# Semiotics of Musical Tuning: on the ancient Gaelic harp

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*Abstract:* This article aims to demonstrate, through the example of a multidisciplinary prospection equipped by a semiotic gaze, the operativity of a semiomusicology that articulates musicology and semiotics with data from various disciplines but also makes room for musical practice. Thus, the textual sources of the late tuning of Irish harps are critically approached. Secondly, based on the terminology provided by the collector, interpretative lines are presented, aimed at opening up the field and disincarcerating it from ontological interpretations of the nationalist or overly subjective musical type. It is the restitution of an ancient complexity and the vision of a harp with cosmopolitan rather than nationalist potential that thus emerges.

Key-words: Harp, Gaelic, Semiotics, Semiomusicology, Hermeneutics, Semiotic Anthropology.

*Résumé*: Cet article vise à démontrer par l'exemple d'une prospection multidisciplinaire outillée par un regard sémiotique, l'opérativité d'un sémiomusicologie qui articule musicologie et sémiotique aux données issues de diverses disciplines mais faisant aussi la place à la pratique musicale. Ainsi sont abordées de manière critique les sources textuelles de l'accord tardif des harpes irlandaises. Dans un deuxième temps, à partir de la terminologie livrée par le collecteur, sont exposées des lignes interprétatives visant à ouvrir le champ et à le désincarcérer des interprétations ontologisantes et nationalistes trop subjectives. C'est la restitution d'une complexité ancienne et la vision d'une harpe au potentiel cosmopolite plus que nationaliste qui se dessine ainsi.

Mots clefs : harpe, gaélique, sémiotique, sémiomusicologie, herméneutique, anthropologie sémiotique.

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The following article aims to explore prospectively the difficult question of an instrument's tuning when historical sources are but lacunar and biased. It also will be a good example of the power of *Semiomusicology* as a tool to complement classical musicology, in that, besides the mobilization of a theorical knowledge of historical musical systems, it also takes into consideration the instrumental practice and its gestures within a semiotic problematic. It is moreover distinct of other types of theorical semiotics of music in that it articulates the semiotic central questions of meaning, the construction of meaning and the access to meaning, to the very necessary knowledge of philology (as the historical documents are mostly texts in various historical languages) and musicology in its various components (theory, organology, practices, etc.)

Understanding the ancient Gaelic harp global cultural situation as an ancient instrument, is a far more delicate one that might appear from the start<sup>1</sup>. We know for sure that its history spans from, at least, the 12<sup>th</sup> century (possibly earlier), up to the times of Edward Bunting, its main collector, in the early 19<sup>th</sup> century, at the end of a long and probably diverse musical life. Yet, because of the very nature of the collecting period and the collector's system of thoughts, these late documents require a great deal of interpretation to become intelligible, let alone to project them prospectively towards more ancient times. The tuning regime of Denis Hempson, as given by Bunting in his 1840 edition, is no exception to this. Projecting such a system to earlier times requires a lot of prudence and circumspect precautions. Yet, the Irish terminology transmitted to, and then by Bunting, proven solid by our previous work<sup>2</sup>, can give some hints, which combined to other observations, could help build up viable hypothesis towards a fuller understanding of the plausible possibilities of the instrument in its history. This article will strive to do so, in a prudent, and prospective manner which will aim more at re-opening a debate thought closed with new hypothetical angles.

### Hempson's Leath Ghleas, and the implicits

At page 23 of his 1840 edition, Edward Bunting gives the tuning regime presented as *Leath Ghleas* ("the two-position tuning<sup>3</sup>"). It presents the tuning routine of Denis Hempson on his 30 string harps. The tuning is often understood as a cycle of fifths of a fixed hexachord (understand here that term here as 6 string fixed values determined by a precise typography of mutual fifths, the Irish harpers of Bunting's times, like so many practical musicians, didn't know, use, needed nor cared about Guido d'Arezzo, solmization or *mutatio*) corresponding to 4 ascending fifths and one descending fifth, and a mobile seventh, either tuned in a high position (possibly from an ascending fifth?), or a low position (from a descending fifth?). Yet when one goes to precisely see what Bunting's shows as the tuning regime, things get a bit less clear, we propose to synthesize these steps below.

