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Australia's microtonal modernist: The life and works of Elsie Hamilton (1880-1965)

Talisha Goh
Edith Cowan University

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Australia's Microtonal Modernist:
The Life and Works of
Elsie Hamilton (1880-1965)

Talisha Goh

Western Australian Academy of Performing Arts
Edith Cowan University

This dissertation is submitted for the degree of Bachelor of Music Honours

2014

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Abstract

This dissertation represents the most complete account to date of the life and works of Australian composer Elsie Hamilton (1880-1965). Through examining the theories of the Anthroposophical movement, I demonstrate how her music feeds from this belief system, and also demonstrate how Hamilton's stance is congruent with the modernists of her generation. In addition, I position Hamilton's modal system within the complex mathematics of Greek musical theory (as conceived by her collaborator, Kathleen Schlessinger). Finally, I provide modern editions and electronically manipulated sound files to all of Hamilton's surviving compositions. Elsie Hamilton's story is fascinating. This dissertation welcomes her into the canon of music history.

Acknowledgments

I would like to thank my wonderful supervisor, Stewart Smith, for welcoming me so warmly into WAAPA this year and for his encouragement and advice throughout.

I wish to thank my mother for her constant support and patience.

As always, this thesis is dedicated to my late father who shared and nurtured my love for learning and passion for music.

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Introduction

This dissertation centres round the remarkable life and music of Elsie Hamilton (1880-1965.) A true original, and a without question a musical adventurer and a pioneer, Hamilton's early twentieth-century microtonal music was misconstrued during her lifetime and has been neglected ever since. She is missing from the standard music histories and the standard biographical dictionaries, and there is almost no reference to Hamilton or her music in the secondary literature. Recently, the Australian musicologist Kate Bowan published a study focusing on Hamilton's collaboration with her friend Kathleen Schlesinger.¹ And along with information from a particularly informative website, this is practically the sum total of the secondary literature dealing with Hamilton and her music.² This dissertation, therefore, is pioneering too. Building upon the groundwork laid by Bowan, I take a closer look at Hamilton's life, and explain her music by recourse to her Anthroposophical beliefs.³ In doing so, I position Hamilton as a forgotten and important Australian modernist. The dissertation is divided into three chapters, and is preceded and followed by an introduction and conclusion. Chapter One utilises significant new primary sources—in particular archived newspaper articles—and offers the most complete biography of Hamilton to date.⁴ Hamilton's early life is captured, as are her interactions with the

¹ History has been kinder to Kathleen Schlesinger: see Kate Bowan, "Living between Worlds Ancient and Modern: The Musical Collaboration of Kathleen Schlesinger and Elsie Hamilton," *Journal of the Royal Musical Association* 137, no. 2 (2012).; Gotthard Killian, "Kathleen Schlesinger," in *Anthroposophie im 20. Jahrhundert. Ein Kulturimpuls in biographischen Porträts*, ed. Bodo von Plato (Donarch: Verlag am Goetheanum, 2003). and James Mountford, "Kathleen Schlesinger: Tribute to a Scholar," *The Musical Times* 95, no. 1334 (1954).

² Brian Lee, "Naked Light," <http://nakedlight.co.uk/>.

³ A new-age religious movement that Hamilton became involved in and significantly affected her and Schlesinger's musical philosophies and works.

⁴ Newspaper articles dealing with the whole fabric of Australian society can now be accessed through a searchable database via the National Library of Australia: "Trove Newspapers Online," National Library of Australia, <http://trove.nla.gov.au/newspaper>.

Anthroposophical movement, her collaborations with Schlesinger, and other musicians and her interactions with contemporary occultists. Woven into this narrative are several new accounts of the performances of her works. Following this biography is a succinct contextualizing history of the Anthroposophical movement and the importance of music within their belief system. And through examination of a series of lectures Rudolf Steiner gave on music between 1902 and 1923, I attempt to capture something of the excitement of the society's intellectual programme.⁵ I conclude Chapter One positioning Hamilton as an Australian modernist. Chapter Two of this dissertation attempts to explain the complicated musical tuning system that lies at the heart of Hamilton's works. Kathleen Schlesinger's *The Greek Aulos* and Maria Renold's *Intervals, Scales, Tones and the Concert Pitch C=128Hz* have been invaluable in this study.⁶ Chapter Three focuses on Hamilton's surviving music. Modern editions of all of her surviving music are presented alongside a series of computer-enhanced recordings.⁷ This dissertation offers the most comprehensive treatment of Elsie Hamilton to date. If it goes some way towards re-establishing Hamilton as a forgotten Australian modernist, then I will have succeeded in my task.

⁵ Available via Rudolf Steiner Archives Online: "Rudolf Steiner Archive," Rudolf Steiner Archive, <http://www.rsarchive.org/Search.php>.

⁶ Both of these sources are intended for specialist readers and are consequently difficult to read and understand at the outset. I am particularly keen in this dissertation to provide clear and logical explanations for the non-specialist reader.

⁷ The original manuscripts are available at Lee, "Naked Light". and have been included here in Chapter 3.5. Editions of the original manuscripts are included in Chapter 3.6, and sound recordings are included in the enclosed CD (Chapter 3.7.)

1. Elsie Hamilton: a Misconstrued Modernist

1.1. A Life and Works Sketch

Elsie Maud Hamilton was born in 1880 in Adelaide, South Australia, to William Hamilton, a wealthy Scottish merchant, and Annie Hamilton (nee Coulls). She was the youngest of eight children.⁸ The family resided in 'Strathearn', a large estate located on Adelaide's prestigious East Terrace, and her family's wealth allowed her to live a life devoid from monetary pressures, affording her privilege and access to a fine education from an early age. Though some in her position would squander this opportunity, not so Elsie Hamilton. She took every opportunity afforded to her, often winning top marks at the Advanced School for Girls.⁹ She studied piano from four years of age, and by her teenage years she was under the watchful eye of the locally renowned German pianist, Immanuel Gotthold Reimann.¹⁰ Hamilton achieved high marks in her piano examinations and earned prizes at various local piano competitions. In addition, at school she received prizes in German, art, mathematics and science. Her musical ability was evident in her performances as a youth: one adjudicator noting the sixteen-year old's 'thoroughly artistic manner.'¹¹ Eventually,

⁸ For an account of the family, see the obituary of William Hamilton (her father): "Personal." *The Advertiser*, Adelaide, 19 June, 1911, 8. Accessed 1 November 2014, <http://nla.gov.au/nla.news-article5293307>; "Obituary." *Chronicle*, Adelaide, 24 June, 1911, 42. Accessed 1 November 2014, <http://nla.gov.au/nla.news-article88688214>

⁹ The Advanced School for Girls was South Australia's first government effort towards higher education of women: "Distinguished Women!". *The Mail*, Adelaide, 20 March, 1948, 17. Accessed 1 November 2014, <http://trove.nla.gov.au/ndp/del/article/55906432>.

¹⁰ Reimann was a German migrant. For more biographical information, see George E. Loyau, *Notable South Australians, or Colonists- Past and Present* (Adelaide: Carey, Page & Co., 1885).

¹¹ "The Recent Musical Examinations: Interesting Remarks by Professor Ives, Mus. Bac.". *The Mail*, Adelaide, 3 December, 1896, 3. Accessed 1 November 2014, <http://nla.gov.au/nla.news-article98922857>; Elsie Hamilton, "The Nature of Musical Experience in the Light of Anthroposophy," *Anthroposophy* 1926, Accessed 1 November 2014, <http://nakedlight.co.uk/pdf/articles/a-006.pdf>.

this dedication and hard work won her one of the two inaugural scholarships at the Elder Conservatorium.¹²

Whilst studying at the conservatorium under Reimann, Hamilton took many opportunities to perform, and she gained something of a reputation as a Chopin player. She often contributed to conservatorium concerts and to the programs of other groups and societies, such as the Bach Society and the Liedertafel society. From these concerts she was able to develop lifelong associations with other Australian musicians such as Nora Kyffin Thomas, William Silver, Amy Castles (from Melbourne), and fellow Elder Scholars, Hooper Brewster-Jones and Meta Buring.¹³

On the tenth of December 1900, Hamilton and her friend Nora Kyffin Thomas gave a departing recital before leaving to study in Germany. Reimann escorted and guided the women on a brief tour of the country prior to them settling down to a formalised programme of study at the Stern Conservatorium in Berlin. He recommended Hamilton study under Ernst Jedliczka—a former pupil of Tchaikovsky and Rubenstein, and a well-known piano teacher whose pupils included Olga Samaroff.¹⁴ Initially Jedliczka refused, but after hearing Hamilton perform he was so impressed that he immediately agreed to teach her. He later described Hamilton as being in 'one of the highest places, if not the very highest' amongst his 100 pupils.¹⁵

¹² The other recipient was a violinist named Nora Kyffin Thomas.

¹³ For example, Hamilton adjudicated scholarships offered by Silver and Thomas in subsequent years: "Music Scholarships." *The Advertiser*, Adelaide, 10 February, 1905, 7. Accessed 1 November 2014, <http://trove.nla.gov.au/ndp/del/article/5038157>.; "News of the Day." *The Register*, Adelaide, 8 February, 1907, 4. Accessed 1 November 2014, <http://nla.gov.au/nla.news-article56971656>

¹⁴ On the relationship between Jedliczka and his teachers, Tchaikovsky and Rubenstein, see Robert T Laudon, *Gertrude Sans Souci (1872-1913) and Her Milieu: Building a Musical Career* (Robert Tallant Laudon, 2003). For information on the career of Olga Samaroff see Joanne E. Swenson-Eldridge, "An American Virtuoso on the World Stage: Olga Samaroff Stokowski by Donna Staley Kline," *American Music* 16, no. 4 (1998).; Diane L. Goldberg, "Piano pedagogy in New York in the late twentieth century: Interviews with four master teachers" (D.M.A., City University of New York, 1999).p.60

¹⁵ *Musica*. "Musical Notes." *The Register*, Adelaide, 15 April, 1901, 7. Accessed 1 November 2014, <http://trove.nla.gov.au/ndp/del/article/56069707>.; "Personal Notes from England." *The Register*,

Upon finishing her course in Berlin, Hamilton returned to Adelaide and enjoyed a successful performing career. With her sister Ethel she lived in New Zealand, and from 1909-1910 she wrote a piano method.¹⁶ In 1912, Ethel married Hugh Rainey Gillespie, a prominent member of the Theosophy Society, and their wedding was the first ever to be held in the Adelaide Theosophical Society building.¹⁷ Gillespie subsequently had a career giving Theosophy lectures around Australia. He very likely introduced Theosophical ideas to Elsie Hamilton prior to her meeting Schlesinger.¹⁸ In December 1910 Hamilton journeyed with her sister, Marion Harrold, to England and Paris. She remained in Paris for the next five years, studying composition at the Paris Conservatoire under André Geldage. 'Feuilles d'Automne', her only surviving piece in equal temperament, was written in 1914.¹⁹ At this time Hamilton may also have travelled to Vienna to study with Alban Berg.²⁰ Upon completion of her studies in 1916 she attended a Theosophical Society summer school where she met the renowned musicologist Kathleen Schlesinger.²¹ Schlesinger was a Fellow of the University of Liverpool and a member of the English Theosophical Society.²² Bowan

Adelaide, 15 January, 1902, 6. Accessed 1 November 2014,

<http://trove.nla.gov.au/ndp/del/article/56232522>.

¹⁶ Brian Lee, "Kathleen Schlesinger and Elsie Hamilton- Pioneers of Just Intonation,"

<http://www.nakedlight.co.uk/pdf/articles/a-001-0916.pdf>.

¹⁷ Margaret N. Carnier. "A Woman's Letter." Daily Herald, Adelaide, 7 December, 1912, 5. Accessed 1 November 2014, <http://nla.gov.au/nla.news-article105271011>.

¹⁸ The influence of Hugh Gillespie on Elsie Hamilton is presented here for the first time; it was not reported in Bowan, "Living between Worlds Ancient and Modern: The Musical Collaboration of Kathleen Schlesinger and Elsie Hamilton."

¹⁹ This piano piece was published by Weekes & Co., London, and is available from the British Library. It was also mentioned in Lee, "Kathleen Schlesinger and Elsie Hamilton- Pioneers of Just Intonation".

²⁰ Killian, "Kathleen Schlesinger.". See also Rachel Elizabeth Bergman, "The musical language of Viktor Ullmann" (Ph.D., Yale University, 2001). for an example of the composer Viktor Ullman, who was also a twelve-tone composer associated with Anthroposophy.

²¹ Bowan, "Living between Worlds Ancient and Modern: The Musical Collaboration of Kathleen Schlesinger and Elsie Hamilton," 197. See also *ibid.*, 214-20. for an account of Schlesinger's life and professional output.

²² Killian, "Kathleen Schlesinger.". Note that Killian is an Anthroposophical flautist, cellist and composer. He wrote a biography of Schlesinger, in which he frequently mentioned Hamilton. He also

reported that ‘she was so captivated by Schlesinger’s extended discussion of the ancient Greek modes, replete with demonstrations on the monochord and performances on the kithara, that she remained in England to work with her new friend and mentor for the next two decades.’²³ This was to be the pivotal collaboration in the life of both women, and it was the catalyst for Hamilton’s musical experiments thereafter.

