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The tacit knowledge of Claudio Monteverdi as expressed in the opera La Tragedia di Claudio M

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The role of knowledge in playing music from the Past.

The origin of all knowledge is tacit, and experience is its fundament. In that sense, implicit knowledge is basic, and all other appearances of knowledge are just reductions or modifications of this larger whole. This overarching property is inherent in art. It counts for final artistic products as much as for their practical beginnings. Remarkably, education in the artistic field needs to sufficiently recognise this fact or organise the approach to knowledge accordingly.

Trained as a musicologist and a performer of historical instruments (mainly viola da gamba), my relationship with knowledge was the doctrine of daily life throughout my professional career. This relationship had many angles, and it was not always easy to give informative knowledge an appropriate position and function to make it, first of all, feeding my musical practice.

Historical performance practice defines itself as a research-based approach to music of the past. This means that sources such as treatises, scores, playing methods, iconography and organology largely dominated the practical routines. In my case, the imperative of factual knowledge over other aspects of music-making often caused me to experience music as speaking somewhat indirectly to or through me. With hindsight, the large quantity of explicit knowledge was taking up much space destined for other qualities as a player.

The increase in this knowledge had two different consequences, which are natural phenomena. Parallel to learning from the unknown to knowing a gradually expanding number of facts and details, there was an increasing awareness of what was still to be learned. The more one knows, the better one sees what is not (yet) known and what probably will never be known.

On the other hand, the previously unknown became familiar and embedded in (sub)conscious practical application. Things started to speak for themselves. This latter trend is part of a collective movement of historical performance practices, which expanded considerably by the massive exchange of knowledge in the field since the early 1970s.¹ Over the decades, the movement developed certain implicit rules concerning historical repertoires, leading to an inevitable standardisation. A tacit agreement on how to realise extant scores based on rules distilled from the sources had become a recognisable practice.

¹ Harry Haskell, *The Early Music Revival, A History* (New York, Dover, 1996), p.163, provides the best example. The immediate success of the London-based magazine *Early Music* after its launch in 1973 can be seen as a significant handshake between musicologists and performers. It is one example of many new journals and specialised magazines in the field. The profile of scholar-performers like Nikolaus Harnoncourt, Christopher Hogwood, and Gustav Leonhardt was an expanding force behind the fusion of research and practice.

These standards were challenged based on newly acquired knowledge or views with alternative motivations. The objections to the beliefs, integrated into the ever more successful historical performance practices, eventually culminated in the so-called 'Early Music debate.' The debate took place in the 1980s. There was an antecedent by Theodor Adorno,² which was followed up by Laurence Dreyfus' article *Early Music defended against its devotees*.³

The best-known and most extensive contributor was Richard Taruskin, who, in his own words, 'debunked' the authenticity claim of the Early Music Movement in *Text and Act* and other publications.⁴ Very substantial in the debate were the articles and books by authors like Joseph Kerman, Nikolaus Harnoncourt and (looking back on the 1980s) Charles Rosen.⁵ The debate mainly concentrated on how believable the claims were that the approach of the Early Music Movement represented the original intentions and experiences of the composers of some centuries ago. The claim of 'authenticity', though not directly made by the leading performers in the field, was used by record labels and other publicity channels. Ten years after the launch of *Early Music*, its new editor, Nicholas Kenyon, organised a conference on the topic of authenticity, collecting all the high-profile contributions in his standard work about authenticity in historical performances.⁶ In the discussion, the philological scrutiny of the historical performers was confronted with their tendencies to subconsciously project contemporary aesthetics and taste onto the music of the past. The opponents did not challenge the application of knowledge but the omission of including the unknown within the larger picture of artistic valuation. The scrutiny of historical facts needed to be balanced by scientific or epistemological rigour. Instead, a tacit agreement on how to perform guaranteed a lively conviviality and conviction.

Crucial in this opposition against these grades of authenticity is dealing with the ephemeral quality of music that prevents reconstruction. All the knowledge that died with the composers, musicians and instrument makers was and will remain forever tacit.