Step 1	The <i>caomhluighe</i> get tuned	G to $g^4$
Step 2	The first fifth is tuned: tead an	G to d
	feith cheolach ("the melodic	
	nerve")	
Step 3	The octave above <i>caomhluighe</i>	G to g'
	is tuned.	
Step 4	The octave below the <i>tead an</i>	d to D
	<i>feith cheolach</i> is tuned.	
Step 5	The octave below the	G to GG
	caomhluighe is tuned: Cronan.	

Tuning routine with the seventh degree in high position (F sharp):

<sup>&</sup>lt;sup>1</sup> To hear Gaelic harp being played: a live concert by veteran, pioneer, virtuoso and doors opener Ann Heymann on various Gaelic harp: <u>https://youtu.be/bRJfMlOq9zg?si=HrWcE2CtC4xWlFUc</u>

<sup>&</sup>lt;sup>2</sup> Cf. Michaud-Laine, Vincent, *La sémiomusicologie de la harpe gaélique ancienne*, Paris, Classiques Garnier, 2024, chap. « terminologie textuelle ».

<sup>&</sup>lt;sup>3</sup> *ibid.* for all the translations and choices made one can refer to these previously cited works.

<sup>&</sup>lt;sup>4</sup> We adopt the lettering system devised by Ann Heyman which we find more didactic for this presentation, thus the *caomhluighe* are labelled G for the lowest, and g for the highest, and double lettering will be implemented for the low octave, thus Cronan is written GG.

Step 6	From the <i>tead an feith cheolach</i> ,	d to a'
1	the fifth up in tuned.	
Step 7	From the obtained a' to its	a' to a
_	lower octave: Guaille na	
	caomhluighe ("shouldering the	
	caomhluighe")	
Step 8	From guaille na caomhluighe	a to e
	to a fifth up: Guaille teaid an feith	
	cheolach. ("Shouldering the	
	Melodic nerve")	
Step 9	From the guaille teaid an feith	e to b'
	cheolach to a fifth up.	
Step 10	From the obtained b' to its	b' to b
	octave lower: An dara os cionn na	
	caomhluighe ("the second above	
	the lovers")	
Step 11	From an dara os cionn na	b to f (sharp)
	<i>caomluighe</i> to a fifth up.	
Step 12	From the caomhluighe to a	G to c.
	fourth up : an treas os cionn na	
	caomhluighe.	
Step 13	From an treas os cionn na	c to c'
	caomluighe up to its higher octave	
Step 14	The rest of the harp is tuned	
	by octave from the tuned	
	strings.	

Tuning routine with the seventh in low position (F natural):

Step 1	The caomhluighe get tuned	G to g <sup>5</sup>
Step 2	The first fifth is tuned: <i>tead an</i>	G to d
_	feith cheolach ("the melodic	
	nerve")	
Step 3	The octave above <i>caomhluighe</i>	G to g'
	is tuned.	
Step 4	The octave below the <i>tead an</i>	d to D
	<i>feith cheolach</i> is tuned.	
Step 5	The octave below the	G to GG
	caomhluighe is tuned: Cronan.	
Step 6	From the <i>tead an feith cheolach</i> ,	d to a'
	the fifth up in tuned.	
Step 7	From the obtained a' to its	a' to a
	lower octave: Guaille na	
	caomhluighe ("shouldering the	
	caomhluighe'')	

<sup>&</sup>lt;sup>5</sup> We adopt the lettering system devised by Ann Heyman which we find more didactic for this presentation, thus the *caombluighe* are labelled G for the lowest, and g for the highest, and double lettering will be implemented for the low octave, thus Cronan is written GG.