Hamilton found a new purpose to her life and music after her discovery of the ancient Greek modes. She retired from her career as a concert pianist and became involved with Rudolf Steiner’s Anthroposophical movement, and at this time also started using the modes in her compositions.²⁴ Aside from a private performance at a home in Princes Street, London, the first performance of Hamilton’s modal compositions occurred in 1917 at a concert in Steinway Hall, London, with the support of the local Theosophical Society.²⁵ A reviewer from the *Musical Times*, whilst noting her ‘pretty gift of composition’, found Hamilton’s ‘L’Arbe Mystique’ (a septet in the Moon mode on the C string) ‘not at all agreeable’, though most of the criticism in the article was directed towards the Greek modes themselves.²⁶

contributed a section in Maria Renold, *Intervals, Scales, Tones and the Concert Pitch C=128Hz*, trans. Temple Lodge Publishing (East Sussex: Temple Lodge Publishing, 2004). 159.

²³ Bowan, "Living between Worlds Ancient and Modern: The Musical Collaboration of Kathleen Schlesinger and Elsie Hamilton," 197-98. The Greek modes were also known as ‘planetary modes’ or ‘harmoniai’, and similarly these terms have been used interchangeably in this dissertation.

²⁴ Anthroposophy was (arguably) a sub-branch of Theosophy; see Section 2.2.

²⁵ Schlesinger and Hamilton may still have been Theosophists at this time; there is no evidence of them following the Anthroposophical movement until a meeting with Rudolf Steiner in 1921 (Killian, "Kathleen Schlesinger."). As an archaeologist, Schlesinger had been investigating in Ancient Greek music at the University of Liverpool for a while before she came across Anthroposophy. She published a paper on the topic in 1901, 12 years before Anthroposophy was founded: see Kathleen Schlesinger, "Researches into the Origin of the Organs of the Ancients," *Sammelbände der Internationalen Musikgesellschaft* 2, no. 2 (1901).

²⁶ "Miss Schlesinger and 'Natural Intonation.' A Demonstration," *The Musical Times* 59, no. 899 (1918): 25.

Aided by the dismissal of the Schlesinger's modes within academic circles, the unfavourable press continued.²⁷ In the afternoon of the 11th of May 1918, Hamilton's 'Trio for Oboe, Violin and Pianoforte' (in the Hypodorian Mode) was given its first performance at the Aeolian Hall, London, alongside performances of Beethoven and Stravinsky by the London String Quartet. It was perhaps this particular choice of programme that led to the mixed reviews: one reviewer stated that 'Miss Hamilton has chosen a delightful combination of instruments, and has written music which is free from plagiarism and diffuseness'²⁸ whilst another wrote that 'the pleasing music... proved quite innocent to those with the atmospheric effects of the modern' and that 'Stravinsky... was far more exciting.'²⁹ Schlesinger, however, considered the performance a success, especially the feat of tuning the piano to comply with the tuning of the modes.³⁰

Hamilton also wrote some incidental music for 'Sensa', a play set in Ancient Egypt adapted by Maud Hoffman from the Mabel Collins' Theosophical text 'Idyll of the White Lotus.' 'Sensa' inspired Schlesinger to create the 'Sensa flute' in 1917-18, a

²⁷ Most academic reviews were very critical of Schlesinger's theory, for example: J. Handschin, "The Greek Aulos, a Study of Its Mechanism and of Its Relation to the Modal System of Ancient Greek Music, Followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music by Kathleen Schlesinger," *Acta Musicologica* 20(1948).; Elizabeth Ayres Kidd, "The Greek Aulos: A Study of Its Mechanism and of Its Relation to the Modal System of Ancient Greek Music, Followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music by Kathleen Schlesinger," *Classical Philology* 35, no. 3 (1940).; "The Greek Aulos by Kathleen Schlesinger: Review by H. G.," *The Musical Times* 80, no. 1155 (1939). and R. P. Winnington-Ingram, "Review: The Greek Aulos by Kathleen Schlesinger," *The Journal of Hellenic Studies* 59, no. 2 (1939).

²⁸ "London String Quartet." *The Times*, London, 13 May, 1918, 5. Accessed 1 November 2014, <http://find.galegroup.com.rp.nla.gov.au/ttda/infomark.do?&source=gale&prodId=TTDA&userGroupN ame=nla&tabID=T003&docPage=article&searchType=BasicSearchForm&docId=CS84609709&type= multipage&contentSet=LTO&version=1.0>.

²⁹ "Concerts." *The Sunday Times*, London, 12 May, 1918, 5. Accessed 1 November 2014, <http://find.galegroup.com.rp.nla.gov.au/stha/infomark.do?&source=gale&prodId=STHA&userGroupN ame=nla&tabID=T003&docPage=article&searchType=BasicSearchForm&docId=FP1801785143&typ e=multipage&contentSet=LTO&version=1.0>.

³⁰ Kathleen Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*, (Groningen: Bouma's Boekhuis N. V., 1939), 543. Accessed 1 November 2014, <http://www.scribd.com/doc/213963334/Kathleen-Schlesinger-The-Greek-Aulos-1939>.

specialized flute with equidistant holes tuned to the Hypophrygian mode.³¹ The flute was used in Hamilton's incidental music, but has since been lost. One surviving work, 'Hymn to Ra' (Chapter 3.5.5.) occurs at the beginning of Acts I and II. It is in the Sun and Venus modes, symbolizing the rising and setting of the Egyptian sun. In a diary entry, E. J. Dent called the music 'badly out of tune' and vague.³²

Figure 1: Schlesinger's Description of the 'Sensa' Flute.³³

MODAL FLUTE RECORDS. No. 18								
SENSA A								
Class IIA								
<i>Made by Kathleen Schlesinger in 1918 (red vulcanite)</i>								
Hypophrygian Harmonia								
Modal Determinant 18								
on $\frac{E 18}{256} = 312.8 \text{ v.p.s.}$								
Modal Sequence								
Holes	Exit	1	2	3	4	5	6	7
Ratios	$\frac{18}{18}$	$\frac{16}{18}$	$\frac{15}{18}$	$\frac{14}{18}$	$\frac{13}{18}$	$\frac{12}{18}$	$\frac{11}{18}$	$\frac{10}{18}$
Cents.		204	112	119.4	128	138.5	151	165
All in perfect tune.								

After three misunderstood public performances of the Greek modes, Hamilton and Schlesinger may have decided that these works were not suited to audiences unable or unwilling to perceive their significance. They mounted two further performances—in 1924 and 1929—this time choosing to stay within the safe circles of their Anthroposophists and like-minded musicians, including the Society for Women Musicians in London, for which Schlesinger was president from 1919-1921.³⁴

³¹ The Sensa flute was made in 1917-18 (ibid., 233.) For more information on the flute see ibid., 225-40, 458, 63-519.

³² Bowan, "Living between Worlds Ancient and Modern: The Musical Collaboration of Kathleen Schlesinger and Elsie Hamilton," 227-28.

³³ From Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*. 458.

³⁴ Hamilton and Schlesinger were involved in the Society of Women musicians between 1920 and 1925, as detailed in Laura Seddon, *British Women Composers and Instrumental Chamber Music in the Early Twentieth Century* (Farnham, Surrey: Ashgate Publishing, 2013).; "Society of Women Musicians ", Royal College of Music, <http://www.legacyweb.rcm.ac.uk/cache/fl0024573.pdf>.

Schlesinger became a member of the Anthroposophical society on the 10th of March 1921 and Hamilton probably joined her around that time.³⁵ In April and May of that year they travelled to Donarch, Switzerland, to meet with Rudolf Steiner to discuss their ideas. Hamilton was invited to teach local musicians about the new modes, and Steiner encouraged the women in their musical pursuit.³⁶

With the blessing of their leader, Schlesinger and Hamilton continued to preach their new discoveries to their fold back in London. In 1922 Hamilton founded an orchestra dedicated to the Greek modes.³⁷ The orchestra moved to Stuttgart in 1935, where it consisted of twenty members who performed on 'a specially constructed flute..., harps, lyres, a number of stringed instruments and a clarinet.'³⁸ Hamilton's old friend, the Australian composer Hooper Brewster-Jones, reported that her orchestra performed her compositions on a regular basis.³⁹ A third orchestra was established in 1935 in Freiburg, Germany.

Schlesinger and Hamilton were invited back to meet Rudolf Steiner in 1923, this time at the Daniel N. Dunlop Summer School in Penmaenmawr, Wales.⁴⁰ They gave a demonstration of the modes and Schlesinger gave a speech on 'The Planetary Modes in terms of Modern Music and the Humanities', in which was discussed the possibility of using the Greek Modes in Steiner's new art-form, eurhythmy. The

³⁵ Killian, "Kathleen Schlesinger."

³⁶ Letter from Hamilton to Steiner, 31 May 1921. Archives of the Rudolf Steiner Estate Administration, Donarch, quoted in *ibid.*

³⁷ Hooper Brewster-Jones. "Tuning of Ancient Instruments: Elsie Hamilton's Unique Work." *The Advertiser*, Adelaide, 11 February, 1937, 8. Accessed 1 November 2014, <http://nla.gov.au/nla.news-article41619990>.

³⁸ Hooper Brewster-Jones. "Elsie Hamilton in Adelaide: Unusual Form of Musical Study." *The Advertiser*, Adelaide, 5 October, 1936, 10. Accessed 1 November 2014, <http://nla.gov.au/nla.news-page2668006>.

³⁹ *Ibid.*

⁴⁰ Killian, "Kathleen Schlesinger."; see also Rudolf Steiner, *The Evolution of Consciousness: As Revealed Through Initiation Knowledge* (James Currey Publishers, 2006), which has lectures from this school.

‘modal tone eurhythmmy’ debuted in London in December 1923, and at that time Hamilton composed the music for the mime ‘Agave’, written by Eva Papp. Documentation for the next couple of years is vague. Hamilton followed Schlesinger in 1924 when she went to research in Italy.⁴¹ Between 1921-22 Schlesinger and Hamilton were recruited by Steiner to assist in the production of his ‘Four Mystery Dramas.’ However, the project was scuppered when the venue—the Steiner-designed Goetheanum—was burnt down on the eve of 1923. Although Steiner’s death in 1925 thwarted the production and performance of these plays, Hamilton’s incidental music found a new life in a concert of her works during a conference in 1926. During this conference in Donarch, Schlesinger gave another demonstration of her modes. Hamilton also published an article, ‘The Nature of Musical Experience in the Light of Anthroposophy’ in the journal ‘Anthroposophy.’⁴²

Three ballet matinees were featured at the Court Theatre in London from the twenty-sixth to the twenty-eighth of November 1928. Among them was ‘The Scorpions of Ysit’, a comedy set in Ancient Egypt by the esoteric philosopher Terrence Gray. His cousin, Ninette de Valois, directed the ballet-mimes and Elsie Hamilton wrote the music. Schlesinger reported another performance of the work in 1929, but gave no comment as to its success.⁴³

⁴¹ Bowan, "Living between Worlds Ancient and Modern: The Musical Collaboration of Kathleen Schlesinger and Elsie Hamilton," 230.

⁴² ‘Anthroposophy’ was a quarterly journal devoted to the teachings of Rudolf Steiner. Hamilton, "The Nature of Musical Experience in the Light of Anthroposophy."

⁴³ The story was also set by Gavin Gordon in 1932, where it received favourable reviews: "This Week's Music: The Scorpions of Ysit." *The Sunday Times*, London, 20 November, 1932, 4. Accessed 1 November 2014, <http://find.galegroup.com.rp.nla.gov.au/dvnw/infomark.do?&source=gale&prodId=DVNW&userGroupName=nla&tabID=T003&docPage=article&docId=FP1801621704&type=multipage&contentSet=LTO&version=1.0>.

Between 1929 and 1934 there is a lacuna surrounding Hamilton's activities, however, Schlesinger and Hamilton likely remained in Germany. In the early thirties they collaborated with the singer Valborg Werbeck-Svärdström, who ran an Anthroposophical singing school (Schüle der Stimmenthüllung or 'School for Uncovering the Voice') and a choir in Hamburg. Werbeck-Svärdström, a celebrated opera singer, had also given up a promising performance career when she joined the Anthroposophical movement.⁴⁴ Hamilton and Werbeck-Svärdström wrote 'Motto für die Schüle der Stimmenthüllung' a work that involved a solo singer and a boys' choir (Chapter 3.5.7.) The Schüle der Stimmenthüllung continued until 1935, when the rise of Nazism made Anthroposophical activities too risky to continue in Germany.

Hamilton was invited to demonstrate the modes at a conference in Sweden or Finland in 1933 or 1934, travelling for the first time in seventeen years without Schlesinger.⁴⁵ At the conference, Hamilton met Mary Wilber and Wilhelmina 'Willy' Roelvink, who afterwards became avid followers of Hamilton and Schlesinger.⁴⁶ The next year she moved to Stuttgart, where she founded another natural intonation orchestra. This was punctuated by her first visit back to Adelaide in twenty-five years, where she stayed with her brother in East Terrace from October 1936 to February 1937. Upon her return to Europe, Hamilton spent the next few years moving 'from city to city,

⁴⁴ She was also endorsed by Rudolf Steiner as the representative and teacher of Anthroposophical singing. For more information see Eugene Kolisko's biography of Werbeck-Svärdström, in the appendix of Valborg Werbeck-Svärdström, *Uncovering the Voice: A Path Towards Cartharsis in the Art of Singing* (Rudolf Steiner Press, 1980).

