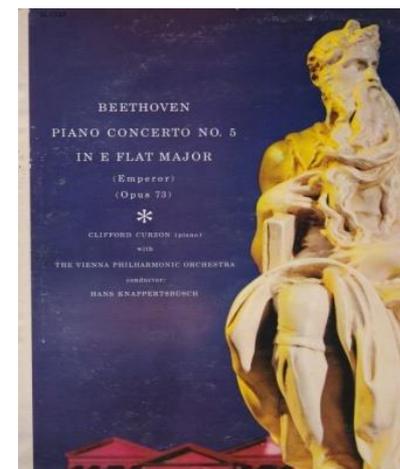
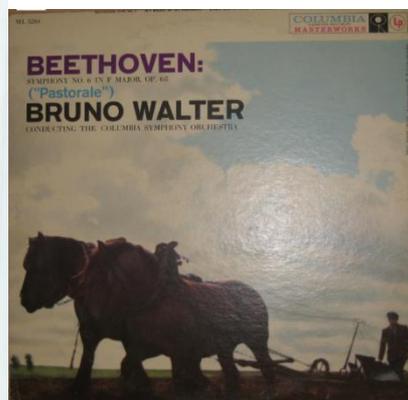
Meditation – from the opera Thais by Jules Massenet

<https://www.youtube.com/watch?v=Ss1URTJYIfQ>



IV. My first serious encounter with classical music

- I had no formal music course in college.
- Two friends from Hong Kong, Y. H. Chan and C. M. Kwan (below) were classical music fans and had a huge collection of long playing (LP) records.
- I was burnt out in my final year in college; I tried classical music and it got me out of the mini-depression.
- Beethoven's Pastoral symphony and Emperor piano concerto were instrumental in getting me hooked to classical music (see photos of 2 LP records below).
- Summer of 1961 (immediately after graduation) was a most memorable period during which I explored a vast repertoire of classical compositions. I also built up a large collection of long-playing records. One of my happiest periods.



Several people associated with Queen's University

**Authur B. McDonald, Nobel Prize in Physics 2015,
Professor Emeritus of Physics, Queen's University**

**Elon Musk, CEO of Tesla, Space X, Solar City, attended
freshmen and sophomore years at Queen's**

**Shirley M. Tilghman, B.Sc. Queen's, 1968,
19th President of Princeton University (2001-2013)**

Aurora images as seen from Lynn Lake, Manitoba





VII. (Continued) Joyful



***"Libiamo" (Drinking Song) in the Opera La Traviata 茶花女
by Verdi (Category A)**

<https://www.youtube.com/watch?v=3dKSJ2aH1BQ>

Second Waltz by Shostakovich (Category A)

<https://www.youtube.com/watch?v=vauo4o-ExoY>

**Overture to the Opera Marriage of Figaro by Mozart
(Category A)**

<https://www.youtube.com/watch?v=ikQNFqVkNNc>

“Libiamo” (Drinking Song) in the Opera La Traviata by Verdi



Alfredo

Let's drink, let's drink from the joyous cups that beauty so truly enhances. And may the brief moment be inebriated with voluptuousness. Let's drink for the ecstatic feeling that love arouses. Because this eye aims straight to the heart, omnipotently. Let's drink, my love, and the love among the cups will make the kisses warmer.

Chorus

Ah! Let's drink, and the love among the cups will make the kisses warmer.

Violetta

With you all, I can share my happiest times. Everything in life which is not pleasure is foolish. Let's enjoy ourselves for the delight of love is fleeting and quick. It's like a flower that blooms and dies. And we can no longer enjoy it. So enjoy; A keen and flattering voice invites us!

Chorus

Let's enjoy the wine and the singing, the beautiful night, and the laughter. Let the new day find us in this paradise.

.....