Step 8	From guaille na caomhluighe	a to e
-	to a fifth up: Guaille teaid an feith	
	cheolach. ("Shouldering the	
	Melodic nerve'')	
Step 9	From the guaille teaid an feith	e to b'
	<i>cheolach</i> to a fifth up.	
Step 10	From the obtained b' to its	b' to b
	octave lower: An dara os cionn na	
	caomhluighe ("the second above	
	the lovers")	
Step 11	From the caomhluighe to a	G to c.
	fourth up : an treas os cionn na	
	caomhluighe.	
Step 12	From an treas os cionn na	c to c'
	caomluighe up to its higher octave	
Step 13	From an treas os cionn na	c to f (natural)
	caomhluighe to a fourth up : tead	
	an leath ghleas ("the string of the	
	two-position tuning")	
Step 14	The rest of the harp is tuned	
	by octave from the tuned	
	strings.	

The above tables, made from Bunting's text, show (in red) that at least one string is tuned by a fourth and not a fifth. It has been argued that this was either a mistake by Bunting or a shortcut from Hempson. Neither of these two opinions can be solidly grounded. However, if that tuning routine is accurately transmitted by Bunting, one can no longer speak of "Pythagorean" tuning by a cycle of pure fifths as tuning certain strings by fourths would not be within the practice in such a system. So that would hint that Irish tuning system isn't exactly following a strict cycle of fifths-based tuning.

In any case, the *leath ghleas* will, by nature, pose the question of the quality of the fifths implied. It has been widely proclaimed that this Irish tuning is to be regarded as a "Pythagorean" tuning and that, implicitly, has to mean that the fifths tuned are pure fifths. This, however, is not strictly seconded by anything in Bunting's comments or text or any other historical sources and surprisingly so as it would be quite an amazing archaic trait, worthy of note and mention, in the time-period concerned, after centuries upon centuries of temperaments, third-centered mesotonism and rectification of fifths. So, this pure-fifth implicit is a modern interpretation<sup>6</sup> and one that is not really rooted in any other convergent document, whether on concordances of local or historical period's contexts of practices or hints or clarifications within the documents. Bunting, in fact, seems unsurprised by such a tuning system and only regrets that the harpers collected do not seem to know about the theory behind such a routine (understand here that they don't know the theory in the terms known by Bunting and which he universalizes).

<sup>&</sup>lt;sup>6</sup> An interpretation probably based on the usual British nationalistic desire for this British isles music to be as very ancient as possible, desire already very present in Bunting's works and heavily relayed by British "specialists", a similar phenomenon of interpretation being colored by a British nationalistic doxa is observable for instance in the British studies of the Welsh manuscript of Robert ap Huw

The hypothesis of a pure fifths tuning, in the case of a diatonic high resonance instrument isn't unplausible yet we would like here to broaden the picture so as to relay healthy doubts which could lead to other experiments in trying to reconstruction this instrument's possible ancient musical colors.

If such tuning as the *leath ghleas* is implemented with pure fifths, it will produce major thirds<sup>7</sup> which will be higher than pure thirds and therefore rather unstable in an end of  $18^{th}$  century –  $19^{th}$ century musical period where chords or arpeggios are the principal revolving ground of basses. This comes down to whether the music arrangements of the harpers (and not of Bunting) were considering the thirds as structural in the harmony. Very importantly, we mean structural not in the way of the counterpoint of the middle-age or the Renaissance, still eminently horizontal and where indeed conjunctions of voices to the third would happen and would not be considered discordant, but structural in the way of the concerned time period's type of musical system, in which whether we care to admit it or not, the collected Irish harpers are constantly bathing since their birth. It is of the essence to understand the predominance of a cultural conditioning to hear, perceive and seek intervals in a historical style and not project our post-modern play around (when not mixing-up) styles, types and temperaments, as such a projection and vision of ancient music belongs mostly to us and is ours solely (cf. Ideal-Type, Max Weber). Determining this from the expurgated and highly revised musical samples we have from Bunting's notes or published works is extremely complex, a tad utopic and isn't the subject of this article, so we will, for rhetorical reasons, consider the two options: the thirds might, or might not be structural. If they are not, pure fifths can be used but if they are, in terms or arpeggios, chords or arpeggio-based or chordal constructions of melodies of the time period concerned, then, in the tuning the fifths of a-e and e-b would need to be lowered as they would produce major thirds in the keys of G and C which would be rather unstable by the tastes of the period (and not ours, we cannot insist too much on how our nowadays perceptions, tastes, and inclinations are totally irrelevant, despite what the deconstructed researchers by practice seem to piously believe).

