Microtonal Restraint

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*Abstract*: This article proposes that the beginnings of twentieth-century microtonal music and thinking were shaped more by restraint in composers’ thinking, rather than by a full embrace of the principle ‘progress for progress’s sake’. Pioneering microtonal composers like Ferrucio Busoni, Charles Ives, Alois Hába, John Foulds, Richard Stein, and Julián Carrillo constitute an international group of breakaway modernists, whose music and writings suggest four tropes characterising this first-generation microtonal music: rediscovery of a microtonal past, preservation of tonality, refinement of tonality, and restraint itself. The article traces these tropes of early-twentieth century microtonal experiment in works by Ives, Carrillo, Hába, Foulds, and Stein with reference to writings and music by Karol Szymanowski, Nikolay Kul’bin, Ivan Vyschnegradsky, and Harry Partch. It adds to the growing scholarship about early-twentieth century tonally based aesthetics and techniques and broadens perspectives of the history of twentieth-century microtonal music.

*Keywords*: microtone – quarter-tone – modernism – Charles Ives – Ferruccio Busoni – Alois Hába – John Foulds – Richard Stein – Julián Carrillo

*It will surely be abundantly clear that no additions to our technical equipment – no quarter-tonal, no modal systems, no additions of new timbres to our orchestral resources, in short, no technical means whatever – will in themselves aid us in our efforts to widen the field of musical appeal.*

John Foulds, *Music To-Day* (1934), p. 167

Early-twentieth century debates on progress and innovation in music frequently mirror the hysteria underlying broader fin de siècle discourses: the decline of the West becomes that of melody, of the diatonic system, of Wagner, or of the arts in general. In his examination of Ferrucio Busoni’s poetics, Albrecht Riethmüller characterizes these debates as ‘shrill and destructive’ where they sought to discredit, unseat, or make obsolete music in a more reactive vein.[[1]](#footnote-1) But how ‘reactive’ were these composers really? Many musical figures of this time, including pianist-composer Busoni (1866-1924) or cellist-composer Foulds (1880-1939), were more janus-faced modernists than we usually give them credit for. They had individual methods both to promote ‘musical progress’, and to reign in their own technical or material innovations.[[2]](#footnote-2) Foulds, for example, regularly used all the additional ‘technical equipment’ whose use he appears to be doubting in the above epigraph. Busoni promoted third-tones in writing, but ended up never composing with them.[[3]](#footnote-3) Compared to Arnold Schoenberg, Anton Webern, and, as Riethmüller maintains, Claude Debussy, Gustav Mahler, or Richard Strauss, these composers appear to be somewhat reactive, or restrained, modernists. Both Busoni and Foulds possessed a deep insight into their colleagues’ developments and took a keen interest in contemporary critique of the diatonic and chromatic systems (in short of tonality, which, we could argue, is the necessary condition for microtonality). They promoted microtonal scales, post-tonal systems, or new instruments and timbres, but they were quick to display defensive manoeuvres, both in their writing on music and in composition. Similar approaches were taken by Charles Ives (1874-1954) and Alois Hába (1893-1973), and by lesser known composers like Richard Stein (1882-1942), Julián Carrillo (1875-1965), or Ivan Vyschnegradsky (1893-1979), who all contributed to this debate. Through their music and writings they constitute a loose international network and establish a wide range of twentieth-century tonal strategies.[[4]](#footnote-4) In this article they are therefore presented as a group of restrained microtonalists with a common, tonally rooted agenda. This view on early-twentieth century microtonal aesthetics and technique breaks with recent traditions of writing on microtones, which is mostly concerned with individual composers’ work, aspects of microtonal techniques, notation, performance, teaching, and definitions, as well as later microtonal innovations as part of the post-War avant-gardes, or descriptive histories of national microtonal schools or developments, in which these composers play only minor roles.[[5]](#footnote-5)

But why microtones, of all the exciting new techniques, materials, and perspectives the early twentieth century produced? After all, even in the early decades of the twentieth century microtones were not exactly new. In a retrospective overview of technique, history, and structure of these intervals, microtone pioneer Rolf Maedel sought to remind his readers of this fact by quoting Schoenberg’s assertion in *Harmonielehre* that ‘equal temperament [das temperierte System] was only ever a ceasefire’.[[6]](#footnote-6) Generally, ‘microtones’ are really intervals (rather than pitch classes) that are smaller than the semitone, and as such they feature in musics and music theoretical works not only of ancient Greece and in Indian, Arab, or Turkish music, but also in the 16th- and 17th-century theoretical works by Francisco de Salinas, Gioseffo Zarlino, and Marin Mersenne. Even later, there are singular interventions in the early nineteenth century, such as Johanna Kinkel’s observations on Chopin’s struggle ‘to free the quarter-tones which flit between the enharmonics like ghostly shadows.’[[7]](#footnote-7) The late nineteenth and early twentieth centuries, however, ushered in unprecedented interest in these ultrachromatic intervals throughout the West, resulting in a growing number of designs for microtonal keyboard instruments such as harmoniums and pianos, new scales and chords, and ideas for notation.[[8]](#footnote-8) Although the the interval of the quarter-tone is probably the most common of Western microtonal intervals, many different suggestions for divisions smaller than the semitone were considered and tried out in the early twentieth century. Together, they were used to promote, and experiment with, microtonal intervals even before more systemic questions of equal temperament vs. just intonation, or spectral music became issues.[[9]](#footnote-9)

Early twentieth-century cross-fertilising strands in acoustics, aesthetics, instrument building, and criticism abound, and more often than not they are distinctly international.[[10]](#footnote-10) Russian futurist Nikolay Kul’bin (1968-1917), for example, published his manifesto ‘Die freie Musik’ in German-based Vassily Kandinsky and Franz Marc’s *Der blaue Reiter Almanach* in 1912. At this point, Busoni’s *Sketch of a New Esthetic of Music* had just been translated into English after he had experienced Thaddeus Cahill’s microtonal telharmonium in New York.[[11]](#footnote-11) Ives had been inspired by German physician-physicist Hermann von Helmholtz’s *Die Lehre von den Tonempfindungen als physiologische Grundlage für die Theorie der Musik* for his far-reaching experiments (as had Harry Partch, who drew from this book his interest in just intonation).[[12]](#footnote-12) Czech composer and Busoni-pupil Hába read about a lecture by German composer and instrument builder Willy von Möllendorff in Vienna in the 1920s, shortly after which he attended Richard Heinrich Stein’s first international quarter-tone congress in Stein’s Berlin flat (joining forces with Russian emigré Vyschnegradsky, Germans Jörg Mager and von Möllendorff, and possibly even meeting the Mexican Carrillo and Artur Lourié from Russia).[[13]](#footnote-13) While the source of Foulds’s initial interest in microtones is unknown, it was subsequently fuelled by his interest in Indian music and music theory, theosophy, and the specific influence flowing from his wife Maud MacCarthy, a violinist, singer, poet, ethnographer, and esoteric teacher, who had studied Indian classical music in depth, and whose, partly microtonal, *rāgas* Foulds had listened to and transcribed.[[14]](#footnote-14)

Despite the considerable differences we would expect in each composer’s individual approach to microtones, their notation, and microtonal pervasion of their music, these composers were also united their creation of personal origin myths. It is likely that the first modern European microtonal piece was Lubet d'Albiz’s *Création harmonique: étoile musicale composée pour piano ou orgue à quarts de ton* for a quarter-tone instrument built by Alexandre-Joseph Vincent and Bottée de Toulmon (c.1858), but both Foulds and Carrillo asserted that each had discovered microtonal intervals in the late nineteenth century.[[15]](#footnote-15) Their, and others’, alleged earliest microtonal pieces are lost, and succeed only in confusing attempts to establish firm fix points in the early years of modernist microtones. Yet most microtonal composers of the early twentieth century wove stories of discovery into their theorisation of microtonal composition. Carrillo, for example, claimed to have discovered sixteenth-tone intervals in 1895 by dividing his violin strings with a pocket knife instead of a finger (similar to Harry Partch, who marked a cello fingerboard with 29 steps within the octave and then had this fingerboard fitted onto a viola corpus).[[16]](#footnote-16) By comparison, Foulds’s own microtonal origin myth has two sources. In the race for the ‘earliest’ quarter-tones, he claimed pride of place with a lost string quartet of 1898, in which he said to have proven not only the feasibility of quarter-tones, but also their ‘capability of expressing certain psychological states in a manner incommunicable by any other means known to musicians’.[[17]](#footnote-17) He distinguished these, purely Western and experimental, quarter-tones from his second, separate, influence, the Indian microtones (*srutis*) that he encountered through MacCarthy’s work in 1915. MacCarthy (then still Mrs Mann), meanwhile, had begun to give sold-out demonstrations of Indian classical and folk music traditions in British universities and town halls.[[18]](#footnote-18)

These either purely experimental or non-Western origins contrast with more homely myths spun by Ives and Hába. Their myths do not involve a claim of discovery, but only of rediscovery or cultivation: Hába’s initial inspiration came from the quarter- and eighth-tones he heard in the Moravian folk songs of his childhood,[[19]](#footnote-19) while Ives remembered his father building his first microtonal instrument after listening intently to the local church bells in a thunderstorm.[[20]](#footnote-20)

Most microtonalists also shared a belief that microtones enrich, but never replace, a more or less stable diatonic foundation of music, or at least certain central principles of tonality, like tonal centres or chord structures. This gap between highly innovative ‘ultrachromatic’ systems on the one hand, and a suggested diatonic basis on the other needs to be bridged, and most early-twentieth century microtonal composers attempted to do so with aesthetic operations that involve microtones as one option among many in their ‘material toolbox’, and, following this, the assemblage of music from two distinct ‘worlds’, a diatonic and a microtonal one, with microtones achieving different levels of pervasion in their diatonic environment. The result is often colouristic (especially in Foulds and Stein’s music, but also in Hába’s), and the thinking behind these colouristic strategies can perhaps best be compared to those of their contemporaries embedding octatonic collections within tonal surroundings.[[21]](#footnote-21) Examples of these similarly assembled octatonic-tonal effects appear in Stravinsky’s music influenced by Russian traditions, as in Symphonies d’instruments à vent (1920) or *Svadebka* (*Les Noces*, 1923), where Richard Taruskin finds colouristic ‘octatonic-specific’ ‘*Rite* [*of Spring*] chords’, and even in Nikolay Rimsky-Korsakov’s (Stravinsky’s teacher) ‘ferocious’ effects in his opera *Sadko* (1895-6).[[22]](#footnote-22) More broadly, this idea of assembling music with different materials and different tools also resembles the process of bricolage (after Claude Lévi-Strauss), [[23]](#footnote-23) which is common but seldom remaked on in musical composition: ‘The elements which the “bricoleur” collects and uses are “pre-constrained” like the constitutive units of myth … And the decision as to what to put in each place also depends on the possibility of putting a different element there instead’.[[24]](#footnote-24) This early-twentieth century ‘pre-constraint’ of the microtonal elements in a composer’s toolbox, the tentative or sometimes even only theoretical thinking, and the case-to-case decision of how to use them within tonal frameworks provide a curiously reactive backdrop to the more systematic microtonal thinking of composers after 1945. Busoni, for example, theorized microtones, but never followed this up with compositions, much to the frustration of Hába, his mentee. Foulds, by comparison, composed with quarter-tones, but exhibits a stubborn wariness of anything that would resemble a theory or systematic application. By contrast, Ives, Hába, and Carrillo composed *and* theorized, and the latter two even established two of the three pre-War microtonal ‘schools’: Hába’s department of microtonal music at the Prague conservatory, 1924‑49 (interrupted during Nazi occupation and WWII) and Carrillo’s *Grupo* *13* from 1925 onwards.[[25]](#footnote-25) All these composers (and others like Ivan Vyschnegradsky, Georgy Mikhaylovich Rimsky-Korsakov, Harry Partch, Willy von Möllendorff, Rolf Maedel, or Jörg Mager) worked with microtones as if from scratch, in a ‘confusing multiplicity of starting points’, to differing degrees, and with varying success.[[26]](#footnote-26) But their microtonal thinking bears striking similarities, as I argue in what follows with regard to their musical background and microtonal aesthetics. In this first main section ‘Moth to the Flame’, the main protagonists Stein, Hába, Busoni, Ives, Foulds, Kul’bin, Vyshnegradsky, and Carrillo are introduced, and their writings mined for traces of common concerns and tropes. These tropes of microtonal aesthetics and theory are: (1) rediscovery (the idea that microtones have always existed as something natural, in European folk music, or in non-European musics, and can evoke nostalgia), (2) the trope of tonal refinement (the idea that microtonal music does not replace, but only extend tonal possibilities) (3) the closely connected trope of the preservation of tonality (the idea that contained microtones can actually help tonality to survive, but also that the preservation of tonality is more important than microtonal experiments), and (4) the broader trope of microtonal restraint (the idea that microtones can be theorized, but cannot be composed yet, or only tried out where they are just optional). These four tropes not only rear their heads in most early-twentieth century composers’ aesthetics, but they dominate their music, as the second main section ‘Restrained Modernists’ argues.