Nevertheless, as with all history, musicians who play the music of the past in some way will have to relate to this dimension. Wilhelm Dilthey's axioma⁷ '*Leben versteht Leben*' covers the idea that 'living life is capable of re-living the life that passed away.' Central in that process is the carrier of information, the so-called dead '*Geistiges Objekt*' or intellectual content. The temporarily frozen part of it can be regained thanks to technologies such as scripture or - as in our case - music notation, iconography and musical instruments.

² Theodor W. Adorno, "Bach gegen seine Liebhaber verteidigt," *Merkur*, Heft 40, Jahrgang 5, Juni 1951, pp. 535-546.

³ Laurence Dreyfus, "Early Music defended against its devotees", *The Musical Quarterly* 69, 1983, pp.297-322.

⁴ Richard Taruskin, *Text and Act, Essays on Music and Performance*, (New York, Oxford University Press, 1995).

⁵ Joseph Kerman, *Contemplating Music: Challenges to Musicology* (Cambridge, Mass., Harvard University Press, 1985); Nikolaus Harnoncourt, *Musik als Klangrede, Wege zu einem neue Musikverständnis* (Kassel, Bärenreiter, 1985); Charles Rosen, "The Benefits of Authenticity" (1990) in *Critical Entertainments* (Cambridge. Mass., Harvard University Press, 2000), pp.201-221.

⁶ Nicholas Kenyon, (ed.), *Authenticity and Early Music*, (Oxford, Oxford University Press, 1988).

⁷ In: René Munnik, *Tijdmachines*, (Zoetermeer, Klement, 2013) p.162.

The content of this presumed *Sleeping Beauty* is subjected to a plethora of interpretations, guided - as Hans Georg Gadamer stated⁸ - mainly by the dialogue of every individual interpreter with the text. As a result, we talk of 'plural authenticities,' where every version has its authentic meaning instead of one ideal reading. In all this, the author of the intellectual content is simultaneously present and absent, thus causing this polysemic dimension to the preserved work of art. Chasing the original intention of the dead composer is frustrated by a perpetual escape from the ideal content, while its pursuit remains an illusory but inevitable necessity.⁹ So, the lost paradise is not behind us but travelling with us in a kind of parallax movement. Like the moon seen from a driving car on the highway.

The proximal and the distal

The Early Music Movement of the 20th century was not the first to bring music and theatre from a distant past back to life. In the second half of the 16th century, a small group of humanists studied the possibilities of reviving ancient Greek musical drama. A key figure at its beginning was the lutenist and music theorist Vincenzo Galilei, who was inspired by the findings and ideas of his friend Girolamo Mei. This humanistic historian wrote a treatise on the subject *De modis musicis antiquorum*.¹⁰ The text was never published, but many of his ideas and findings contributed to Galilei's *Dialogo della musica antica e della moderna*, published in 1581.¹¹

Their work formed the foundation for the Florentine academy, known as the 'Camerata dei Bardi' (named after their leader, Count Giovanni Bardi.) This group of poets, composers, theorists and intellectuals discussed the arts and shared an interest in Antiquity. With all the information that Girolamo Mei (consulting Boethius) and later also Galilei brought into the group, they managed to (re)construct a kind of vocal music completely driven by text. They created a way of performing soloistic recitation with slender accompaniment free from the polyphonic structures, much later indicated as the monodic style, then known as the *stile recitativo*. Galilei describes his conviction (after studying Aristotle's *Poetics*) that all Greek tragedy and comedy was sung. A practice that was taken over by, as he wrote, '*I latini*' (the Romans).

The passage Galilei based his theory on is most likely the sixth chapter of Aristotle's *Poetics*:

⁸ Hans Georg Gadamer, *Wahrheit und Methode*, (Tübingen, Mohr Siebeck, 1960) I. Teil, Die Erfahrung der Kunst, b) Verwandlung ins Gebilde und die totale Vermittlung. pp. 116-126.

⁹ See about this hermeneutic view: Roland Barthes, "La mort de l'auteur", *Mantéia*, 5, (1968) pp.61-67.