Heroic



***Beethoven Emperor Concerto, 1st Movement: (Category A)**

<https://www.youtube.com/watch?v=lj9bXn4jr6M>

Beethoven Sym. No. 3 (Eroica) 英雄交響樂, 1st Mvt: (Cat. A)

<https://www.youtube.com/watch?v=ccfJamxsx3M>

Tragically Heroic

Wagner - Siegfried's Funeral March, in Gotterdammerung

<https://www.youtube.com/watch?v=nkOiKy6sXfM>

Patriotic



www.shutterstock.com · 83363602

Finlandia by Sibelius: (Category B) 芬蘭頌

<https://www.youtube.com/watch?v=OOiickAvVAk>

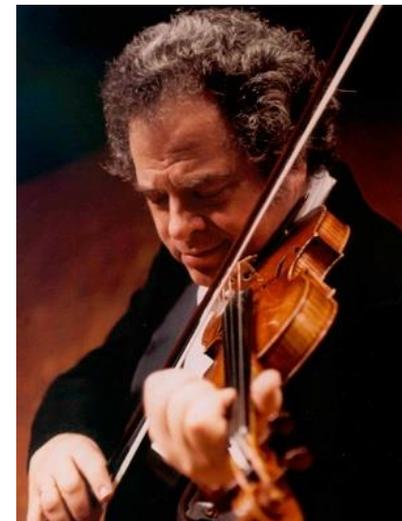
Polonaise No.6 by Chopin: (Category B) 英雄波蘭舞曲

<https://www.youtube.com/watch?v=KCSEwfqs-VM>



V. Various types of compositions

- Symphony
- Concertos
- Sonatas
- Quartets/Quintets/
Trios
- Operas
- Lieders (Songs)
- Religious music (cantatas; oratorios; masses; requiems)
- Dance music (ballet, waltz)





VII. (Continued) Romantic Love



Two arias from the opera La Boheme by Puccini

***Che gelida manina (“What a cold little hand” Category A)**

<https://www.youtube.com/watch?v=OkHGUaB1Bs8>

O soave fanciulla (“Oh lovely girl” Category A)

<https://www.youtube.com/watch?v=CpxQyLdCdik>

Chelida Manina (What a cold little hand)

**How cold your little hand is! Will you let me warm it for you?
Why bother looking? It's dark, and we won't find it.
It's our good luck, though, this night's filled with moonlight,
Up here the moonlight could rest on our shoulders.
Please wait, my dear young lady, and I will quickly tell you
Who stands before you, and what I do,
How I make my living. May I?
Who am I? What am I? I am a poet.
What keeps me busy? Writing! And what do I live on?
Nothing!**

Che Gelida Manina (continued)

**In poverty I'm cheerful, I am a prince who squanders
Arias and couplets of longing.**

**And as for hopes and dreams of love and castles-in-the-air,
Miss, I am a millionaire!**

**My fortress could be broken in,
robbed clean of the fine jewels I store;
if the thieves were eyes like yours.**

**And now that I have seen you, all of my lovely dreaming,
All of the sweetest dreams I've dreamt, quickly have slipped away.**

**This theft does not upset me, because such treasures
Mean nothing now that I'm rich with sweet hope!**

**And now that you have met me, I ask you please,
Tell me, lady, who you are, I ask you please!**

Religious

***J.S.Bach/C.Gounod "Ave Maria" (Category A)**

<https://www.youtube.com/watch?v=VNNbtR5R68U>

3 Arias from Messiah by George Frederick Handel:

1. *The trumpet shall sound (Category A)

<https://www.youtube.com/watch?v=CYTQ6gpcuYA>

2. I know that my redeemer liveth (Category A)

<https://www.youtube.com/watch?v=jRUxn1Hr5HE>

3. Hallelujah Chorus (Category A)

<https://www.youtube.com/watch?v=76RrdwElnTU>

J.S. Bach: Christmas Oratorio - Part I Mvt. I (Category B)

<https://www.youtube.com/watch?v=yHTqP5s12eg>

J.S. Bach: Cantata "Wachet auf, ruft uns die Stimme" BWV 140 4th mvt

<https://www.youtube.com/watch?v=0pmGFqH8iwk>



渴望

Longing/Homesick

想家

***Chorus of the Hebrew Slaves, in the opera Nabucco by Verdi**

(Category A)

https://www.youtube.com/watch?v=4NF6LweEA_A

<https://www.youtube.com/watch?v=UCGbNVbJr-Q>

New World Symphony, 2nd Movement by Antonio Dvorak
(Category A)