⁴⁵ A newspaper article reported that Hamilton spoke at a conference in Sweden in 1933 ("Adelaide Woman's Most Unusual Vocation." *News*, Adelaide, 8 October, 1936, 15. Accessed 1 November 2014, <http://nla.gov.au/nla.news-article132031587>.); Bowan claimed that this conference actually occurred on an island in the Gulf of Finland in 1934 (Bowan, "Living between Worlds Ancient and Modern: The Musical Collaboration of Kathleen Schlesinger and Elsie Hamilton," 240.) Schlesinger did not attend the conference as she had returned to England due to illness.

⁴⁶ Elsie Hamilton, *The Modes of Ancient Greece*. Accessed 1 November 2014, <http://nakedlight.co.uk/pdf/articles/a-002.pdf>. Note that seven of Roelvink's compositions were featured alongside Hamilton's in Lee, "Naked Light".

supervising the performances of her orchestras.'⁴⁷ Dr. Eugene Kolisko, an Anthroposophical physician, had Hamilton's orchestra perform in his sanatorium in Vienna, as music was thought to have medicinal properties in Anthroposophy.⁴⁸ To further its 'curative' effects he tried to integrate some of his patients in the orchestras, but Hamilton found it 'not quite so agreeable.'⁴⁹ Nevertheless, she continued her association with the doctor because she was convinced of the 'remarkable results' achieved.⁵⁰ Hamilton ran seminars on the modes for three months in Paris, 1938, and later moved back to London.

Schlesinger's seminal work, 'The Greek Aulos', which had taken her fifteen years to write, was published in 1939 and dedicated to Elsie Hamilton. By then, Hamilton had become confident enough in her two pupils, Wilbur and Roelvink, that she left them to continue her musical work.⁵¹ She returned to Australia in 1940, initially to attend her brother Arthur's wedding. As there was little Anthroposophical activity in Australia at the time, Hamilton wasted no time in reestablishing herself. In Adelaide she frequently gave demonstrations of the Greek Modes and also spoke of her travels around Europe.⁵² Hamilton was also named as a notable alumna of the Advanced

⁴⁷ Brewster-Jones, "Tuning of Ancient Instruments: Elsie Hamilton's Unique Work."

⁴⁸ Eugene Kolisko was also an associate of Werbeck-Svärdström. He even wrote a chapter for her book, Werbeck-Svärdström, *Uncovering the Voice: A Path Towards Cartharsis in the Art of Singing*. Werbeck-Svärdström and Hamilton probably cooperated in Kolisko's music therapy programmes.

⁴⁹ Brewster-Jones, "Tuning of Ancient Instruments: Elsie Hamilton's Unique Work."

⁵⁰ Ibid.

⁵¹ Killian, "Kathleen Schlesinger."

⁵² In addition, newspaper records from 1944 cite an Adelaide composer named Elsie Hamilton who entered the National Song Contest, and whose song was a finalist for South Australia and subsequently broadcast on the radio: "3 S.A. Ballads on the Air." *The Mail*, Adelaide, 11 November, 1944, 10. Accessed 1 November 2014, <http://trove.nla.gov.au/ndp/del/article/57688763>. There are no indications of any other South Australian composers with the same name, leading to the suspicion that the Elsie Hamilton of this dissertation entered the contest (though one Elsie Maude Hamilton from the same era was an amateur musician from New South Wales): "Obituary." *Illawarra Mercury*, Wollongong, 24 November, 1949, 2. Accessed 1 November 2014, <http://nla.gov.au/nla.news-article136540727>.)

School for Girls, and performed at the Elder Conservatorium's Old Scholars' Association concert in 1945.

During the 1950s Hamilton moved back and forth between England and Australia. In 1950 Hamilton taught at one of Rudolf Steiner's Waldorf schools in Gloucestershire.⁵³ She went back to Adelaide at the end of the year via New York and Los Angeles and briefly visited to Sydney to see her Theosophist sister Ethel. Then, in 1952, she returned to Sydney to give three lectures before flying back to England, again via the US.⁵⁴ In 1953 Kathleen Schlesinger died. Hamilton returned to Adelaide in 1956, where she probably lived with her brother Arthur and his family at East Terrace.⁵⁵ She published her final article in Germany in 1957, and died on the 7th of November 1965.⁵⁶

Elsie Hamilton's extraordinary life serves not only as an example of the international feminine occult networks during the turn of the century as suggested by Bowan, but a story of a remarkable early Australian microtonal composer. She was part of an early twentieth-century trend of Australian artists— such as Percy Grainger and Margaret Sutherland— who relocated and found prestige, success and recognition in Europe.⁵⁷ It is curious that Hamilton's music has remained dormant, perhaps because it is not approachable without an understanding of its context. Elsie Hamilton is a significant and original composer and deserves to be accepted into the ever-emerging canon of Australian musicians and composers.

⁵³ Bowan, "Living between Worlds Ancient and Modern: The Musical Collaboration of Kathleen Schlesinger and Elsie Hamilton," 240.

⁵⁴ "Flying." *The Advertiser*, Adelaide, 12 March, 1952, 10. Accessed 1 November 2014, <http://trove.nla.gov.au/ndp/del/article/47389730>.

⁵⁵ As this is where she stayed during all her previous visits to Australia.

⁵⁶ Hamilton's last published article has not been found but was mentioned in Killian, "Kathleen Schlesinger." Hamilton is buried alongside her parents and siblings at West Terrace cemetery, Adelaide ("Adelaide Cemeteries Authority Search," Adelaide Cemeteries Authority, <http://www.aca.sa.gov.au/>.)

⁵⁷ See Stephen Alomes, *When London Calls: The Expatriation of Australian Creative Artists to Britain* (Cambridge: Cambridge University Press, 1999).

1.2. Rudolf Steiner and Anthroposophy

To fully appreciate and understand Hamilton's musical significance it is necessary to know something of Rudolf Steiner and Anthroposophy. Rudolf Steiner was an Austrian philosopher who founded the Anthroposophy movement in the early twentieth century. Previously he had led a chapter of the emerging Theosophy movement, which 'incorporated elements of Buddhism and Hinduism refracted through a Western lens.'⁵⁸ Whilst he had a stable career lecturing within the society during the first decade of the twentieth century, Steiner believed there was too great a focus on Eastern philosophy, and disagreed with their belief in the reincarnation of Christ. In 1913 he officially branched off into his own movement, Anthroposophy.⁵⁹ Anthroposophy emphasized the development of the individual to ultimately contact the spiritual world, which he believed coexisted with the physical world. The Eastern notions of karma and reincarnation (from Theosophy) were combined with Steiner's own interests in Christianity and the works of Goethe.⁶⁰ Steiner attempted to apply scientific methodology to his spiritual studies as he believed religious and scientific

⁵⁸ A.P. Shepherd, *A Scientist of the Invisible: An Introduction to the Life and Work of Rudolf Steiner* (London: Hodder and Stoughton, 1969). 64.; Peter Staudenmaier, "Race and Redemption: Racial and Ethnic Evolution in Rudolf Steiner's Anthroposophy," *Nova Religio: The Journal of Alternative and Emergent Religions* 11, no. 3 (2008).

⁵⁹ Steiner claimed that Anthroposophy 'in form nor content had anything at all to do with the Theosophical Society' Marcum 1989 Ursula B. Marcum, "Rudolf Steiner: An intellectual biography" (Ph.D., University of California, Riverside, 1989), 415.; Shepherd, *A Scientist of the Invisible: An Introduction to the Life and Work of Rudolf Steiner*.

⁶⁰ Because of Goethe, science and the arts had particular emphasis in Anthroposophy: see Marcum, "Rudolf Steiner: An intellectual biography," 480-81. *ibid.*, 445. cited an important Goethe text, which was translated as:

Who possesses science and art
Possesses religion as well;
Who possesses the first two not
O grant him religion.

studies could complement each other, one answering the questions the other could not.⁶¹

Steiner regarded art as a religious expression, an instinct of his 'seven elements of the human being.'⁶² Through art, an individual could reach the spiritual dimension. This philosophy, like many of Steiner's other thoughts, can be traced back to his interpretation of Ancient Greek thought. As Goethe saw value in Ancient Greek ideals and aesthetics, Steiner also sought a return to antiquity within Anthroposophy. The most notable manifestation of Steiner's artistic values was through the development of eurhythmy, which he regarded as 'music translated into movement.'⁶³

1.3. Anthroposophy and Music

The abstract nature of music favoured by the Romantics was particularly relevant to Rudolf Steiner, who interpreted it as an art originating from the spiritual world.⁶⁴

Inspired by the writings of Schopenhauer, he gave seven lectures on the importance of music in Anthroposophy between 1902 and 1923.⁶⁵ Steiner placed music above the

⁶¹ A study he called 'spiritual science.'

⁶² Each of the seven elements was also related to a particular musical interval. The seven elements were the physical body, the etheric body (or 'life force'), the astral body (conscious and subconscious), the ego (or the 'I'; human experience and memory), the spirit self (the astral body transformed by the I), the life spirit (the etheric body transformed by the I) and the atma (the fully-formed human being.) The first four are formed in human beings, who may spend their lives developing the other three. See Hamilton, "The Nature of Musical Experience in the Light of Anthroposophy."; Marcum, "Rudolf Steiner: An intellectual biography," 445, 49, 50. and R. Steiner, *The Inner Nature of Music and the Experience of Tone*, (The Anthroposophic Press, 1983). Accessed 21 October 2014, http://wn.rsarchive.org/Lectures/GA283/English/AP1983/InNaMu_index.html.

⁶³ Marcum, "Rudolf Steiner: An intellectual biography," 466.

⁶⁴ Representational art was of the physical world (and thus disapproved of.)

⁶⁵ These are collectively known as 'The Inner Nature of Music and the Experience of Tone'. They were lectures given and transcribed between 1902 and 1923, and published in Steiner, *The Inner Nature of Music and the Experience of Tone.*, and online at Rudolf Steiner, "The Inner Nature of Music and the Experience of Tone," Rudolf Steiner Archive, http://wn.rsarchive.org/Lectures/GA283/English/AP1983/InNaMu_index.html. An alternate version of Lecture 1 was also published online: Rudolf Steiner, "The Occult Basis of Music," Rudolf Steiner Archive, <http://wn.rsarchive.org/Lectures/19061203p01.html>.

other, physically-based arts, stating ‘All the other arts have to work through images and produce only pictures of the Will. But musical sound is a direct expression of the Will itself.’⁶⁶ The importance of the art was highlighted in one of Elsie Hamilton’s few published works, ‘The Nature of Musical Experience in the Light of Anthroposophy.’⁶⁷ This work summarised Steiner’s musical lectures. Hamilton wrote that music comes from the spiritual world, known as Devachan, which people can experience when they sleep.⁶⁸ The Devachanic world existed throughout the cosmos and was an ‘endlessly flowing and changing ocean of musical tones.’⁶⁹ A musician recreated this tone-world when they made music. Music was seen as a bridge between the conscious and the unconscious, the physical and the spiritual, and thus had an important place in the Anthroposophic movement.

1.4. Elsie Hamilton as Modernist

Elsie Hamilton is an image of early twentieth-century musical modernism, and can be understood with reference to the experimentalist school of Hába, Varèse and Cowell.⁷⁰ Like them, she was influenced by non-Western music and esoteric belief systems, which ultimately led to the exploration of new microtonal tuning systems and non-traditional instruments. However, unlike many modernists, her music was not inspired by a philosophical objection to Romanticism. Instead she had an openness to all types of music, stating that ‘the musical and the modal represent two distinct

⁶⁶ Steiner, "The Occult Basis of Music".

⁶⁷ Hamilton, "The Nature of Musical Experience in the Light of Anthroposophy."

⁶⁸ The experience of Devachan occurs in Steiner’s ‘third state of consciousness’ (during sleep); see Rudolf Steiner, "The Inner Nature of Music and the Experience of Tone: Lecture 2," Rudolf Steiner Archive, <http://wn.rsarchive.org/Lectures/GA283/English/AP1983/19061112p01.html>.

⁶⁹ Steiner, "The Occult Basis of Music".

⁷⁰ As described in Leon Botstein, "Modernism," in *Grove Music Online* (Oxford Music Online).

musical worlds, each quite complete in itself.’⁷¹ This stance can also be seen in her ethnographic fieldwork with Schlesinger, for example travelling to Bali to collect native instruments, which can be seen as a precursor to modern ethnomusicological studies. The Finnish and Celtic folk-songs included in her works are also indicative of her curiosity towards unfamiliar types of music; the sixth Finnish folk-song (Chapter 3.5.4) was based on a tune published by Ilmari Krohn in 1932 in *Laulusävelmät III*, the third volume of a collection of over 9000 Finnish folk-songs.⁷²

Figure 2: A Comparison of Two Transmissions of a Finnish Folk-Song

Finnish Folk-Tune in Collection.⁷³


Digital Archive of Finnish Folk Tunes


collection: *Laulusävelmät III* page: 1843 title: -

genre: - collector: V. Poppius

parish: Pyhäristi (Muolaa)

midi





lyrics: Sen ihanaisen virran reunall' hausk' ol' ennen ollaksein, kun linnut laulaa ja vesi pauhaa, tuuli oksia häilyttää.