# Moth to the Flame: Microtonal Aesthetics

How far can we allow material progress in music to dictate our ears what they should like? Can our ears even get used to something like quarter-tone intervals? This is a common topic in music reception, criticism, and composition of the early twentieth century, and it takes different guises, depending on who is writing. Pre-World War I England, for example, was experiencing an Indian ‘boom’, which whipped up interest in theosophy (with its foundation in Hinduism), the country’s art and architecture, and Indian music practices.[[27]](#footnote-27) At the forefront were MacCarthy’s unique demonstrations of instruments, performing and improvisation techniques and traditions, and microtonal scales.[[28]](#footnote-28) She appears to have sung these scales with great precision, delighting not only academics like Donald Francis Tovey, but also inviting English composers to consider Indian solutions for their compostional problems.[[29]](#footnote-29) Around the same time, the building of microtonal instruments increased rapidly on the Continent, often but not always through collaborations between composers and instrument makers looking to refine our listening habits.[[30]](#footnote-30)

Nevertheless, microtones, with their seeming rejection of the common diatonic and chromatic paradigm, were under fire from the word go. The influential German writer and critic Paul Bekker (a strong advocate of Franz Schreker and Schoenberg), for example, held an ambivalent opinion about the chances for a microtonal future of music.[[31]](#footnote-31) ‘The “cry for the quarter-tone” is a few years old already’, he remarked in his 1923 booklet *Neue Musik*. Despite their relative age, Bekker found that microtones were utopian, claiming that Busoni’s previous suggestion for third- and even sixth-tones ‘has an aftertaste [*Beigeschmack*] of Jules Verne’.[[32]](#footnote-32) Bekker’s main critique was that quarter-tones (probably the most popular microtonal interval), dilute the tonal system and accelerate a degeneration of listening habits through chromatic music: ‘Evalued psychologically, the introduction of quarter-tones means a sharpening, but at the same time effeminacy of our sensation of tone.’ Consequently, we end up with a scale that, ‘without doubt, is a gain on the surface, but actually means a degeneration of aesthetic character and effect.’[[33]](#footnote-33) Bekker offered a compromise that suggests the restriction of quarter-tones to ‘colouristic effects within the orchestra.’[[34]](#footnote-34) Without a doubt, this position best supports Bekker’s overall concern, the development of a new melodic linear expression and the preservation of the primate of melody more broadly. Had Bekker known Foulds, he would have realised that this was already been practised.

Bekker’s unease is already present in the earliest published microtonal score and attached writing on quarter-tones, Richard Heinrich Stein’s Two Concert Pieces op. 26 for Cello and Piano (Zwei Konzertstücke, 1906). Stein was a German composer and music critic, who spent the duration of the First World War in Spain and later retired to the Canary Islands. As a well-travelled twenty-year old, he had published a collection of Icelandic Inuit songs in 1902, thus probably discovering microtones.[[35]](#footnote-35) He came to write music in most standard genres, including one short opera.[[36]](#footnote-36) In his Preface to the Concert Pieces, Stein sought to excuse the use of quarter-tones in these short pieces, anticipating that his ‘attempt will – probably – merely draw derision and disconcertment’.[[37]](#footnote-37) Yet composers’ complaints about the lack of genuinely new music, Stein mused, could not be blamed on the diatonic system. Rather, the lack of true genius and a discerning audience prevented a leap forward. His own quarter-tone innovations Stein therefore classified as a ‘suggestion [*Anregung*] – no more and no less’ for the ‘reintroduction’ of microtones into Western music.[[38]](#footnote-38) However, ‘as we cannot be too careful with the introduction of new things, I have no intention for now to use quarter-tones more extensively.’[[39]](#footnote-39) Stein’s microtonal musings already included the four defensive maneuvers. He thereby foreshadowed many elements later microtonalists stressed in their respective origin myths. For Stein, quarter-tones were a ‘found’ tool, rediscovered to serve the heightened sensitivity of the twentieth-century listener. Yet they needed to be applied sparingly within the diatonic system in order to serve our tonal drives. As such, they could refine and preserve tonality, until such a time when a true genius would free music of any such restraints.

Stein introduced two quarter-tonal features to attain his goals: first, a third, ‘neutral’ triad type (or gender, in Stein’s thinking) with its major third a quarter-tone lowered, which can extend the diatonic duality of major and minor;[[40]](#footnote-40) and second, leading notes a quarter-tone sharpened, which can regain the thrill – or ‘satisfaction’ – of our ‘leading-note urge’ [*Leittonbedürfnis*].[[41]](#footnote-41) By this notion Stein implied a basic listening psychology of an audience dominated by primeval drives. In a later report on quarter-tones he sought to justify both a guilty listening pleasure *and* the – seemingly contradictory – historical necessity of cleansing a ‘hysterically exalted’ Western music by refining the ‘barbarian’ parts of our musical senses. [[42]](#footnote-42) This took the form of the ability to hear microtonal intervals. In the wake of his research among the Inuit and their microtonal music, Stein must have felt that he was returning into Western civilisation a tool which ‘musical barbarians’ still possessed and which Westerners needed to retrain themselves to appreciate.[[43]](#footnote-43) The curious undercurrent of race and exoticism, coupled with the feeling of unveiling one’s own cultural pre-history through foreign civilisation, here supports the notion that we all follow a basic tonal drive, whose fulfilment the ‘children of the twentieth century’ seek with ever subtler means (in this case the sharpened leading note).[[44]](#footnote-44) We can read his manifesto of necessity in this vein, in which he assumed the role of spokesperson of microtonal composers:

We quarter-tone composers do not at all want to introduce a new system of composition, like other modernists [*Neutöner*]. We do not fight anyone. And we do not understand why we are being fought so bitterly from so many sides. For in our opinion any new artwork is all about whether it is viable [*lebensfähig*] and vital [*lebenskräftig*]. … We use quarter-tones because we cannot do without them, because we need them in order to express our musical ideas; but we don’t all compose similar kinds of music. … What unites us in the great difference between our artistic goals is perhaps just this: artistic honesty and a strong identity of musical sensitivity.[[45]](#footnote-45)

Czech composer, teacher, and theorist Alois Hába (1893-1973) grew up with the microtonal music of his native Moravia, and seems to have found his later use of them less awkward to justify than Stein. Hába’s own microtonal story is built around the omnipresent microtones in the songs his mother sang, and of folk singers’ music, who he accompanied as a violinist in the band of his home town Vizovice.[[46]](#footnote-46) According to his confident musical autobiography *Mein Weg zur Viertel- und Sechsteltonmusik*, as a teenager he quickly picked up the fine differences and sought to harmonize the folk singers’ melodies with microtonal chords on his violin.[[47]](#footnote-47) In a differing memory in the Preface to his *Neue Harmonielehre des diatonischen, chromatischen Viertel-, Drittel-, Sechstel- und Zwölftel-Tonsystems*, his playful intoning of ‘wrong notes’ with his two brothers Josef and Vincenz was credited as the foundation for his aural concept of microtones (for the lack of which he criticized his mentor Busoni, explaining that Busoni’s longing for third- and sixth-tones had to remain unfulfilled because he lacked the notion, or respectively the instrument, to imagine the results).[[48]](#footnote-48) Hába sought to invoke the idea that microtonal intervals came natural to him, and he perceived them as an authentic and artless practice, which he only refined in his own system. At a later point, his interest was additionally fuelled by his discovery at a symposium that microtones were also used in Arabic and Turkish music. However, it was Rudolf Steiner’s theosophically inspired anthroposophy which provided Hába with the concept of the ‘free act’ to retrospectively defend his quarter- and sixth-tones from accusations of being ‘formalist’ or even ‘degenerate’; and to position them as a creative act of the mind without formal restrictions.[[49]](#footnote-49) Building on this idea of microtonality as something both natural and spiritual, Hába kept abreast of the most recent microtonal developments by Richard Stein and others, mentioned in a progressive handbook on music history he studied while working as a young school teacher.[[50]](#footnote-50) He was certainly lucky in being able to contribute to the building of microtonal instruments and having as his mentors Franz Schreker, Hermann Scherchen, and Busoni (later, the Czech Ministry of Culture became Hába’s patron). Hába also developed his own accidentals for his microtonal intervals in the various systems (there are accidentals for the raising and lowering [respectively] of third-tones, quarter-tones, sixth-tones, and specific twelfth-tones).[[51]](#footnote-51) Parallel to these influences, he situated himself in the line of progressive Czech composer-theorists Fr. Skuherský, Karl Stecker, and Vítězslav Novák, microtonally extending their liberating rule of unlimited combinations of chords of different keys without prior modulation: ‘Every tone can be connected [*in Verbindung bringen*] to any other tone from any tonal system. Every interval and chord can be connected to any other interval or chord from any tonal system.’[[52]](#footnote-52)

Yet despite this progressive outlook (an additional factor certainly being his connection to Schoenberg’s Verein für musikalische Privataufführungen and his work for Universal Edition Vienna as a proofreader), diatonic thinking remained his ledger in the form of a fundamental major-minor distinction. Although more confident in the composition with microtones than his mentor Busoni, Hába took care not to lose sight of semitonal ‘landmarks’ in his music. When asked by Alban Berg about his idea of a tonal centre in his quarter-tone music, Hába allegedly explained: ‘I want to know where I am tonally, not unlike a pilot up high who is interested in which cities he is flying over. Of course, it doesn’t need to interest him all the time.’[[53]](#footnote-53) Hába continued to stress the need to combine semi- and microtonal worlds in order to achieve ‘natural’ music. In his account of the Munich premiere of his quarter-tone opera *Die Mutter* (*Mother*) in 1931, for example, he claimed that the opera presents a drama following the established principle of *per aspera ad astra*, or, as Hába phrased it: ‘“from minor to major” – put musically – “from good Friday to the resurrection” in the sense of the Christian life-affirming paradigm (not the antique tragic one).’[[54]](#footnote-54) Throughout *Mein Weg*, Hába made use of the major-minor paradigm as the defining principle of his microtonal music. There, he ordered intervals and chords by how ‘dur’ or ‘moll’ they sound, or he explained that, while Schoenberg and Berg ‘wanted to break out of traditional listening’, he ‘wanted to differentiate it further’ (i.e. refine tonality through the use of microtones).[[55]](#footnote-55) In his *Harmonielehre*, finally, he explicated this pervasion of the new microtonality by the old tonality: ‘The principle of tonality and polytonality remains in existence in the quarter-tone system. … Likewise, the principle of tonicity [*Tonzentralität*] remains valid, but in an extended sense.’ (i.e. the preservation of tonal principles)[[56]](#footnote-56)

Hába met Busoni in 1922, around the time when the latter had been theorising microtones and struggling with the sounding results for a good 16 years. While Hába was full of enthusiasm for the possibilities of his tonal microtonality, he paints a depressing portrait of his mentor Busoni. In 1906, mere months after the publication of Stein’s Concert Pieces and their Preface, Busoni had weighed in the debate with his *Entwurf einer neuen Ästhetik der Tonkunst* (1906‑7, the first published theoretical piece of writing to demand a microtonal revolution).[[57]](#footnote-57) In this booklet, Busoni had argued that third-tones (the division of the wholetone into three equal parts, and the wholetone scale into 18 such third-tones) were a step towards ‘eternal harmony’.[[58]](#footnote-58) In passing, he also nodded to the trope of rediscovery in crediting Ferenc Liszt, Claude Debussy, and Richard Strauss with developing a feeling for ‘how the intervals of the Series of Seven might be differently arranged (graduated)’.[[59]](#footnote-59) Adequate training, Busoni hoped, would enable listeners to distinguish the sound of microtonal intervals from that of ill-tuned instruments.[[60]](#footnote-60) As a consequence of his tripartite division of the wholetone, Busoni was in effect calling for the partial retraction of equal temperament. Instead of the outdated ‘Series of Seven’, he suggested two wholetone scales a semitone apart (one starting on C, the other on C<sharp>), with each wholetone of each scale divided into three (labelling the three third- tones between C and D, for example, C, C<sharp>, and D<flat>). The two basic hexatonic scales with their 18 divisions each form two third-tone chromatic scales. Overlaying them creates an ultrachromatic scale with 36 sixth-tone intervals. More curious than his following suggestion to overthrow standard notation and branch out into sixth-tones is how Busoni then restrained this system with reference to the imperative of preserving tonality: ‘Were we to adopt [third-tones] without further preparation, we should have to give up the semi-tones and lose our “minor third” and “perfect fith;” and this loss would be felt more keenly than the relative gain of a system of eighteen one-third tones.’[[61]](#footnote-61) Like Stein, even the young progressive Busoni believed that time was not yet ripe.

*Entwurf* drew energetic opposition, not just from Arnold Schoenberg in his well known dismissal of contemporary microtonal experiments as ‘senseless’ in his *Harmonielehre*, but also from composer Hans Pfitzner.[[62]](#footnote-62) In order to reckon with Busoni, Pfitzner had put on his ‘heavy armour of the honorable German defender of the arts’ (as Bekker described it understadedly). Pfitzner’s goal was to reject what he exaggerated as Busoni’s attempt to overthrow the entire Western musical tradition by means of establishing some American modernist microtone machine (Cahill’s harmonium).[[63]](#footnote-63) Although Pfitzner’s nationalist game is easy to see through (in his view, German music of the ‘great masters’ is a rich fond of melodic developments and can supply Western art music for the foreseeable future without needing to resort to microtones), his outright rejection of microtonal experiments chimes with Bekker’s more cautious dismissal.

But in 1922, Busoni himself turned against his previous microtonal aesthetics. In ‘Bericht über Dritteltöne’, he retracted his previous enthusiasm to a surprising degree – much to Hába’s frustration.[[64]](#footnote-64) The reasons for his change of mind are speculative, but Hába reports a telling conversation with Busoni around the time of writing. When asked by the younger Hába (gently nicknamed ‘Ali Baba’ by Busoni) why he had not executed his third-tone theory in composition, Busoni replied evasively (for example he claimed that he ‘had too much to do in the semitonal system so far’ to turn to microtones.[[65]](#footnote-65)) Busoni also complained that he had been unable to obtain a harmonium or piano in sixth-tones to help him hear those intervals; this in turn had hindered actual composition. In a somewhat cruel retrospective turn, Hába suspected that Busoni actually had no notion of the harmonic possibilities of this system.

