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# A Millennium, a Medieval Treatise, and a Modern Method of Music Literacy:

## Guido d'Arezzo, the *Micrologus*, the Piano and *Soft Mozart*™

by Nancy Lee Harper and Hellené Hiner

### Introduction

Do you remember those bumper stickers on the back of cars, which, if one were dangerously close, read: “If you can read this, thank a music teacher”? All musicians owe an enormous debt of gratitude to the insights of one Italian music pedagogue of 1000 years ago – Guido d'Arezzo (c. 991–992 – after 1033). With the ascendancy of Pope John XIX in 1024, whose support strengthened the dispersal of Guido's work, it is fitting to remember him as we approach this millennium. In this article, we will explore Guido's innovations as described in his *Micrologus* (“Small discourse”, 1026), and see the influence in the 21<sup>st</sup> century on another revolutionary music reading program. We may ask ourselves: what does *Micrologus* have to do with the piano and teaching it? The answer: surprisingly, a lot.

### Guido's *Micrologus*

The brilliant Benedictine monk and pedagogue, Guido d'Arezzo (c. 991–992 – after 1033), whose eventual fame would attract the Pope, concerned himself about the inability of young choirboys to read music. This is certainly a familiar situation for many piano teachers with their beginning piano students. In describing the “science of music”, he affirmed, “The reason that this study has remained obscure up to now is that, being truly difficult, it has been explained in simple terms by no one.”<sup>1</sup>

In his seminal “small discourse”, the *Micrologus*, Guido set down his method. Its results astounded the music world since, as he noted, the choirboys “trained by imitating the [steps of the mono] chord, with the practice of our notation, were within the space of a month singing so securely at first sight chants they had not seen or heard, that it was the greatest wonder to many people.” Guido's revolutionary approach to music literacy and memorisation reduced the 10-year learning process to become a church cantor by 80-90%, to two years, or even one.<sup>2</sup>

Do we have such an approach? Can our piano pupils read the simplest pieces in a month? If our piano pupils could learn to read as quickly as Guido's choirboys learned sight-singing, it would reduce our dropout rate.

Commissioned by and dedicated to Bishop Theodaldus or Theodald d'Arezzo (c. 990 – 12 June 1036), who brought Guido to work at the Cathedral since Arezzo lacked a monastery, the *Micrologus*, our earliest guide to staff notation, was the result

of Guido's efforts there. He began by treating only melody into a visual and organised system. Guido reserved rhythm for a different stage and described it in his treatise, *Regulae rhythmicae*.



**Ex 1. Guido d'Arezzo studying the monochord with Bishop Theodald.**

Unknown author, 12<sup>th</sup> century. Music archive, Austrian National Library. <https://creativecommons.org/licenses/by-sa/4.0/>

The attention that Guido gained led to an invitation from Pope John XIX for an audience in 1028. An appreciative Bishop Theodald may have orchestrated this meeting. Guido's visit garnered much interest by the Pope and by the clergy, the details of which Guido recorded in his *Epistola ad Michaellem*.

After Guido's meeting with the Pope, the Abbot of Pomposa offered a kind of peace offering to Guido by inviting him back to serve at one of the most famous monasteries, the Pomposa Abbey. This gesture tried to assuage the persecution of him by jealous colleagues and by the Abbot himself who



## “Guido had become a legend in his own lifetime, a pedagogical Prometheus.”

felt threatened by him. This jealousy was not unwarranted, for the *Micrologus* became the most copied-out and widely disseminated treatise on music theory before the age of printing. It was in every monastery and cathedral library.<sup>3</sup> Guido had become a legend in his own lifetime, a pedagogical Prometheus.

### Guido's contributions to the modern piano and music learning

In the opening acrostic of the *Micrologus*, Guido explains his motivation and reveals the audience for whom he created his system: “the young ones”.

Gone from school are the Muses; there may I hope to induce them,

Unknown yet to adults, to unveil their light to the young ones!

Ill will's indiscriminate rage let charity frustrate;

Dire indeed are the blights that else will ravage our planet,

Opening letters of these five lines will spell you the author.<sup>4</sup>

Encrypted in the acrostic is Guido's central approach to reading music – that it can be both horizontal and vertical. Before delving into these concepts, it is important to note that Guido also innovated other music learning concepts that we piano teachers currently incorporate.