Hamilton's Arrangement (Chapter 3.5.4.)



⁷¹ Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*. 543.

⁷² See Tuomas Eerola and Petri Toiviainen, "Digital Archive of Finnish Folk Tunes," Finnish Folk Song Database, http://esavelmat.jyu.fi/midi.php?numero=ls3_2668&uil=en. for the folk-song itself; for details of the collection see Tuomas Eerola and Petri Toiviainen, "About the Digital archive of Finnish Folk Tunes," <http://esavelmat.jyu.fi/collection.html>.

⁷³ Taken from Eerola and Toiviainen, "Digital Archive of Finnish Folk Tunes".

Hamilton's music can also be understood with reference to an increasingly open society, the rise of technology and perhaps also to the renewed interest in mathematics emanating from the Vienna circle.

In relation to being classified as a musical pioneer, Hamilton's aesthetic standards certainly capture the zeitgeist of the period; in some respects she went even further. As Anthroposophy became fashionable within Europe in the early twentieth century, many composers such as Ullman, Schoenberg and Berg drew from its influence. Whilst most innovators at the time were happy to reject traditional tonality, they nevertheless grounded their music to the past by adhering to equal temperament. Hamilton, of course, built her musical sources from a very different set of axioms. Hamilton and Schlesinger's microtonal explorations offered an alternative pathway, and the Anthroposophical movement itself captured the ideals of the modernists. Although Anthroposophy drew inspiration from German Romanticism (particularly Goethe), it was seen as a progressive movement, and as a result Steiner was associated with the most cutting-edge artists of the period. The abstract artist Wassily Kandinsky, and members of the expressionist movement such as Schoenberg, appreciated the metaphysical nature of Steiner's philosophy, and the notion that art was important and transformational to the individual.⁷⁴ Hamilton was associated with, and in the company of, other modernists of her time.

⁷⁴ Andreas Kramer, "Goethe and the Cultural Project of German Modernism: Steiner, Kandinsky, Friedlaender, Schwitters and Benjamin," *Publications of the English Goethe Society* 71(2002).

2. Theoretical Underpinnings

The following chapter provides a context for understanding Elsie Hamilton's music at a deep structural level. In doing so, I will call upon various contemporary theories of mathematics and tuning, and in particular will show how the intricate theories of Kathleen Schlesinger were ultimately realised through Hamilton's compositions. Schlesinger's theories were described in her seminal work, 'The Greek Aulos.'⁷⁵

2.1. The Overtone and the Undertone series

Schlesinger's theory involves a concept known as the undertone series. When a tone is played, the quality of the tone can be described in terms of its harmonic overtones. Undertones are essentially an inversion of the overtone series; the same intervals are used in the undertone series of a note but occur as a descending series.

There is little evidence to support the physical existence of the undertone series, although authors such as Ruland claim that it can be heard when a tuning fork vibrates against a piece of paper.⁷⁶ Rameau alluded to it when he noticed that strings of certain proportions would vibrate sympathetically when the open string was struck.⁷⁷ A lack of evidence for the undertone series has resulted in its dismissal by most musicians

⁷⁵ This volume described the tuning system and attempted to provide evidence based on writings by ancient Greek philosophers and folk music from around the world. Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*.

⁷⁶ Heiner Ruland, *Expanding Tonal Awareness: A Musical Exploration of the Evolution of Consciousness Guided by the Monochord* (Sussex: Rudolf Steiner Press, 1992). 51.

⁷⁷ However, he later dismissed the theory. See Rameau, cited in D. Harrison, *Harmonic Function in Chromatic Music: A Renewed Dualist Theory and an Account of Its Precedents* (Chicago: University of Chicago Press, 1994). 254.

and physicists, nevertheless it has been the subject of discussion by authors such as Hugo Riemann and Harry Partch.⁷⁸

2.2. The Planetary Modes and their Scientific Underpinnings

Of the overtone series, Schlesinger identified as significant the eighth to the fourteenth harmonics, and their multiples.⁷⁹ These harmonics are named ‘modal determinants.’ They are outlined in Table 1 on the tone 176 Hz, which Schlesinger referred to as ‘fau’ (as it is not quite an equal-tempered F.)

⁷⁸ See Chapter 6 of *ibid.* for a discussion of Riemann’s essays. In addition, Harry Partch, *Genesis of a Music: Monophony* (Madison: University of Wisconsin Press, 1949). 89-90. cites Schlesinger’s input in Partch’s theories of Otonality and Utonality. In this passage he also states ‘The historic Arithmetical Proportion, the division of the string into a given number of exactly equal parts (not equal intervals), the ancient source of Utonality’.

⁷⁹ Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*. 4.

Table 1: Harmonics of the Fundamental note of 176Hz (fau) and their Closest Approximate Notes in Equal Temperament.

Significant frequencies are shaded.

Harmonic Number	Frequency (Hz)	Closest Note	Equal-Tempered tuning (Hz)	Difference (Hz)
1 (Fundamental)	176	F3	174.61	1.39
2	352	F4	349.23	2.77
3	528	C5	523.25	4.75
4	704	F5	698.46	5.54
5	880	A5	880	0
6	1056	C6	1046.5	9.5
7	1232	D#6	1108.73	123.27
8	1408	F6	1396.91	11.09
9	1584	G6	1567.98	16.02
10	1760	A6	1760	0
11	1936	B6	1975.53	-39.53
12	2112	C#7	2217.46	-105.46
13	2288	D7	2349.32	-61.32
14	2464	D#7	2489.02	-25.02
15	2640	E7	2637.02	2.98
16	2816	F7	2793.83	22.17
17	2992	F#7	2959.96	32.04
18	3168	G7	3135.96	32.04
19	3344	G#7	3322.44	21.56
20	3520	A7	3520	0
21	3696	A#7	3729.31	-33.31
22	3872	B7	3951.07	-79.07
23	4048	B7	3951.07	96.93
24	4224	C8	4186.01	37.99
25	4400	C#8	4434.92	-34.92
26	4576	D8	4698.63	-122.63
27	4752	D8	4698.63	53.37
28	4928	D#8	4978.03	-50.03
29	5104	D#8	4978.03	125.97
30	5280	E8	5274.04	5.96
31	5456	F8	5587.65	-131.65
32	5632	F8	5587.65	44.35

Each of the modal determinants are the basis of a set of tones. Depending on their number, they have a different planetary association and scale name.

Table 2: Planets Associated with Harmonic Numbers

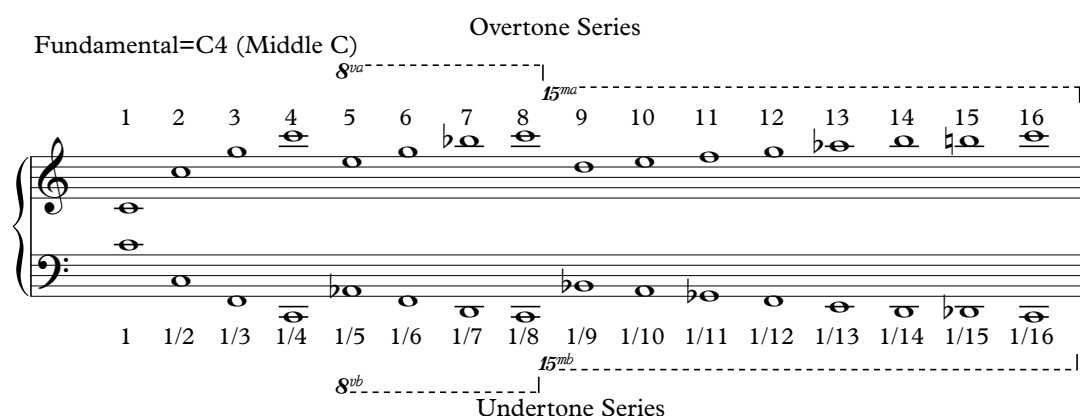
Number	Planet	Symbol ⁸⁰	Scale
8, 16, 32	Saturn	♄	Hypodorian
9, 18	Jupiter	♃	Hypophrygian
10, 20	Mars	♂	Hypolydian
11, 22	Sun	☉	Dorian
12, 24	Venus	♀	Phrygian
13, 26	Mercury	☿	Lydian
14, 28	Moon	☾	Mixolydian

The particular frequency used to generate a mode is known as the Arche, prime or generating tone.⁸¹ It has a function akin to a fundamental of the overtone series, as it is the basis for the undertone series that is used for the scales.

The set of tones generated by the modal determinants can be calculated by using the undertone series from the Arche back down to the fundamental. As the intervals of the overtone series gradually decrease in size, those of the undertone series increase in size as they move towards the fundamental.

Figure 3: The First Sixteen Members of the Overtone and Undertone Series.

Closest pitches in equal temperament are shown.



⁸⁰ These astrological symbols can be found in Hamilton's scores if the planet is not already spelled out. Some scores have no planetary indication.

⁸¹ Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*; Renold, *Intervals, Scales, Tones and the Concert Pitch C=128Hz*.

Schlesinger also noted that the interval between the Arche and the fundamental is known as the ‘generic interval.’ Harmonics that create perfect octaves with the Arche tone are known as ‘mese’ tones. For example, undertones 1/2, 1/8, 1/16 and 1/32 are meses of the Arche 2816 Hz (Table 4.) In the following example, the sixteenth harmonic (2816 Hz) has been taken from the overtone series in Table 1. Consequently, the tones generated are known as Saturn Tones (as shown by the associations in Table 2.)

Table 3: Undertone series from Modal Determinant 16 (2816 Hz).

Significant frequencies are shaded.

Ratio	Frequency (Hz)	Note	Equal-Tempered tuning (Hz)	Difference (Hz)	Hamilton’s tuning note ⁸²	Hamilton’s Equal Tempered tuning ⁸³	Difference (Hz)
1	2816	F7 (fau)	2793.83	22.17	F7	2771.01	44.99
1/2	1408	F6 (fau)	1396.91	11.09	F6	1385.51	22.49
1/3	938.67	A#5	932.33	6.34	A#5	924.715	13.95
1/4	704	F5 (fau)	698.46	5.54	F5	692.75	11.25
1/5	563.2	C#5	554.37	8.83	D5	582.53	-19.33
1/6	469.33	A#4	466.16	3.17	A#4	462.36	6.97
1/7	402.29	G4	392	10.29	G4	388.79	13.5
1/8	352	F4 (fau)	349.23	2.77	F4	346.38	5.62
1/9	312.89	D#4	311.13	1.76	D#4	308.59	4.3
1/10	281.6	C#4	277.18	4.42	C#4	274.92	6.68
1/11	256	C4	261.63	-5.63	C4	259.49	-3.49
1/12	234.67	A#3	233.08	1.59	A#3	231.18	3.49
1/13	216.62	A3	220	-3.38	A3	218.204	-1.58
1/14	201.14	G3	196	5.14	G#3	205.96	-4.82
1/15	187.73	F#3	185	2.73	F#3	183.49	4.24
1/16	176	F3 (fau)	174.61	1.39	F3	173.2	2.8

⁸² Hamilton stated that an equal-tempered middle C was 259.59Hz (Hamilton, *The Modes of Ancient Greece.*), so the undertone series was also compared to the tuning of Hamilton’s era.

⁸³ Based on the assumption that C=259.59Hz.

1/17	165.65	E3	164.81	0.84	E3	163.47	-2.18
1/18	156.44	D#3	155.56	0.88	D#3	154.30	2.14
1/19	148.21	D3	146.83	1.38	D3	145.63	2.58
1/20	140.8	C#3	138.59	2.21	C#3	137.46	3.34
1/21	134.1	C3	130.81	3.29	C#3	137.46	-3.36
1/22	128	C3	130.81	-2.81	C3	129.75	-1.65
1/23	122.43	B3	123.47	-1.04	C3	122.46	-0.03
1/24	117.33	A#2	116.54	0.79	A#2	115.59	1.74
1/25	112.64	A2	110	2.64	A2	109.10	3.54
1/26	108.31	A2	110	-1.69	A2	109.10	-0.79
1/27	104.3	G#2	103.83	0.47	G#2	102.98	1.32
1/28	100.57	G2	98	2.57	G#2	102.98	-2.41
1/29	97.1	G2	98	-0.9	G2	97.2	-0.1
1/30	93.87	F#2	92.5	1.37	F#2	91.74	2.13
1/31	90.84	F#2	92.5	-1.66	F#2	91.74	-0.9
1/32	88	F2 (fau)	87.31	0.69	F2	86.59	1.41

2.3. Properties of the Modes

The particular frequencies used for the modes have been taken from undertones 1/8-1/16 (and their multiples) of an Arche. In the example above, these are 352 Hz (1/8), 312.89 Hz (1/9), 281.6 Hz (1/10), 256 Hz (1/11), 234.67 Hz (1/12), 216.62 Hz (1/13), 201.14 Hz (1/14) and 187.3 Hz (1/15). To complete the octave the sixteenth undertone is added on, however, this leads to nine notes in the octave. To combat this Schlesinger proposed using either undertone 14 or 15 in the scale, but not both.

