

Music Inspired by Astronomy

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Connections between astronomy and other areas of human culture are easily found in music, where astronomical ideas have found a wide range of expression. The selection of music discussed below is not a comprehensive listing, but just a sampling of some of the pieces that are available on CD's, and that may be of particular interest to astronomy enthusiasts.

To qualify for the list, a piece (or the composer's vision for it) has to include some real science and not just an astronomical term in the title or in a few lyrics. For example, we do not list *The Planets*, by Gustav Holst, since it treats the astrological view of the planets. And we regret that Philip Glass' opera *Galileo* is not available on CD and therefore cannot be listed. Nor do we include the thousands of popular songs that use the moon or the stars for an easy rhyme or a quick romantic image. And, while many jazz pieces have astronomy in the title, it is often hard to know just how the piece and the astronomy go together; so we've sadly omitted jazz too.

1. Classical Music

Bedford, David *Great Equatorial*. (Voicepoint VP156CD). Electronic music commissioned for 1993 renovation at Royal Observatory in Greenwich. The composer "tried to imagine what it would be like to travel through the cosmos revealed by the first large telescopes"; and uses some of the harmonies envisioned by Kepler in thinking of the orbital speeds of the planets as the "music of the spheres."

Bedford, David *Star Clusters, Nebulae, and Places in Devon*. London Philharmonic players. (Resurgence 11). A piece inspired by the idea that the same sky would have been visible to the Bronze Age people living in England as are to us.

Brant, Henry *Orbits*. (CRI American Masters CD 827). Written for 80 trombones arranged in a semi-circle (with organ and voice), this piece experiments with sound and space.

Brant, Henry "Litany of the Tides" on *Henry Brant Collection vol. 3* (Innova 410) During this complex piece, four sopranos sing science facts about the tides.

Cage, John *Atlas Eclipticalis*. S.E.M. Ensemble Orchestra (Asphodel 2000). Cage put note paper on the pages of a star atlas and let the arrangement of the stars determine the pattern of the notes. (We just report it, folks, we don't endorse the music that results!)

Crumb, George *Makrokosmos I, II, III, IV* (many recordings). Modern piano music, extends the kinds of sounds drawn from a piano; uses many astronomical (and astrological) references. On set I, for example, last piece is called "Spiral Galaxy": the score is in the shape of a spiral. II has references to Stonehenge & Corona Borealis. IV is called "Celestial Mechanics." Crumb has done other pieces with astronomical references, including *Otherworldly Resonances*, *Night of the Four Moons*, *Star Child*.

Del Tredici, David *Syzygy* (Deutsche Grammophone 000141502). Partially inspired by the astronomical meaning of the term syzygy, the alignment of celestial bodies.

Glass, Philip *Einstein on the Beach*. Philip Glass Ensemble, Michael Riesman, Conductor (Elektra Nonesuch 79323-2) A minimalist opera in which Einstein the man and Einstein's work serve as "mantras" for meditating on current events, mental illness, space and time.

Glass, Philip *The Light*. Bournemouth Symphony. (Naxos 8.559325) Commissioned in 1987 by Case Western to commemorate the 100th anniversary of the Michelson-Morley Experiment.

Glass, Philip *Orion* (Orange Mountain Music 21). Commissioned for the 2004 Olympics in Athens, this complex multi-cultural piece (played on instruments and performed by players from around the world) draws its inspiration from the different myths based on the constellation of Orion.

Gorecki, Henryk *Symphony 2 (Copernican)*. Polish National Radio Symphony Orchestra. (Naxos 8.555375.) Commissioned to celebrate the 500th anniversary of Copernicus' birth; includes some text from his book *De Revolutionibus*.

Handel, George F. "Total Eclipse:" an aria from the oratorio *Samson*. (many recordings). Poignant song comparing Samson going blind with an eclipse of the Sun.

Haydn, Franz *Il Mondo della Luna on Haydn Operas vol. 2* (Phillips 473851). 1777 comic opera involving an amateur astronomer who is tricked into believing he is on the Moon.

Hindemith, Paul *The Harmony of the World*. Berlin Rundfunk Symphony, Janowski (Wergo CD) An opera, first performed in 1957, about the life and musical ideas of Johannes Kepler, who thought there was an intimate connection between the harmony of planetary motions and the harmonies in music. (Symphonic suite available separately)

Hovhannes, Alan "Saturn" on *Magnificat* (Crystal 808). This piece, by prolific Armenian-American composer, for soprano, clarinet, and piano, celebrates both the astronomical and mystical Saturn, with words by the composer. One section is entitled "Titan, Moon of Saturn."

Howe, Mary "Stars" on *American Treasures*. The Virginia Symphony (Hampton Roads Classics HRC 001.) Symphonic poem that "evokes the gradually overwhelming effect of a starry, crystal clear night."