But in ‘Bericht’, the prior reason of having too much to compose diatonically is used as an excuse for more fundamental doubts. Here, Busoni admitted that he had only been able to conduct limited experiments with third-tones amongst friends, and on insufficiently prepared instruments, in order to establish whether a third-tone chromatic scale was perceived as ‘out of tune semitones’ or as an orderly ultrachromatic scale (the familiar question of microtonal audibility). While this scale enriches the potential for melodic expression, Busoni reasoned that there was no harmonic system to control its potential – and such a system had to be dictated by the ear. This, in turn, was impossible without the envisaged sixth-tone harmonium. We may only wonder what, if anything, would have happened, had not Busoni died shortly before Hába had the first such instrument built in 1924, inspired by his conversations with a supportive Busoni. But in the absence of sounding microtonal instruments, Busoni’s final stance towards microtonal possibilities took on the guise of universal ambivalence about progress in music: ‘If there is anything as bad as trying to inhibit progress, it is forcing progress rashly.’ And: ‘I stick with my maxime that progress must be an enriching of means, not their displacement. Rash innovators begin by negating and erasing the existing.’[[66]](#footnote-66) Although intended as a refinement of tonality as his earlier Fundamentaltheorie, Busoni’s fascination with microtones thus ended as a wary rejection of modernism.

Charles Ives’s opinion on quarter-tone resembles Hába’s. Neither of the two had Busoni’s doubts about the feasibility of microtones, and both experimented pragmatically with quarter-tones, which Ives had been familiar with since his father George had discovered that the local churchbells rang in microtonal intervals.[[67]](#footnote-67) In ‘Some Quarter-Tone Impressions’ (1925), Ives remembered how his father had built a microtonal instrument shortly after the church bell incident and started teasing his family and the neighbours with its unfamiliar sounds. Eventually, George Ives had decided that microtones only made sense as passing notes or ornamentation in piano music. Although his son Charles felt that microtones were a natural and welcome source for renewal, he followed the general tendency in microtonal aesthetics of his time in refusing to see them as the magic bullet. Instead, he suggested a steady and slow transfusion of microtonal thinking into Western music, by helping listeners hear the advantages of ultrachromatic colour. A piano piece, for example, that had once been heard ornamented microtonally, would afterwards sound ‘like something wanted but missing – a kind of sensation one has upon hearing a piano after a harpsichord’ (a notion similar to Stein’s ‘leading note urge’, perhaps).[[68]](#footnote-68) Nevertheless, Western aural conservativism led Ives to believe that ‘it will probably be centuries, at least generations, before man will discover all or even most of the value in a quarter-tone extension. And when he does, nature has plenty of other things up her sleeve.’[[69]](#footnote-69)

In practice, Ives gave advice on how to write and listen to quarter-tonal music in ‘Some Quarter-Tone Impressions’, and he proved himself a pragmatist here. Suggesting that readers try out quarter-tones on a two-keyboard piano (where the upper keyboard is tuned a quarter-tone higher than normal temperament), he discussed his concerns about finding a long-term purpose for quarter-tones, rather than writing music that merely sounds out of tune. A melody using quarter-tones as passing notes, he mused in this context, ‘is agreeable and has its uses, but broadly speaking it seems to me a kind of begging the question.’[[70]](#footnote-70) If, however, such ‘quarter-tones melodies’ were harmonized not with diatonic triads but with mixed diatonic/quarter-tone tetrachords, Ives saw a real use in ‘their ability to relieve the monotony of literal repetition.’[[71]](#footnote-71) This manifests itself in two parameters: (1) harmonically: Quarter-tonal chords, Ives suggested, do not ‘hold up’ ‘that organic flow’ when repeated – diatonic chords do,[[72]](#footnote-72) and (2) rhythmically: When grafted onto ‘definite tonality’, a phrase in quarter-tone intervals in alternation with its diatonic twin clarifies the rhythmic scheme.[[73]](#footnote-73) As such, quarter-tones can extend our harmonic language and assist composers in solving contemporary problems. But even here the trope of restraint breaks into modernist utopia, in Ives’s famous claim that ‘quarter-tones or no quarter-tones, why tonality as such should be thrown out for good, I can’t see. Why it should be always present, I can’t see. It depends, it seems to me, a good deal – as clothes depend on the thermometer – on what one is trying to do, and on the state of mind, the time of day or other accidents of life.’[[74]](#footnote-74)

Ives’s unprejudiced approach and trust in his musical instincts is mirrored in John Foulds’s approach to quarter-tones. Suspicious of systematisation (for which Busoni and Hába may stand as representatives), Foulds believed that the composer’s choice of musical materials is dictated by the piece at hand and that one particular pitch-organisational system has no priority over a collage of techniques and materials. Foulds had started out as a self-taught cellist, composer, and conductor affiliated to the Manchester Hallé Orchestra under Hans Richter. When he turned to composition as his only career, his light and incidental music brought him money, whereas his concert and stage works had mixed success. Interested in spiritualism and theosophy, he and MacCarthy had a short-term hit with the large-scale World Requiem (1919-21) commemorating the dead of the First World War. But success was fickle and Foulds sought his luck in Paris and later in India, where he assembled a European-Indian orchestral ensemble at All-India Radio and broadcast with this and other ensembles until he died suddenly from cholera after having been transferred to Calcutta.

Foulds had set down his rudimentary quarter-tone aesthetics in his op. 92, the polemic survey *Music To-Day* (London 1934). The severe criticism of Hába’s quarter-tonal system is at the heart of Foulds’s claim to independence from contemporary European microtonalists. Foulds had studied Hába’s Second String Quartet op. 7 (1921) and had come to the conclusion that Hába’s composition seemed too artificially modern.[[75]](#footnote-75) He scolded Hába’s quarter-tone accidentals as ‘unnecessarily confusing to the eye, even after prolonged acquaintance with them’.[[76]](#footnote-76) Of the music, Foulds complained that the Quartet used quarter-tones excessively, but that it failed to offer any ‘new ideations’. Its effect was ‘as if a poet should retell the old, old story of Cinderella in words every one of which should contain a “th”.’[[77]](#footnote-77) The criticism echoes Busoni’s resigned verdict that quarter-tones alone are not a sufficient condition for a good piece of new music. Elsewhere in *Music To-Day*, however, Foulds declared that quarter-tones are *necessary* conditions of good new music: ‘[Atonal, polytonal, modal, quarter-tonal] devices are needed by the adventurous spirit whose wings can bear him to the enchanted land of Hy Brāsil’.[[78]](#footnote-78) Busoni (nicknamed ‘Faithful Failure’ in *Music To-Day*), for example, is criticized for his music’s lack of polytonality or atonality.[[79]](#footnote-79)

Imagining himself firmly on the side of musical progress by writing about new scales, tuning systems, or even atonality in *Music To-Day*, Foulds still couched his remarks on progressive materials and tools in a defensive language, which sought to distinguish his quarter-tones from what the critical English layman might disregard as either a violin playing out of tune, or the latest continental fad. Foulds’s stance on quarter-tones (as well as on other modernist leaps) was that they could only be deployed in rare moments in his music; namely when no traditional Western material was able to convey a comparable ‘psychological state’, or when they were firmly embedded in a traditional structure or form. As his criticism of Hába shows, he was suspicious of any one progressive tool used systematically, for fear of an impression of amateurish excess this might produce: ‘Again it seems necessary to repeat that … any demi-semi composer might seize upon this device of quarter-tones and exploit it for the sake of any cheap notoriety he might obtain because of its superficial newness. No real artist would countenance such a procedure.’[[80]](#footnote-80)

It is clear that by ‘real artist’, Foulds means himself, more so than Hába or Busoni, who for his taste either over- or under-used microtones. His suggestion to reserve quarter-tones for special moments in order to avoid ‘cheap notoriety’, echoes Stein and Ives and their belief that the introduction of quarter-tones into Western music would proceed slowly and cautiously.

This being said, Foulds’s individual stance deserves a qualification. His was an isolated microtonal voice in Britain, itself a musical scene not ony somewhat lagging behind the Continent in this area, but also obsessing over musical professionalism.[[81]](#footnote-81) No microtonal congresses, concerts, custom-built instruments, or scores were available here until the 1930s. And when (Western) microtones became a thing in the 1930s, even generally progressively minded composers like Constant Lambert or Christian Darnton were damning in their criticism. The former launched an attack on Hába, similar to Foulds’s own Cinderella accusation. Lambert made the point that ‘the quarter-tone quartets of Aloys Haba [*sic*], for example, differ from the quartets of Brahms only through being written in the quarter-tone scale. Once we have assimilated their somewhat uninviting sounds, we find ourselves back in the old world of thought and form.’[[82]](#footnote-82) Christian Darnton, a composer progressively minded enough to take part in the activities of the International Society for Contemporary Music, likewise rejected microtones. Based on his participation at a London demonstration of a microtonal harmonium built by a Dr Sandberg, he observed in 1940 ‘that the interval that produced the greatest sensation of physical pain was the Third of a Tone’ and, somewhat contradictory, that ‘no one in the audience was able to tell which of any two adjacent microtones was the higher in pitch.’[[83]](#footnote-83) Needless to say that an extension of the chromatic scale that would cause both physical pain and tonal confusion was to be rejected. If Lambert and Darnton’s dismissals may stand as a mere skimming of the British musical surface, Foulds’s caution can perhaps be read as a sensible response, if anything, to a comparatively restrictive national discourse.

The common idea that microtones are something natural (derived from the rediscovery trope) or that they refine tonality in crisis pervades even more experimental approaches. Two such approaches shall stand as representatives here. Futurist, composer, and medical doctor Nikolay Kul’bin was among the earliest representatives spearheading a broader reception of microtones within modernist circles in central and Eastern Europe (among them the Russians Mikhail Matyushin, Artur Lourié, and Ivan Vyschnegradsky). Kul’bin wrote a manifesto on microtones for Franz Marc and Wassily Kandinsky’s collection of modernist painting and writings *Der blaue Reiter*, in which he articulated the idea of ‘free music’ [freie Musik].[[84]](#footnote-84) This free music was not only modelled on the sounds of nature – ‘light, thunder, wind rushing, water rippling, birds singing’, but also followed nature’s laws.[[85]](#footnote-85) Quarter-tones (and later other, finer intervals) represented this free music, and would enable new forms of aural enjoyment through the host of new microtonal melodies, chords, dissonances and their respective resolutions. Like Stein and Busoni, Kul’bin believed that a microtonal enrichment of the diatonic system would result in ‘natural’ elevated levels of jouissance that would grip listeners of his free music. For example, he suggested microtones should be able to imitate birdsong (an idea he shared with fellow futurist Mikhail Matyushin [1861–1934], a member of Georgy Rimsky-Korsakov’s experimental Petrograd/Leningrad Circle of Quarter-Tone Music).[[86]](#footnote-86)

Vyschnegradsky (1893-1979), a Russian emigré microtonalist in Paris, had similarly radical ideas, culminating in a postulated crisis of tonality. He had derived his microtonal ideas from Western music’s historical tendency to divide the wholetone into ever smaller divisions (Vyschnegradsky’s own music featured third-, quarter-, sixth- and eighth-tones). His ‘ultrachromaticism’, or ‘diatonicized chromaticism’ is spelled out in the 24 Préludes op. 22 for two pianos (1934, rev. 1957–61, 1974–5), which run through a cycle of ‘major fourths’ (the fourth raised by one quarter-tone, which is the middle of Vyschnegradsky’s 13-tone scale).[[87]](#footnote-87) But Vyschnegradsky’s crisis is not merely one of tonality, but a Riethmüllerian ‘deep musical and psychological crisis that crosses all our culture today: from this crisis, a new musical language must be born.’[[88]](#footnote-88) This new microtonal language, Vyschnegradsky’s ultrachromaticism, does not stem from ‘primitive’ sources, but is based on the romanticist refining ‘tendency towards chromaticism, to the dissonance, and finally, to the quarter-tone’.[[89]](#footnote-89)

Vyschnegradsky was not only at the centre of a middle-European microtonal group, but he also correspondeded with the Mexican composer Julián Carrillo (1875-1965), who represents a noteable exception in tone and theory to the tropes present in most early twentieth-century microtonal thinking. Like Foulds, Carrillo had entered the race for the earliest microtones and confidently laid claim to getting there first. Carrillo’s origin myth involving a pocket knife and a violin string led to a fully fledged microtonal system – ‘“el sonido trece” (“the 13th sound”)’ was born.[[90]](#footnote-90) Carrillo’s biographer Alejandro L. Madrid rightly warns that this version needs to be taken with a pinch of salt, since we have only the composer’s word for it (and a composer, who, by the time he promoted this myth of origin, had to defend his originality from a growing number of critics).[[91]](#footnote-91) Although it is likely that Carrillo did experiment with microtones very early, it seems strange that he should have completely neglected the potential consequences of his discovery (both in writing and in composition) until 1922, when he became aware that there already was a lively European microtone scene and started a prolific series of compositions and writings heralding his *Revolución del sonido 13*.[[92]](#footnote-92)