There nevertheless is a third possibility. The thirds might not have been structural in the Irish musical system, in the same way they are, in an overwhelmingly surrounding global musical system, but the tuning could still very well have been influenced by this musical ambient atmosphere where the thirds are structural. The harpers in Bunting times, factually, did not compose anymore and seemed to shrink their performing repertoire around Irish airs that they literally worshiped, and to the exception of any other type of music. Yet, they were not cut from society, and that society has gone through Renaissance, then Baroque and the birthing Romantic period of musica style and musical colors, in terms of quality of intervals. Moreover, these harpers gravitate around noble patrons who all practiced and entertained a taste for global European art music. Strict Pythagorean fifth tuning is not practiced anymore by European art music practitioners in the times of Bunting's collecting, although the equal temperament is just starting its career and is probably, in the early days of the 19<sup>th</sup> century, only one - however very notable and quickly gaining in popularity - among others. Yet the thirds have definitely been structural in the music around Ireland for a couple of centuries and this fact definitely would have forged a cultural ear.

À partir du moment où l'on considère que la cognition relève d'une interaction ayant l'émergence de valeurs pour objet et qu'elle n'est pas seulement le résultat d'une instanciation de catégories pré-

<sup>&</sup>lt;sup>7</sup> We do not consider speaking of major thirds in the context of a music collected in the first half of the 19<sup>th</sup> century, anachronistic, on the contrary, it would be to relate this music to more ancient musical systems without sound evidence that they're indeed related. The purpose of the labelling 'major' is here to be understood.

programmées dans des agents préalablement individués, on voit aussi comment intervient la notion de culture dans la cognition. Elle implique un nouveau partage entre l'a priori et l'expérience, que la notion de forme symbolique rend concevable.

(Lassègue, Jean, « Formes symboliques et Emergence de valeurs » dans ARC'004, 2005, p.55)

Bunting comments on the harpers playing and liking airs which have D as a tonic within their tuning; by saying he find this "more imperfect" (his own words, Bunting 1840, p.23). We can speculate, from this observation, that, if the E and B have been lowered by means of slightly lower fifths A-E and E-B when tuning, so as to be more pleasant in major flavored modes (of G and C to which they are the thirds), and to the exclusion to any other strategy of equalization of the intervals, a positional mode of D played in this configuration would have a second degree a tad lower and, without being totally unbearable, could sound "more imperfect" to a 19<sup>th</sup> century musical ear, used to more equalising. This tiny observation could bear the key to interpretating the tuning of the Irish harpers in a way that seems far more coherent with their time period than the putative medieval "Pythagorean" dogma.

When all of this is now stated, the irremediable conclusion jumps to the eyes: while we will never know what it was for sure that the Irish harpers did on their harps, whatever method we employ, how we tune the harp now is dependent on what representations we have and what we, as Bunting's readers – and of other sources - project of the music system and style we observe and interpret from the historical documents. And it is pretty much always going to be like that. The fact is that music exists when played and heard. When a style and system of music disappear from this actualized societal sphere, the writing down of music, direct (by people who played it within their own modality of written notation) or indirect (collected and transmitted by people outside this music tradition and with another written system), that remains of it are never sufficient not straightforward. As in Linguistics, the musical text does not contain all that is necessary to understand it. Reconstructing that music is then, in a large part, more an act of imagination of different modalities, qualities and scopes, rather than any rigorous applying of some manner of ontologic deductive/inductive logic.