Hamilton indicated that the Moon mode must omit undertone 15, and Renold added that the Saturn and Jupiter modes omit undertone 14.⁸⁴ Since the scale above was based on the sixteenth undertone, it is considered the Hypodorian or Saturn mode and, according to Renold, would omit the fourteenth undertone.

⁸⁴ Hamilton, *The Modes of Ancient Greece.*; Renold, *Intervals, Scales, Tones and the Concert Pitch C=128Hz*: 36.

In the other modes, different undertone numbers are used. The Dorian or Sun mode, for example, is based on undertone 11 (as indicated by Table 2.) The tones used in the Dorian mode will be all instances of partials 8-16 (and their multiples) that are found within the undertones 11-22, ie. undertones 11, 12, 13, 14, 16 (multiple of 8), 18 (multiple of 9), 20 (multiple of 10) and 22. Schlesinger and Renold emphasised that although the modes are realised in a descending fashion, they should be thought of as ascending scales.⁸⁵ The particular undertones employed in the modes are shown in Table 5 and have been listed in ascending order.

Table 4: The Undertones used in the Planetary Modes and their Ratios⁸⁶

Degree	First tetrachord				Second tetrachord			
	I	II	III	IV	V	VI	VII	VIII
Hypodorian Saturn ⁺⁺	16 ⁺ /16	15/16 ⁺⁺⁺	13/16	12/16	11/16	10/16	9/16	8+/16
Hypophrygian Jupiter	18/18	16+/18	15/18 ⁺⁺⁺	13/18	12/18	11/18	10/18	9/18
Hypolydian Mars	20/20	18/20	16+/20	14/20 or 15/20	13/20	12/20	11/20	10/20
Dorian Sun	22/22	20/22	18/22	16 ⁺ /22 or 15/22	14/22	13/22	12/22	11/22j
Phrygian Venus	24/24	22/24	20/24	18/24	16+/24 or 15/24	14/24	13/24	12/24
Lydian Mercury	26/26	24/26	22/26	20/26	18/26 or 15/26	16 ⁺ /26	14/26	13/26
Mixolydian Moon	28/28	26/28	24/28	22/28	20/28	18/28	16 ⁺ /28 ⁺⁺⁺⁺	14/28

⁺ Numerators 8 and 16 = mese. ⁺⁺ Ptolemaic planetary sequence. ⁺⁺⁺ 14th undertone must be left out. ⁺⁺⁺⁺ 15th undertone must be left out.

The above examples cite 2816Hz as the Arche and, as it was based on overtone 16, the frequencies generated are known as Saturn tones. As Schlesinger identified the

⁸⁵ Renold, *Intervals, Scales, Tones and the Concert Pitch C=128Hz*: 30.; Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*.

⁸⁶ Renold, *Intervals, Scales, Tones and the Concert Pitch C=128Hz*: 30.

overtones 8-14 as significant, then theoretically there could be seven different Arches, which would in turn produce seven different frequencies for each note. Schlesinger addressed this issue in 'The Greek Aulos' by proposing a common Arche instead of using a common fundamental tone.⁸⁷ In this manner, all scales could be produced using the same frequencies. She recommended two types of tuning: one to a fundamental of 128 Hz (a flat-sounding C), and one of 176 Hz (fau)⁸⁸. These tones are related: 128 Hz occurs in the undertone series with a fundamental of 176 Hz (see Table 3), and vice versa. The only reasoning or significance stated for these tones, other than Schlesinger's studies of the aulos instruments which she claimed produced these tones, was given in a statement from Rudolf Steiner to Schlesinger.⁸⁹ Renold suggested that the tones generated from this particular frequency were more natural and appealing to humans. Hamilton agreed, suggesting that listeners may 'experience a rebirth while listening to the natural tones of these Ancient Modes.'⁹⁰ Saturn tones are the tones employed in Hamilton's compositions.⁹¹ Interestingly, Hamilton did not use the same note names as indicated by the Table 3.⁹² She claimed that the Saturn Mode contains the tones F-sharp, G, A-sharp, B, C, D, E and F-sharp.⁹³ These are the same tones used in her compositions (as seen in her surviving manuscripts included in Chapter 3.5.) Furthermore, in 'The Modes of Ancient Greece', she states that 'the sharp concert pitch of today rises to 259.49 vps for

⁸⁷ Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*. 1-35.

⁸⁸ Renold, *Intervals, Scales, Tones and the Concert Pitch C=128Hz*: 27-38.

⁸⁹ In *ibid.*, 69-72., Steiner is said to have verbally suggested that 'C=128Hz=Sun' to Schlesinger and Hamilton, but no explicit reference was given.

⁹⁰ *Ibid.*, 77-79; Hamilton, *The Modes of Ancient Greece*.

⁹¹ As indicated in Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*. 541-46.

⁹² ie. F, F-sharp, A, A-sharp, C C-sharp, D-sharp, F, and their enharmonic equivalents.

⁹³ Hamilton, *The Modes of Ancient Greece*.

middle C’ and that ‘our modern concert pitch... to my ears sounds almost a semitone too high.’⁹⁴ This is likely why Hamilton chose to notate all the tones (except C) a semitone higher than equal-tempered pitch (even given her C=239.49Hz equal-temperament tuning standard indicated in the Table 4.) Alternatively, Schlesinger may have already established names for the tones before Hamilton discovered and used them. Given the assumption that Hamilton’s compositions were based on Saturn tones, the scales are interpreted in Table 5.⁹⁵

Table 5: Tones Employed by Hamilton.

Scale	Tone and its Hertz value							
Sun/ Dorian	C 256Hz	D 281.6Hz	E 312.89Hz	F-sharp 352Hz	G 375.46Hz OR G-sharp 402.28Hz	A-sharp 433.24Hz	B 469.22Hz	C 512Hz
Phrygian/ Venus	B 234.67Hz	C 256Hz	D 281.6Hz	E 312.89Hz	F-sharp 352Hz	G 375.46Hz OR G-sharp 402.28Hz	A-sharp 433.24Hz	B 469.22Hz
Mercury/ Lydian	A-sharp 216.62Hz	B 234.67Hz	C 256Hz	D 281.6Hz	E 312.89Hz	F-sharp 352Hz	G 375.46Hz OR G-sharp 402.28Hz	A-sharp 433.24Hz
Moon/ Mixolydian	G-sharp 201.14Hz	A-sharp 216.62Hz	B 234.67Hz	C 256Hz	D 281.6Hz	E 312.89Hz	F-sharp 352Hz	G-sharp 402.28Hz
Saturn/ Hypodorian	F-sharp 176Hz	G 187.73Hz	A-sharp 216.62Hz	B 234.67Hz	C 256Hz	D 281.6Hz	E 312.89Hz	F-sharp 352Hz
Jupiter/ Hypophrygian	E 156Hz	F-sharp 176Hz	G 187.73Hz	A-sharp 216.62Hz	B 234.67Hz	C 256Hz	D 281.6Hz	E 312.89Hz
Mars/ Hypolydian	D 140.8Hz	E 156Hz	F-sharp 176Hz	G 187.73Hz OR G-sharp 201.14Hz	A-sharp 216.62Hz	B 234.67Hz	C 256Hz	D 281.6Hz

⁹⁴ Ibid.

⁹⁵ This table is based on a similar guide written by Kathleen Schlesinger and shown in Renold, *Intervals, Scales, Tones and the Concert Pitch C=128Hz*: 37.

It is therefore possible to recreate the modes using a piano or electronically by tuning these frequencies and their octaves.

Hamilton and Schlesinger saw the planetary modes being related to the central tenets of the Anthroposophic belief system. Anthroposophists made a connection between number, music and nature that is reflected in the theory of the Planetary Modes through the ratios used and the cosmic associations. Schlesinger stated:

‘If... you possessed this occult wisdom, this knowledge of the hidden forces of Nature and of Life, and of the relations of numbers or harmony, you would know first of all the proportions or numbers of all created objects and substances, bodies, and living beings; the number, in fact, which is the factor of cohesion... It is number or ratio which is the sole agent of differentiation. It is harmony— Music⁹⁶.’

⁹⁶ Kathleen Schlesinger, "The Music of the Ancients. (Résumé of Four Lectures Delivered at the British Museum)," *The Musical Times* 55, no. 852 (1914): 97.

3. Elsie Hamilton: Twelve Microtonal Compositions

3.1. An Introduction

Thirteen works survive by Elsie Hamilton. A very conventional piano piece, published in 1914, is unrepresentative, however the remaining twelve works are directly influenced through her fascination with Greek musical theory, the planetary modes and the theories of Anthroposophy.⁹⁷ The works are short and are scored for chamber forces, often employing exotic instruments. The music survives in a series of manuscripts now available online.⁹⁸ The blog also contains a selection of scores by Hamilton's student, Wilhelmina Roelvink, and a number of unsigned scores written in the Planetary Modes. Two distinct styles of handwriting are present, though it is unclear if either is the hand of Elsie Hamilton.

Figure 4: The Paleography in Hamilton's Scores; Two Different Hands.

Hand 1.



Hand 2.



⁹⁷ The early piece in equal temperament, 'Feuilles d'Automne', was not examined in this dissertation as it was written before Hamilton's discovery of the planetary modes. See footnote 19 for more information on this piece.

⁹⁸ Lee, "Naked Light".

The table below collates these two hands with the various surviving works.

Table 6: Summary of Scores.

EH- Elsie Hamilton; WR- Wilhelmina Roelvink.

Scores are included in Chapter 3.5.

Piece	Composer	Hand
Hymn to Ra from Sensa	EH	1
Wenn der Mensch warm in Liebe	EH	2
Olaf Åsteson	EH	2
Finnisches Volkslied mit Begleitung für Klarinette	EH	2
Keltisches Volkslied	EH	2
Steigt hinan zu höherem Kreise	EH	1
Natur-Stimmung	EH	1
Exercise in the Saturn Scale	EH	1
Ecce Homo	EH	1
Stück für drei Leieru	EH	1
Piece for Lyres (arrangement of Stück für drei Leieru)	EH	2
Motto für die Schüle der Stimmenthüllung	EH	2
Cradle Song	WR	2
Funeral March	WR	2
Hintemlied für Flöte & Sopran Leier	WR	3
Kleine Planeten Suite	WR	2
Little Melody	WR	2
Piece in the Jupiter Mode	WR	2
Lummerlied für Stimmer und Alt Leier	WR	2
Mit Andacht	Unknown	2
Jupiter Stück	Unknown	2
Mars Stück	Unknown	2

Given that Roelvink was Hamilton's student and that almost all her scores were written by Hand 2, she may have been Hamilton's copyist.

3.2. Harmonic language and the Planetary Modes

In the 'new language of music' traditional harmonic relationships or analyses are not applicable. To study pieces written in the planetary modes, it is essential that the harmonies be understood in relation to Schlesinger's *The Greek Aulos*.⁹⁹ As well as utilizing traditional chords (major or minor triads) that could be approximated in certain modes, Hamilton tended to base her harmonies on tetrachords, octaves and fourths, as they were symbolically significant in Steiner's musical philosophy. Steiner believed that music, including musical intervals, were 'experienced with the whole human being.'¹⁰⁰ Musical intervals symbolised his 'seven elements of the human being', with the ascending scale representing the ascent of man into the spiritual world. The interval of the fourth represented the border between the physical world (represented by small intervals) and the spiritual world (by larger intervals.) The octave united the two worlds, so that the listener could be 'reborn at a higher level.'¹⁰¹ As Steiner thought that musical pleasure was 'the right accord between the harmonies brought from beyond and the tones and melodies here', Hamilton and Schlesinger tried to recreate those harmonies in their music. In 'The Greek Aulos' Schlesinger recommended building chords from the outer two notes of the scales' tetrachords.¹⁰²

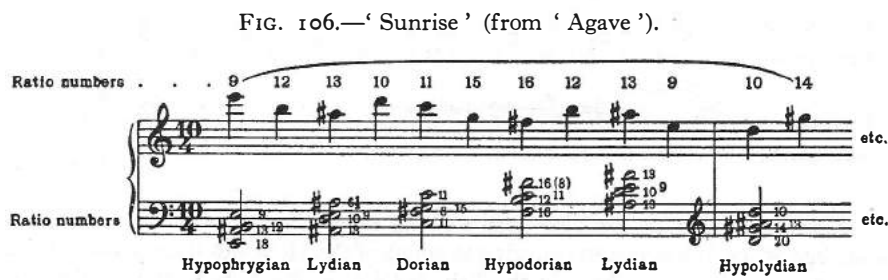
⁹⁹ Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*. 541-46.

¹⁰⁰ Rudolf Steiner, "The Inner Nature of Music and the Experience of Tone: Lecture 5," Rudolf Steiner Archive, <http://wn.rsarchive.org/Lectures/GA283/English/AP1983/19230307p01.html>.

¹⁰¹ Steiner believed humans had yet to evolve the capacity to 'feel' the octave, but 'in the future the feeling for the octave will be something completely different and will one day be able to deepen the musical experience tremendously.' See footnote 62; Hamilton, "The Nature of Musical Experience in the Light of Anthroposophy."; Steiner, "The Inner Nature of Music and the Experience of Tone: Lecture 5".

¹⁰² Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*. 543.