In the years between 1895 and 1922, Carrillo led an unsteady life between revolution-torn Mexico, Europe, and New York. His early compositions, Madrid has in fact argued, are those of an early modernist in the broadest sense. He absorbs, plays with, even twists European nineteenth-century models (for example in his First Symphony).[[93]](#footnote-93) Nevertheless, Carrillo’s origin myth is important as a retrospective self-fashioning as a radical modernist. Claiming inspiration neither from folk music, nor from non-Western music or sounds of nature, and thus rejecting the trope of rediscovery, Carrillo simply stated that ‘in 1895 I succeeded in dividing the wholetone into sixteen equal intervals. This accomplishment expanded the possible contents of an octave far beyond the twelve tones which had imprisoned music for centuries.’[[94]](#footnote-94) He named the new-found system *sonido 13*, first as the pitch one sixteenth above the lowest G on the violin, and later as a symbol of his breaking through the twelve semitones in the octave – a name wisely chosen to cover his later far-reaching divisions of the octave not only into quarter-tones, but also third-, fifth-, seventh-, eighth-, ninth-, eleventh-, thirteenth-, fifteenth-, and sixteenth-tones.[[95]](#footnote-95) Only pages after this confident beginning in *Sonido 13*, Carrillo claimed this achievement not just for himself, but for his nation, and thus for the Americas as opposed to Europe: ‘Humanity is indebted to Mexico for discovering tones 13 to 96 in the nineteenth century and tones 97 to infinity in the twentieth century.’[[96]](#footnote-96) The entangled claim of his nation’s historic rights with his personal accomplishment is further coupled with Carrillo’s denial of Hellenic and medieval Western microtone explorations.[[97]](#footnote-97) Consequently, he saw his microtones not as a continuation of a common tradition like most European microtonalists, but emphasized his system’s disruptive force: ‘the thirteenth sound will be the cataclysm that will destroy everything, it will put the finish on music as it exists at present’.[[98]](#footnote-98)

Following on from his invention, Carrillo did not seek to relate his microtonal intervals to the diatonic or chromatic system in order to justify their existence. According to Madrid, the full unfolding of his system took shape as *sonido 13* grew, and in conversation with a contemporary discourse of European influence on Mexico, during which ‘Carrillo refashioned his Sonido 13 [*sic*] revolution from the source of enrichment of the Western music tradition – with the addition of new pitches into the E[qual] T[emperament] system – into a project to cleanse the system from its historical “errors”.’[[99]](#footnote-99) In 1924, for example, he had still maintained that his microtonal system stood in the ‘glorious German music tradition’ but was nevertheless a genuinely Mexican invention.[[100]](#footnote-100) Both non-Western music and the past of Western music came to be excluded from this imagined march towards an ideal future shaped by *sonido 13* as a system, which was being established alongside Carrillo’s discovery of acoustic ‘truths’ in the harmonic series. Owing to both the contemporary opposition from other Mexican composers and theorists (the so called *Grupo 9*) and the all-encompassing nature of *sonido 13*, Carrillo theorized his microtones to a degree unmatched by contemporary writing, with a body of books, booklets, articles, and verbal battles mostly fought in the newspaper *El universal*. His arguments are laid out in a sometimes aggressive tone, but they are also substantiated by extended tuning experiments with harps (according to Carrillo up to 128th-tones) and, by proxy, far-reaching conclusions for the harmonic series and acoustics, both of which are foreign to his European contemporaries.[[101]](#footnote-101) Whether the resulting calculations – of numbers of possible pitches within the octave, or ratios within the harmonic series – are correct (which they are not always) is here less important than Carrillo’s claim to total dominance of the material, which led him to a system ‘absolutely free of whole tones and semitones’.[[102]](#footnote-102) This hermetic microtonal system is worlds away from Busoni, and even from more synthetic approaches such as Vyschnegradsky’s crisis myth. In theory, it rejects all four common European microtonal tropes while it attempts to break music history in half.

With the exception of Carrillo, the similarities in early twentieth century microtonal thinking outweigh the differences. Many microtonal composers of that time curbed their enthusiasm over the possibilities of the infusion of Western music with microtones. It therefore seemed logical to most of them to suggest a step-by-step introduction of microtones in order to give the ear the opportunity to develop alongside the evolution of the microtone (as in Stein, Ives, or Foulds’s writings). Others even suggested to ‘tame’ microtones in a major-minor duality (Hába), or merely theorize them (Busoni). But crucially, all shied away from the atonal taboo, whether driven by systematic experimentation, ethnomusicological research, childhood reminiscences, or modernist ideology. Therefore the tropes of tonal refinement and preservation of tonality gained importance in their writings, accompanied by advice on notation and on the avoidance of the dreaded ‘out-of-tune’ performance scenario. The common concern about the viability of microtones is tempered, however, by their justifying reminders of structural models and natural sounds, the history of European as well as non-European musics, psychology, or combinations of these. Unlike the later microtonalists, physics or acoustics played hardly any part, and neither did the question of tuning systems (again, Carrillo’s engagement with the harmonic series is an exception). For the time being, the diatonic system remained the foundation of microtonal music.

# Practice and Preaching: Microtonal Composition

Most microtonal compositions of the early twentieth century sit on a scale between two extremes: on one end of the scale Stein’s minimally invasive microtonal procedures, on the other Carrillo’s dense level of microtonal surface pervasion of diatonic or wholetone structures. In between, composers deploy microtones in surprisingly different scenarios, which map onto four tropes of rediscovery, refinement, preservation, and restraint, at the same time explaining, extending, and sometimes even destabilising these categories.

## Rediscovery: Nymphs, Celts, and Church Bells

The trope of rediscovery plays a less explicit role in early-twentieth century microtonal composition than it does in the writings prefacing or accompanying this music. Nevertheless, there are several cases of nostalgic or reminiscent quarter-tones. These are all attempts to evoke atmospheres of far-off places and moods, and are therefore explicitly colouristic effects. They extend tonal or near-atonal frameworks in specific moments, and then disappear again.

A prominent example of this procedure can be found in Karol Szymanowski’s ‘Driady i Pan’ (‘Dryads and Pan’), the third piece of *Mity* op. 30 for violin and piano (*Myths*, 1915). The piece draws on extended techniques to imitate the arcadian creatues evoked in its title: airy glissandi and harmonics to imitate Pan’s flute and quarter-tones to represent the fleeting appearance of the tree nymphs in its introduction and coda. Although its only quarter-tone D- penetrates no deeper than the mere pitch surface of a few bars, this quarter-tone pitch powerfully accounces a piece whose Hellenistic arcadian music comes from a time and place beyond ours.[[103]](#footnote-103)

A degree of stasis also characterizes most of Foulds’s quarter-tone music. The unfinished *Lyra Celtica* op. 50 for wordless contralto and orchestra (mid-1920s), is a rarity in his quarter-tonal catalogue: It prescribes microtones in the voice part’s cadenza at the beginning of the first movement, ‘Lento’, and anchors them in a highly colouristic ‘Celtic’ atmosphere, a blend of ‘customary pentatonically and modally-inflected melodic lines with sophisticated whole-tone and “pan-diatonic” harmonies in an evocative, iridescent sound-fabric’.[[104]](#footnote-104) *Lyra Celtica*’s quarter-tones satisfy a strong nostalgic-exoticist urge in Foulds’s œuvre (as opposed to the more modernist urge carefully unfolded in this article’s epigraph). In this exotic concert piece, microtones therefore appear as rediscovered objects from an imagined Celtic arcadia, rather than avant-garde tools to help music progress. MacDonald has found the idea of microtones in a vocal score ‘bizarre, to say the least – till one remembers that Foulds was married to a woman who could sing the Hindu scale of 22 tones to the octave with flawless accuracy.’[[105]](#footnote-105) Although it is not clear that *Lyra Celtica* was written for MacCarthy as the vocalist, her influence on the conception can be assumed, locating the work closer to their Indian musical explorations.

A more pervasive example of rediscovery is the first of Ives’s Three Quarter-Tone Pieces for Two Pianos (1923-4), which triggered his Essay of 1925. By the time this and the Pieces came into existence, the majority of his less theoretical quarter-tone music had already been written: *Tone Roads* no. 3 (1911, 1913‑14), the second movement of Symphony no. 4 (1912-18, 1921‑5), and ‘Like a Sick Eagle’ from the Set for Chamber Orchestra no. 1 (1915‑6) precede not only Ives’s own theory, but also the European microtonal boom of the 1920s. The Three Pieces are Ives’s most thorough exploration of quarter-tones and best show his priorities and pragmatism. Pragmatic is their notation, above all, with its aim to keep visual challenges to a minimum. This comes at the cost of Ives relinquishing control over the actual performance pitch to a piano tuner: Of the two normally notated pianos, either Piano I needs to be tuned a quarter-tone higher, or Piano II one lower than equal temperament, so that Piano I is always a quarter-tone higher than Piano II. In the Essay Ives gave a short explanation of the Pieces, pointing to each of their different aims, construction, and rising quarter-tonal engagement. The first, ‘Largo’, had originally been written for one quarter-tone piano and explores quarter-tonal intervals merey as enriching elements for the augmented triads that make up the piece’s extended tonal framework. Quarter-tone intervals occur both simultaneously between chords in the two quarter-tonally tuned parts, and within melodic lines involving the two pianos. But they do not yet penetrate the bitonal structure on a deeper level (which they do in the following two pieces). Rather, the Largo’s quarter-tones function as embellishments, and they send their listener back to Ives’s origin myth. The opening bitonal augmented triads in quarter-tonal distance are reminiscent of George Ives’s church bells, while the ‘false octave’ in b. 6 cuts to the chase of the quarter-tonal issue – the play with what is notated identically (the printed C) but what sounds different (C<natural> versus C+ or C-, depending on how the pianos are tuned, example 1).

Ives’s quarter-tonal invasion in ‘Largo’ is pervasive (insofar as quarter-tone intervals are omnipresent), but at the same time mild (insofar as the pervasion sists statically between the bitonality).

## Refinement: ‘Bastard C-Sharps’

The last two of Ives’s Quarter-Tone Pieces dare to go further than the first, ‘Largo’. The second piece, ‘Allegro’, is virtuosic (it had originally been conceived in this final form as a two-player piece). Repetitions of various small motives in the two parts a quarter-tone apart resume the previous Piece’s play with the idea of ‘same but different’ (e.g. b. 3, bb. 11-12, 29 & 31). But to Ives, the basic function of quarter-tones here lies mostly in their ability to ‘relieve the monotony of literal repetition’, and so to refine and extend the possibilities offered by non-microtonal bitonality.[[106]](#footnote-106) The effect of this newly interesting repetition is tried out on the small motivic snippets themselves and on pre-existing rhythms (which are reminiscent of his own Ragtime Dances). According to Ives, both these motives and the rhythms profit from their quarter-tonal refinement (example 2).

Despite its complexity, Ives was dismissive of this piece: as a study of rhythm, he decided, its use of quarter-tones ‘doesn’t amount to much’.[[107]](#footnote-107) It is the last piece, ‘Chorale’, that fully brings out Ives’s thoughts on quarter-tone intervals. Like the first piece, the Chorale was originally conceived for one player only, but it still succeeds in bringing his more intricate ideas to bear. It is based on a genuine quarter-tone chord (rather than the previous bitonality a quarter-tone apart) and closes with the quarter-tonally refined tune *God Save the King*. This primary quarter-tone chord C<natural> / D<sharp>+ / G<natural> / A<sharp>+ is the one Ives theorized *post factum* as the best compromise of all possible quarter-tone hexachords:

Strike C and G on the lower keyboard and D sharp on the upper. This chord to most ears, I imagine, sounds like a C major or C minor chord [triad], out of tune. Add A sharp on the upper keyboard and that impression disappears. If listened to several times in succession, it gathers a kind of character of its own – neither major, minor, nor even diminished.[[108]](#footnote-108)

In this quote, Ives finally permitted himself a gaze into a post-tonal abyss (with the departure from the diatonic system and its familiar major-minor modes and sounds). In the ‘Chorale’, he put these thoughts into practice. In order to allow the ear to get used to it, he repeated this chord several times, sometimes inverted and enriched by versions of a secondary fundamental chord (example 3). This secondary chord, he decided, must ‘give a feeling of less finality than the first, … have lesser intervals, and, in general, a contrasting character, and a note in common [with the primary chord]’.[[109]](#footnote-109) This chord may pan out as C<natural> / D+ / F<natural> (/ G<sharp>+), thus a construction mirroring the primary chord’s intervals.

Based on his first integrally quarter-tonal chord, Ives then established his ‘cantus firmus’, a changeable motif reminiscent of the melody of *God Save the King*, which first appears – tentatively – in bb. 3‑4 (example 3). Here, this ‘King’ cantus firmus is still in a foetal form – internally chromatic with an accompaniment with quarter-tone intervals. Over the course of the Chorale it lengthens, becomes more recognizable, adopts quarter-tones, and finally reappears in a comic, fully quarter-tonal, form in the Coda (b. 48ff; naturally, it has to be spread through both parts in order to achieve this feat). Ives’s carefully engineered fundamental quarter-tone chord aside, the ear latches on to the well known melody. This is not so much because the original tune itself is tonal, but because by building the entire piece on this pre-used tonal tune, Ives made his listeners continuously listen for tonal gist (major-minor relationships in the ubiquitous melody snippets). Once this has happened, even the fundamental chord can tantalize its listeners with its ‘neutral’ element D<sharp>+, especially when the chord is inverted so that this pitch is the highest note (right at the end, example 4). It is this feature that marks even this more structurally microtonal piece as a refinement of tonality, rather than a departure from it.

Together, Ives’s Three Pieces establish an ascent of quarter-tone integration from melodic (‘Largo’) through rhythmic (‘Allegro’), and into harmonic space (‘Chorale’). His experiments are tongue-in-cheek, driven by his characteristic enjoyment of experimentation, collage, and (ultra-)chromatic refinement.