1) He invented what would become the **arrangement of the white and black keys on the piano**. By dividing the monochord into different parts or ratios, he laid out what would become the white keys of the piano – ABCDEFG. He cleverly arranged these into various hexachords, expanding the ancient Greek predilection for four-note groupings. Guido knew the writings of Pythagoras, Boethius, and others. Guido initially referred to these notes as “Ut, Re, Mi, Fa, Sol, La” and excitedly found an existing musical example that perfectly reflected this idea – an 8<sup>th</sup>-century hymn, “Ut queant laxis”, by Paul the Deacon in honour of John the Baptist.<sup>5</sup> Guido viewed music as sung speech, and perhaps even prayer. Over time, musicians changed the hexachords to alphabet letters, resulting in “Ut” being replaced by “Do” and “Si” by “Ti”.

2) Guido's hexachord or **solmisation system**, by its very essence, offered the users a simple way to **transpose** in what we refer as the “**Fixed Do**” system. This inculcated music literacy by understanding the function of longer groups

of notes or phrases. It also assisted in the recognition of intervals through **intervallic reading** and not just rote memory of single notes.

3) These groupings, such as the hexachord, are **aids to memorisation and learning**. Cognitive psychologists call this process “**chunking**”. Small pieces of information are bound meaningfully to make a larger group that is easier to remember than the individual parts by themselves. Piano teachers refer to this concept as **pattern recognition** or reading by patterns.

An example of chunking or pattern recognition occurs when teaching the Circle of Fifths in Major or Minor scales at the piano by using two tetrachords equally distributed between the hands. This approach may be helpful before learning the entire 8-note scale with one hand with its nasty crossings. With the tetrachord system, the thumbs do not play. The fifth finger of each hand plays the name note of the scale. For example, with the C Major scale, the fifth fingers play on Cs an octave apart. To go around the Circle for the sharp keys, the left hand ascends to take the place of the right hand. The opposite occurs for the flat keys when the right hand descends to take the place of the left hand for the new tetrachord position.

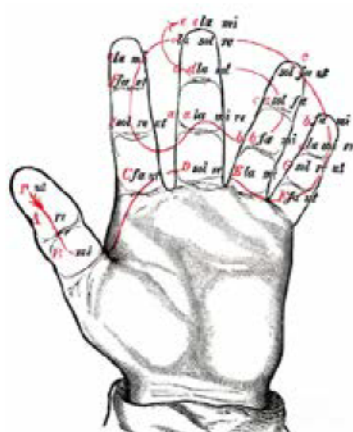
For the sharp keys and beginning with the C Major scale, you would play: C-D-E-F (left hand) G-A-B-C (right hand) for C Major scale. Then, with the left hand taking the place of the previous right-hand pattern, the G Major Scale begins: G-A-B-C (left hand) D-E-F#-G (right hand). The same works for the flat keys, but in a descending form. Beginning again with the C Major Scale as above, the right hand takes the place of the left and plays a descending F Major Scale: F-E-D-C (right hand) B-A-G-F (left hand). Whether in sharp or flat keys, the ending point is always back to the C Major Scale. The tetrachord pattern is always the same: tone (T), tone (T), semitone (S) with a tone between the two tetrachords. Thus, the tetrachord pattern is: TTS T TTS, whether ascending or descending. The symmetry is easy for the pupil to grasp. This chunking method allows for a comfortable visual-kinesthetic introduction of the entire Circle of Fifths, while sensitising the pupil to pattern and interval recognition.

4) Guido added another note to the seven listed above, that of B $\flat$ , which today corresponds to a black key on the piano. This action paved the way for others to establish the remaining four black (raised) keys. Thus, Guido became not only the **architect of future keyboard instruments** but offered a **pedagogical tool of pattern recognition and memorisation**.

5) The “Guidonian hand” had a predecessor in earlier manuscripts that served as a tool to identify semitones. However, Guido developed it further, and beyond him it reached its defining form in the 12<sup>th</sup> century. The 11<sup>th</sup>-12<sup>th</sup> century medieval historian, Sigebert Gembloux (c. 1030 – 5 October 1112), described Guido's use of the hand as using the joints and fingers for the melodic pitches. (For a simple presentation of the device employing the “Ut queant laxis”