¹⁰ Girolamo Mei, *De modis musicis antiquorum*, Ms. (1568-1573): see Girolamo Mei, *De modis*, critical ed. Eisuke Tsugami. Tokyo, Keiso Shobo, 1991. On Mei and his role in the 'Camerata Fiorentina': Donatella Restani, *L'itinerario di Girolamo Mei dalla "Poetica" alla musica*. (Florence, Olschki, 1990). (Studi e testi per la storia della musica, 7).

¹¹ Vincenzo Galilei, *Dialogo della musica antica e della moderna* (Firenze, Marescotti, 1581). Vincenzo Galilei, *Dialogue on Ancient and Modern Music*, trans., with introduction and notes by Claude V. Palisca. (New Haven, CT, Yale University Press, 2003). Transcription of the original text Utrecht University (2016) at <https://tmiweb.science.uu.nl/text/transcription/galdia.html> (The OCR contains many uncorrected errors).

Tragedy, then, is an imitation of an action that is serious, complete, and of a certain magnitude: in language embellished with each kind of artistic ornament, the several kinds being found in separate parts of the play; in the form of action, not of narrative; through pity and fear effecting the proper purgation of these emotions. By 'language embellished,' I mean **language** into which **rhythm**, **'harmony'**, and **song** enter. By 'the several kinds in separate parts,' I mean that some parts are rendered through the medium of verse alone, others again with the aid of song.¹²

What strikes me is the effort Galilei and some others took to decipher and interpret the original Greek notation, understand their tuning systems, and understand their tonal systems, which consisted of modes characterised by explicit connotations. Apparently, these studies also helped Galilei rethink harmony and increase the use of dissonance in his own harmonic spectrum.

It is specifically noticeable that within a general interest in the arts of Antiquity during the preceding two centuries, very detailed studies of a chain of music theorists (Pythagoras, Aristotle, Boethius, Guido of Arezzo) helped the Camerata dei Bardi to achieve their own *rinascita* of the antique theatre's sound.

Knowledge older than 1500 years and handed over in descriptions and codified melodies found its way into the treatises of, above all, Vincenzo Galilei. This knowledge was thus connected with, as well as opposed to, the music theory of the mid-16th century, dominated by the standards of Gioseffo Zarlino. From all the research, discussions, and experiments, a coherent new practice grew, successfully represented by Giulio Caccini and Jacopo Peri. They were the singers of the Camerata who first came with results that found acclaim as a new way of performing music drama in a sung-spoken way.

The most valued achievement in the new style around the time this novelty was expanding, the first decade of the 17th century, was Claudio Monteverdi's *Lamento d'Arianna*. Even his competitor Marco da Gagliano confirmed that this composer wrote such an exquisite aria that one could truly affirm that he renewed the value of the music of the antiques:

Il signor Claudio Monteverdi, musico celebratissimo, capo della musica di S. A., compose l'arie in modo sì esquisito, che si può con verità affermare che si rinnovasse il pregio dell' antica musica, perciò che visibilmente mosse tutto il teatro a lagrime.¹³

(Signor Claudio Monteverdi, a celebrated musician and head of H.H.'s music, composed the arias in such an exquisite manner that they can truly be said to have renewed the value of ancient music. This visibly moved the entire theatre to tears.)

Monteverdi did not share the reconstruction ideal of the Florentine intelligentsia. As he wrote to Doni in 1634, he had taken notice of Galilei's treatise some twenty years earlier and had seen the part where the inadequate practice of the ancient Greeks was mentioned. It was dear to him to have seen it as he wrote to Doni, but he also realised that the old notation ('performance signs') was so different from that of his own times that he did not

¹² Text available at <https://www.gutenberg.org/files/1974/1974-h/1974-h.htm>

¹³ Marco da Gagliano, preface to *La Dafne*, 1608. See Angelo Solerti, *Lei origini del melodramma, testimonianze dei contemporanei*, (Torino, fratelli Bocca, 1903), p.82.

even try to understand them, being sure that they would remain obscure, and he would be lost in the practice of the ancients.