Figure 5: An Example of Tetrachord-based Chords from The Greek Aulos.¹⁰³



The chords in the above example contain the fourth and octave, significant intervals indicated by Steiner. This particular arrangement of tetrachords within an octave is prevalent in many of Hamilton’s compositions (as seen in Figure 5.) Though traditional analyses would consider these chords dissonant, Schlesinger and Hamilton insisted that all modal tones ‘may all be used melodically, harmonically, and contrapuntally together’, stating that such harmonies are ‘entirely devoid of beats.’¹⁰⁴

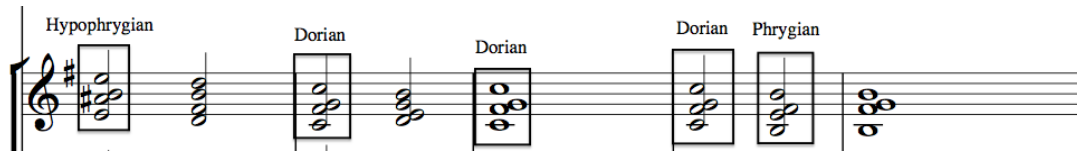
Table 7: The Modal Tetrachords.

Scale	Lower Tetrachord	Upper Tetrachord
Sun/Dorian	C, F-sharp	G, C OR G-sharp, C
Phrygian/Venus	B, E	F-sharp, B
Mercury/Lydian	A-sharp, D	E, A-sharp
Moon/Mixolydian	G-sharp, C	D, G-sharp
Saturn/Hypodorian	F-sharp, B	C, F-sharp
Jupiter/Hypophrygian	E, A-sharp	B, E
Mars/Hypolydian	D, G OR D, G-sharp	A-sharp, D

¹⁰³ Ibid.

¹⁰⁴ Ibid., 542.

Figure 6: Tetrachord-based chords in the Lyre part of Olaf Asteson, Bar 60-64.¹⁰⁵



Schlesinger also recommended combining tetrachords with tones in common, or resolving dissimilar tetrachords to a chord common to both.¹⁰⁶ In ‘Exercise in the Saturn Scale’, Hamilton shows that tetrachords can also be resolved in a stepwise fashion as the A-sharp of the Mercury tetrachord and the C of the Sun tetrachord resolve to the B of the Venus triad.

Figure 7: ‘Exercise in the Saturn Scale’, Bars 1-2, Lyres.¹⁰⁷

¹⁰⁵ Chords as named after the octave on which they occur

¹⁰⁶ Schlesinger, *The Greek Aulos: a Study of its Mechanism and of its Relation to the Modal System of Ancient Greek Music followed by a Survey of the Greek Harmoniai in Survival or Rebirth in Folk-Music*. 543.

¹⁰⁷ Note that *ibid.*, shows a Phrygian tetrachord stacked on a Hypophrygian tetrachord (and a similar arrangement of the other chord examples), but the Phrygian tetrachord consists of the notes F-sharp and B. Therefore, it is thought that Schlesinger intended the upper tetrachord of the Phrygian mode combined with the lower tetrachord of the Hypophrygian mode. The same reasoning has been applied to the following example, ie. the ‘top’ tetrachord is considered an Upper Tetrachord and the ‘bottom’ tetrachord as a Lower Tetrachord.

As seen from the above examples, the intervals that were significant within the Anthroposophical movement were employed as harmonic language within Hamilton's works.

3.3. Instrumentation

Hamilton's choice of instrumentation was based partly upon what she knew about performance practice in ancient Greece, and partly upon what was readily available to her. Consequently, her scores can feature lyres alongside modern clarinets, violins and flutes. Steiner theorised that 'all instruments like the flute or violin originate musically from the higher world', and moreover, these instruments were in tune with (or connected to) different parts of the body.¹⁰⁸ Apart from being an instrument of ancient Greek origin, and therefore fit to perform the 'ancient' modes, plucked stringed instruments such as the lyre were 'closest to the spiritual reality of musical tone' as they were seen as the least timbre-based of the instruments.¹⁰⁹ Lyres were also held near the heart, and so 'experienced' in the chest and 'expressed' in the arms.¹¹⁰ In contrast, the piano was 'created only in the physical world by man', and Steiner mentioned that 'man must get away from the impressions of the piano if he wishes to experience the actual musical element.'¹¹¹ Although Hamilton occasionally performed on the piano, Steiner's preference for the lyre heavily influenced the instrumentation of her works.

¹⁰⁸ Rudolf Steiner, "The Inner Nature of Music and the Experience of Tone: Lecture 6," Rudolf Steiner Archive, <http://wn.rsarchive.org/Lectures/GA283/English/API983/19230308p01.html>.

¹⁰⁹ Ruland 1992 cited in Andrea Intveen, "Musical Instruments in Anthroposophical Music Therapy with Reference to Rudolf Steiner's Model of the Threefold Human Being," *Voices* 7, no. 3 (2008).

¹¹⁰ Steiner, "The Inner Nature of Music and the Experience of Tone: Lecture 6".

¹¹¹ Ibid.

All but one of Hamilton's scores utilise the lyre. They were likely the predominant instruments employed in her orchestras.¹¹² In addition, eight of the scores include parts for voices. As music was an art from the spiritual world, the expression of the spirit came through the human voice and was thus labeled the most important instrument.¹¹³ Singing remains an important element of Anthroposophical education, and this is shown both by Werbeck-Svärdström's previous work within Steiner's Waldorf schools today.¹¹⁴ The instrumentation of Hamilton's works was as much a spiritual decision as it was as a practical one, as 'the soul, through the hearing-organism, plays the instrument.'¹¹⁵

3.4. Revival of the Music

Hamilton's music and her remarkable legacy were silenced long ago. One of the reasons for undertaking this research was to once again bring this music back to life, and to that end, I have created editions of all her works and have provided sound files in their original tunings. As playing the music in live performance was not a practical option (it involved specially-tuned lyres amongst other considerations) it is hoped these sound files will serve as a catalyst for subsequent live performances. The sound files are included in the enclosed CD.

The scores were typeset in Sibelius 7 for Mac.¹¹⁶ Whilst on the surface the notation looks unproblematic, there are in fact many instances that require editorial

¹¹² This is also indicated in newspaper articles such as Brewster-Jones, "Elsie Hamilton in Adelaide: Unusual Form of Musical Study."

¹¹³ Andrea Intveen and Jane Edwards, "The History and Basic Tenets of Anthroposophical Music Therapy," *Voices* 12, no. 2 (2012).

¹¹⁴ Werbeck-Svärdström, *Uncovering the Voice: A Path Towards Cartharsis in the Art of Singing*.

¹¹⁵ *Ibid.*, 49.

¹¹⁶ Available at "Sibelius," Avid Technology Inc, http://www.sibelius.com/home/index_flash.html.

intervention. For example, Sibelius does not allow for the input of nonstandard key signatures such as those found in ‘Wenn der Mensch Warm in Liebe’ (Chapter 3.5.12.) The accidentals were therefore put in manually (except for F-sharp which was used as the key signature.) This method also eases the task of modern musicians wishing to play the pieces who perhaps are not as accustomed to seeing such unusual key signatures. It is interesting that Hamilton, or her copyists, often wrote in accidentals next to the note, as well as using them in the key signature of the manuscripts (as in the G-sharps of Figure 8); perhaps they too needed to be reminded of the accidentals in their music.

Figure 8: The Unusual Key Signature of ‘Wenn der Mensch Warm in Liebe.’
Manuscript (Chapter 3.5.12.) **Sibelius Version (Chapter 3.6.12.)**

The figure presents a side-by-side comparison of two musical scores for the piece 'Wenn der Mensch Warm in Liebe'.
Manuscript (Chapter 3.5.12.): This score is handwritten. It features three staves: Voice, Sopran Leier (Soprano Lyre), and Alto Leier (Alto Lyre). The tempo markings 'Andante' and 'Ruhig' are written above the staves. The key signature is unusual, with F-sharp and G-sharp used as the key signature. The lyrics 'Wenn der Mensch Warm in Liebe' are written below the staves. The manuscript includes various accidentals and dynamic markings like 'mf'.
Sibelius Version (Chapter 3.6.12.): This is a printed score. It features three staves: Voice, Soprano Lyre, and Alto Lyre. The tempo markings 'Andante' and 'Ruhig getragen' are printed above the staves. The key signature is standard, with F-sharp and G-sharp used as the key signature. The lyrics 'Wenn der Mensch Warm in Liebe' are written below the staves. The Sibelius version includes various accidentals and dynamic markings like 'mf'.

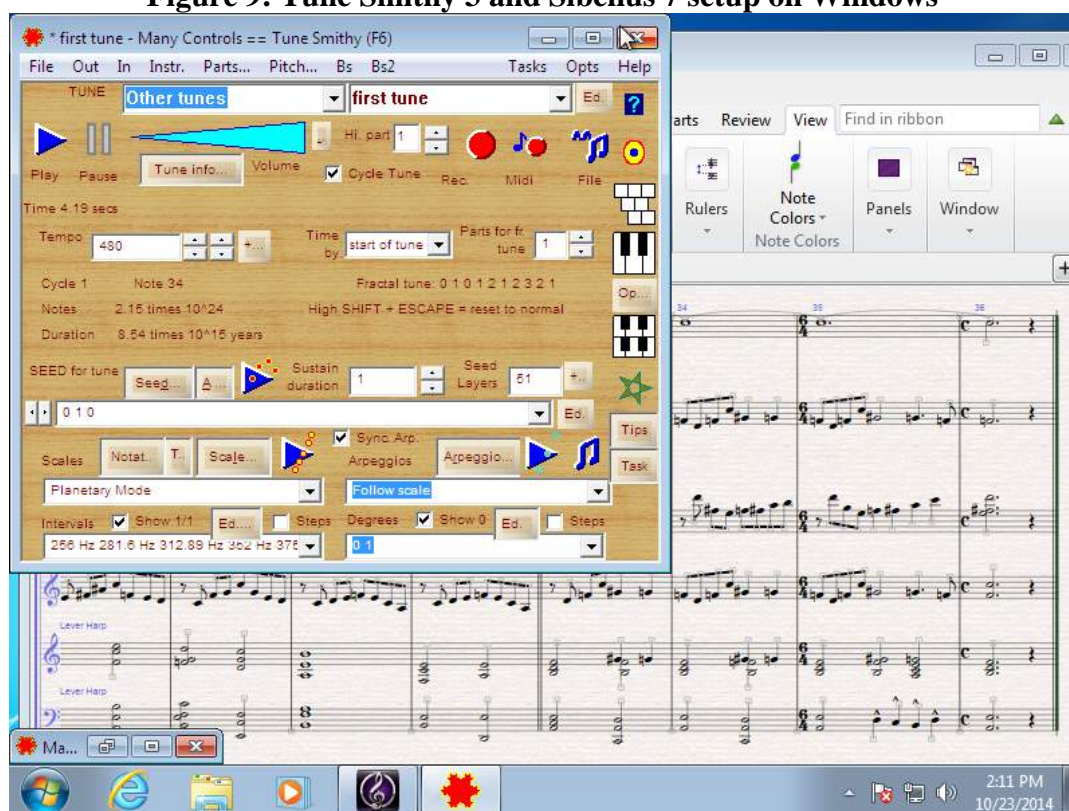
The scores were re-tuned using the tuning software Tune Smithy 3.¹¹⁷ Tune Smithy is a MIDI output device from Sibelius 7 that is compatible with the Windows operating system. A virtual Windows 7 machine (Oracle VM's Virtualbox) was thus installed on my Macintosh computer, and Sibelius 7 was also installed into the Windows machine so that the scores could be opened.¹¹⁸ To re-tune a score in Sibelius, the

¹¹⁷ More information on Tune Smithy can be found at Robert Walker, "Overview of Tune Smithy," <http://robertinventor.com/software/tunesmithy/music.htm>.

¹¹⁸ Virtualbox is available at "VirtualBox," Oracle Corporation, <https://www.virtualbox.org/>.

MIDI output device had to be changed to Tune Smithy, and Tune Smithy had to have its input device changed to Sibelius. To do this, a virtual MIDI cable was installed.¹¹⁹ Once the programs were linked up, the sounds heard on Sibelius 7 were filtered through Tune Smithy, thus allowing further manipulation. The frequency of each scale degree of the planetary modes (in Hz) was input into Tune Smithy and the pieces were played through Sibelius.¹²⁰ The lyre parts in Sibelius were changed to lever harp, as this was perhaps the closest available sounding option. Through modern technology such as of Tune Smithy and Sibelius, Hamilton's music can be heard with a degree of intonational precision perhaps not possible in her time.

Figure 9: Tune Smithy 3 and Sibelius 7 setup on Windows



¹¹⁹ Daniel Schmitt, "LoopBe1," <http://www.nerds.de/en/loopbe1.html>.

¹²⁰ Because Tune Smithy assigned the Hertz values to their closest note in equal temperament, it follows that the resultant Sibelius file did not always correspond exactly to Hamilton's intentions. Thus, for the sound files, I manually altered almost every note to the correct frequency.

Once the scores were correctly tuned, they were recorded using Audacity for Mac, as Sibelius did not allow me to export the audio files of pieces that used an external MIDI device.¹²¹ The recordings are given in Chapter 3.7.

¹²¹ Available via "Audacity," Audacity Development, <http://audacity.sourceforge.net/download/mac>.

