



FANTASIA APOCALYPTICA

OCTOBER 20 AND 21, 2023

COMPOSED 2012-2017 BY DONALD E. KNUTH

PERFORMED BY JIN KYUNG LIM



WELCOME AND HYMN SING

Pastors Bernt Hillesland and Katherine Marshall

Now the Silence by Carl Flentge Schalk (1929–), Jaroslav Jan Vajda (1919–2008)
(found in the red hymnal, *Evangelical Lutheran Worship*, #460)

FANTASIA APOCALYPTICA

A translation of the Greek text of the Revelation of Saint John the Divine

Chapter 1: Introduction

Chapter 2: Letters to Ephesus, Smyrna, Pergamum, Thyatira

Chapter 3: Letters to Sardis, Philadelphia, Laodicea

Chapter 4: The heavenly throne

Chapter 5: The scroll and the Lamb

Chapter 6: Four horsemen; open seals

Chapter 7: Saints marching in

Chapter 8: Four trumpets

Chapter 9: Trumpets and woes

Chapter 10: The sweet and sour little scroll

Chapter 11: Seventh trumpet; open temple

Chapter 12: The woman and the dragon

Chapter 13: The blasphemous beast; 666

Chapter 14: God's harvest

Chapter 15: Preparing seven plagues

Chapter 16: Bowls of wrath; Armageddon

Chapter 17: The prostitute

Chapter 18: Babylon is fallen

Chapter 19: Hallelujah! Hallelujah!

Chapter 20: The thousand years

Chapter 21: The new Jerusalem

Chapter 22: The coming Messiah

This performance is dedicated to the memory of Jan Overduin (1943–2023).

ABOUT THE ORGANIST

Dr. Jin Kyung Lim is an organist, harpsichordist, and pianist based in the San Francisco Bay Area who has given numerous solo recitals and concerts in the United States and other countries. She has played the organ for the music series at Stanford Memorial Church (Stanford University), Adolphus Busch Hall (Harvard University), the American Church of Paris (Paris, France), the Church of Notre-Dame-d'Auteuil (Paris, France), Cathédrale Saint-Étienne de Meaux (France), the Cathedral of St. Mary of the Assumption (San Francisco), Trinity + St. Peter's Episcopal Church (San Francisco), St. Mark's Episcopal Church (Berkeley), the California Palace of the Legion of Honor (San Francisco), and Christ Church Cathedral (Indianapolis). In addition, she has played the Marie-Claire Alain's master class (Montréal, Canada), the Belgium–France tour of the Seoul Women Gregorian Chant Choir, and the Spain–Portugal and South Africa tours of the Main Street Singers (Los Altos).

As an active chamber musician, she has enjoyed performing with various ensemble groups including the Palo Alto Philharmonic, the Pacific Choir, UI Symphony, Baroque Artists of Champaign-Urbana, UI Chamber Singers, UI Wind Orchestra, and the Champaign-Urbana Symphony Orchestra.

A church organist since age fourteen, Lim has worked at St. Paul Catholic Church (Danville, IL), St. Charles Borromeo Catholic Church (Charleston, IL), Los Altos Lutheran Church (Los Altos, CA), and First Lutheran Church (Palo Alto, CA). She is currently the Music Associate at the Cathedral of St. Mary of the Assumption (San Francisco, CA) and the Music Director of the St. Joseph Ensemble (Mountain View, CA). She served as dean of the Palo Alto / Peninsula chapter of the American Guild of Organists (AGO) in 2020–2022, and is an executive board member for the Junior Bach Festival in Berkeley.

She received her Bachelor of Music degree at Yonsei University in Korea, and became a Doctor of Musical Arts in Performance and Literature at the University of Illinois at Urbana-Champaign (UIUC). At UIUC she studied the harpsichord with Charlotte Mattax Moersch, organ with Dana Robinson, and choral conducting with Joe Grant.

In 2015, Jin gave the first public performance of a portion of *Fantasia Apocalyptica* when she played an early draft of Chapter 6 as part of a recital at Stanford's Memorial Church. Then in 2021, she performed the U.S. première in San Francisco.

Jin has a musical family. Her husband, Bongsub Lee, holds a Ph.D. in Materials Science and works at a semiconductor company while singing and conducting a church choir. Their older son Andrew is majoring in computer science at UC Irvine and playing clarinet; Edward studies organ at USC and keeps his interest in math.

ABOUT THE INSTRUMENT

Casavant Frères Opus 3815, dedicated in 2002, is the pipe organ on which *Fantasia Apocalyptica* was conceived. It has 1448 pipes (25 ranks), arranged in three divisions: Swell, Great, and Pedal. Also two Zimbelsterns consisting of tiny bells.