This mobilizing of imagination by interpretation, often clouded by the unjustified scientific claims of the fashionable "research by practice" and its "historically informed performances", isn't, de facto, necessarily non-scientific. Repeatability and refutability are however observably not a state of the interpretation that seem to be reachable by "research by practice" nor the similar methodologies known to produce "historically informed performance". And it's in fact not a problem at all! These two polarities of art and science sometimes hide, in their artificial clash, a third term which, in our view, bears promise: that of a "practice by research". On one side the artistic practice does not need to claim to be science, to gain legitimacy in the task of imagining an ancient soundscape<sup>8</sup>, as a "historically informed<sup>9</sup> performance" may be tempted to do, thus cutting itself from a certain freedom of mind and interpretation in the name of a claimed exact adequation to the sources, which is factually impossible to ever reach. On the other, science can be a support to creation in a secondary process, whereas "research by practice" risks sometimes to cut itself from the rigorous and competent preliminary scientific explorations which enriches the range of possibilities. So no, it is not a contradiction to consider that one can aim at being exact on the partial documents and the obtainable, attested, textual, organological data, to which one may indeed access, but only after a stringent and demanding philological and semiotic reconstruction work, and, at the same time, produce very personal musical interpretations. This "practice by

<sup>&</sup>lt;sup>8</sup> A lovely and so clear expression borrowed from Ann Heymann.

<sup>&</sup>lt;sup>9</sup> The modalities of such an "information" are never specified and vary grandly and dramatically from person to person.

research" angle is perfectly summed up by baroque violinist Julien Chauvin when he states in a recent interview that "The ancient instruments bring us towards a way to play but never towards the truth" (Interview for France Musique radio, *Les grands Entretiens*, 01-2024). The main important point is not to make assertive claims that aim to close debates, and stop researching processes, thus creating delusions and an interesting lot of useless tensions.

In conclusion, the cultural ear, that might indeed influence the perception of certain fifths as "pure" by the Irish harpers, with the not necessarily conscious goal of having acceptably stable major thirds in a period's musical atmosphere that implicitly demands them, is quite a common and well-documented phenomenon, and one that observably is at play today as well. Our visions and representations of the ancient music of that Irish harp should therefore resolutely keep an honest, practical and open-minded direction, centered on the awareness that we are situated.

#### The tuning before Bunting's times: a prudent prospecting from the terminology

In the times of Bunting, the *leath ghleas* seems to have crystallized around a "diatonic" (a more prudent term should perhaps be used if not invented there) scaling on a G, with fixed values A, B#, C, D, E, the seventh F being the only re-tunable string having two possible values F or F#. The *leath ghleas*, with its mobile F and the string below Cronan being returnable, can be understood as an archaism, seemingly only used by Hempson. The other harp gamuts we appear to have (mostly from the correspondence between James McDonnel and Edward Bunting) indeed all seem to solely feature an F#. This relative fixity corresponds to an identitarian shrinkage of the harpers around the sole Irish music material. But around the 16-17<sup>th</sup> centuries period, we know that Irish harpers could well have delved into more global European art music. And this then questions the tuning they might have had on wire-strung harps, instruments on which you cannot fret strings and for which constant re-tuning would be unstable and detrimental.

#### The hexachordic hypothesis: a scordatura on b

Hexachordic theory was somewhat of a relative standard around the 16<sup>th</sup> century. Naturally We are pretty much aware that solmization and the rules of *Mutatio* and how and when to admit *ficta* over the *musica recta* system are first and foremost for singing/transposing purposes, within a certain type of music, and this would apparently have in some musicologists' objections, nothing to do with tuning a harp. But in a taxemic vision of the musical domain in a given culture, the type of theorical thinking which defines Music in its boundaries, does underline a perception of intervals and their correlative relationships. A taxeme, indeed, is a sub-ensemble of a domain: if there is a Gaelic Harp domain in Gaelic culture then there is discourse tied to it and a semantic domain. Terminology's study allows access to this semantic domain along with coupling it with the semantic study of the representations of the harp in the culture's texts. Therefore, hexachords being a typology of tones and semitones and *mutatio* giving precise and limiting rules of how to switch from one hexachord to another when building a scale, it appears to us rather untenable to assert that this will have no incidence of how you tune a harp, in terms of what fixed scalar values you'll critically assign to each string in a differential process according to what you need and why.