By comparison, Carrillo’s approach to microtones is more comprehensive and absolute, but the execution in music does not represent his system in its most extreme. Far from deploying his theorized 128th-tones, for example, he contented himself with sixteenth-tones in the 5 primeras composiciones a base de 16avos de tono y sus compuestos (1922-5); the rest are quarter-, eighth-, third-, and occasional fifth-tones. Throughout his career, Carrillo also wrote music without microtones, thereby somewhat diminishing the esoteric aura surrounding his microtonal aesthetics. But the underfoot invasion of bricolage and collage into his œuvre is not limited to this implicit division in his catalogue. A real break with tonality through microtones, we could argue, might require that these microtones are not just ubiquitous, but that they emancipate themselves to occupy a harmonic function, additionally to a melodic one – the same task that occupied Ives in his Chorale. The first criterion (microtonal surface pervasion) Carrillo challenged head on, the second (harmonic function) he evaded. As Madrid has attempted to show through a Schenker-based analysis of three levels in the compositions, the relationship between Carrillo’s microtonal foreground and (a-)tonal middle- and backgrounds underwent a development from organic/romanticist/German to fractured/modernist thinking during the 1920s.[[110]](#footnote-110) At the end of this development (for example in ‘En secreto’, the second movement of the Third String Quartet ‘Dos bosquejos’, c. 1928), Carrillo deployed quarter-tones on the surface, while his middle- and backgrounds did not necessarily build on diatonic or chromatic relationships anymore. In a broad sense, this development is modernist, since it breaks with the German nineteenth-century ideal of organicism, opting for a fractured and static impression. But at the same time this procedure restricts the impact of microtones on the deeper layers of the composition. And this, paradoxically, makes it seem less modernist – if microtones can be taken to represent modernist signifiers.

There is (as yet) no equivalent to Schenkerian analysis or Forteian set theory in the analysis of Carrillo’s type of microtonal music, which borders on the atonal. Madrid’s analysis of fore-, middle-, and background pitch class collections in ‘En secreto’ must therefore remain limited to a degree.[[111]](#footnote-111) This piece has a structure which leads its listener from quarter-tones as passing notes (section *A*) to a juxtaposition of symmetrical microtonal scales and diminished chords (section *B*) to a shortened recapitulation of sorts (*A’*) through to Carrillo’s typical use of harmonics in an extended Coda (figure 1).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **sections** | ***A*** | | | | ***B*** | ***A’*** | | **Coda** | | |
| **musical elements** | a | b | a | b’ | cf fig 2 | a | b’ | C1 | a’ | C2 |
| **material (PC colls.)** | 6-35 | 4-28 | 6-35 | 4-28 | 4-28, 6-35 | 6-35 | 4-28 | 4-28, C7 | 6-35 | G7,9 |
| **bar structures** | 4+4 | 4+4 | 4+4 | 4 | 9 | 4+4 | 4 | 11 | 6 | 6 |
| **Rehearsal figures** | A | | | | | C | | D | E | |

Figure 1: Carrillo, ‘En secreto’, section overview [rehearsal figure B missing in the score].

Although the piece ends in an enriched G major, it is based on two main types of material: the wholetone scale or collection 6-35 and the diminished chord or collection 4-28. In the governing section *A*, Carrillo used quarter-tones to shuffle down- and upwards through a chromatic field, with the four parts moving parallel, first a wholetone apart from each other (a), then in the intervals of the diminished chord (b). This procedure represents the simplest way to refine tonal fields by means of microtones. In ‘En secreto’, Carrillo’s quarter-tones do not yet go beyond the establishment of what we could call a highly systematized ultrachromatic surface (the score even *looks* tidy). The fact that stops are never *on* quarter-tones strengthens the impression that they are, as yet, refining surface effects. It is in section *B* that Carrillo used the sets 6-35 and 4-28 to develop something new. In the nine bars of this section, he worked with two diminished chords a semitone apart and two wholetone scales, also a semitone apart (figure 2). The diminished chords can appear as simple broken chords (in bb. 31 and 32, example 5), in parallel motion in two parts, and in a more complex setting where the interval of the minor third is divided in two with the help of quarter-tones, to form a scale of equal steps of three quarter-tones each (in bb. 29-30, for example). These two options are complemented by wholetone scale bars (34 and 36, for example). The impression of great variety is helped by the fact that no two neighbouring bars present the same option (b. 29 functions as a scale fragment as an upbeat to 30).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **element** | 4-28mic. scale | 4-28mic. scale | 4-28 | 4-28 (-1) | 4-28mic. scale | 6-35 | 4-28mic. scale | 6-35 | 6-35 (+1) |
| **bar** | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |

Figure 2: Carrillo, ‘En secreto’, section *B*, bar by bar overview.

‘En secreto’ shares these microtonal division blocks with the earlier Preludio a colón for soprano and ensemble, where this quarter-tonal scale features several times, and where it is extended to divide the perfect fourth into two equal intervals of five quarter-tones each (cf. example 8). But section B in ‘En secreto’ also serves to pinpoint Carrillo’s just about tonal basis of his microtonality: Although the effect of this music is distinctly dissonant, its basis is not freely atonal, but remains restrained to hexatonic and diatonic collections. With its basis of 6-35 and 4-28, the piece is the logical development from the preceding movement ‘Meditación’, which not only employs quarter-tones in quite a similar way to section A of ‘En secreto’, but is also established on the basis of small chromatic collections, 4-28, and even C major.

Later orchestral works confirm that Carrillo’s microtones often serve to refine, rather than break, diatonic or chromatic fields. The Concertino for quarter- and eighth-tone violoncello and orchestra (c.1945), for example, features similar excessive ultrachromatic figures in the virtuosic, dominant, and not very thematic, solo part, and regular occurrences of quarter-tones in the string parts of the orchestra. The piece’s theme is characteristically chromatic with an octave leap, typical for Carrillo and reminiscent of his fingerprint harmonics (example 6). Like ‘En secreto’, parts frequently function from the basis of the diminished chord or chromatic collections.

Towards the end of Carrillo’s pervading microtonal drive, a piece like the First Concerto for quarter-tone violin and orchestra (1949) leans further towards atonality and is thus less concerned with the refinement of a pre-existing tonal space. Its solo part still excels in ultrachromatically enriched virtuosic figures like the Concertino for Cello and Orchestra. The harmonic basis still does not consist of microtones themselves, but a variety of collections based on chromatic, wholetone, and octatonic scales and their fragments pushes the piece towards a tonal edge (example 7).

There is a price to pay for this greater freedom from the restraints of tonal remnants through quick succession of parallel pitches – the piece lacks material capable of supporting a longer melodic development. Small-scale quarter-tone figures are omnipresent in the solo violin, other solos, and the orchestra, but wherever a real motif develops, it often lacks these very quarter-tones (cf. p.6, *tranquillo*).

For Carrillo this lack was irrelevant, because the ultimate goal of *sonido 13* was to achieve ‘compositions absolutely free of whole tones and semitones’.[[112]](#footnote-112) And within the parts, he did attain his goal: Preludio a colón, Dos bosquejos, and the solo parts of the Cello Concertino and the Violin Concerto avoid wholetone or semitone steps within their parts. If steps are not quarter-tonal, they are drawn from artificial microtonal scales, for example where each step is exactly three or five quarter-tones (example 8). Again, this type of scale embodies a refining tendency in Carrillo’s work.

Nevertheless, across parts and in the orchestral accompaniments of the Concertino and the Concerto, wholetone and semitone intervals abound, somewhat stealing Carrillo’s fundamentalist thunder and allowing for a much larger excess of tonal remnants than his aesthetics would have us believe: Despite its goal to replace the diatonic and chromatic systems, his music did not fully break with non-microtonal intervals.

Similar layers developedw in Hába’s microtonal music, for example in the Second String Quartet op. 7 (1920) and the Fantasy for Violin and Quarter-Tone Piano op. 21 (1925). It is not surprising that Foulds criticized the score of Hába’s Quartet: on a first glance, both the Quartet and the Fantasy are riddled with quarter-tone accidentals; and Hába’s policy of these accidentals only being valid for one note increases the score’s visual complexity. Hába himself was proud to claim that his Quartet is ‘monothematic’: Its ‘leading parts are derived in part from a main melody’, as he suggested, but the other parts are ‘free’ (i.e. non-thematic).[[113]](#footnote-113) Its sections – Allegro, Scherzo, Largo, Allegro – show that Hába was already experimenting with his later idea of pitch polarity as opposed to traditional keys.[[114]](#footnote-114) Remotely reminiscent of Stravinsky’s tonal polarity, it is a useful term to describe the losening of traditional thematic structures and procedures. For example, Hába’s polar pitch in the Quartet is D, and in the Fantasy it is C. These pitch poles are destabilized occasionally through bitonality or even chromatic atonality, but since the poles are not bound to a major or minor key, these interventions do not require particular preparation for Hába.[[115]](#footnote-115) This seems to contradict his writings, which stress the major-minor paradigm. But these post-tonal extensions in his music happen in a controlled environment, which surrounds its microtones with much more complex but less fundamentalist music than Carrillo’s.

Two observations on Hába’s use of quarter-tones can be made. The first of these is that Hába does not experiment with quarter-tone based scales (cf. Carrillo’s - and -step scales). Horizontal, scale-based quarter-tone development is less pronounced in the Quartet than the enrichment of post-tonal harmony through quarter-tones, true to Hába’s stated refining aim: ‘It is my concern to permeate the semitone system with more delicate sound nuances, not to abolish it [but] to extend the possibilities of expression already given by the old system’.[[116]](#footnote-116) Consequently, Hába’s quarter-tones open up an ultrachromatic space in the Quartet, without falling into a simplistic parallel diatonicism (where C major is replaced by C+ major etc.). There are certain limits to this free enrichment, however, and these limits ensure that the diatonic system remains in place as a, admittedly remote, framework. For example, no section of the Quartet (including its ending) closes with a chord featuring quarter-tones. The two closing chords after the Largo section and the piece’s ending centre on the pitch polarity D, but they play with other extended possibilities. The Largo ends bitonally with D major/augmented and F<sharp> major/minor, resulting in the set 5-21 {0,1,4,5,8} (example 9). The piece itself ends with a reduced version of this chord, in effect an augmented D major chord with the added fourth G, or set 4-19 {0, 1, 4, 8}. Both chords are prepared through chromatic, sometimes quarter-tonal, appogiaturas, refining what Stein would have called our ‘leading note urge’.

In the slightly later Fantasy, Hába temporarily returned to a more diatonically grounded style, however. He frequently used ‘pure’ parallel quarter-tone chords, for example in the falling sequence of D+ minor, C minor, B- major, G<sharp> minor, and F<sharp>+ minor (example 10), and ended this more rhythmically driven piece in C major-minor (Stein’s ‘neutral’ chord, with E- instead of E or E<flat>). Hába’s opera *Die Mutter* (1927‑9) likewise ends on an enriched major tonic chord (this time D major with additional E+).

The second observation is that, while he lacked Carrillo’s level of quarter-tonal scale development, Hába was more enterprising with quarter-tonal intervals and leaps. Hába’s quarter-tonal space opens new possibilities for advanced microtonal string playing and, in the Fantasy, for pianists experienced in dealing with quarter-tonal keyboard instruments. Although actual quarter-tonal intervals occur most frequently within the parts of the Quartet (for example C to C+), there are also frequent intervals to be mastered (e.g. upwards from E to F+ or downwards from B<flat> to A‑), and occasional leaps, for example upwards from B<natural> to G‑. The use of these bigger intervals enabled Hába to write lyrical quarter-tone themes – something which Carrillo’s scale-focused approach discourages in favour of virtuosity.

Sometimes, Hába even made use of quarter-tones as a purely colouristic tool, and he thereby allowed quarter-tones to wield influence on a less thematically driven level. An example is the Funeral March closing the first scene of his opera *Die Mutter*. Hába evoked tradition with a C minor piece, which is divided between slow punctuated march interjections in the piano, percussion, and initially violins and basses on the one hand, and highly ultrachromatic stepwise progressions in the violas and celli on the other. The latter roam widely along the quarter-tone scale over the course of the March, but begin by shuffling around E<flat> – the pitch class needed to define this as a piece in a minor key (example 11). This stepwise approach is reminiscent of Carrillo’s emblematic sliding motions and Foulds’s sometimes grotesque arrested developments (as the following section shows). For Hába, this colouristic approach may have represent a step down from his usual thorough integration of quarter-tones, but it allowed him to hammer home the ‘obstacles’ of the opera’s *per-aspera-ad-astra* principle and send refined but strong diatonic signals. Opera, after all, needs drama, intrigue, and new effects, and a quarter-tonal funeral march provides for all.

Neither Hába nor Carrillo effectively attempted to destroy tonality completely, although their, sometimes precarious, refinement and microtonal excess permitted the occasional gaze into the atonal abyss. But their loyalty to extended tonality stood firm, and was a feature they shared with the younger and even more experimental microtonalist Harry Partch, whose work bridged the gap between the early approaches in this article and the European-American post-World War II scene. Partch’s turn to microtones had several sources, among them the diverse musical influences of his childhood in the American Mid-West and his discovery of just intonation through Helmholtz’s theories.[[117]](#footnote-117) Although he destroyed his earlier European-influenced music and turned towards American and Eastern musical influences, he drew upon the trope of refinement to critique equal temperament and promote microtones. In his essay ‘Patterns of Music’, he compared the poverty of the composer with her scale of 12 semitones to a painter with a much more fluid palette of microtonal colours able to refine composition and revitalise it:

Consider the writer of music. Before him is also a scale. … In his mind he approaches C-sharp, one of the five blacks. He approaches it, and he lands on it. His action is direct, simple, predetermined. There are no shades of C-sharp, no shades of red, for him. The one shade that his gods will allow him to use os before him. He is taught that that is enough; it is good, traditional, and proper, and he feels a vague sense of immorality in even wondering about those possible bastard C-sharps.[[118]](#footnote-118)

## Preservation: ‘If I’m Not Land, I’m Sea’

In ‘Some “Quarter-Tone” Impressions’, Ives devoted a short but humorous section to the role of the fifth in quarter-tone (indeed, in any) music: ‘The fifth seems to say, ‘You can’t get away from the fact that I am boss of the overtones – the first *real* partial. I have the octaves to walk on. If I’m not land, I’m sea, and you can’t travel around the world without me.’[[119]](#footnote-119) This little rhyme indicates that Ives acknowledged a natural acoustic pull of the perfect fifth. And his fundamental quarter-tone chord (made up from two fifths seven quarter-tones apart, for example C / G and D<sharp>+ / A<sharp>+) confirms this impression. Hába likewise obeyed the lure of the perfect fifth in quarter-tone music, and built special effects with it (for example in what sounds like folk-song inspired piano interludes with parallel fifths in the Fantasy op. 21 [pp. 13, 24, 29]). But no early-twentieth century quarter-tonal music has a deeper relationship with the fifth than John Foulds’s. In his music, this interval guarantees the stability and preservation of diatonic tonality faced with potentially destabilising quarter-tonal interjections.