<https://www.youtube.com/watch?v=aYl4Xb4cDQ8>

Chorus Of The Hebrew Slaves from the opera Nabucco by Verdi

English translation of lyrics

Fly, thought, on wings of gold,
go settle upon the slopes and the hills
where the sweet airs of our
native soil smell soft and mild!
Greet the banks of the river Jordan
and Zion's tumbled towers.
Oh, my country, so lovely and lost!
Oh remembrance so dear yet unhappy!

Golden harp of the prophetic wise men,
why hang so silently from the willows?
Rekindle the memories in our hearts,
tell us about the times gone by!
Remembering the fate of Jerusalem
play us a sad lament
or else be inspired by the Lord
to fortify us to endure our suffering!



VI. Brief comments on some composers

- My favorite all round composers

Bach

Haydn

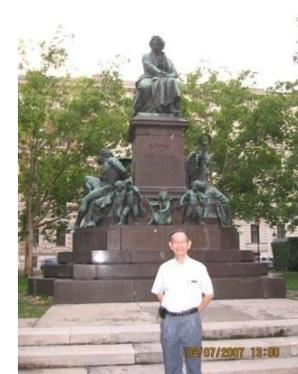
Mozart

Beethoven

Brahms

Schubert

Tchaikovsky



- Composers especially known for their specialties

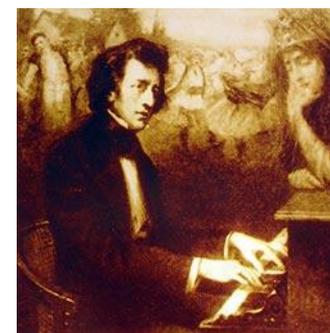
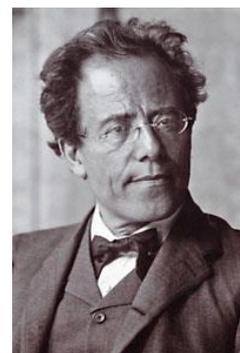
Vivaldi (Violin pieces)

Chopin (Piano pieces)

Schubert (Lieders/Songs)

Maher, Bruckner, Sibelius (Symphonies)

Rossini, Bellini, Donezetti, Verdi, Wagner, Puccini (Operas)



- **The Big Three – Bach 巴哈, Mozart 莫扎特, Beethoven 貝多芬**

“One of the most dangerous of pastimes is nominating a composer for first place among the musical immortals. For this supreme honor there are rarely more than three candidates, and the war between their adherents wages perpetually in the living rooms of the land. Like three eternally recurring cards in the musical deck, Bach, Beethoven, and Mozart are dealt out with a monotonous regularity.”

– Wallace Brookway and Herbert Weinstock in their book “Men of Music.”



Quotes about the Big Three:

“Music owes as much to Bach as religion to its founder.”

– Robert Schumann “樂祖”



"Mozart is the greatest composer of all. Beethoven created his music, but the music of Mozart is of such purity and beauty that one feels he merely found it - that it has always existed as part of the inner beauty of the universe waiting to be revealed."

-Albert Einstein



“Divine Mozart”
“樂仙”

–“In the nearly 180 years since his death, Beethoven has fended off all contenders to World’s Greatest Composer and shows no signs of losing his title.” - Time Magazine, 2012



“樂聖”

“Beethoven goes to heaven; Mozart comes from heaven” - unknown

The Big Three (continued)

Three pieces of piano music illustrating the styles of the Big Three:

A. Bach Fugue #1, C Major (Well-Tempered Clavier Book I)

<https://www.youtube.com/watch?v=YvHokjQ6enI>

B. Mozart Mozart Piano Sonata K.330 in C major

<https://www.youtube.com/watch?v=RrlNvewUEFU>

C. Beethoven Fur Elise

https://www.youtube.com/watch?v=k_UOuSkINL4



VII. (Continued) Reflective



**Piano Concerto No. 2, 3rd Movement by Rachmaninoff
(Category B)**

<https://www.youtube.com/watch?v=tu8M4WQ0tdk>

**Piano Sonata No. 32, 2nd Movement by Beethoven
(Category C)**

<https://www.youtube.com/watch?v=yUf1z1Nzjxs>

**Piano Concerto No. 2, 3rd Movement by Brahms
(Category B)**

<https://www.youtube.com/watch?v=shsWHFuDYzU>



Melancholy



***Beethoven Missa Solemnus – Benedictus
(Category B)**

<https://www.youtube.com/watch?v=4pA5Nuj2NOY>

**Beethoven String Quartet No. 13, 5th mvt. “Cavatina”
(Category C)**

<https://www.youtube.com/watch?v=YbAoCjQdKYg>

Overwhelming grief



***Tu che a Dio spiegasti “You who have spread your wings”
in the opera Lucia di Lammermoor by Donizetti (Category B)**

<https://www.youtube.com/watch?v=Mz8tRiol4JY>

Tu che a Dio spiegasti l'ali

From Act III, Scene II of the opera *Lucia di Lammermoor* by Gaetano Donizetti

Synopsis: After learning that Lucia has died, Edgardo is grief-stricken and sings to Lucia that he will soon be with her in heaven. Soon afterwards, he stabs himself and dies beside her body.

English translation of lyrics:

You who have spread your wings to God,
oh, my beautiful soul in love,
turn towards me appeased,
let your true lover ascend with you.
Oh! If the anger of mortals
was so cruel with us,
if we were divided on earth,
may God unite us in Heaven.

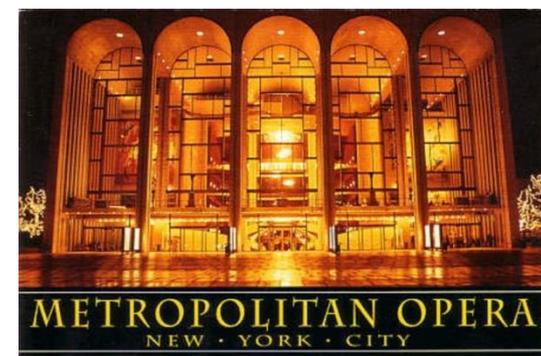








VIII. Operas



- “Opera is when a guy gets stabbed in the back and, instead of bleeding, he sings.” – Robert Benchley
- The plots in many operas are somewhat convoluted, the lyrics sometimes incomprehensible, and the acting borders on exaggeration. Yet, opera continues to attract large audiences.
- Several factors contribute to the appeal of operas – the majestic arias that convey our deepest emotions, the magnificent singing which often reaches the limit of what human voices are capable, and the dramatic stories highlighting the good and evil of human nature.



- My suggestion is to approach opera carefully, more so than other forms. Begin with one that is easily approachable, such as *La Boheme* by Puccini, or *Carmen* by Bizet, or *Rigoletto* by Verdi. Look up the plot in Wikipedia or other source.
- It is interesting to compare popular Chinese songs with operatic arias:

小李飛刀 versus Ah Mes Amis

月亮代表我的心 versus Oh mio babbino caro

***小李飛刀, sung by 羅文**

<https://www.youtube.com/watch?v=JB0dEjAMqjo>

***Ah Mes Amis in the opera “Daughters of the Regiment”
by Donizetti, sung by Pavarotti (Category B)**

<https://www.youtube.com/watch?v=EVhjEcd1RgE>

Two minute versions:

<https://www.youtube.com/watch?v=ZYorT4DE7hk>

<https://www.youtube.com/watch?v=kzZwVN9PhQw>

Sung by Juan Diego Florez:

<https://www.youtube.com/watch?v=QeVmNs1rRTA>

Ah mes amis (Ah my friends) from *La Fille du Regiment*

by Gaetano Donizetti

English translation of lyrics

Everything is going right

Her heart and her hand are mine

What a wonderful day

Here I am , a soldier and a husband

I swear it

Everything is going right

Her heart and her hand are mine

What a wonderful day

Here I am, a soldier and a husband



“月亮代表我的心”， sung by 邓丽君

https://www.youtube.com/watch?v=v6pnuOw_f58

“Oh mio babbino caro” (My dear father)