(Or, as it says in his letter: *Ho pero visto non prima d'hora anzi venti anni fa il Galilei co la ove nota quella poca pratica antica, mi fu caro all'hora l'haverla vista, per haver visto in questa parte come adoperavano gli antichi gli lora segni praticali a differenza de nostri non cercando di avanzarmi piu oltre ne lo intenderli; essendo sicuro che mi sarebbero riusciti come oscurissimi zifere, et peggio essendo perso in tutto quel modo praticale antico.*)¹⁴

Monteverdi's background was that of a music practitioner rather than an intellectual environment such as the Florentine Camerata. Even though he published his first compositions¹⁵ as a 15-year apprentice of Marc'Antonio Ingegneri, this primarily showed the knowledge of an apprentice developing into a craftsman. His more creative experiments most likely found their way into playing viola bastarda, which was an art of improvisation. The fact that Vincenzo Gonzaga accepted him as a court musician (see Chapter 5, p. 128.) based on these skills indicates that he was an exceptional and, for his age, very accomplished instrumentalist and singer.

From the letter to Doni cited above, we can conclude that Monteverdi considered himself, also with hindsight, primarily a practitioner who would approach such subjects physically, mentally and artistically from the proximity of his own experience. In the case of the Camerata dei Bardi, they made a collective effort to explore a practice that only survived as poetic texts and descriptions of their theatrical performance. With a distance of more than one and a half millennia to the studied subject, a comparison between their contemporary music theory and similar phenomena from antiquity served as guidance towards a (re)discovery of a practice that might mirror the original.

Michael Polanyi suggested that this kind of scientific or artistic exploration should be seen as an act of probing with the help of a tool.¹⁶ As an example, he chose the stick of a blind person that helps to avoid collisions with objects or stepping in holes on the way. The stick-holder explores or feels his/her way from what is nearest (in anatomical terms, the proximal) to what is far, in this case, at the end of the stick (the distal). The stick is an extension of the arm/body that feels its way into the unknown and interprets the vibrations and resistances encountered. So, the familiar (the known) is in direct contact with the unknown and by concentrating one's attention and awareness on this bi-directional process of exploration, one dwells temporarily in a circular motion of growing knowledge, which is personal. This indwelling is conditional to gain transformative growth from the whole operation.

This theoretical model's relation to Claudio Monteverdi is obvious here. For a violist or any other player of bowed instruments, the process of learning and performing is similar to the

¹⁴ Letter 125 of 2 February 1634, to G.B. Doni, in Annonciade Russo, and Jean-Philippe Navarre. *Correspondance, préfaces et épîtres dédicatoires*, (Sprimont, Mardaga, 2001), p.216. See also: Claudio Monteverdi, *Lettere*, a cura di Éva Lax, (Florence, Olschki, 1994), no. 124, p.124.

¹⁵ *Sacrae cantiunculae, tribus vocibus, Claudinis Montisviridi Cremonensis, Egregii Ingegnerii discipuli, liber primus*. (Venice, Angelo Gardano, 1582).

¹⁶ Michael Polanyi, *Personal Knowledge, Towards a Postcritical Philosophy* (London, Routledge & Kegan Paul, 1958), Chapter 4, §8, p.59.

probestick. One feels through the bow, the way into the sound by connecting feedback of resistances with the musical language of bodily actions.

The interpretative framework

The trajectory in such an exploration is predominantly subconscious and not controlled by the mind. It is a comprehensive physical (neurological) process in which memory plays an independent but crucial role. The knowledge obtained in such a way is mostly subliminal and cannot be articulated in subdivided particulars without diminishing its quality or reducing its truthful compass. Polanyi baptised this knowledge, therefore, as '*tacit knowing*.'¹⁷ Moreover, he saw knowledge always as a process connected to a person. It should, therefore, not be identified as something fixed.