Its unusual tonal design, which features combinations of stops that provide classical “cornets” on both Swell and Great, was the brainchild of Joseph Hansen (1939–2022), a distinguished organist and choirmaster who was First Lutheran’s director of music for many years. Joe traveled with Don and Jill Knuth in the summer of 2000 to meet the master craftsmen in their workshop, located in St. Hyacinthe, Québec.

The lowest notes that this organ can produce are three octaves below middle C, corresponding to a pipe that’s 16 feet long. They come in four flavors: Dulzian (Swell), Rohrbourdon (Great), Subbass (Pedal), and Fagott (Pedal). At the other extreme, the highest note is more than five octaves *above* middle C. It’s made by a tiny pipe called a Quinte (Swell), less than 1/4 inch long. Only young people (and dogs) can hear it.

The organ can be customized for each concert by presetting many combinations of voices. (For example, *Fantasia Apocalyptica* needs about 125 such presets.) The organist sequences through those combinations by pushing special buttons, which are located below the keys and above the pedals.

ABOUT THE ARTIST

Duane R. Bibby has been creating substantial drawings ever since making a mural about ducks on Tule Lake, with the help of an overhead projector, as a third-grader in the farming community where he grew up. Some of his first major publications, in *CARTOONS* magazine, appeared during his three-year stint in the army. He went on to study art at Arizona State University and at Art Center College of Design in Los Angeles, but left college to become a freelance artist/designer/illustrator/cartoonist.

He has illustrated numerous books in many genres, including elementary school texts as well as training manuals for factory machines, as well as botanical drawings in *The Herb Quarterly*. He is perhaps best known for the engaging illustrations that he created for *The T_EXbook* (1984) and *The METAFONTbook* (1986) by Donald Knuth, after which other computer scientists began to ask him to illustrate their own works.

Duane and his wife Jeannette Ahlgren (also an artist) live in Fortuna, California, where they love to play with their pets and tinker with automobiles.

ACKNOWLEDGMENTS

Thanks to Heather Paisar, Don Knuth, and Sharmon Hilfinger, who control the video screens to keep them in time with the music, and to Soren and Rosemary Hillesland, who ring special bells. Jill Knuth has helped with all phases of this project, especially with the graphic design of postcards and posters. Dick Grote coordinated advance planning and publicity; John King coordinated transportation and staging. Yoichi Hariguchi provided important technical assistance and a huge TV monitor. Sonya Rustad, Mark Rustad, and Joyce Rice are serving as ushers; Siobhan Roberts is helping with food and drink; many other volunteers have pitched in. We are grateful to the Stanford University Computer Science Department and to the Palo Alto / Peninsula chapter of the AGO for co-sponsoring these concerts.

ABOUT THE COMPOSER

Donald E. Knuth is Professor Emeritus of The Art of Computer Programming at Stanford University, where he joined the faculty in 1968. But music has been his lifelong avocation.

His father Ervin Knuth was a lifelong educator and organist, having played as a young man at the Chicago World's Fair in 1934. Don studied organ briefly when he was a twelve-year-old piano student; then he accidentally became a church organist in 1965, when his congregation's regular music director suddenly became ill. He joined the American Guild of Organists in that year, having fallen in love with the instrument. During sabbatical years he was subsequently able to take advanced lessons from Mary Krimmel at Westminster Choir College in 1968, and from Scott Turkington at Boston's Church of the Covenant in 1986.

Don and his wife Jill commissioned the firm of Abbott and Sieker to build a pipe organ for their campus home at Stanford. (That 17-rank instrument, dedicated in 1975, is mentioned indirectly in Don's book *Sorting and Searching*, where one of the entries in the index is "Royalties, use of, 407.")

The presence of an organ at home led naturally to an interest in music that was written for two players at the same organ. Don began to correspond with Jan Overduin in the 1990s, after having read Jan's article about organ duets in the AGO magazine. In October of 2000, when Don had been invited to give lectures at the University of Waterloo, he and Jan gave a joint organ recital that featured a dozen works written for four hands plus three or four feet. Years later, Overduin "fell in love with *Fantasia Apocalyptica* at first sight" and was invited to perform the world première in Piteå, Sweden, as part of the celebration of Knuth's 80th birthday (January 2018). He also was organist at the North American première (November 2018).

Don is self-taught as a composer, having read many books on the subject since his high school days (especially the classic texts by Piston, Stainer, Schoenberg, and Hindemith), and having played piano transcriptions of hundreds of wonderful classical compositions. He discovered with pleasure that his main life's work, as a writer of books about computer programming, actually has much in common with the writing of music.

ABOUT THE COMPOSITION

The Biblical book of Revelation, also known as Apocalypse (Uncovering), is a mystical work that is filled with symbols. It consists chiefly of a dream that was recorded in the first century A.D. by Saint John the Divine. The dramatic events in this famous dream run the gamut of human emotions, as they highlight crucial aspects of life, death, and spirituality.