The Leath ghleas could be redefined in this historical context as a tuning hexachord of G per durum (means the Bs are always B# (B natural) and the three first notes are distant from a tone, Gut, A-ré, B-mi, and the semi-tone Mi/fa is between B# and C). The Irish harp could then very easily be fitted with a scordatura B moll – B dur in the middle of the gamut. From Cronan (gammaut), the hexachord per durum G-ut A-ré B-mi C-fa D-sol E-la could have been followed in the upper octaves by a scordatura with the two qualities of the B present as separate strings, thus allowing other hexachords. Thus, above caomhluighe we could have had g a b(moll) b(dur) c etc. as a string disposition. The status of the F string, mobile in Bunting times, could still be seem as re-tunable, and perhaps then, the only retunable string, thus augmenting the possibilities of the harp in two positions adding a possible hexachordum fictum with F# when the music would require it (one could even speculate on the presence of two adjacent strings tuned to F and F#). This fundamentaly would not change what the *leath ghleas* is, and although there is no firm confirmation of such tuning in the 16-17<sup>th</sup> centuries period, it would correspond to very well-known global harp stringing and tuning strategy throughout Europe at this period (Bermudo, Mersenne, etc...). Such tuning would allow a certain amount of connection to art music by grandly augmenting the possibilities of the harp without using mechanics or fretting techniques that are not very wire strings friendly. From an organology perspective, this would also be very viable, the string tension keeping within reasonable values and no fretting nor intense retuning would need to be implemented. No document exists that would prove this scordatura as an extant practice in Ireland. The central question around this is whether the Irish harpers of then connect to European art music and with other types of musicians playing together with them, which would require their harp to have more capabilities. We won't know for sure but do have hints of texts and paintings attesting of the presence of Irish harpers at the Elizabethan court which were playing with other court musicians, as well as early collections of lute or harpsichord pieces which feature, alongside continental or European usual art music (pavanes, galliards, canaries, etc.) piece from a more Irish, or Gaelic repertoire, proving that they were not perceived as totally incompatible. Since there is historical plausibility, then there surely is artistic legitimacy in exploring such a tuning in conjunction or not to a European art music on the Irish harp.

#### A "tetrachordic" British way? A wild guess from the terminology

From old man Hempson's resources, Bunting seems to have obtained a terminology of the tuning of the harp that looks a tad more complex than the leath ghleas itself. We pointed out in our previous work that this terminology is difficult to assess due to the facts of Bunting not being an Irish speaker and that he doesn't fully understand what this terms entails but try nonetheless to interpret them from his own musical system which he perceives as superior and universal, and since they are not in use by anyone anymore, their reality isn't exactly tangible for the collected harpers either. However, on p.28 of the 1840 edition, Bunting lists under the tile "the keys" three terms that could be the starting point of a very humble and prudent prospecting line. These terms have the noun fuigheall in common and three adjectives that qualify it: beag, mor and aon. Bunting's translations are not to be taken very seriously, and we will make propositions which we hope are a bit more grounded. But before, we would like to address the fact that, although, for a traditional old-fashioned musicology perspective, or from the self-centered relativist ways of the researchers by practice, prospecting musically on the sole basis of a terminology might appear scary, from a semiomusicology perspective however (that is to say a federation of the diverse necessary fields of knowledge by the semiotic question, that is to say the question of what makes sense, how it makes sense and how do we access to that making-sense) terminologies are of the essence in the case of a form of music that disappeared totally from the environment. Indeed, such terminologies are taxemic in nature, as stated above. So, studying the Irish terminology is very important indeed, but a task made difficult by the interpreter Bunting, who may cloud the analysis by his own brand of interpretations, not always extremely neutral nor rigorous<sup>10</sup>.

