

“Toward a Science of Consciousness” 2012 Conference

Center for Consciousness Studies, University of Arizona, Tucson, AZ

Pre-Conference Seminar: “Introduction to the Neuroscience of Music”

Alexander J .Graur, Ph.D., MT-BC

Associate, University of Torino, Italy; Post-graduate School of Health Psychology

Member, The New York Academy of Sciences info@medicamus.com www.medicamus.com

Monday, April 9, 2012

PROGRAM

09:00 AM – 10:45 AM

- 1. Music: definitions**
 - 1.1. Music as a science**
 - 1.2. Music as a language**
 - 1.3. Music as a phenomenon**

- 2. The Auditory System: anatomy and physiology**
- 3. The Brain and the audio information: physiological aspects**
- 4. Relationships between Auditory and Visual Systems**

- 5. Music and Brain**
 - 5.1. The perception of Music in Space**
 - 5.2. The perception of Time and the perception in Time**
 - 5.3. Dimensionality in Music**

- 6. Memory: types, models, biology and mechanics**

- 7. Music and Memory**
 - 7.2. Musical Memes**

10:45 AM- 11:00 AM Coffee Break

11:00AM- 01:00 PM

- 8. Thinking in Music: what happens in the musician’s brain**
 - 8.1. Writing, reading, playing, and singing the music**
 - 8.2. The Composer**
 - 8.3. The Instrumental Player and the Singer**
 - 8.4. The Soloist and the Conductor**
 - 8.5. The Listener**

- 9. Music and Consciousness**
 - 9.1. The Fifth Dimension of the Music: the Aesthetic Dimension**
 - 9.2. Musical Consciousness**
 - 9.3. The Brain-Mind-Brain-Organism Complex**

10. **Conclusions: Implications and Applications**
 - 10.1. **Music as an abstract language**
 - 10.2. **Musical language and Brain**
 - 10.3. **Musical language, Brain and Consciousness**
 - 10.4. **Actual and possible future application**

11. **Music Integrative Neurotherapy™: an Applied Neuroscience Method**
 - 11.1. **The Method: an introduction**
 - 11.2. **A Quantum Model for Neurotherapy**
 - 11.3. **Applications in Mood, Personality and Sleep Disorders**

Basic Bibliography

Al-Farabi : *De scientiis* Al-Farabi's Arabic-Latin Writings on Music, Collection of Oriental Writers on Music, vol. 2

(Glasgow: The Civic Press, 1934; reprint ed., London: Hinrichsen Edition Ltd., 1965)

Alexandru, Tiberiu: *Folcloristica, organologie, muzicologie* Editura Musicala, Romania, 1978

Aristoteles (Pseudo): *Tractatus de musica* Scriptorum de musica medii aevi nova series a Gerbertina altera, 4 vols., ed. Edmond de Coussemaker (Paris: Durand, 1864-76; reprint ed., Hildesheim: Olms, 1963)

Auriol, Bernard : *La Clef des Sons* Érès, France, 1994

Bach, J.S: *Magnificat*, Ed. Peters, Germany, 1924

Bach, J.S.: *The Well-Tempered Clavier, vol. 1*; Ed. Lea Pocket Scores, New York

Bach, J.S. : *Musikalisches Opfer* Boosey & Hawkes, UK, 1952

Beethoven, L.v.: *Piano Sonata #14, op.27/2*; Ed. Lea Pocket Scores, New York

Barbas, H.; Saha, S.; Rempel-Clower, N.; Ghashghaei, T.: *Serial pathways from primate prefrontal cortex to autonomic areas may influence emotional expression* BMC Neuroscience 2003

Barbera, André: *The Euclidean Division of the Canon: Greek and Latin Sources, new critical texts and translations* The University of Nebraska Press, USA, 1991

Cavalli-Sforza L. & Feldman, M. : *Cultural Transmission and Evolution* Princeton University Press, USA, 1981