**in the opera Gianni Schicchi by Puccinni, sung by
Anna Netrebko (Category A)**

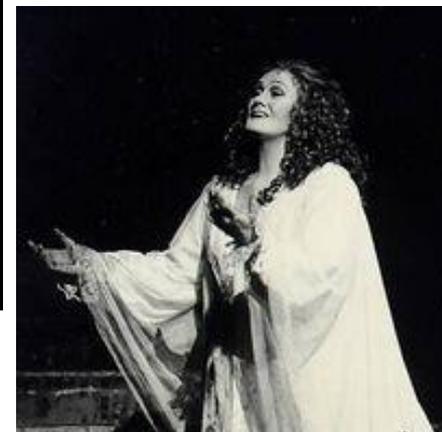
https://www.youtube.com/watch?v=JKh_m6t9ukQ

VII Operas (continued)

- The above examples illustrate that the vocal range in popular songs are rather narrow while in operatic arias, it is much wider, often with dramatic contrasts. The former is usually accompanied by a band while the latter by a full orchestra. These differences also hold between operatic arias and western country music. For example,

***On the road again, sung by Willie Nelson (folk song)**

<https://www.youtube.com/watch?v=5v9-InvDwMw>



IX. Suggestions for beginners

- You can enjoy classical music without any background in music theory.
- Start with Beethoven's Pastoral Symphony and Emperor Concerto.
- Listen repeatedly until the tones sink in.
- Choose the piece that matches your mood at the time and listen to it multiple times.
- Do not start with the Modern period composers.
- You Tube is a great source and it is free – just type the title and the composer. Get a pair of good speakers.
- Attend live concerts. Choose programs that you are familiar with.

X. Concluding Remarks

- “Music gives a soul to the universe, wings to the mind, flight to the imagination and life to everything.” – Plato
- Music in general and classical music in particular is one of the supreme achievements of the human spirit.
- This supreme achievement is freely accessible in the internet through You Tube and other means.
- In a world dominated by human conflicts, seeing the absolute cooperation among musicians in performances offers some hope that harmony among humankind may still be possible.

See 10,000 singing Beethoven Ode to Joy:

https://www.youtube.com/watch?v=xBIQZyTF_LY

X. Concluding Remarks (continued)

- For me personally classical music has been my constant companion for the last 55 years. It provides comfort in times of sadness, and enjoyment in other times. It provides a vision of a better world, of the capacity of the human spirit, a refuge of beauty, of majesty, of various human emotions.
- Despite 55 years of listening, there is a vast territory of classical music that I am ignorant of and awaits exploration.

X. Concluding Remarks (continued)

- Two years go, in my lecture on Leadership, I mentioned a remark by Mike Wallace, the legendary journalist who initiated the newsmagazine “60 minutes”.



Mike Wallace: Grow until you go.

X. Concluding Remarks (continued)

- In my lecture on leadership two years ago, to make the point about the importance of reading the great books in the development of leadership, I offered a modification to Mr. Wallace's remark:

Lee 2013: Read and grow until you go.

X. Concluding Remarks (continued)

- I now end this lecture with a further modification:

**Lee 2015: Read and listen and grow
until you go.**

Homework Assignments

1. Listen to the music pieces which we did not play during the lecture.
2. Identify the photos of the composers whose names are in red.
3. Find the answer to this question:

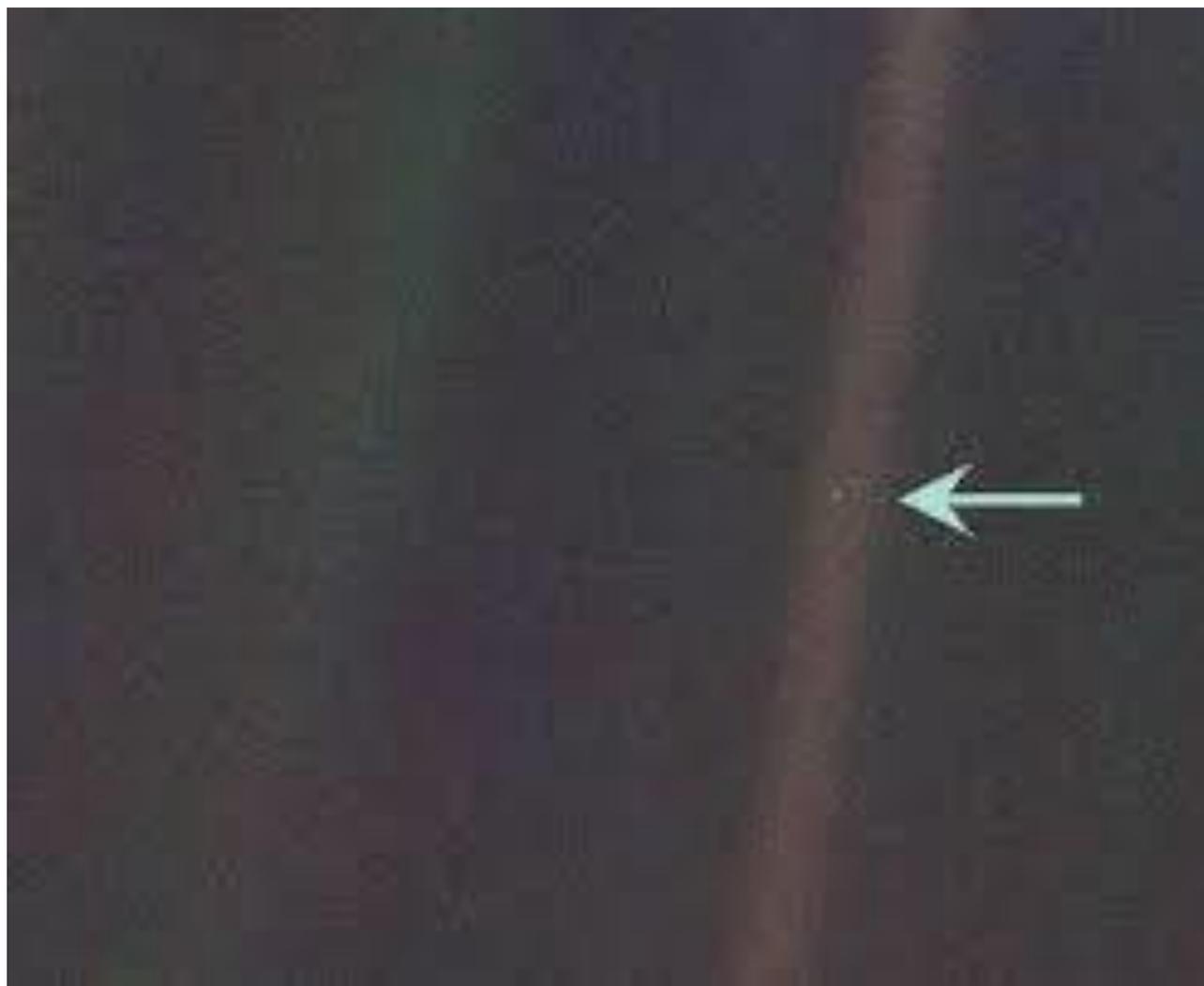
One of the You Tube links is a music piece on the “Golden Record”, a phonograph record containing a broad sample of Earth’s sounds, languages, and music, sent into outer space in 1977 with the two unmanned Voyager probes. What is this music piece?

(Voyager 1 entered interstellar space in 2012 – about 11 billion miles from earth; Voyager 2 is expected to do so around 2016.)