And indeed, Bunting's descriptions of what these *fuigheall* are, do not seem to make an awful lot of sense apart from the fact that these are tunings for the harp.

The term *fuigheall*, comes from an ancient *fuigell*, which has different meanings. The methodology to try and extract a meaning in our musical context when we don't have confirming

<sup>&</sup>lt;sup>10</sup> We would like here to insist that no silly reproaches nor misplaced bitterness should logically be harbored against Bunting without whom we wouldn't have anything at all and who was a man of his times, and a fine one, too.

texts in the musical field with this word used goes as such: we try, from the attested textual usage in different contexts, to extract common semantic values, known as semantic isotopies. The main isotopy we could see as useful is /a constructed whole organized in parts/, for which reason we propose "system" as a translation. The adjective adds a value to this. If *beag* "small" and *mór* "big" give no problem, *aon* is a bit more difficult as Bunting's spelling varies and fluctuates. We, however, infer that the structure noun + adjective should prevail as the two other terms function that way. We therefore propose *án fuigell* "the splendid/perfect system"<sup>11</sup>.

Bunting suggests that these *Fuigheall* introduce a tuning of certain intervals without being extremely clear as to what would be the difference and common grounds between the three *fuigheall*.

We would like to propose, humbly, prudently and prospectively another hypothesis.

The "system" terminology with "big" and "small" and "perfect" associated is quite reminiscent of the interpretation, transmission and brandishing of the Aristoxenos systems of tetrachords, transiting to occidental music via Boeccius. These systems, in essence, were a typology of how many tetrachords, of what type and how connected, one would use in their establishing a scale, or ambitus on a lyra. There would, of course, be strictly no sense in trying to adequate Aritoxenos systems to a European harp tradition, but hints can be gathered from Mersenne's depiction of the "gothic" harp (cithara nova and antiqua in Harmonie Universelle, Paris, 1636) which features a string disposition seemingly based on hexachordal theory (it has consecutive Bmoll and Bdur in the two middle octaves) but superposed with the Greek terminology of Aristoxenos organized in tetrachords. There also is the organization of the harp tunings in the manuscript of Robert Ap Huw (MS. 14905, British Library, c.1613) which seems to practice a tuning made of two joint tetrachords with inner mobile strings. Again, we understand tetrachord here as an unity of values on four strings, where degree one-fourth is the fixed value and the two middle degrees are mobile, that is to say a practical reality and a way to systematize and quickly visualize the location of fixed and mobile strings - a reality that is not necessarily tied to any particular theorical system which the Irish, when practical musicians, may not have known, used, needed nor cared of. But importantly so, tetrachords are defined by which interval values are implemented to set the mobiles strings. Aristoxenos distinguishes a diatonic tetrachord as having tones between the first, second and third strings, a chromatic tetrachord as having semi-tones, and an enharmonic tetrachord as having quarter of tones. Naturally, the quarter of tones do not fit in European music but the tones and semi-tones and their typology are indeed what is central to the setting of a harp tuning.

Prospectively one could wonder if these terms, a mere memory transmitted, could refer to such a tetrachordic system, which would create scordature, playing with joint or disjoint tetrachords along with mobile strings, thus offering the Irish harp a certain amount of possibilities of ficta, in the attested context of the Irish harp, sometimes playing European art music in ensemble (for instance in the 16-17<sup>th</sup> centuries). The hexachordic system could still be used, as a theorical system based on assigned values of intervals for building scalar ensembles but a string tetrachordic system (units of four strings in which there are mobile and immobile strings, along with a superposition of such unity where there sometimes is a common string (joint tetrachord) or not (disjoint tetrachord) thus helping in locating half steps in the scale), could then be superposed (because its disposition of tones and semi-tones would not be so incompatible with the hexachordal system),