Kamen, Michael *The New Moon in the Old Moon's Arms*. Slatkin & the National Symphony. (Decca 289 467 631-2). Symphonic poem inspired by the composer's visit to Anasazi ruins in Arizona. Title refers to smallest waning crescent moon. Mostly about the rituals and aspirations of the Anasazi, but the last section, entitled "Reaching for the Stars," takes the listener forward to the year 2000.

Langgaard, Rued "Music of the Spheres" on *Music of the Spheres, etc.* Danish National Radio Symphony, Rozhdestvensky. (Chandos 9517) Based on a line from a Danish poem that goes "The stars seem to twinkle kindly at us, yet the writing of the stars is cold and merciless."

Lehar, Franz *Der Sterngucker (The Stargazer)*. German Chamber Academy of Neuss, Goritzki. (CPO 999 872-2) A 1916 operetta in which one character is an astronomer, but the term "stargazer" also denotes someone not in touch with reality.

Miller, Kelvin & Bach, J.S. *Winds of Mars and the Music of Johann Sebastian Bach*. Roderick Kettlewell, piano. (Music Crest MCPcd 0898). Wind data from weather station of Mars Pathfinder are converted into sounds and mixed with piano pieces by Bach. Comes with an informative CD explaining the concept and the exploration of Mars in general.

Norgard, Per *Luna (in 4 Phases) for Orchestra*. (Marco Polo Dacapo 8.224041) Based on aspects of the Moon; composer has strong interest (like Kepler) in the relationship between astronomy & math.

Rands, Bernard *Canti Trilogy* (Ardis 156). Accompanied vocal pieces. *Canti del Sol* deals with a day from sunrise to sunset, *Canti Lunatici* is about the Moon as seen at night, and *Canti del L'Eclisse* treats both the astronomical and philosophical concepts of eclipse.

Ruff, Willie & Rodgers, John *The Harmony of the World* (Kepler CD). Computer-synthesizer realization of Kepler's music of the spheres, with the notes for each planet determined by its relative velocity in orbit.

Smit, Leo "Copernicus: Narrative and Credo" on *American Masters Leo Smit Collection* (CRI CD 826). With text by astronomer Fred Hoyle. Written in honor of the 500th anniversary of Copernicus' birth; contains a moving declaration of cosmic belief from Hoyle.

Stockhausen, Karlheinz *YLEM*. London Sinfonietta. (Stockhausen Verlag CD ST121-2). Takes its title from the ancient Greek term for primeval material revived by George Gamow and that tries to portray the oscillating universe in musical terms. Players actually expand through the concert hall, just as the universe does, and then return and expand again.

Tanaka, Karen *The Zoo in the Sky* (RCA/BMG BVCC-1094). Subtitled "piano pieces for children with small hands, many bear the title of a well-known constellation, while four are entitled "Star Song."

Terenzi, Fiorella *Music from the Galaxies*. (Island 422-848 768-2) Electronic music based on a digitized data set from active galaxy UGC 6697. Selections include "Plasma Waves", "Radio Core", and "Galactic Beats". Terenzi has done work in astrophysics for her doctorate.

Varese, Edgard *Ionization* (on several CD's, including Boulez version on Sony 45844). Iconoclastic 20th century composer Varese tried to expand the vocabulary of music by including new and different sounds and sound-makers in his pieces. This 1931 composition for 35 percussion instruments and 2 sirens tries to evoke the process by which atoms lose their outer electrons. (Varese also wrote an opera on ideas by Jules Verne and a piece called "The Astronomer", but these have not been recorded.)

Waterhouse, Graham "Hale-Bopp" on *Portrait 2*. English Chamber Orchestra (Meridian CDE 84510). This 1997 piece celebrates the bright comet with scoring that the composer says "evokes an other-worldly atmosphere." It ends with 16th century chorale tune "How Brightly Shines the Morning Star."

2. Popular Music

Black, Frank "Places Named After Numbers" on *Frank Black* (Electra WEA 61467). Love song to a black hole; lyrics such as "And though it seems from here, That she was never there, Light beams disappear, Into her blackened hair."

Byrds "CTA 102" on *Younger than Yesterday* (Sony 64848). In 1960's, there was a brief flurry of public attention to quasar CTA 102: its radio signals were claimed to include coded information from an advanced civilization. There was nothing there, but the Byrds wrote this song during the height of public interest in the quasar.

Cowboy Junkies "Crescent Moon" on *Pale Sun Crescent Moon* (RCA 66344). A bluesy rock song which uses images with the phases of the Moon.

Epidemic "Factor Red" on *Decameron* (Metal Blade CD). About a red giant star, begins: "Retinas burn, as my eyes raise towards the dying star, Half devoured sky bleeds red, the death of a star has begun..."

Gamma Ray "Beyond the Black Hole" on *Somewhere Out in Space* (Noise 283). Interesting lyrics about a survivor of a civilization whose star has died diving into a black hole.