For the Camerata dei Bardi, a collective interpretative framework served as a metaphorical probestick. As stated above, this framework consisted of coherent shared beliefs and explicit knowledge about ancient Greek music theory and the vast repertoire of ancient literature. In addition, other interpretative frameworks from more recent authors, such as Boethius or Guido of Arezzo, extended the proximity of the 'stick' in a telescopic way towards the very remote past. A recontextualisation refined the images of the lost practice at the distal end through practical experiments and a search of the proximal side. The indwelling of the group made them contemporary with the cultural field they studied, and at the same time, by projections, they subconsciously morphed that same field to fit the ideals of their present. According to Polanyi, committing oneself entirely to this process of probing investigation is conditional on its credibility and success. He sees this principle for science as well as (emphatically) for the arts.

No one can know universal intellectual standards except by acknowledging their jurisdiction over himself as part of the terms on which he holds himself responsible for the pursuit of his mental efforts.¹⁸

This means that in the case of the Camerata dei Bardi, we are not dealing with a subjective concoction from a collective endeavour. Every individual contribution was submitted in confidence, from a personal passion to the agreed intellectual standards of the group based on historical and artistic fundaments. (It is interesting to see the parallels with the Early Music Movement of the 1970s and 1980s when collective passion and conviction catapulted discoveries and skills into a new dimension of historical performance.)

Through this framework of commitment, a self-regulating coherence emerged, leading to the growing proximity of the hidden truth of a new style of music drama. The heuristic moments in this research depended on responsible choices of actions, which (as Polanyi describes it) 'excluded randomness or egocentric arbitrariness.'

If we consider the new vocal style around 1600, the *stile recitativo*, as new knowledge, Polanyi's observations concerning this chapter are very appropriate in our case:

¹⁷ Michael Polanyi, *The Tacit Dimension* (Chicago, University of Chicago Press, 1966), p. 10.

¹⁸ Polanyi, *Personal Knowledge*, Chapter 10, §2, p.302, 303.

The implications of new knowledge can never be known at its birth. For it speaks of something real, and to attribute reality to something is to express the belief that its presence will yet show up in an indefinite number of unpredictable ways.¹⁹

Drawing this picture much broader, we can say that there was an inevitable line from the first tentative attempts to combine speaking and singing until, finally, the mature appearance of opera as a new medium.

Vincenzo Galilei's research was the most 'scientific' contribution to the Camerata. He found his arguments, above all, in Aristotle's work. The central question was whether Greek tragedy was entirely sung. Galilei 'coloured' the information, however, by freely interpreting some statements about Greek tragedy as actually being sung and not spoken. In his *Dialogo*,²⁰ this conclusion is based on paragraphs 6 and 15 of book XIX in Aristotle's *Problemata* ("Problems Connected with Music") and nuanced in *Poetics*, chapter VI, which states that some texts were spoken and others 'rendered with the aid of song' (see above, fn. 10). Galilei admits this last contradiction, but blaming Aristotle's memory while being convinced that the *Problemata* was written first, which is doubtful:

*Vero è che nella Poetica, quando viene alla diffinitione delle Tragedia, pare che egli scordi il alcuna cosa da quel primo parere.*²¹

(It is true that in *Poetics*, when coming to the definition of Tragedy, it seems that he had forgotten something of that first opinion.)

He seems to subconsciously want to follow his own track and see the confirmation of a fully sung tragedy. Indeed, the Greek term for mixing speaking and singing connects with tragedy in the mentioned fragments of the *Problemata*. The translation of the word *parakatalogí* (παρακαταλογία) is by scholars generally accepted as 'recitative/reciting.' So, for Galilei, this passage in the book dedicated to music was a key to his conviction about sung Tragedy:

(Aristotle, *Problems*, XIX, 6) Why is recitative in songs tragic? Is it because of the contrast? The contrast evokes emotions and is found in extreme calamity or grief, while uniformity is less mournful.²²

Mimesis

Even more relevant than the role of song in Tragedy are Galilei's searches for indications of the role of imitation within acting. As we saw above in the quoted passage of the *Poetica*, Aristotle underlines the aspect of imitation in acting, by and in language, which enhances the

¹⁹ *Idem*, p.311.