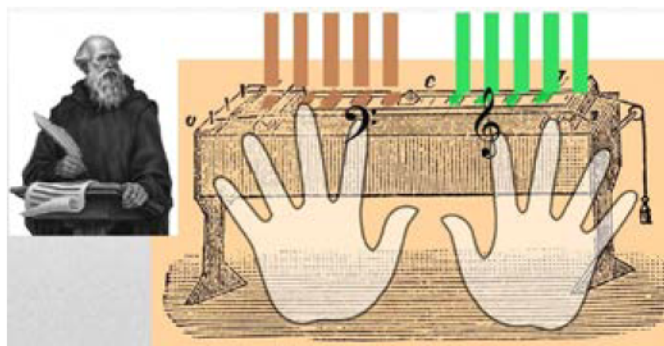
hymn, see Professor William Mahrt’s demonstration (<https://www.youtube.com/watch?v=RlleweQuq14>.) Terms such as “rule of thumb” or “at one’s fingertips” still exist in our language, thanks to the “Guidonian” hand.<sup>6</sup>

Guido applied this **mnemonic device as a written, visual code or musical staff**. He first used three, then four, lines and spaces. He also introduced colours as reference points or what we know as clefs. Using the “Guidonian hand”, singers could **hear the music silently** without the need to find the pitch on the monochord by parsing the melody into smaller intervals. Thus, they could develop **perfect pitch**.



Ex 2. The “Guidonian Hand”, www.pixels.com

### Guido in the 21<sup>st</sup> Century – the “Soft Way to Mozart”

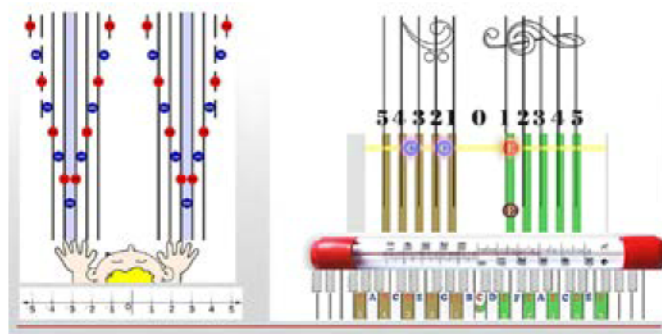


Ex. 3 Guido d’Arezzo and the alignment of the lines and spaces with the monochord (keyboard), courtesy of Soft Mozart™

To return to the concept inherent in Guido’s system, music reading could be both horizontal and vertical. The “Guidonian hand” demonstrates this concept. Piano teachers know well the horizontal approach to reading, whose illogic impedes beginning piano pupils to grasp note reading. Piano teachers have known that if we turn the keyboard 90 degrees, it would align with the horizontal music notation. Of course, this is not possible. But what if we could turn the staff 90 degrees? Then the vertical alignment of the staff and the keyboard become synchronised. This alignment is the missing link for many learners.

When placed vertically, the Grand Staff reveals the symmetry of both staves. Each staff mirrors the other and

corresponds to each hand (Bass staff = left hand; Treble staff = right hand). The numbering of the lines on the Bass staff is the only difference between this alignment and the horizontal one. In horizontal notation, the bottom line is the first line, whereas it is the fifth line in vertical notation. It does not pose a problem for pupils when switching from vertical to horizontal notation.



Ex. 4. Vertical alignment of the music staff with the keyboard, courtesy of Soft Mozart™.

Inherent in the “Guidonian hand” are the lines and spaces on the music staff. Here, the fingers represent the lines with the spaces being between the fingers – a technique sometimes demonstrated by piano teachers to their beginning pupils.

The concept of alignment of the hand, the piano keys, and the vertical staff are inherent in the Soft Mozart™ program, the brainchild of Hellene Hiner, a Russian-trained musicologist, music educator, and piano teacher (see [www.softmozart.com](http://www.softmozart.com)). By following the precepts of Guido, she and her team have invented a highly successful method for introducing note reading at the keyboard, using computerised technology. Children as young as two years old, as well as adults and teenagers, may use it and can largely function without too much instruction (see “Early Learner Sophika”: <https://www.youtube.com/watch?v=kCHb5rjUcI8>, for an impressive demonstration).

A midi-keyboard and computer with a subscription to the Soft Mozart™ software are necessary to use this system. The software offers seven major programs: “Gentle Piano”™ and six more interactive modules for improving sight-reading skills provide the student with much to learn and hundreds of repertoire pieces. The first contains the visual and interactive sheet music of several hundred pieces, while the rest teaches music theory and provides ear training. In addition, the system offers lesson plans, flash cards and alphabet keyboard orientation cards, books and audio materials. An advantage of this system is the ability to monitor the eye-hand coordination through the computer in precise numbers.