Chalmers, D.J.: *The Conscious Mind* Oxford University Press, UK-USA, 1996

Chalmers, D.J.: *Mind in Time: The Dynamics of Thought, Reality and Consciousness* Edited by Goertzel, Germine and Combs, USA, 1999

Chalmers, D.J.: *Mind and Modality: three conferences at Princeton University* Princeton University Press, USA, 1998

Chomsky, Noam : *Language and Mind* Harcourt Brace Jovanovich, USA, 1968

Chailley, Jacques: *40 000 Ans de Musique* Librairie Plon, France, 1961

Chailley, Jacques: *L'Imbroglia des modes* Leduc, France, 1966

Chailley, Jacques: *Traité Historique d'Analyse Musicale* Leduc, France, 1966

Dawkins, R. : *The Extended Phenotype* Oxford University Press, UK-USA, 1999

de Muris, Johannes : *De numeris*, qui musicas retinent consonantias, secundum Ptolomaeum de

Parisius Scriptores ecclesiastici de musica sacra potissimum, 3 vols., ed. Martin Gerbert (St. Blaise: Typis San-Blasianis, 1784; reprint ed., Hildesheim: Olms, 1963

de Muris, Johannes: *Tractatus de proportionibus* Scriptores ecclesiastici de musica sacra potissimum, 3 vols., ed. Martin Gerbert (St. Blaise: Typis San-Blasianis, 1784; reprint ed., Hildesheim: Olms, 1963

Dennett, Daniel: *Consciousness Explained*

Evstatie, P.M.P.: *Antologhion*; Ed.Muzicala 1989 (RO)

Feynman, Richard: *The Feynman Lectures on Physics* Cal Tech, USA, 1989

Giuleanu, Victor: *Teoria Ritmului* Editura Musicala, Romania, 1968

Giuleanu, Victor: *Melodica Bizantina* Editura Musicala, Romania, 1981

Glareanus, Henricus : *Dodecachordon* Basle: Henrichus Petri, 1547; reprint ed., New York: Broude Bros., 1967

Graur, Alexander: *La "sectio aurea" nella musica di Bartok*: i quartetti per archi ed il Concerto

per Orchestra Mss. Romania,1973; edizione italiana MPD, Torino, Italy, 2007

Graur, Alexander: *La Diastematica Bizantina* Edizioni Ottocento, Italy, 1996

Graur, Alexander: *Music Integrative Neurotherapy™: Part One: Body and Sound* MPD Ed.,Italy/USA 2003

Graur, A.: *Lamentatio Jeremiae Prophetae*; Ed. Berben 1986 (IT)

Graur, A.: *Requiem*; Ed. MPD 2006 (IT)

The GRAY's *ANATOMY* Courage Books, United Kingdom, 1974

Greene, Brian : *The Elegant Universe* Norman, USA, 1999

Hameroff, S.R.: *Ultimate Computing* Internet Edition, USA, 2006

Hameroff, S.R.: *What is Consciousness?* Internet Edition, USA, 2005

Hameroff, S.R & Penrose, R.: *Conscious events as orchestrated spacetime selections.* Journal of Consciousness Studies 3(1):36-53., USA, 1996

Hofstadter, Douglas R.: **Goedel, Escher, Bach- an Eternal Golden Braid** Basic Books, USA 1979

Hofstadter, D. R., Dennett, Daniel C. : **The Mind's I- Fantasies and reflections on Self and Soul** Basic Books, USA, 1981

Hofstadter, D.: **Metamagical Themas- Questions for the essence of mind and patterns** Basic Books, USA, 198

Hubel, David H.: **Eye, Brain, and Vision** Harvard University Press, USA, 2000

Iliadou, V. & Kaprinis, S.: **Clinical psychoacoustics in Alzheimer's disease central auditory processing disorders and speech deterioration** Annals of General Hospital Psychiatry 2003

Janakiraman, R.; Wildgoose, K.; Seelam, K.: **ECT associated musical hallucinations in an elderly patient: a case report** Annals of General Psychiatry 2006