Grateful Dead “Dark Star” on *What a Long Strange Trip It’s Been* (Warner Brothers 3091). Begins “Dark star crashes, pouring its light, into ashes..”; has memorable line about going through “the transitive nightfall of diamonds”. Surrealistic words conjure up a number of images of stardeath.

Hawkwind “Quarks, Strangeness, and Charm” on *Quarks, Strangeness, and Charm* (Griffin 132). Humorous song using lots of science ideas (relativity, antimatter, quarks, etc.). Makes the mistake of saying Copernicus used a telescope, but the rest is fun.

Iron Maiden “When Two Worlds Collide” on *Virtual IX* (Sony). Heavy metal song about cosmic impacts; lyrics include mentions of telescopes, declination, orbit calculations.

Lear, Amanda “Black Holes” on *Never Trust a Pretty Face* (1979; available on some greatest hits CD’s). Compares an all-consuming love to a black hole; lyrics include; “Like a black hole in the sky, You crush me from your universe, What you want you just erase without a trace, Like a fantastic goodbye.”

Moody Blues “Higher and Higher” on *To Our Children’s Children* (Polygram CD 844770) 1969 song celebrates Apollo 11 mission to Moon; uses image of tranquility (landed in Mare Tranquilitatis).

O’Connell, Robbie “Galileo” on *Humorous Song* (Celtic Media CMCD 2000). An apology from the Church to Galileo.

Petty, Tom & the Heartbreakers “In the Dark of the Sun” on *Into the Great Wide Open* (MCA 1037). Presumably about an eclipse; mentions of constellations & Orion’s sword. Album notes have constellation diagrams and the CD shows circumpolar constellations; CD center is N. Celestial Pole.

Pink Floyd “Shine on You Crazy Diamond” on *Wish You Were Here* (Capitol 29750). Compares self-destructive behavior of Syd Barret, group’s former leader, to fading of star like Sun into white dwarf.

Queen “39” on *Night at the Opera* (Hollywood 61065). Song about interstellar expedition traveling at speeds close to the speed of light and loneliness the crew feels: they know that everyone they knew on Earth will be dead when they return. Brian May, a member of this group, trained as an astronomer in England.

Police “Walking on the Moon” (found on several of their greatest hits compilations). Compares the feeling of walking in the low gravity of the Moon (“giant steps”) to being in love.

Rundgren, Todd “Hawking” on *Nearly Human Tour* (Castle CMDDD716) Song about wheelchair bound physicist Stephen Hawking and his thoughts.

Rush “Countdown” on *Signals* (Mercury/Universal 534633). Nice description of what it is like to witness a rocket launch at Cape Kennedy.

Rush “Cygnus X-1” on *Farewell to Kings* (Mercury/Universal 534628). An interesting attempt to portray the ideas around the discovery of the first stellar-mass black hole in poetic and musical terms. Lyrics include: “Headlong into mystery, The x-ray is her siren song, My ship cannot resist her long, Nearer to my deadly goal, Until the Black Hole -- Gains Control...”

They Might Be Giants “The Sun is a Mass of Incandescent Gas” on *Why Does a Star Shine?* (Elektra 66272-2). A re-recording of a 1959 educational song from an album called “Space Songs”.

Train “Drops of Jupiter” on *Drops of Jupiter* (Sony 69888). Uses image of Jupiter, Venus, and the Milky Way to talk about a girl friend who had taken either a physical or a spiritual journey and was “back in the atmosphere” now.

Tyler, Bonnie “Total Eclipse of the Heart” on *Faster than the Speed of Night* (Sony 38710).
1983 hit song by a Welsh singer which uses eclipse images -- shadows, being in the dark, “no one in the universe as magical as you” -- to describe a love affair going wrong.

Waterboys “The Whole of the Moon” on *This is the Sea* (Capitol 21543). Interesting use of the image of the crescent moon versus the full moon as a way of expressing that the singer only saw and felt little, but his lover saw the larger emotional picture.

Wheeler, Cheryl “Orbiting Jupiter” on *Driving Home* (Philo/UMGD CD). Co-written with Janis Ian, this song explores loneliness using many astronomical images.

3. Broadway Musicals, etc.

Good News (CDJay 1291) Revised version of 1927 musical in which the plot revolves around the football hero failing his astronomy exam and being kept out of the big game.

Little Night Music (Columbia CK32265) Stephen Sondheim musical about Scandinavia includes “The Sun Won’t Set” about the long summer days at high latitudes.

Monty Python’s Meaning of Life (Virgin 1398605) Includes the “Galaxy Song” about our insignificance in the scheme of the Universe.

She Loves Me (Polydor 831 968-2) The song “Perspective” in this old fashioned 1963 musical takes a cosmic view of human goings-on and has a nice series of astronomy images.