**Ex. 5. Soft Mozart™ aid to music reading, courtesy of Soft Mozart™**

### Teach only one concept at a time

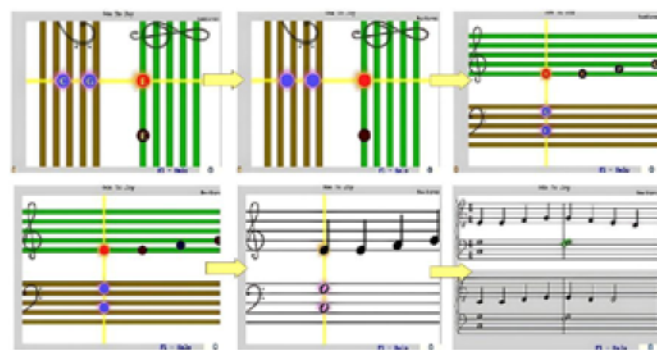
During my undergraduate Piano Pedagogy course in the late 1960s, my professor advised: “teach only one thing at a time”. Can we do this today? Most method books, even with the best of intentions, present a multitude of information either rapid fire or simultaneously. No wonder that the pupil gives up, especially if there is not much time for practising.

Recognising this line of thinking, the *Soft Mozart™* system only deals with one concept at a time. It teaches note reading by itself, without combining it with other important musical elements. The method does not couple fingering simultaneously with note reading. At a later stage, *Soft Mozart™* introduces duration, hand position, fingering, dynamics, transposition and rhythm separately. For beginners, especially the “little ones”, it’s a win-win approach.

The system employs six ways of reading the same piece, beginning first with vertical reading, and gradually arriving at horizontal reading. The vertical reading serves to orientate the pupil not only to the staff but to the keyboard. It’s so simple that a young child can grasp music reading in a short time. The *Soft Mozart™* system encourages solmisation using “Do” or the alphabet letters, as preferred by the teacher or pupil.

### Endnotes

- |   |  |   |                |
|---|--|---|----------------|
| 1 | Taruskin, 58.                              | 5 | Taruskin, 100. |
| 2 | Ibidem.                                    | 6 | Taruskin, 102. |
| 3 | Taruskin, 154.                             | 7 | Taruskin, 104. |
| 4 | Guido d’Arezzo in<br>Babb and Palisca, 58. | 8 | Taruskin, 58.  |



**Ex. 6. Six ways of reading in the Soft Mozart™ system, courtesy of Soft Mozart™**

Reading left to right, top to bottom, in Example 6, as indicated by the yellow arrows in the example, the six ways of reading the same material are described below.

1. V1 = Vertical reading (green staff for Treble clef and Right hand; brown staff for Left hand and Bass clef; red for line notes and blue for space notes; lightly-coloured blue line to indicate next octave) with note names;
2. V2 = Vertical reading (colour scheme as above) without note names;
3. H1 = Horizontal reading (colour scheme as above) with note names;
4. H2 = Horizontal reading (colour scheme as above) without note names;
5. H3 = Horizontal reading (normal notational format) with black and white notes enlarged;
6. H4 = Horizontal reading (normal notational format) with black and white notes.

With V1 and H1, the note names appear in the body of the note. In V2 and H2, the notes appear as in traditional notation, without the names. With H3, the staves are no longer coloured to orientate the hands, as the pupil has learned them, and the right hand now appears as traditional notation. In H4, traditional notation appears with black and white notes. The pupil can advance according to his/her comprehension. There may be no need to follow all six reading formats. The pupil may feel ready to skip to a different level.

Pianists are fortunate to have a visual component of their instrument in the arrangement of the black and white keys. They are also the beneficiaries of a system that simplifies the difficult task of learning to read music. Although a logical concept, vertical reading as a first step in note reading is generally over-looked.

## Conclusion

Even now in the 21<sup>st</sup> century, most people cannot freely read musical notation. The fault may lie with overwhelming the pupil with too much information. There is ample evidence that the Soft Mozart™ system, following Guidonian precepts, has made painless this arduous task. And given the Soft Mozart™ experience, the earlier, the better.