3.5. Original Manuscripts.....p..39 - 64

Chapter 3.5 has been omitted at the request of the author

3.6. Sibelius Editions

Albert Steffen
Venus Scale

3.6.1 Aus Sibylla Mariana

Elsie Hamiton
ed. Talisha Goh

Andante Moderato *mf*

Voice

Lasst uns dir Bäu-me lie - ben, die

Andante Moderato

Soprano Lyre

mp *mf* *mp* *mf*

Alto Lyre

3

Bäu - me sind uns gut, in ihr - en grü - nen Trie - ben strömt

mp *mf*

rit. **A tempo** **rall. .**

5

Got - tes Le - bens - blut. Einst wollt das Holz ver - här - ten, da

rit. **A tempo** **rall. .**

7 **A tempo**

hing sich Christ da-ran, dass wir uns neu er-nähr - ten, ein

A tempo

A tempo

9

e - wig-es Blühnbe- gann

6 6

3.6.2 Ecce Homo

Venus Scale

Rudolf Steiner

Elsie Hamilton
ed. Talisha Goh

Score for the first system of "Ecce Homo". The music is in 3/4 time with a key signature of one sharp (F#).

Voice: *mp* In dem Her - zen we-bet Füh - len, *mf* In dem

Clarinet or Violoncello: (Staff with rests)

Lyre I: (Staff with rests)

Lyre II: *mp* (Staff with eighth-note accompaniment)

Alto Lyre: (Staff with eighth-note accompaniment)

Score for the second system of "Ecce Homo". The music is in 3/4 time with a key signature of one sharp (F#).

Voice: *f* Haup - te leuch-tet Den-ken, In den Glie - dern kraf-tet Wol-len

Clarinet or Violoncello: (Staff with rests)

Lyre I: (Staff with rests)

Lyre II: *mf* (Staff with eighth-note accompaniment)

Alto Lyre: *f* (Staff with eighth-note accompaniment)

10

Musical score for measures 10-14. The score is in G major (one sharp) and 4/4 time. It features a vocal line, a piano accompaniment, and a double bass line. The vocal line starts with a whole rest in measure 10, then enters in measure 11 with a half note G4, followed by a half note A4 in measure 12, a half note B4 in measure 13, and a half note C5 in measure 14. The piano accompaniment consists of a right hand with a melody of eighth notes and a left hand with a bass line of eighth notes. The double bass line provides harmonic support with chords and single notes. Dynamics include *mf* and *f*.

15

Musical score for measures 15-19. The score is in G major (one sharp) and 4/4 time. It features a vocal line, a piano accompaniment, and a double bass line. The vocal line starts with a whole rest in measure 15, then enters in measure 16 with a half note G4, followed by a half note A4 in measure 17, a half note B4 in measure 18, and a half note C5 in measure 19. The piano accompaniment consists of a right hand with a melody of eighth notes and a left hand with a bass line of eighth notes. The double bass line provides harmonic support with chords and single notes. Dynamics include *mf*, *mp*, and *f*.

We - ben - des Leuch - ten, Kraf - ten - des We - ben,

20

Leuch - ten - des Kraf - ten, Das ist der

The musical score is for a piece in D major, 6/4 time. It features a vocal line and a piano accompaniment. The vocal line begins with a long note on 'Leuch' and continues with 'ten - des Kraf - ten, Das ist der'. The piano accompaniment consists of a right hand with a melodic line and a left hand with a bass line. The score is marked with a forte 'f' dynamic. The key signature has two sharps (F# and C#), and the time signature is 6/4. The score is divided into three measures, with the first measure containing the vocal line and the piano accompaniment, and the second and third measures containing the piano accompaniment.

23

ff

Mensch

f

f

ff

68

3.6.3 Exercise in the Saturn Scale

Saturn Scale

Elsie Hamilton
ed. Talisha Goh

Allegro moderato

Voices

Soprano Lyre I

Soprano Lyre II

Alto Lyre I

Alto Lyre II

mp

mp

3

p *pp*

p *pp*

Etwas Langsamer (Slightly slower)

6 **rall.** **mp**

Etwas Langsamer (Slightly slower)

rall. **mp**

pp **mp**

Do - deca - e - der Do - deca - e

rit. **A tempo**

11 **p**

rit. **A tempo**

p

der Do - deca - e - der Do - deca - e - der

16

Musical score for measures 16-20. The vocal line (top staff) has lyrics: "Do - deca - e der, Do - deca - e der". The piano accompaniment consists of four staves. The first three staves (treble and bass clefs) play chords and arpeggiated figures. The fourth staff (bass clef) has a melodic line. Dynamics include *mf* (mezzo-forte) and *f* (forte).

21

Musical score for measures 21-23. The vocal line (top staff) is silent. The piano accompaniment consists of four staves. The first three staves (treble and bass clefs) play chords and arpeggiated figures. The fourth staff (bass clef) has a melodic line. Dynamics include *f* (forte).

24

mf

Do - deca -

f *p* *pp* *mf* *f*

27

eder Do - deca - eder

ff *mf* *f* *ff*

ff *mf* *f* *ff*

30

Musical score for measures 30-32. The score is in G major (one sharp) and 4/4 time. It features a vocal line and a piano accompaniment. The lyrics are "Do - deca - e - der Do - deca -". The piano part consists of a right hand with sixteenth-note runs and a left hand with eighth-note patterns. Dynamics include *mf*, *f*, and *ff*. A crescendo hairpin is present in measure 31.

Do - deca - e - der Do - deca -

mf *f* *f* *ff* *ff*

33

rall.

Musical score for measures 33-35. The score is in G major (one sharp) and 4/4 time. It features a vocal line and a piano accompaniment. The lyrics are "eder". The piano part consists of a right hand with sixteenth-note runs and a left hand with eighth-note patterns. Dynamics include *f*, *mf*, *mp*, *p*, and *pp*. A **rall.** (rallentando) marking is present at the beginning of measure 33. A crescendo hairpin is present in measure 34.

eder

rall.

f *mf* *mp* *p* *pp*

3.6.4 Finnisches Volkslied mit Begleitung Für Klarinette

Finnish Folksongs with accompaniment for Clarinet

Elsie Hamilton
ed. Talisha Goh

1. Jupiter Scale

Vivo

Clarinet

Lyre

mf

7

13

17

rit.

The musical score is written for Clarinet and Lyre. The key signature is one sharp (F#) and the time signature is 3/4. The tempo is marked 'Vivo'. The score is divided into four systems. The first system shows the Clarinet and Lyre parts. The second system starts at measure 7. The third system starts at measure 13. The fourth system starts at measure 17 and ends with a double bar line. The dynamics include 'mf' and 'rit.'.

2.

Jupiter Scale

1 Andante Moderato

Measures 1-12 of the Jupiter Scale, Andante Moderato. The score is in G major (one sharp) and common time (C). It features a piano accompaniment with a steady eighth-note pattern in the bass and a melody in the treble. The melody consists of a series of eighth notes, with some measures containing beamed eighth notes. The tempo is marked Andante Moderato.

3.

1 Vivo

Jupiter Scale

Measures 1-14 of the Jupiter Scale, Vivo. The score is in G major (one sharp) and 2/4 time. It features a piano accompaniment with a steady eighth-note pattern in the bass and a melody in the treble. The melody consists of a series of eighth notes, with some measures containing beamed eighth notes. The tempo is marked Vivo.

4.
Saturn Scale

1

Measures 1-3 of the Saturn Scale. The piece is in 3/4 time with a key signature of one sharp (F#). The right hand plays a melody starting on G4, moving up stepwise to B4, then down stepwise to G3. The left hand provides a harmonic accompaniment with eighth-note chords. A repeat sign is at the end of measure 3.

4

Measures 4-6 of the Saturn Scale. The right hand continues the melody, moving up to D5 and then down to G4. The left hand continues the accompaniment. A first ending bracket labeled '1.' spans measures 5 and 6, ending with a repeat sign.

7

Measures 7-10 of the Saturn Scale. The right hand continues the melody, moving down to F#4 and then to E4. The left hand continues the accompaniment. A second ending bracket labeled '2.' spans measures 7 and 8, leading to a repeat sign.

11

Measures 11-13 of the Saturn Scale. The right hand continues the melody, moving down to D4 and then to C4. The left hand continues the accompaniment.

14

Measures 14-15 of the Saturn Scale. The right hand continues the melody, moving down to B3 and then to A3. The left hand continues the accompaniment. The piece ends with a double bar line at the end of measure 15.

5.
Jupiter Scale

1

First system of the Jupiter Scale, measures 1-4. The music is in G major (one sharp) and common time (C). The right hand features a melodic line with a slur over measures 2-4, while the left hand plays a steady eighth-note accompaniment.

5

Second system of the Jupiter Scale, measures 5-6. The right hand continues the melodic line with a slur, and the left hand maintains the eighth-note accompaniment.

7

Third system of the Jupiter Scale, measures 7-9. Measure 7 includes a forte (*f*) dynamic marking. The system concludes with a double bar line.

6.
Jupiter Scale

1 6.

First system of the second Jupiter Scale, measures 1-6. The key signature changes to D major (two sharps), and the time signature changes to 3/4. The right hand has a melodic line with a slur, and the left hand plays a steady eighth-note accompaniment.

7

Second system of the second Jupiter Scale, measures 7-10. The right hand continues the melodic line with a slur, and the left hand maintains the eighth-note accompaniment.

11

Second time piano

Third system of the second Jupiter Scale, measures 11-13. The right hand continues the melodic line with a slur, and the left hand maintains the eighth-note accompaniment. The system ends with repeat signs.

7.
Sun and Venus Scales

1

8

78

3.6.5 Hymn to Ra

(from 'Sensa')

Sun and Venus Scales

Elsie Hamilton
ed. Talisha Goh

Score for "Hymn to Ra" (from 'Sensa'), featuring Voice, 1st and 2nd Lyre, and Bass Lyre.

First System:

- Voice:** *mp* Hail, all Hail Thou who art
- 1st and 2nd Lyre:** *mp* (Accompaniment)
- Bass Lyre:** *mp* (Accompaniment)

Second System (Measures 4-7):

- Voice:** *mf* Ra Thou ri - sest, Thou set - test, Thou shi - nest, Thou
- 1st and 2nd Lyre:** (Accompaniment, *f* in measure 7)
- Bass Lyre:** (Accompaniment, *f* in measure 7)

Third System (Measures 8-9):

- Voice:** *f* war - - - mest, *mf* Thou, who art
- 1st and 2nd Lyre:** (Accompaniment, *ff* in measure 8)
- Bass Lyre:** (Accompaniment)

10

crow - ned King of the Gods

f *ff* *mf*

3.2.6 Keltisches Volksleid

Saturn Scale

Elsie Hamilton

Vivo

Clarinet I and II

Alto Lyre

Measures 1-6 of the musical score. The Clarinet I and II part is in treble clef with a key signature of one sharp (F#) and a 3/4 time signature. It contains whole rests for the first five measures and a whole note in the sixth measure. The Alto Lyre part is in bass clef with a key signature of one sharp (F#) and a 3/4 time signature. It begins with a forte (f) dynamic. The first five measures contain eighth notes, and the sixth measure contains a whole note. The music is in a 3/4 time signature.

Measures 7-14 of the musical score. The Clarinet I and II part continues with a melodic line, featuring a long slur over measures 8-11. The Alto Lyre part continues with a rhythmic accompaniment of eighth notes and chords. The music is in a 3/4 time signature.

Measures 15-22 of the musical score. The Clarinet I and II part features a first ending (1.) and a second ending (2.) leading to a double bar line. The Alto Lyre part continues with a rhythmic accompaniment, marked with a forte (f) dynamic. The music is in a 3/4 time signature.

Measures 23-27 of the musical score. The Clarinet I and II part continues with a melodic line, marked with a forte (f) dynamic. The Alto Lyre part continues with a rhythmic accompaniment. The music is in a 3/4 time signature.

Measures 28-34 of the musical score. The Clarinet I and II part continues with a melodic line, marked with a forte (ff) dynamic. The Alto Lyre part continues with a rhythmic accompaniment. The music is in a 3/4 time signature.

3.6.7 Motto fur die Schule der Stimmenthüllung

Anthem for The School for Uncovering the Voice

Valborg Werbeck-Svårdström
Venus Scale

Else Hamilton
ed. Talisha Goh

Andante Moderato

Musical score for the Anthem for The School for Uncovering the Voice, featuring a Solo Voice, Choir, and Lyre ensemble.

The score is written for five parts: Solo Voice, Choir, High Lyre, Soprano Lyre I, and Alto Lyre. The tempo is marked **Andante Moderato**. The key signature is one sharp (F#) and the time signature is common time (C).

The Solo Voice part begins with a rest, followed by a whole note G4 in the third measure, with the lyrics "Ihr" underneath. The Choir part consists of whole rests in all three measures. The High Lyre part consists of whole rests in all three measures. The Soprano Lyre I part plays a melodic line: G4 (quarter), A4 (quarter), B4 (quarter), C5 (quarter), B4 (quarter), A4 (quarter), G4 (quarter), F#4 (quarter), E4 (quarter), D4 (quarter), C4 (half). The Soprano Lyre II part consists of whole rests in all three measures. The Alto Lyre part plays a bass line: G3 (half), A3 (half), B3 (half), C4 (half), B3 (half), A3 (half), G3 (half), F#3 (half), E3 (half), D3 (half), C3 (half).