During the early 60s, Donald Knuth became fascinated with the ways in which the author of Revelation emphasized many different numbers (2, 3, 3.5, 4, 7, 12, 24, 42, ...) and gave them symbolic significance. Knuth soon began to wonder about the

possibility of creating a pleasing musical work that would incorporate Revelation's numbers and other mystical symbols in essentially their original order. In 2011 he noted that such a project "may be crazy, but a 'muse' has been encouraging me to embark upon it for more than 40 years. . . . I'm intrigued by the fact that so many artists and writers have been inspired by [Revelation], for nearly 2000 years by now; thus I can't resist the thought that perhaps I too might be led by these ancient words to create something that might be newly meaningful to people of the 21st century."

The Greek text of Revelation, which contains almost exactly 10,000 words, has therefore been closely followed as the source of this composition. Knuth identified more than 100 principal motifs in that text, and assigned a musical equivalent to each of them. One hears these motifs repeatedly building on each other, as they eventually become familiar, in exactly their original order.

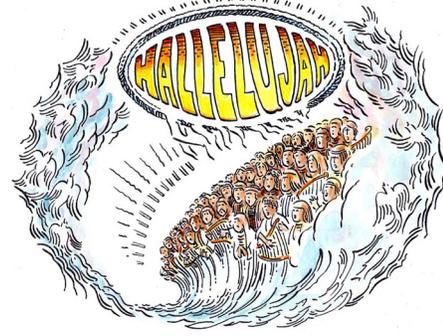
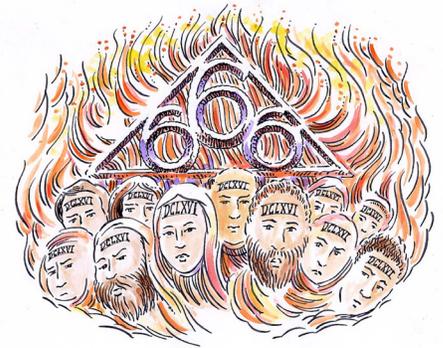
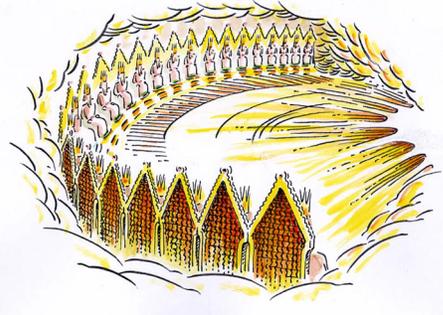
Some of the motifs are melodic; for example, 'God' is the three-note theme 'sol, mi, do'. Some are rhythmic; for example, a double-dotted rhythm represents royalty. Some are harmonic: 'man' is a Tristan chord, 'servant' is a Petroushka chord. Some are musical idioms: 'angel' is an arpeggio, 'grace' is a grace note. Some are musical basics: 'woe' is a blues scale, 'elders' are a chromatic scale, 'lion' is an octatonic scale; 'sweet' and 'sour' are major and minor, 'prophet' is contrary motion, 'sun' is a palindrome, 'gold' is close harmony, 'blood' corresponds to notes that are clotted together. Some come from trigrams of the I Ching: 'earth' is down-down-down, 'heaven' is up-up-up, 'fire' is up-down-up, 'water' is down-up-down. Some come from nature: 'lamb' is a bleating sound, 'horse' is a whinny.

Some motifs are effects attainable only on a pipe organ: 'star' is a Zimbelstern, 'name' is a pedal point; 'open' and 'close' are represented by opening and closing a box that surrounds the pipes.

Some motifs in this translation invoke the styles of great composers: 'seal' alludes to Alain, 'truth' alludes to Bach, 'mighty' alludes to Beethoven, 'voice' alludes to Borodin, 'throne' alludes to Brubeck, 'cloud' alludes to Debussy, 'word' alludes to Franck, 'temple' alludes to Gershwin, 'book' alludes to Hindemith, 'worship' alludes to Messiaen, 'blasphemy' alludes to Schoenberg.

Since the book of Revelation encompasses a huge variety of different events and emotions, no one style can appropriately represent the whole story. Therefore *Fantasia Apocalyptica* is an eclectic mix of many styles: Ancient Greek music; medieval chants; changeringing; Baroque counterpoint; near-Eastern folk music; shape-note singing; spirituals; calypso; Romantic symphonies, chorales, and combinatorial patterns; atonal music; jazz and Broadway; rock and rap. The music of contemporary ring tones is also present. All of these styles work together as parts of a unified whole, thanks to the versatility of a pipe organ.

Fantasia Apocalyptica also pays homage to dozens of choral compositions that have been based on Revelation. Sometimes the settings of the same text by different composers from different eras are found to fit together extremely well.



DUANE R. BIBBY