Carl Sagan on Voyager Golden Record:

<https://www.youtube.com/watch?v=uEEb6mQtHE0>

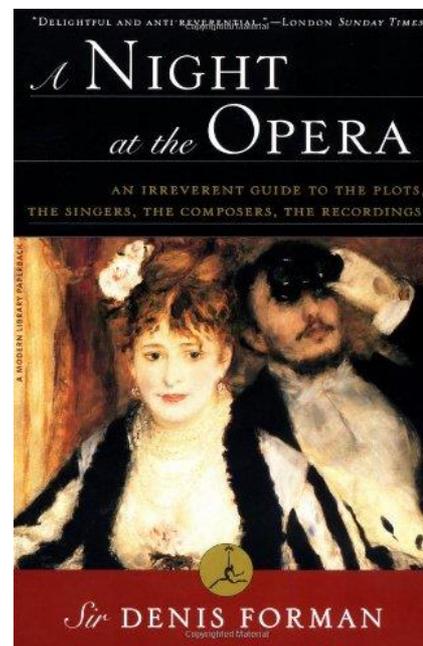
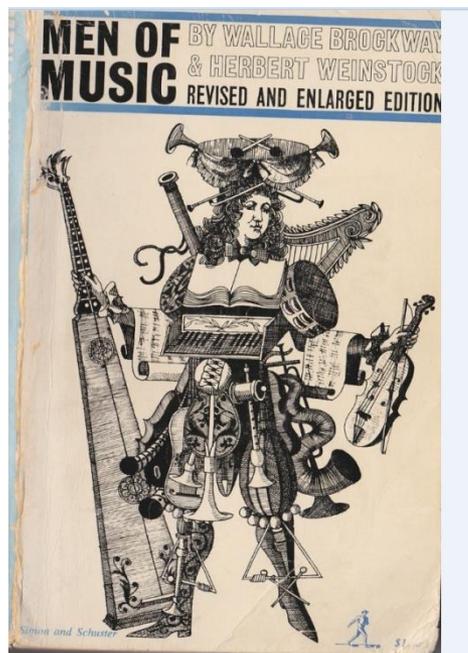
The Earth as seen from Voyager 1 when it is leaving the solar system on February 14, 1990, at a distance of 3.7 billion miles (pale blue dot)



XI. Some information that may be of interest

A. Books

- “Men of Music” by Wallace Brockway & Herbert Weinstock
- “A Night at the Opera” by Sir Denis Forman



B. Online Music Courses

- General

“Listening to music”, Craig Wright, Yale University,

<http://oyc.yale.edu/music/musi-112>

- Specialized

“The world of string quartets”, Arnold Steinhart and Mia Chung, Curtis Institute of music

<https://www.coursera.org/learn/string-quartet>

“Exploring Beethoven’s piano sonatas”, Jonathan Biss, Curtis Institute of music

<https://www.coursera.org/learn/beethoven-piano-sonatas>

C. Andre Rieu Concerts

“Andre Rieu is a Dutch violinist and conductor and creator of the Johann Strauss Orchestra. He and the orchestra have turned classical and waltz music into a worldwide concert touring act, as successful as some of the biggest global pop and rock music acts.” - Wikipedia
His concerts have wide appeals and are very relaxing.

Example: <https://www.youtube.com/watch?v=vauo4o-ExoY>



D. Some notable living musicians

Pianist – Martha Argerich

Violinists – Itzhak Perlman, Anne Akiko

Cellist – Yo-Yo Ma

Tenor – Juan Diego Florez

Soprano – Anna Netrebko



Postscript: “What is the meaning of life?”

At an event in Boston in Jan. 2015, a 6-year-old boy asked famed astrophysicist and narrator of the 2nd version of the TV series “Cosmos”, Neil deGrasse Tyson, “What is the meaning of life?”

The kid was *probably* asking just to be cute, but deGrasse Tyson took the question seriously and responded with a very thoughtful, extended answer.

He explains that it’s important to *create* meaning for ourselves and make sure we’re constantly bringing ourselves a little bit closer to knowing everything there is to know. “If I live a day and I don’t know a little more that day than the day before,” he explains, “I think I wasted that day.”

Basically, Neil deGrasse Tyson just really wants us all to maintain our sense of wonder and curiosity, whether we’re 6 or 96 years old. – from Wikipedia

See:

<https://www.youtube.com/watch?v=ZhGMOgkgabk>

EE Dept. – In the Beginning



1984



July 1985



July 1985



July 1985