²⁰ Galilei, *Dialogo*, p.145, trans. Palisca, p.362.

²¹ *Idem*, fn. 743, Palisca points out that Galilei was unaware of the posthumous compilation of the *Problemata*. He thought it was written before *Poetica*.

²² Aristotle, *Problems*, I, 1-19 (Cambridge, MA, Harvard University Press, 2011) (Loeb Classical Library, 316), pp. 536, 537.

emotional impact. In paragraph 15 mentioned above, he explicitly sketches the work of the specialised actor (ἄγωνιστῶν) and the performance of the *nomoi* (melodic patterns, songs) who contrasted by their length with the choral strophes:

(Aristotle, *Problems*, XIX, 15) Is it because *nomoi* were for professional actors, who, being already able to perform imitations and exert themselves for a sustained period, their song became long and multiform? Like the words, then, the melodies too, followed the imitation in being continually varied. For it was more necessary to imitate by means of the melody than by means of the words.²³

The protagonists had a fair amount of musical freedom to use their palette of emotional imitations translated into musical expression. The chorus could not because "it is easier for one person to execute a lot of modulations than it is for many." The conclusion is that the *hypocritès* (the actor) is an *agonistes* (professional virtuoso) and a *mimetes* (imitator).²⁴

Michael Polanyi discusses mimesis in another context, which is nevertheless related because it deals with the transmission of knowledge by imitation. This tacit learning of knowing how to do something was first described after observations of animal behaviour. Not the "blind parrot-like imitation, but a genuine transmission of an intellectual performance from one animal to the other; a real communication of knowledge on the inarticulate level."²⁵

Polanyi points out that all arts are learned in this way of intelligently imitating and that there is a condition for the learner to place his confidence in the master. This principle is not limited to the master-apprentice relationship. The actor can imitate a person who is a model for a role or character by the same intelligent observation. In turn, the craft of the imitator can be imitated to learn more about expression for other purposes.

Vincenzo Galilei saw this strategy of learning by imitation as the ultimate chance to get closer to a genuine text expression in music. He advised his readers interested in the rhetorical style of the ancient Greeks to observe the Commedia dell'arte actors (*i Zanni*) of their present-day tragedies and comedies:

- Quando per lor diporto vanno alle Tragedie & Comedie, che recitano i Zanni, lascino alcuna volta da parte le immoderate risa;
(When they go for entertainment to the tragedies and comedies recited by the *Zanni*, let them restrain their immoderate laughter,)
- & in lor vece *osservino* di gratia in qual *maniera* parla, con qual voce circa l'acutezza & gravità, con che *quantità di suono*, con qual sorte *d'accenti & di gesti*, come profferire quanto alla *velocità & tardità del moto*, l'uno con l'altro quieto gentilhuomo
(& instead let them observe with gratitude in what manner and with what voice regarding high & low pitch, with what volume of sound, with what kind of accents & gestures, what speed or slowness of articulation, one gentleman speaks quietly with another.)
- attendino un poco la differenza che occorre tra tutte quelle cose, quando uno di essi parla con un suo servo, overo l'uno con l'altro di questi; considerino quando ciò accade al Principe scorrendo con un

²³ *Idem*, pp. 542-545.

²⁴ Luis Calero, "Training a Chorus in Ancient Greece", *Gilgameš*, No. 2, 2019, pp. 15-27.

²⁵ Polanyi, *Personal Knowledge*, p.206.

suo suddito & vassallo quando al supplicante nel raccomandarsi; come ciò faccia *l'infuriato*,
ò *concitato*;

(Let them pay attention to the difference between all these things, when one of them speaks to his servant, or a servant to another. Let them consider when this happens to the Prince in speaking to his subject & vassal; or a supplicant pleading; how the enraged or excited person speaks;)

- come la donna maritata; come la fanciulla; come il semplice putto;
come l'astuta meretrice; come l'innamorato nel parlare con la sua amata mentre cerca disporla alle sue voglie; come quelli che si lamenta; come quelli che grida; come il timoroso; e come quelli che *esulta d'allegrezza*,

(how a married woman, a girl; a mere tot; a cunning harlot; a lover speaking to his beloved when he is trying to bend her to his will; how someone who laments; or one who cries out; how a timid person sounds or one exulting in joy;)

- da quali diversi accidenti, essendo da essi con attenzione avvertiti & con diligenza esaminati, potranno pigliar norma di quell'ocche convenga per l'espressione di qual sivolgia altro concetto che venire gli potesse tra mano.