Foulds’s quarter-tones occur only in the strings and in slow movements, and here as small-scale events which seek a short-term rupture of their surroundings. The perfect fifth is the only interval to be tasked with these quarter-tone shifts in Foulds’s music. Within these boundaries, quarter-tones feature in works as varied as the Cello Sonata (1905, rev. 1927), the orchestral pieces *Mirage* (Music Poem no.5 op. 20, 1910) and ‘Colombine’ from Music Pictures Group III, op. 33 (1912), the large-scale World Requiem op. 60 (with Maud MacCarthy, 1919‑21), the piano concerto *Dynamic Triptych* op. 88 (1929), and *Quartetto Intimo* op. 89 (1931‑2). The only exception (as far as I am aware) to these rules is the appearance of 22 irregular microtones in the soprano part of the aforementioned opening Lento of *Lyra Celtica* op. 50 (c. 1925).

Foulds’s simplest standard quarter-tone procedure can be found in the Quartetto Intimo and the Cello Sonata, which represents probably his earliest exploration of quarter-tones.[[120]](#footnote-120) The Sonata’s quarter-tones appear twice in the middle Lento movement in D minor. Since the movement presents a very simple but non-traditional binary form (*AA’*), these two occurrences are identical apart from their transposition a fourth up the second time. Below a rhythmic A octave pedal in the piano, the cello plays the perfect fifth F / C, which moves upwards to G<flat> / D<flat> via the intermediate quarter-tone interval F+ / C+. This miniature movement is repeated downwards and upwards, and finally stretches to a countermovement into a quarter-tonally augmented fifth on its way into the minor sixth F / D (example 12).

The brief episode functions as a coda of the first of the movement’s two parallel sections, and as a lead into the beginning of the second section. Harmonically, it sits between a short, meandering ‘bell-like’ phrase of the piano in A major, and the restart of the second section in D minor. As such, it ruptures and destabilizes a traditional V–I procedure. The second occurrence somewhat mirrors this with its interruption of the mediant closure gesture from B minor to G major.

In the Quartet, by comparison, quarter-tones only appear once in an even simpler slide in the slow movement in the cello part, here from the fifth C – G through to D<flat> – A<flat>. These slides are Foulds’s standard quarter-tonal gestures. As destabilising elements with an unexpected interruption of the surrounding music, they provided him with a kind of *Verfremdungseffekt*. Their strict limitation to parallel fifths (the backbone of ‘normal’ music, if Ives is to be believed) guarantees that the quarter-tones are safely contained and the tonal framework is dramatically extended but never endangered.

This function is even more obvious in pieces that apply quarter-tones more daringly. An example is the ‘Lento assai’ section of the third movement of the Wagnerian tone poem *Mirage*. Foulds’s standard procedure of sliding perfect fifths is applied twice in the strings (reh.no. 31 and 34, only distinguished by transposition), again in order to alienate and interrupt an otherwise chromatic structure. As there are four string parts, the hexachord A / E / C / G or 4-26 {0,3,5,8} now forms the basis of a downward quarter-tonal slide through to G / D / B<flat> / F, and finally to F / C / A<flat> / E<flat>. Although the principle remains the same as in the previous pieces, the addition of a second fifth created the first quarter-tone chords in Foulds’s music (albeit these are still built on the interval of the perfect fifth).

An even greater complication of fifth slides is achieved in Foulds’s piano concerto *Dynamic Triptych* and in ‘Colombine’, a short movement from a series of atmospheric colouristic studies based on paintings Foulds saw at the Paris Salon of 1906. In the introduction to the Lento movement of *Dynamic Triptych*, two interlocking fifths (B / F<sharp> in the basses and D / A in the celli) slide in opposite directions for the first time in Foulds’s music (celli downwards, basses upwards), so that the respective two strands end on the other’s original pitch class (example 13).

The simultaneous retrograde scale motion interrupts the previous modal fourth chord steps, and opens the stage for the solo piano’s entry on the fundamental fifth D / A. As in the earlier pieces, the quarter-tones’ function is *Verfremdung*, and they create a clearing for the entrance of a new tonal element (here the solo part).

Foulds called ‘Colombine’ ‘A Study in Full-Tones, Half-Tones and Quarter-Tones’. The piece was inspired by a painting of the same name by Alfred-Louis Brunet Debaine, and forms a light-hearted scherzo with a prominent part for the glockenspiel (but no deep wind or double basses). Initially, the movement is based on the wholetone scale, but it also features a theme with semitones, and finally a much slower quartertone episode further on (true to the order announced in the piece’s subtitle). Characteristically for Foulds, the movement only displays quarter-tones during two pivotal (and again parallel) moments, and only in the strings. But in an exaggeration of *Dynamic* *Triptych*, these quartertones fall and rise in greater independence over the course of eight bars, and thus create probably the longest microtonal *Verfremdung* in Foulds’s music. It renders an expected temporary closing gesture into F <sharp> major void, because the parts drift further apart instead of moving in parallel fifths. The result is that the strings emerge from their quarter-tonal episode in a 4-z29 {0,1,3,7} hexachord, instead of the expected major chord (example 14).

Here, tonality is in much more immediate danger from the alien quarter-tones than in any other music by Foulds, and mostly because the quarter-tones are only loosely confined to their standard interval of the fifth. They start from an F<sharp> major chord, move quickly to D minor and back, from whence to G major, back to F<sharp> major, D minor, and enharmonically interchanged E<flat> major. While the interval of the fifth looms large in the relationships between behind these chords, it cannot provide the normal tonal guarantee it normally does, and in effect led Foulds into an otherwise alien country. But what is perhaps most surprising about this piece is that the otherwise conservative British press welcomed what would have been the first large public performance of microtonal music during the piece’s appearance in Henry Wood’s 1912 Promenade Season. Unlike many of Foulds’s European microtonalist colleagues’ performances, this event was not limited to fellow enthusiasts and experts but featured in a popular series of large-scale concerts. Despite this, the reception was enthusiastic. The critic of *The Morning Post* mused, for example, that Foulds’s ‘introduction of quarter-tones hitherto absent from the Western scale, but present in the Eastern, is justified by its effect’.[[121]](#footnote-121) Foulds’s quarter-tonal excursion was appreciated and understood (‘justified by its effect’), and he may have had MacCarthy’s untiring work to thank for this. Her broadcasts and talks had prepared the public uniquely well for this new musical adventure, which, above all, was clearly intended as a specific effect which its composer took pains not to overuse, true to his credo. Even here, Foulds did not much loosen his rigid approach to quarter-tones, which can seem at times like an inflexible alienating formula whose perfect fifths prevent modernist spillage into the surrounding late romantic language.

## Restraint: ‘Satisfy Even the Worst Sticklers’

Richard Stein’s foray into quarter-tones was among the earliest microtonal explorations, but it was also the most restrained. This position of restraint is characterized by a general unwillingness to engage with microtones in practice, since they are seen as too advanced to be intelligible for the foreseeable future. Busoni’s later stance and his lack of microtonal compositions is a case in point, and so is Joseph Yasser’s. Yasser (1893-1981), a Russian-trained Polish organist turned musicologist, emigrated to the United States in 1923 and began working as an organist for synagogues and writing on various aspects of Jewish music from 1930.[[122]](#footnote-122) In one of his most thought-provoking essays, ‘The Future of Tonality’, he postulated obstacles to his microtonal theory of ‘supra-tonality’.[[123]](#footnote-123) According to Yasser, musical scales and modes had developed from a pentatonic division of the octave (‘infra-tonality’, made up from the 5 tones of the pentatonic scale C, D, F, G, A and two auxiliary tones E and B – he called this the ‘5+2’ scale) through to the seven tones of the common practice equal temperament music (‘tonality’, with its five auxiliary semitones, in effect the black keys on the piano keyboard – Yasser’s ‘7+5’). From here, they had to progress into supra-tonality, which would synthesize tonality and atonality of the early twentieth century (consequently, a ‘12+7’ scale, equalling a 19-step microtonal division of the octave). The richness of Yasser’s theory, which he refined into ‘centitones’ and finally ‘millitones’ in *A Theory of Evolving Tonality* in 1932, is striking, and it draws on just intonation unlike most contemporary quarter-tone theories.[[124]](#footnote-124) Yet his call for restraint includes all practical applications of microtones, and seems to be particularly suspicious of a playful approach such as Ives’s. Like Busoni and Stein, Yasser was quick to warn that

the establishment of new and, at least, rudimentary rules of harmony and counterpoint (presupposing, of course, an entirely new classification of consonances and dissonances) would probably represent the next and no less complicated problem to be tackled before any ‘supra-tonal’ musical compositions could be created at all, before even the simplest class-room harmonization based on the supra-diatonic scale could be properly executed.[[125]](#footnote-125)

The consequence was to be that any person aspiring to be a composer would have to be retrained and should start studying supratonal harmony from scratch. Needless to say, it never came to that.

For Richard Stein, the only composer in this group to present restraint in actual composition, the preservation of tonality was of paramount importance and acted as his justification for using quarter-tones at all. This urge of preservation was so strong that it did not just lead him to a very sparing application of quarter-tones (much more so than in Foulds’s music), but even to their restraint up to and including their erasure in performance. Although interested in quarter-tone instruments and actively involved in the theorisation and promotion of microtones, Stein upended Foulds’s notion that microtones could be used where the desired effect cannot be achieved in any traditional way: ‘I have deliberately used quarter-tones only in those places that can be done without them through paraphrasing – by which I hope to satisfy even the worst sticklers [*Nörgler*].’[[126]](#footnote-126) The quote implied that Stein considered his quarter-tones as somewhat premature experiments whose right to exist had not yet been proven. Consequently, they needed to be restrained , which meant giving the performer of his quarter-tone pieces the option of omitting them altogether.

In practice, he believed that the cello was best suited to venture into quarter-tone music, simply because quarter-tones are easier to locate and play on the comparatively wide cello fingerboard (cf. Harry Partch’s cello fingerboard pasted onto a viola). Stein’s only published pieces with quarter-tones are therefore the Two Concert Pieces for Violoncello and Piano. Both are firmly diatonic, the first in G minor and the second in D<flat> major. Stein forewent the introduction of a ‘neutral’ triad he had announced in the Concert Pieces’ Preface (for example C / E- / G) and instead restricted quarter-tones to their function in satisfying the new century’s heightened ‘leading note urge’. Therefore, his quarter-tonal interjections in the Two Concert Pieces fulfil two functions: first, as changing notes they serve to stabilize harmonic resting points (for example the fifth A <flat> in a D <flat> major chord in the Concert Piece no. 1, example 15a); and second, as passing notes they either create a leading note where the chromatic scale would not offer another intermediate step (example 15b), or simply sharpen chromatic ascends or descends (example 15c). As basic as these insertions are, they frequently impact on phrasing and rhythm compared to their chromatic alternatives – a sign perhaps that Stein, like Ives, was aware of the importance of quarter-tones for a rhythmic renewal.

By far the most extensive quarter-tonal feature in the Concert Pieces is the fast downward quarter-tonal scale over 38 steps in the cello over an A<flat> / E<flat> pedal in the piano (ex. 13). Like all quarter-tonal occurrences in Stein’s Concert Pieces, the scale is given with a 19-step chomatic alternative for ‘sticklers’. The effect, nearing that of a glissando, is virtuosic rather than adding anything essential. But it strengthens Stein’s chromatically romantic conception with the piece’s fast changing dynamics and tuneful melodies in the cello. Played without the quarter-tones, the pieces are quite unremarkable (somewhat confirming Ives’s claim that a piece, once microtonally ornamented, sounded boring when these ornaments were removed afterwards). Where they are taken on board, however, they do succeedd somewhat in refining listening habits through their heightened leading-note tension.

Against all odds, some early-twentieth century microtonal pieces elicited positive response, which was perhaps least expected by their own composers. An example is Foulds’s ‘Colombine’, whose quarter-tones Rosa Newmarch justified by pointing to ‘the subtle gradations in tone’ in the painting, which had ‘forced [Foulds] over the old border-line of semitones in his effort to give an approximate effect.’[[127]](#footnote-127) But twenty years later even comparatively progressive composers like Lambert or Darnton still rejected quarter-tones as painful and unintelligible. On the Continent, Bekker and Pfitzner’s aforementioned reservations against Busoni had damaged not only Busoni’s reputation as a composer, but also the viability of microtones before the trend had even fully taken off. In 1929, Leonid Sabaneev spoke up against quarter-tones, microtonal instruments, notation, and composers in a powerful dismissal of the whole idea in *The Musical Times*: ‘The impression conveyed by all these experiments and devices is that they are curiously foreign to the general stream of music, are outside musical territory, so to speak, and hence unnecessary.’[[128]](#footnote-128) His dismissal of Hába and Vyschnegradsky in particular was an attack on these microtonal bricoleurs, whom Sabaneev denied the ability to modernize music: ‘The construction of the musical whole is borrowed from the past, and our mind, in following this music, involuntarily thinks of it in connection with what has gone before. And it cannot be otherwise.’[[129]](#footnote-129)

A more balanced report, Artur Holde’s ‘Is there a Future for Quarter-Tone Music?’, sought to lend some credit to the usefulness of microtones in the face of the twentieth-century angst over diatonic exhaustion: ‘The danger of a “played-out” scale seemed banished with one stroke. Connections with distant, unexplored sound worlds seemed to be established. How many new possibilities for expression were now opened up for the composer! Would not a radical expansion of available tonalities represent the beginning of a new era in music?’[[130]](#footnote-130) His further thoughts of quarter-tones as the basis for ‘radically different systems of tonality’ and a ‘new order of intervals’ use the familiar modernist buzz words we tend to apply when thinking about the music of the early twentieth century.[[131]](#footnote-131) But as the frequency of notions of restraint in early microtonal compositions and writings shows, Holde’s modernist enthusiasm sought to protect composers from charges they had already foreseen and circumvented. By adhering to the tropes of rediscovery, refinement, preservation, and restraint, they had sought to provide against admonitions of radicalism. Although the buzz quietly died down and later microtonalists did not particularly seek out Stein, or Foulds, Hába, Carrillo, Busoni, Vyschnegradsky, or even Ives as their forerunners, this loose group of early-twentieth century composers and theorists deserves credit for their adventurous attempts to save an endangered tonality.