<sup>&</sup>lt;sup>11</sup> In our previous word, La sémiologie de la harpe gaéliue ancienne, Paris, Classiques Garnier, 2024, we had dismissed the entire series as it appeared to us that such tuning were not practiced by the harpers and Bunting seemed to have obtained them out of intense obsessive questioning about tunings and measures in his desperate and doomed to failure attempt to link the Irish harp to the Music of the Robert ap Huw manuscript. Our interpretative filter was dictated by our goal to evaluate the authenticity of the terminology and its usage in the harp practices. This is a good example on how goals can shift how one looks at documents. Our now exposed interpretation of *aon ->án* is, of course, one among others, we do keep refutable but offer this interpretative line to try and show that many other alleys in terms of what tunings would have been possible and viable, are possible.

partaking of a string-situation and practical logic and instead of intervals and values of tone and semi-tone, this superposed system establishes where the strings are which are fixed, and which are returnable according to which system you'd like to have your harp set on. The system would help tune and locate and play a complex scordatura in an immediate and quick way that a complex solmization calculation would not allow<sup>12</sup>. Then the classification in "systems" could suggest that various complexities of tetrachordal scordatura could have been set for different purposes presenting the harper with octaves of more than just seven notes, thus empowering music that made use of *ficta*. These are not positive assertions but merely a hinting that understanding a complexity is possible, if not suggested from a terminology that Bunting cannot have invented.

### Conclusion

We do not pretend to make claims here, repeatedly, nor to be able to pierce the past's veil by mere conjectures around the terminology or such. But such a terminological study rather shows, along with other documented clues, that the Irish tuning system might have been far more elaborate in earlier periods than what was practiced in Bunting times, a time of decay and shrinkage around the sole Irish music, and "identity", somehow not unlike what sometimes feels like the modern doxa around the instrument. It's also clear that the special case of the one-row-of-strings harps forced their players to create strategies for dealing with musical systems that were not easily implemented on such an instrument. This opens a new realm of speculation, which is that of the practical physical relationship of such musicians on such instruments. In other terms, the musical research on such instrument would benefit from harmonising a "pure-form" idealized mathematised theorical vision of music, often brandished within an ideological doxa to that, practical, of the physical musician, with his various gestures on a physical instrument which has characteristics and limitations, with which one needs to deal constantly, in relationship to the intended music. The sensations, tastes and subjectivity of the Now, which began an incredible hegemony<sup>13</sup> since the establishment of research by practice as the main musical research conducted in musical universities, can never reach any form of Guaranty and tend, because of their hegemonic stance, to freeze the actual research and paradoxically the musical exploration of different alleys by the sheer social violence it elicits. Semiomusicology, by federating different disciplines, articulating and not ostracizing the scientific and musical works, can help re-apprehend complexity. The Irish harp, in this perspective, would appear not to be so centrally, uniquely, exclusively, discriminatively and separately Irish, but partake of global European popular and art-music strategies as well as harpistic common grounds, with, of course, local and very notable Irish particularities. In short, the old Irish harp is much in the image of medieval Ireland: intensely human, cosmopolitan, European, erudite and connected.

**Annexe** : Ann Heymann on various Gaelic harp: https://youtu.be/bRIfMlOq9zg?si=HrWcE2CtC4xWlFUc

<sup>&</sup>lt;sup>12</sup>We have been objected that wire strings are not very friendly with constant retuning, and although we point out that we did not suggest the retuning was constant as a setting could be adopted for a long time, we would like to insist here again on that such opinion is fueled by subjective deconstructed sensations on what is practiced today on harps constructed today with a string tension that definitely is much higher than what historical harps and strings could do, Bunting's collecting proves that retuning, at least of the F, was done. One of the major flaws of a deconstructed research by practice is that it tends to use sensations and subjectivity of the Now to draw conclusions on practices of the past, it abolishes any spatio-temporal and historical-cultural situation.

<sup>&</sup>lt;sup>13</sup> The term is borrowed from the amazing work of Edinburgh University's researcher and doctoral candidate Ruth Salter.

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