The wisdom of Guido d'Arezzo inherent in his contributions applies now to piano beginners. This curious and humble monk became the greatest “ear trainer” of all and “even more a trainer of eyes and minds than ears”.<sup>7</sup> He left a great heritage that includes the arrangement of the piano keys; solmisation; moveable “do” for easy transposition and understanding of musical function; an expansion on the Greek practice of “chunking” in music reading by creating a system of hexachord patterns that became a tool for developing perfect pitch; and, most importantly, the basis for modern music notation.

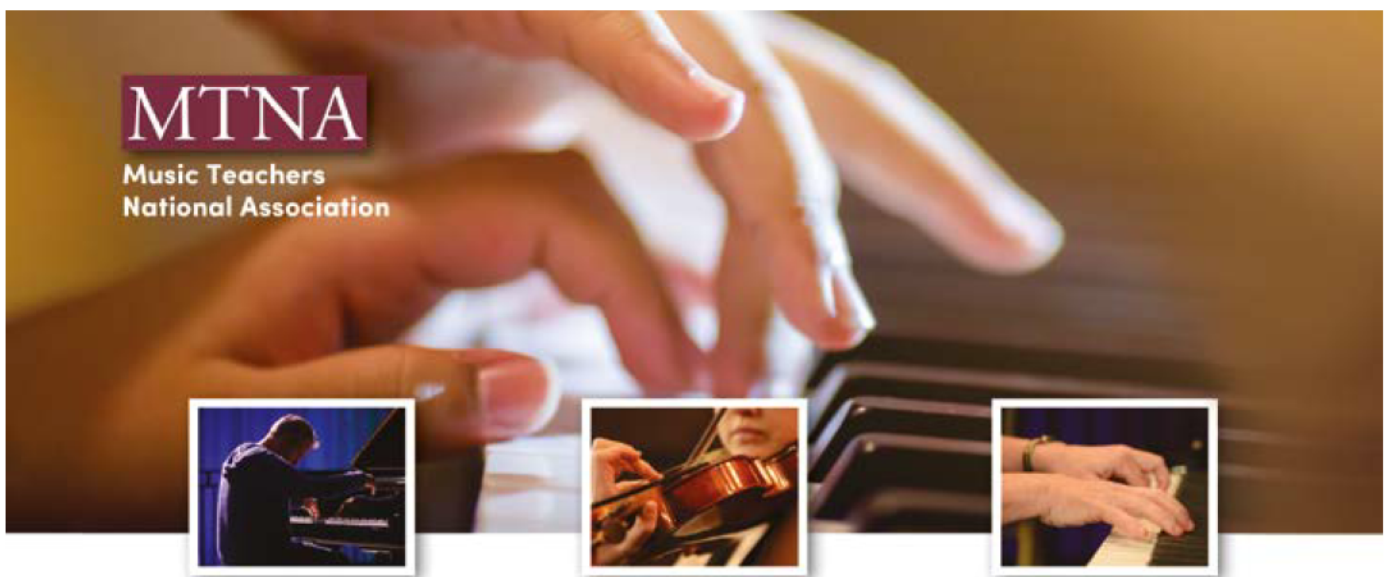
Given all the “firsts” that have arisen from the great Italian musical culture – the piano, concerto, symphony, and others – it is not surprising that Guido’s method originated there. Guido’s visionary insights, coupled with the patronage of the church, support from Bishop Theodald, and recognition by Pope John XIX, secure his heritage in history. His revolutionary method, even when producing abiding repercussions, was simple. His purpose was that “it should help both the cause of the church and our little ones”.<sup>8</sup> And it is we, the pianists and piano teachers of the little ones and others, who carry on his legacy and continue to benefit from his profound insights.

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- <https://dictionary.apa.org/chunking>.

Described as “an extraordinarily multi-talented American musician and scholar” and a “marvellous performing artist”, **Nancy Lee Harper** has taught and performed in 29 countries on 4 continents, recorded world-premiere CDs, and published books and articles in several languages. Retired from the Universidade de Aveiro, Portugal, she is the founder and former President of EPTA Portugal.

**Hellene Hiner** is a pioneering music educator who revolutionised the way music is taught with her “Soft Way to Mozart™” system, a software-based tool that makes learning piano and music theory visual and interactive. Drawing inspiration from medieval music theorist Guido of Arezzo, Hiner has modernised his ancient teaching ideas, enhancing music education with technology and intuitive learning strategies.



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