(From these various occurrences, observed with attention and diligently examined, they could take the norm of what suits the expression of any other idea that might come to hand.)²⁶

With these examples, Galilei pointed to direct imitation through intelligent observation. In this example, the intelligence is not reflective but sensitive to goal-directed behaviour.²⁷ In Polanyi's terminology, the observer is advised to dwell in the mind of the performers during the action. Four hundred years after Galilei, Polanyi correctly described such processes as a tacit functioning within learning. A transmission of knowledge occurred under the radar of our conscious mind. In art, the advantage of such a way of learning is that the wealth of details, nuances, refinements, curiosities, inexplicabilities, etc., next to the undividable *qualia* aspects, 'the suchness' of relevant items, is not sacrificed to inevitable processes of reduction or compression. According to Antonio Damasio, feelings provide the *qualia* element included in subjectivity. Damasio's definition of the integrated experience as an enabler of the cultural mind is analogous to Polanyi's theory of personal knowledge.²⁸ Explicitation would produce an effect of the impoverishment of meaning compared to the original expression remaining embedded in its totality. Half a century after Polanyi's conclusions, neuroscience succeeded in refining such observations by directly measuring brain activities during primates' learning. In his book *The Neuroscience of Human Relationships*, Louis Cozolino dedicates a chapter to this fundamental principle of social coherence facilitated by so-called mirror neurons.

The microensors revealed that neurons in the premotor areas of the frontal lobes fire when another primate is observed engaging in a specific behaviour. [...] Because these neurons fire both when observing and performing a particular action, they have been dubbed mirror neurons." [...]

²⁶ Galilei, *Dialogo*, p.89.

²⁷ In this light, it is interesting that despite the subtitle of his book, Bertolt Brecht gave the same recommendation in his lecture for the Danish Working Class Actors. Bertolt Brecht, *Rede an dänische Arbeiterschauspieler über die Kunst der Beobachtung*, in: *Schriften zum Theater, Über eine nicht-aristotelische Dramatik*. (Berlin, Suhrkamp, 1957) p. 268.

²⁸ Antonio Damasio, *The Strange Order of Things. Life, Feeling, and the Making of Cultures* (New York, Pantheon Books, 2018), pp. 144-148.

"Mirror neurons lie at the crossroads of the processing of inner and outer experience. [...] It is because of their privileged position that mirror neurons are able to bridge observation and action."²⁹

Cozolino's research is relevant here because he also studied the relation between words and gestures. These are linked even to the point that our tongue muscles are activated by listening to speech. So, the action of speech of the sender, as well as facial expressions and gestures, result in reflexive activation of motor systems in the observer.

Galilei encouraged composers and musicians to observe the actors in action in order to follow their performances as musical gestures, which could be captured in the shape of recitatives. Crucial is the immediacy of the process. The fact that no analysis comes in between what happens and how it is reflected in the receiver makes the artistic outcome experienced true. It is the dramaturgical equivalent of the verisimilitude of the visual arts.

A similar way of working had become second nature to one of the great opera composers of the 20th century, Leoš Janáček. He used to write down conversations or spoken language around him directly in music notation in a little notebook. He wanted to catch the musical dimension of his mother tongue (!) at its most lively manifestations. Ironically, this habit was so dominant that even at the deathbed of his daughter Olga, he wrote down the scene in that notebook. Turning what was truly happening into a dramatised scene, like an artist making a drawing of the deathbed of a family member.³⁰

Janáček's method mirrors Vincenzo Galilei's ideal when transferring spoken word to music. Galilei mostly paid attention to the precise characterisation of the person represented by the ancient singers. He summarises the recommended observations above and puts them into practice, translating them into musical action of tone, accents and gestures, volume, and rhythm.