1. Albrecht Riethmüller, *Ferrucio Busonis Poetik* (Mainz et al.: Schott, 1988), 173 [quotes from this source trans. from German by the author]. [↑](#footnote-ref-1)
2. Riethmüller, *Poetik*, 7. [↑](#footnote-ref-2)
3. Ferrucio Busoni, *Entwurf einer neuen Ästhetik der Tonkunst* (Leipzig 1907). All quotes from this source in the trans. *Sketch of a New Esthetic of Music*, trans. Theodore Baker (Schirmer 1911), https://babel.hathitrust.org/cgi/pt?id=nyp.33433011349440;view=2up;seq=1 (accessed 17/8/17). [↑](#footnote-ref-3)
4. There exists a sizeable body of early-twentieth century literature on microtones in Western music. This includes (chronologically) Busoni, *Entwurf einer neuen Ästhetik der Tonkunst*; Jörg Mager, *Vierteltonmusik* (Aschaffenburg, 1915); W. von Möllendorff, *Musik mit Vierteltönen* (Leipzig, 1917); Richard Stein, ‘Vierteltonmusik’, *Die Musik* 15 (1923), 510-16, 741-6; Charles Ives, ‘Some “Quarter-Tone” Impressions’, *Franco-American Music Society Bulletin* (25 March 1925), repr. In H. Boatwright (ed.), *Essays Before a Sonata and other Writings* (New York, 1962), 107–19; G. M. Rimsky-Korsakov, ‘Obosnovaniye chetvyortitonovoy muzïkal′noy sistemï’ [Basis of the quarter-tone musical system], *De musica*, 1 (1925), 52–78; Lotte Kallenbach-Greller, ‘Die historischen Grundlagen der Vierteltöne’, *Archiv für Musikwissenschaft* 8.4 (Sep. 1927), 473‑85; Leonid Sabaneev and S. W. Pring, ‘The Possibility of Quarter-Tone and Other New Scales’, *The Musical Times* 70.1036 (June 1929), 501‑504; Joseph Yasser, *A Theory of Evolving Tonality* (New York, 1932); John Foulds, *Music Today. Its Heritage from the Past, and Legacy to the Future* (London, 1934); Ivan Vyschnegradsky, ‘La musique à quarts de ton et sa réalisation pratique’, *Revue musicale* 171 (1937), 26-33; Artur Holde, ‘Is There a Future for Quarter-Tone Music?’, *The Musical Quarterly* 24.4 (Oct. 1938), 528‑33; Julián Carrillo, ‘“Sonido 13”: fundamento científico e histórico (Mexico City, 1948; Eng. trans. in *Soundings* 5 (1973), 64–125); Harry Partch, *Genesis of a Music* (Madison, WI, 1949); idem, ‘Patterns of Music’, in Thomas McGreary (ed.), Harry Partch. *Bitter Music. Collected Journals, Essays, Introductions, and Librettos* (Urbana & Chicago: University of Illinois Press, 1991), 159-61; Alois Hába, *Mein Weg zur Viertel- und Sechsteltonmusik* (s.l.: Musikedition Nymphenburg, 2001 [c. 1971]). [↑](#footnote-ref-4)
5. Later textbooks and secondary literature include (chronologically) Don Ellis: *Quarter Tones: a Text with Musical Examples, Exercises and Etudes* (New York, 1975); Sigrun Schneider, *Mikrotöne in der Musik des 20. Jahrhunderts: Untersuchungen zu Theorie und Gestaltungsprinzipien moderner Kompositionen mit Mikrotönen* (Bonn-Bad Godesberg, 1975); Easley Blackwood, ‘Discovering the Microtonal Resources of the Synthesizer’, *Keyboard* 8.5 (1982), 26–38; James Wood: ‘Microtonality: Aesthetics and Practicality’, *The Musical Times* 127 (1986), 328–30; Douglas Keislar: ‘History and Principles of Microtonal Keyboards’, *Computer Music Journal* 11.1 (1987), 18–28; Scott R. Wilkinson: *Tuning In: Microtonality in Electronic Music: a Basic Guide to Alternate Scales, Temperaments and Microtuning using Synthesizers* (Milwaukee, 1988); Gardner Read, *20th-Century Microtonal Notation* (New York, London, 1990); Various, ‘Forum: Microtonality Today’, *Perspectives of New Music* 29.1 (1991), 172-262; Brian McLaren et al., *Microtonal* *Bibliography* (1998); Heinz-Klaus Metzger & Rainer Riehn, *Musik der anderen Tradition. Mikrotonale Tonwelten* (Munich, 2003); Christopher Fox (issue ed.) and various, Special Issue ‘Microtones and Microtonalities’, *Contemporary Music Review* 22.1-2 (2003); Luca Conti, *Suoni di una terra incognita. Il microtonalismo in Nord America* *(1900‑1940)* (Lucca, 2005); Lidia Ader, ‘Microtonal Storm and Stress: Georgy Rimsky-Korsakov and Quarter-Tone Music in 1920s Soviet Russia’, *Tempo*, 63.250 (Oct. 2009), 27‑44; Franck Jedrzejewski, *Dictionnaire des musiques microtonales (1892‑2013)* (Paris, 2014). [↑](#footnote-ref-5)
6. Arnold Schoenberg, *Harmonielehre*, quoted in Rolf Maedel, *Mikrotöne. Aufbau, Klangwert, Beziehungen* (Hochschuldokumentationen Mozrteum Salzburg, Innsbruck, Neu-Rum: Edition Helbling, 1983), 6 [trans. from German by the author]. [↑](#footnote-ref-6)
7. Johanna Kinkel, quoted in Linda Siegel, ‘Johanna Kinkel’s “Chopin als Komponist” and Other Musical Writings: Untapped Source Readings in the History of Romantic Music’, *College Music Symposium* 43 (2003), 105-125, 111; cf. Julian Rushton, ‘Quarter-tone’, *Grove Music Online*, Oxford University Press. (accessed 5/3/2018), <http://www.oxfordmusiconline.com.0012c1nx0408.emedia1.bsb-muenchen.de/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000022645>. [↑](#footnote-ref-7)
8. Even early-twentieth composers who do not use microtones felt at least the need to criticize them, cf. Béla Bartók, ‘Das Problem der neuen Musik’, *Melos* (1920); cf. Hans Rudolf Zeller, ‘Vorwort’, in idem (ed.), *Musik der anderen Tradition. Mikrotonale Tonwelten* (MusikKonzepte special issue; Munich: Edition text + kritik, 2003), 5‑8, 14, who understands this criticism of microtones as a confirmation of their importance in 1910s and 1920s aesthetics; cf. Kallenbach-Greller, ‘Grundlagen’. [↑](#footnote-ref-8)
9. Cf. Read, *Microtonal Notation*, ‘Prelude’. Later composers interested in microtones include Ernst Krenek (1900-1991), Eivind Groven (1901-1977), Harry Partch (1901-1974), Giacinto Scelsi (1905-1988), Lou Harrison (1917-2003), Jean-Etienne Marie (1917-1989), Iannis Xenakis (1922-2001), György Ligeti (1923-2006), Klaus Huber (1924-2017), Pierre Boulez (1925-2016), Hans-Werner Henze (1926-2012), Ben Johnston (\*1926), Ezra Sims (\*1928), Karlheinz Stockhausen (1928-2007), Henri Pousseur (1929-2009), George Crumb (\*1929), Krzysztof Penderecki (\*1933), Easley Blackwood (\*1933), La Monte Young (\*1935), Terry Riley (\*1935),), Peter Eötvös (\*1944), Rudolf Rasch (\*1945), and James Wood (\*1953). They are ordered by date of birth. Many became interested in microtones in combination with new possibilities of electronic music and instruments. [↑](#footnote-ref-9)
10. For a few such strands, cf. Luca Conti, *Suoni*. [↑](#footnote-ref-10)
11. N. Kul’bin, ‘Die freie Musik’, in Vassily Kandinsky, Franz Marc (eds.), *Der blaue Reiter* (Munich: Piper & Co, 1912), 69‑73 [quotes from this source trans. from German by the author]. [↑](#footnote-ref-11)
12. Thomas McGreary, ‘Introduction’, in idem (ed.), Harry Partch, *Bitter Music. Collected Journals, Essays, Introductions, and Librettos* (Urbana and Chicago: University of Illinois Press, 1991), xviii. [↑](#footnote-ref-12)
13. Lidia Ader, ‘Microtonal Storm and Stress: Georgy Rimsky-Korsakov and Quarter-Tone Music in 1920s Soviet Russia’, *Tempo*, 63.250 (Oct. 2009), 27‑44. [↑](#footnote-ref-13)
14. Nalini Ghuman, *Resonances of the Raj. India in the English Musical Imagination, 1897‑1947* (Oxford et al.: Oxford University Press, 2014), 21. [↑](#footnote-ref-14)
15. Hugh Davies, ‘Microtonal instruments’, *Grove Music Online*, Oxford University Press (accessed 8/3/2018), <http://www.oxfordmusiconline.com.0012c1rz076d.emedia1.bsb-muenchen.de/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000047628>; cf. Jedrzejewski, *Dictionnaire*: ‘Chronology’, 305‑51. [↑](#footnote-ref-15)
16. Alejandro L. Madrid, *In Search of Julián Carrillo and Sonido 13* (Oxford et al.: Oxford University Press, 2015), 126. Cf. Bob Gilmore, *Harry Partch* (New Haven, London: Yale University Press, 1998), 65. [↑](#footnote-ref-16)
17. Foulds, *Music To-Day*, 59. [↑](#footnote-ref-17)
18. Ghuman, *Resonances*, chapter 1. [↑](#footnote-ref-18)
19. Hába, *Mein Weg*. 14 [quotes from this source trans. from German by the author]. [↑](#footnote-ref-19)
20. Ives, ‘Impressions’, 111. [↑](#footnote-ref-20)
21. Cf. later sections ‘Refinement: “Bastard C-Sharps”’ for these effects in Hába’s opera *Die Mutter*; ‘Preservation: “If I’m Not Land, I’m Sea”’ in Foulds’s music, and ‘Restraint: “Satisfy Even the Worst Sticklers”’ for Stein’s. [↑](#footnote-ref-21)
22. Richard Taruskin, *Stravinsky and the Russian Traditions. A Biography of the Works through Mavra*, vol. 2 (Berkeley: University of California Press, 1996), 1499; Taruskin, ‘Chernomor to Kashchei: Harmonic Sorcery; Or, Stravinsky's "Angle”’, *Journal of the American Musicological Society* 38.1 (1985), 72-142, 94-5. [↑](#footnote-ref-22)
23. Claude Lévi-Strauss, *The Savage Mind* (London: Weidenfeld and Nicolson, 1966); cf. Gilles Deleuze and Félix Guattari, *Anti-Oedipus*, trans. Mark Seem et al. (London: Bloomsbury, 2013 [c. 1972]). [↑](#footnote-ref-23)
24. Lévi-Strauss, *The* *Savage Mind*, p. 19. [↑](#footnote-ref-24)
25. Cf. Hába, *Mein Weg*; Madrid, *Carrillo*. A third school was Georgy Rimsky-Korsakov’s Circle of Quarter-Tone Music at the Petrograd/Leningrad conservatory from 1923 (transformed into a seminar in 1927, cf. Ader, ‘Storm and Stress’). [↑](#footnote-ref-25)
26. Georg Friedrich Haas, ‘Mikrotonalitäten’, in Zeller, *Musik der anderen Tradition*, 59‑65, 59 [quotes from this source trans. from German by the author]. For a general overview of theories and the history of microtones, cf. Schneider, *Mikrotöne*. [↑](#footnote-ref-26)
27. Ghuman, *Resonances*, 11. [↑](#footnote-ref-27)
28. Ibid., 32. [↑](#footnote-ref-28)
29. Ibid., 32-3. [↑](#footnote-ref-29)
30. Hugh Davies, ‘Microtonal Instruments’, *Grove Music Online* ( Oxford University Press, 2001) (accessed 17/3/2018), <http://www.oxfordmusiconline.com.0012c192037e.emedia1.bsb-muenchen.de/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000047628>, ‘1900-30’. [↑](#footnote-ref-30)
31. Ghuman, *Resonances*, 32. [↑](#footnote-ref-31)
32. Paul Bekker, *Neue Musik* (Gesammelte Schriften III. Stuttgart, Berlin: Deutsche Verlagsanstalt, 1923), 89, 91 [quotes from this source trans. from German by the author]. [↑](#footnote-ref-32)
33. Ibid., 90. Effeminacy here means degeneration insofar as anything feminine (here microtones) would erode an imagined masculine nineteenth-century German music tradition. [↑](#footnote-ref-33)
34. Ibid. [↑](#footnote-ref-34)
35. Matthias Schmidt, ‘Stein, Richard Heinrich’, Grove Music Online (Oxford University Press, 2001), (accessed 19/3/2018), <http://www.oxfordmusiconline.com.0012c1dr032e.emedia1.bsb-muenchen.de/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000026636>. [↑](#footnote-ref-35)