Jan, S. : **Replicating Sonorities: Towards a Memetics of Music** Journal of Memetics - Evolutionary Models of Information Transmission, USA, 2000

Mahler, G.: **Symphonie #1, Symphonie #8**; Ed. Peters, Germany

Mandelbrot, Benoit: **The Fractal Geometry of Nature** Internet edition, USA, 1983

Messiaen, Olivier: **La Technique de Mon Langage Musical** Leduc, France, 1944

Messiaen, Olivier: **Turangalila- Symphonie** Durand, France, 1953

Messiaen, Olivier: **Le Banquet Céleste** (organo solo) Leduc, France, 1966

Mozart, W.A.: **Piano Sonata in C, KW 309**; Ed. Lea Pocket Scores, New York

Nichomachus: **The Manual of Harmonics** Translated by Flora R. Levin, no edit., USA, 2000

Odo xi sec.: **Regulae de rhythmimachia** Scriptores ecclesiastici de musica sacra potissimum, 3 vols., ed. Martin Gerbert (St. Blaise: Typis San-Blasianis, 1784; reprint ed., Hildesheim: Olms, 1963

Pann, Anton: **Bazul Musicii Bisericesti** Ed. Universitatii din Bucuresti, Romania, 1836

Penrose, Roger: **Shadows of the Mind** New York: Oxford University Press, USA, 1994

Penrose, Roger: **THE EMPEROR'S NEW MIND**, 1990 Oxford University Press

Perseus & Petrus: **Summa musicae** The Summa Musicae: A Thirteenth-Century Manual for Singers, ed. Christopher Page, Cambridge Musical Texts and Monographs, Cambridge University Press, UK 1991

Pietsch, Paul : **Shufflebrain: The Quest of Hologramic Mind** Indiana University Press, USA, 1999

Popper, Karl, R. & Eccles, J.C.: **The Strange, Familiar and Forgotten: An Anatomy of Consciousness** Vintage Books, USA, 1983

Pribram, K.H. : **Languages of the brain**: Prentice-Hall, USA, 1971

Pribram, K.H. : *Brain and Perception* Lawrence Erlbaum Associates, USA, 1991

Prigogine, I., & Stengers, (1984) *Order out of chaos*. New York: Bantam Books.

Proakis, J. G., Manolakis, D. G. (1988) *Introduction to Digital Signal Processing*. Macmillan Publishing Company. New York.

Prideaux, Jeff: *Comparison between Karl Pribram's "Holographic Brain Theory" and more conventional models of neuronal computation* Virginia Commonwealth University, 1999

Quintilianus, Aristides: *Peri musiki- De Musica* Antiquae musicae auctores septem. Graece et Latine, Marcus Meibomius restituit ac notis explicavit, 2 vols. (Amstelodami, apud Ludovicum Elzevirium, 1652

Searle, John R.: *The Rediscovery of the Mind* MIT Press, Cambridge, USA, 1992

Searle, John R: *The Mystery of Consciousness* Granta Publications, London, UK, 1998

Sin-Agai Jipei, Filotei: *Anastasimatar (1760)* Editura Musicala, Romania, 1987

Stapp, Henry P: *Why Classical Mechanics Cannot Naturally Accommodate Consciousness but Quantum Mechanics Can* (1995)

Stapp, Henry P: *Mind, Matter, and Quantum Mechanics*

Tegmark, Max : *The Importance of Quantum Decoherence in Brain Processes* Institute for Advanced Study, Olden Lane, Princeton, NJ , USA, 1999 In (arXiv:quant-ph/9907009 v2)

Tinctoris, Johannes: *Complexus effectuum musices*. Scriptorum de musica medii aevi nova series a Gerbertina altera, 4 vols., ed. Edmond de Coussemaker (Paris: Durand, 1864-76; reprint ed., Hildesheim: Olms, 1963

Zarlino, Gioseffo : *Le istituzioni armoniche* Venice, Italy, 1558

Suggestion: for the non English authors and titles try to search with Google by writing the authors' names in the research window.