4

Ster - ne Him - mels_ zei - - chen der

Aufng gesungen
(Sung on)

mf

8

ma - kro kos mis-chen Wahr - heit Zu hau - ten ger -

f *mf*

12

rou - nen, — Schen - ket Ihr uns Eu - er ei - -

16

- ge-nes we - - sen

20

f *ff*

Ihr Sphä - ren Klan - ges Wel - -

24

ten, aus Got - tes Gra - de ge - bor - en

28

O tü - net dunh strö - met uns Hei - lig, mit

f *p*

32

rei - ni - gen der Kraft

p

34

6/4

f

ff

ff

ff

ff

f

Detailed description: This is a musical score for a piano piece, spanning measures 34, 35, and 36. The score is written for a grand piano, with a right-hand staff (treble clef) and a left-hand staff (bass clef). The key signature is one sharp (F#), and the time signature is 6/4. Measure 34 begins with a half note G4 in the right hand and a half note G2 in the left hand. Measure 35 is marked with a 6/4 time signature and features a melodic line in the right hand starting on A4, marked with a forte (*f*) dynamic. The left hand provides harmonic support with chords and moving lines, marked with fortissimo (*ff*) dynamics. Measure 36 concludes the section with a common time (C) signature. The right hand has a half note G4, and the left hand has a half note G2. The score includes various musical notations such as slurs, ties, and dynamic markings.

3.6.8 Natur-Stimmung

"Natural Tuning"

Jupiter and Malkos Scales

for Flute, Violin and Lyres

Elsie Hamilton

ed. Talisha Goh

Allegro moderato

Very Ethereal

Flute

Violin

Soprano Lyre I

Soprano Lyre II

Alto Lyre

p Heartbeat

mp

p

4

7

Measures 7-9 of a musical score. The score is written for three systems of staves. The first system consists of two treble staves, both of which are empty. The second system consists of a treble staff and a bass staff. The treble staff contains a melodic line with eighth and sixteenth notes, including rests. The bass staff contains a bass line with eighth and sixteenth notes, including rests. The key signature is one sharp (F#).

10

Measures 10-12 of a musical score. The score is written for three systems of staves. The first system consists of two treble staves. The top staff is empty, and the bottom staff contains a melodic line with eighth and sixteenth notes, including rests. The second system consists of a treble staff and a bass staff. The treble staff contains a melodic line with eighth and sixteenth notes, including rests. The bass staff contains a bass line with eighth and sixteenth notes, including rests. The key signature is one sharp (F#). The dynamic marking *mf* (mezzo-forte) is present in the first staff of measure 10 and the first staff of measure 11.

13

Measures 13-15 of a musical score. The score is written for three systems of staves. The first system consists of two treble staves. The top staff is empty, and the bottom staff contains a melodic line with eighth and sixteenth notes, including rests. The second system consists of a treble staff and a bass staff. The treble staff contains a melodic line with eighth and sixteenth notes, including rests. The bass staff contains a bass line with eighth and sixteenth notes, including rests. The key signature is one sharp (F#). The dynamic marking *f* (forte) is present in the first staff of measure 13 and the first staff of measure 14.

17

Measures 17-19 of a musical score. The score is written for a string quartet (Violin I, Violin II, Viola, and Cello/Double Bass). The key signature is one sharp (F#).
- Violin I: Measures 17-19. Measure 17: Quarter note D4, quarter rest, quarter note E4, quarter rest. Measure 18: Quarter note D4, quarter rest, quarter note E4, quarter rest. Measure 19: Quarter note D4, quarter rest, quarter note E4, quarter rest. Dynamics: *f* pizz. (pizzicato).
- Violin II: Measures 17-19. Continuous eighth-note pattern: D4-E4-F#4-G4-A4-B4-C5-D5. Dynamics: *f*.
- Viola: Measures 17-19. Rest. Dynamics: *f*.
- Cello/Double Bass: Measures 17-19. Continuous eighth-note pattern: D3-E3-F#3-G3-A3-B3-C4-D4. Dynamics: *f*.
- A crescendo hairpin is shown over measures 18 and 19.

20

Measures 20-22 of a musical score. The score is written for a string quartet (Violin I, Violin II, Viola, and Cello/Double Bass). The key signature is one sharp (F#).
- Violin I: Measures 20-22. Measure 20: Quarter note D4, quarter rest, quarter note E4, quarter rest. Measure 21: Quarter note D4, quarter rest, quarter note E4, quarter rest. Measure 22: Quarter note D4, quarter rest, quarter note E4, quarter rest. Dynamics: *f* pizz. (pizzicato).
- Violin II: Measures 20-22. Continuous eighth-note pattern: D4-E4-F#4-G4-A4-B4-C5-D5. Dynamics: *f*.
- Viola: Measures 20-22. Rest. Dynamics: *f*.
- Cello/Double Bass: Measures 20-22. Continuous eighth-note pattern: D3-E3-F#3-G3-A3-B3-C4-D4. Dynamics: *f*.
- A crescendo hairpin is shown over measures 21 and 22.

23

Measures 23-25 of a musical score. The score is written for a string quartet (Violin I, Violin II, Viola, and Cello/Double Bass). The key signature is one sharp (F#).
- Violin I: Measures 23-25. Measure 23: Quarter note D4, quarter note E4, quarter note F#4, quarter note G4. Measure 24: Quarter note D4, quarter note E4, quarter note F#4, quarter note G4. Measure 25: Quarter note D4, quarter note E4, quarter note F#4, quarter note G4. Dynamics: *p* arco (arco).
- Violin II: Measures 23-25. Measure 23: Quarter note D4, quarter note E4, quarter note F#4, quarter note G4. Measure 24: Quarter note D4, quarter note E4, quarter note F#4, quarter note G4. Measure 25: Quarter note D4, quarter note E4, quarter note F#4, quarter note G4. Dynamics: *mf* espress. (espressivo).
- Viola: Measures 23-25. Rest. Dynamics: *mf*.
- Cello/Double Bass: Measures 23-25. Continuous eighth-note pattern: D3-E3-F#3-G3-A3-B3-C4-D4. Dynamics: *mf*.
- A crescendo hairpin is shown over measures 24 and 25.

26

Musical score for measures 26-29. The score is written for a piano with three staves: two treble clefs and one bass clef. The key signature is one sharp (F#). Measures 26-29 show a melodic line in the upper treble staff, a supporting line in the lower treble staff, and a bass line in the bass staff. The music features eighth and sixteenth notes, with some rests and dynamic markings like *mp* and *p*.

30

rall.

Musical score for measures 30-33. The score is written for a piano with three staves: two treble clefs and one bass clef. The key signature is one sharp (F#). Measures 30-33 show a melodic line in the upper treble staff, a supporting line in the lower treble staff, and a bass line in the bass staff. The music features eighth and sixteenth notes, with some rests and dynamic markings like *f*, *mp*, and *p*. A *rall.* (rallentando) marking is present above measure 30.

34

Musical score for measures 34-37. The score is written for a piano with three staves: two treble clefs and one bass clef. The key signature is one sharp (F#). Measures 34-37 show a melodic line in the upper treble staff, a supporting line in the lower treble staff, and a bass line in the bass staff. The music features eighth and sixteenth notes, with some rests and dynamic markings like *mf*.

38

Measures 38-40 of a musical score. The score is written for a piano with three staves: two treble staves and one bass staff. The key signature is one sharp (F#). Measure 38 features a forte (*f*) melody in the first treble staff and a forte (*f*) bass line in the bass staff. Measures 39 and 40 continue the melody and bass line, with a mezzo-forte (*mf*) dynamic marking in the second treble staff.

41

Measures 41-43 of a musical score. The score is written for a piano with three staves: two treble staves and one bass staff. The key signature is one sharp (F#). Measure 41 features a forte (*f*) melody in the first treble staff and a forte (*f*) bass line in the bass staff. Measures 42 and 43 continue the melody and bass line, with a mezzo-forte (*mf*) dynamic marking in the second treble staff. A *rall.* (rallentando) marking is present above the first treble staff in measure 43.

44

Measures 44-47 of a musical score. The score is written for a piano with three staves: two treble staves and one bass staff. The key signature is one sharp (F#). Measure 44 features a forte (*f*) melody in the first treble staff and a forte (*f*) bass line in the bass staff. Measures 45 and 46 continue the melody and bass line, with a forte (*f*) dynamic marking in the first treble staff. Measure 47 features a fortissimo (*ff*) melody in the first treble staff and a fortissimo (*ff*) bass line in the bass staff.

3.6.9 Olaf Åsteson

Jupiter Scale

Elsie Hamilton
ed. Talisha Goh

Introduction

Women's Voices

Men's Voices

Lyre I

Lyre II

mf *f*

4

list to me and hear my song The song of a won-der-ful youth, I'll

list to me and hear my song The song of a won-der-ful youth, I'll

mp

8

sing you of O - laf Å - ste-son who slept ma-ny days, 'tis the truth,

sing you of O - laf Å - ste-son who slept ma-ny days, 'tis the truth,

12

Yes it was O - laf Ås - te-son who lay so long a - sleep - ing

Yes it was O - laf Ås - te-son who lay so long a - sleep - ing

16

It was Christmas Eve which down he lay and slept so long all un

It was Christmas Eve which down he lay and slept so long all un

20

know - ing He ne - ver wake till the thir - teenth day when to

23

churchthe peo-ple were go - ing

Yes it was O - laf

27

Ås - teson who lay so long a-sleep - ing

31

Mit Andacht (With Devotion)

'Twas the Ho - ly night when down he lay such won-ders see-ing and

35

hear-ing And wa - kened not 'til the thir-teenth day when the drow-sy birds were

39

stir - ring Yes it was O - laf Ås - te-son who lay so long a-

43

sleep - ing

sleep - ing

He ne - ver wake till the

47

thir - teenth day when the Sun came up at daw - ning Then sad - dled his horse and

51

rode a - way to ride to church in the mor - ning

Yes it was O - laf

55

Ås - te-son who lay so long a - sleep - ing

59

The Priesthe stood at the al-tar there the Ho-ly Gos-pel ex pounding While

64

O-laf sat down at the out - er door And told of his vis-sions as - tounding

68

Yes, it was O - laf Ås - te - son who lay so long a -

Yes it was O - laf Ås - te - son who lay so long a -

71

sleep - ing

sleep - ing

3.6.10 Steigt hinan zu höherem Kreise

From Goethe's 'Pater Seraphicus', *Faust* Part II Act 5

Johann Wolfgang von Goethe
Jupiter Scale

Elsie Hamilton
ed. Talisha Goh

Energisch (Energetic) *f*

Voice

Steigt hi-nan zu hö-herm Kreise, Wach-set im-mer un - ver-merkt,

Energisch (Energetic) *mf* *f*

Soprano Lyre

Alto Lyre

3

Wie, nach e - wig rei - ner Wei - se, Got - tes Ge - gen - wart vers - tärkt.

f *f*

5

Denn das ist der Gei - ster Nah - rung, Die im frei - sten Ä - ther walt - et,

7 *mf*

E - wi-gen Lie - bens Of - fen - ba - rung, Die zur Se - lig - keit en - fal - tet. *f*

mf *f*

9

Singend keine Eile (Sung without hurry)

f *f*

3.6.11 Stück für drei Leieru

Venus Scale

Elsie Hamilton
ed. Talisha Goh

Largo

Soprano Lyre I

Alto Lyre I

Alto Lyre II

6

1

12

2

3

18

4 Etwas bewegter (Moving)

23

mp

27

mf

31

5

mf

f

35

6

Etwas zurückhalten (Held back)
rall.

f

mf

f

39 7

43 8 Vorwärts gehen (Go forwards)

47

51 9

55

f *mf*

10

59

63

f

11

67

f *mf*

71 rall.

75 **12** **Tempo primo**

81

85

3.6.12 Wenn der Mensch warm in Liebe

Rudolf Steiner

Elsie Hamilton

ed. Talisha Goh

Venus Scale

Andante

Ruhig getragen (Quiet and majestic)

Voice

Wenn der Mensch warm in

Soprano Lyre

mf

Alto Lyre

4

Liebe, - sich der welt als Seele - giot, Wenn der Mensch, Lich - tim

8

Sin - nen, von der welt den Geist er - wirfst, wird in Geis - ter hel - ter

12

f

Seele, wird in Seele get-ra-ge-nem Geist, der Geist - es Mensch im

16

rall. *f*

Lei - bes Men-schim sich Wahr-haft offen ba - ren

rall.

Conclusion

A musical pioneer, the most original of thinkers, an uncompromising radical and arguably Australia's most undeservedly forgotten composer, Elsie Hamilton's life and music is presented here in the contexts through which it needs to be properly understood.

This dissertation represents the most complete account of Hamilton's life and works to date, and is informed at every stage by original research. Through examining the theories of the Anthroposophical movement, I have demonstrated how her music feeds from this belief system, and have also demonstrated that Hamilton's stance is congruent with other modernists of her generation. In addition, I position Hamilton's modal system within the complex mathematics of Greek musical theory (as conceived by her collaborator, Kathleen Schlesinger). Finally, I provide modern editions and electronically manipulated sound files to all of Hamilton's surviving compositions. Elsie Hamilton's story is fascinating. This dissertation welcomes her into the canon of music history.

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