36. Ibid. [↑](#footnote-ref-36)
37. Richard Heinrich Stein, Zwei Konzertstücke für Violoncello und Klavier op. 26 (Berlin, Leipzig: Mitteldeutscher Musikverlag, n.d. [c.1906]), 2 [quotes from this source trans. from German by the author]. [↑](#footnote-ref-37)
38. Ibid. [↑](#footnote-ref-38)
39. Ibid., 3. [↑](#footnote-ref-39)
40. Ibid. [↑](#footnote-ref-40)
41. Ibid. [↑](#footnote-ref-41)
42. Richard H. Stein, ‘Vierteltonmusik’, *Die Musik* XV.7 (Apr 1923), 510‑6, 516 [quotes from this source trans. from German by the author]. [↑](#footnote-ref-42)
43. Schmidt, ‘Stein’, Grove Music Online. [↑](#footnote-ref-43)
44. Stein, Preface, 3. [↑](#footnote-ref-44)
45. Stein, ‘Vierteltonmusik’, 511. [↑](#footnote-ref-45)
46. Hába, *Mein Weg*, 14. [↑](#footnote-ref-46)
47. Hába, *Mein Weg*,14‑5. [↑](#footnote-ref-47)
48. Alois Hába, *Neue Harmonielehre des diatonischen, chromatischen Viertel-, Drittel-, Sechstel- und Zwölftel-Tonsystems* (Munich: Musikedition Nymphenburg, 2001 [1927]), XIII-XIV [quotes from this source trans. from German by the author]. [↑](#footnote-ref-48)
49. Hába, *Mein Weg*, 83. [↑](#footnote-ref-49)
50. Hába, *Mein Weg*, 30. [↑](#footnote-ref-50)
51. Hába, *Harmonielehre*, 140, 200. [↑](#footnote-ref-51)
52. Ibid., VI‑VII. [↑](#footnote-ref-52)
53. Hába, *Mein Weg*, 46. [↑](#footnote-ref-53)
54. Ibid., 55. [↑](#footnote-ref-54)
55. Ibid., 70ff., 66. [↑](#footnote-ref-55)
56. Hába, *Harmonielehre*, 156. [↑](#footnote-ref-56)
57. Hardly coincidentally, Busoni is also the dedicatee of Augusto Novaro’s treatise on microtones and harmonic revolutions (cf. Novaro, *Teoría de la música. Sistema natural, base del natural-aproximado* [1927]). [↑](#footnote-ref-57)
58. Busoni, *Sketch*, 30. [↑](#footnote-ref-58)
59. Ibid., 29. [↑](#footnote-ref-59)
60. Ibid., 31. [↑](#footnote-ref-60)
61. Ibid., 31. [↑](#footnote-ref-61)
62. Arnold Schoenberg, *Theory of Harmony*, trans. Roy E. Carter (Berkeley, Los Angeles: University of California Press, 1978), 25. [↑](#footnote-ref-62)
63. Bekker, *Neue Musik*, 91; Hans Pfitzner, *Futuristengefahr. Bei Gelegenheit von Busoni's Ästhetik* (Leipzig, Munich: Süddeutsche Monatshefte, 1917), 17 [quotes from this source trans. from German by the author]. [↑](#footnote-ref-63)
64. Ferrucio Busoni, ‘Bericht über Dritteltöne’, in idem, Siegfried Bimberg (ed.), *Von der Macht der Töne. Ausgewählte* *Schriften* (Leipzig: Reclam, 1983), 100‑102 [quotes from this source trans. from German by the author]. [↑](#footnote-ref-64)
65. Hába, *Mein Weg*, 42‑3. [↑](#footnote-ref-65)
66. Busoni, ‘Bericht’, 100, 101. [↑](#footnote-ref-66)
67. Ives, ‘Impressions’, 111. [↑](#footnote-ref-67)
68. Ibid. This feeling is confirmed nearly word for word in Jörg Mager’s booklet *Vierteltonmusik* (1918), where Mager reports interested visitors’ reactions to his quarter-tone harmonium. He also relates the story of his discovery of quarter-tones on his out-of-tune church organ – perhaps a similar coincidence to George Ives’s church bell revelation. (Mager, *Vierteltonmusik*, 8). [↑](#footnote-ref-68)
69. Ives, ‘Impressions’, 109. [↑](#footnote-ref-69)
70. Ibid., 112‑3. [↑](#footnote-ref-70)
71. Ibid., 116. [↑](#footnote-ref-71)
72. Ibid., 115. [↑](#footnote-ref-72)
73. Ibid., 116. [↑](#footnote-ref-73)
74. Ibid., 117. [↑](#footnote-ref-74)
75. This Quartet may have been the only microtonal score Foulds was able to access. The piece had received much international attention, since it had been showcased as an example of quarter-tone composition in Franz Schreker’s composition class at the Berlin Conservatoire in 1922. [↑](#footnote-ref-75)
76. Foulds, *Music To-Day*, 63. [↑](#footnote-ref-76)
77. Ibid. [↑](#footnote-ref-77)
78. Ibid., 245. [↑](#footnote-ref-78)
79. Ibid., 246. [↑](#footnote-ref-79)
80. Foulds, *Music To-Day*, 63-4. [↑](#footnote-ref-80)
81. Despite this isolation, Foulds had at least heard of Carrillo, mentioning in *Music To-Day* that ‘there are rumours also of a Mexican composer’ (63). [↑](#footnote-ref-81)
82. Constant Lambert, *Music Ho!* (London: Faber & Faber, 1934), 263. [↑](#footnote-ref-82)
83. Christian Darnton, *You and Music* (Harmondsworth, New York: Penguin Books, 1940), 40-1, fn. [↑](#footnote-ref-83)
84. Kul’bin, ‘Die freie Musik’, 69 [quotes from this source trans. from German by the author]. [↑](#footnote-ref-84)
85. Ibid. [↑](#footnote-ref-85)
86. Ader, ‘Storm and Stress’, 34. [↑](#footnote-ref-86)
87. Ivan Vyschnegradsky, Preface to *24 Préludes im Vierteltonsystem* (Frankfurt am Main: Belaieff, 1979). [↑](#footnote-ref-87)
88. Ivan Vyschnegradsy, ‘La musique à quarts de ton’, *La revue musicale* 5.11 (1924), 231‑4, 233 [quotes from this source trans. from French by the author]. [↑](#footnote-ref-88)
89. Vyschnegradsky, ‘La musique’, 233. [↑](#footnote-ref-89)
90. Gerald R. Benjamin, ‘Carrillo(-Trujillo), Julián’, Grove Music Online (Oxford University Press, 2001), (accessed 21/3/2018), <http://www.oxfordmusiconline.com.0012c1hy075b.emedia1.bsb-muenchen.de/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000005018>. [↑](#footnote-ref-90)
91. Madrid, *Carrillo*, 126. [↑](#footnote-ref-91)
92. Ibid., 108, 141-3. Cf. JuliánCarrillo, *Génesis de la revolución musical del sonido 13*, in Sister Laurette Bellamy, trans., *The Sonido Trece Theoretical Works of Julián Carrillo. A Translation with Commentary* (PhD Diss. Indiana University, 1973), 222 [quotes from this source henceforth denoted ‘Bellamy’]. [↑](#footnote-ref-92)
93. Madrid, *Carrillo*, 50. [↑](#footnote-ref-93)
94. Julián Carrillo, *The Thirteenth Sound* [*Sonido 13*], in Bellamy, 180. Cf. Carrillo, *El infinito en las escalas y los acordes*, quoted in Madrid, 128: ‘On July 13, 1895, I made an experiment in Mexico City where I achieved the 1/16 of a tone, and with that, the sounds in music grew 800%. Since that date, the conquests of the Sonido 13 revolution have increased in such a way that there is no possibility that more sounds will be achieved in the future, since the only limitations to my revolution are the possibilities of the human ear’s perception. When the interplanetary connection is achieved, it will be possible to find new timbres; but no new sounds.’ [↑](#footnote-ref-94)
95. Carrillo, *Génesis*, 230; Madrid, *Carrillo*, 12. [↑](#footnote-ref-95)
96. Carrillo, *Sonido 13*, 183. [↑](#footnote-ref-96)
97. In *Sonido 13*, Carrillo quotes Guido of Arezzo and Aristoxenos to prove that neither possessed the idea of microtonal intervals, 184. [↑](#footnote-ref-97)
98. Carrillo, quoted in Madrid, *Carrillo*, 147. [↑](#footnote-ref-98)
99. Madrid, *Carrillo*, 162. [↑](#footnote-ref-99)
100. Ibid., 103. [↑](#footnote-ref-100)
101. Carrillo, *Génesis*, 230. [↑](#footnote-ref-101)
102. Ibid., 231. [↑](#footnote-ref-102)
103. The sign ‘+’ henceforth denotes the raising of the PC by a quarter-tone interval, the sign ‘‑’ the lowering by one quarter-tone. E.g. C+ is the PC one quarter-tone above C<natural>. [↑](#footnote-ref-103)
104. Malcolm MacDonald, *John Foulds: His Life in Music* (Rickmansworth: Triad Press, 1975), 34. [↑](#footnote-ref-104)
105. MacDonald, *Foulds*, 33. [↑](#footnote-ref-105)
106. Ives, ‘Impressions’, 116. [↑](#footnote-ref-106)
107. Ibid., 119. [↑](#footnote-ref-107)
108. Ibid., 112. (brackets original) [↑](#footnote-ref-108)
109. Ibid. (brackets original); cf. Howard Boatwright, ‘Ives’ Quarter-Tone Impressions’, *Perspectives of New Music* 3.2 (Spring‑Summer 1965), 22‑31, 27. [↑](#footnote-ref-109)
110. Madrid, *Carrillo*, chapter 4. [↑](#footnote-ref-110)
111. Ibid., 129-33. [↑](#footnote-ref-111)
112. Carrillo, *Génesis*, 231. [↑](#footnote-ref-112)
113. Hába, *Mein Weg*, 102. [↑](#footnote-ref-113)
114. Jiří Vysloužil, ‘Hába, Alois’, Grove Music Online. Oxford Music Online. Oxfrd University Press, <http://www.oxfordmusiconline.com.0012c1os41e5.emedia1.bsb-muenchen.de/subscriber/article/grove/music/12113> (accessed 17/8/17); George Whitman, ‘Seminal Works of Quartertone Music’, *Tempo* 80 (Spring, 1967), 11‑15, 13. [↑](#footnote-ref-114)
115. Hába knew well the contemporary works by Schoenberg and his former pupils, working as a proofreader for Universal Edition and attending concerts of the Gesellschaft für musikalische Privataufführungen while studying in Vienna with Schreker. [↑](#footnote-ref-115)
116. Hába, Preface to Quartet op. 7 [omitted in the 1993 edition by Filmkunst-Musikverlag München, quoted from Vysloužil, ‘Hába, Alois’]. [↑](#footnote-ref-116)
117. McGreary, ‘Introduction’, xviii. [↑](#footnote-ref-117)
118. Harry Partch, ‘Patterns of Music’, in McGreary&Partch, *Bitter Music*, 159. [↑](#footnote-ref-118)
119. Ives, ‘Impressions’, 113. [↑](#footnote-ref-119)
120. This is based on the assumption that the first version of 1905 already contained the quarter-tones. John Foulds, ‘Programme Note’, Cello Sonata op. 6 (Paris: Editions Maurice Senart, 1928). In *Music To-Day*, by contrast, Foulds claims that his earliest use was in fact in a lost string quartet of 1898 (p. 59, cf. MacDonald, *Foulds*, 14). As with Carrillo’s claim to a similarly early date, this cannot be substantiated. [↑](#footnote-ref-120)
121. *The Morning Post* 1912, quoted in MacDonald, *Foulds*, 20. [↑](#footnote-ref-121)
122. Israel J. Katz, ‘Yasser, Joseph’, *Grove Music Online* (2001) Oxford University Press. Date of access 13 Apr. 2018, <http://www.oxfordmusiconline.com.0012c1cu0ad7.emedia1.bsb-muenchen.de/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000030689>. [↑](#footnote-ref-122)
123. Cf. Joseph Yasser, ‘The Future of Tonality’, *Modern Music* 8.1 (1930) Supplement, 1-24; idem, *A Theory of Evolving Tonality* (New York: American Library of Musicology, 1932). [↑](#footnote-ref-123)
124. Yasser, *A Theory of Evolving Tonality*, 14; cf. Appendix ‘Centitones and Vibration-Ratios’, 355-62. [↑](#footnote-ref-124)
125. Yasser, ‘Future’, 24. [↑](#footnote-ref-125)
126. Stein, Preface, 3. [↑](#footnote-ref-126)
127. Rosa Newmarch, ‘Descriptive Notes to Music-Pictures Group III, op. 33, Promenade Concert, Queen’s Hall, Thu 5th Sept 1912, 8pm (premiere)’, GB-Lbl Add MS 56474 : 1912. [↑](#footnote-ref-127)
128. Sabaneev, ‘Possibility’, 502. [↑](#footnote-ref-128)
129. Ibid., 503. [↑](#footnote-ref-129)
130. Artur Holde, ‘Is There a Future for Quarter-Tone Music?’, *The Musical Quarterly* 24.4 (Oct. 1938), 528‑33, 530. [↑](#footnote-ref-130)
131. Ibid., 532. [↑](#footnote-ref-131)