*Nel cantare l'antico Musico qual si voglia Poema, esaminava prima diligentissimamente la qualità della persona che parlava, l'età, il sesso, con chi, & quello che per tal mezzo cercava operare; i quali concetti vestiti prima dal Poeta di scelte parole à bisogno tale opportune, gli esprimeva poscia il Musico in quel Tuono, con quelli accenti, & gesti, con quella quantità, & qualità di suono, & con quel rithmo che conveniva in quell'attione à tal personaggio.*³¹

When the ancient Musician sang any Poem he wished to *sing*, he first examined very diligently the quality of the person speaking, his age, his sex, with whom, & what he sought to achieve by that means; which concepts the Poet first put into words chosen to suit his needs, which the Musician then expressed in that tone, with those accents, & gestures, with that quantity, & quality of sound, & with that rhythm which suited that character at that moment.

Galilei was the first of the Camerata dei Bardi, who realised a composition in the new monodic style, which he sang himself. There is a testimony of Giovanni Bardi's son Pietro in a

²⁹ Louis Cozolino, *The Neuroscience of Human Relationships; Attachment and Developing a Social Brain*. (New York, Norton, 2006), Part IV, ch. 13, pp. 186-191.

³⁰ Jaroslav Vogel, *Leoš Janáček*, (Prague, Artia, 1962), trans. Geraldine Thomsen-Muchová, London, Orbis Publishing, 1981, p. 197. The RC version of this dissertation includes a picture of the notebook page.

³¹ Galilei, *Dialogo* p.90.

letter from 1634 to Giovanni Battista Doni that he sang with a clear tenor voice, accompanied by a consort of viols, his *Lamento di Conte Ugolino* after Dante's *Inferno*. Apart from the good voice, he apparently sang intelligibly, and although the music lovers liked it, the performance created envy among his colleagues. This *stile recitativo* was a discovery for Jacopo Peri and Giulio Caccini, but they found "too much antiquity and roughness" in Galilei's approach. According to Pietro de Bardi the two singers "softened the style and made it suitable to arouse affects by it, which were seldom heard."³²

Dwelling in, breaking out

For Galilei, probing by his interpretative framework resulted in an immersion in his field of study, ancient Greek music. To see it through Polanyi's eyes, we would say that his contemplation brought Galilei from an observer of experiences into a person absorbed by their inherent qualities. "The impersonality of intense contemplation," as Polanyi states, "consists in a complete participation of the person in that which he contemplates. And not in his complete detachment from it, as would be the case in an ideally objective observation."³³

Galilei's lamento was more an explorative experiment than the work of his younger colleagues. Hence, the roughness of his findings and the slightly fanatic endeavour to evoke the antique original in an uncompromised appearance by artistically breaking out of the habitual frames.³⁴ Quite deliberately so, because he departed from a hunch (a tacit fore-knowledge)³⁵ of what the original Greek music must have been like. However, he knew he could only approach it instead of rediscovering its original appearance. His priority was to break out of the expressive limitations of polyphony. In a key chapter of *Personal Knowledge*, "Dwelling In and Breaking Out", Polanyi compared artistic innovations with the chain of upheavals in scientific development. Though mainly taking place in the tacit dimension, he states that "new movements of art include a re-appreciation of their ancestry and a corresponding shift in the valuation of all other artistic achievements of the past." Therefore, Polanyi's definition of the appreciation of art is not verification as in measurable natural sciences but *validation*.³⁶

The attribution of value instead of verification to the way the revival of ancient music is appreciated creates a paradoxical layer to Polanyi's statement, which Charles Rosen ironically refers to as the "Shock of the Old."³⁷ In the Early Music debate described above, ethical questions determined a large part of the discussions. If we classify historical performances as

³² Pietro de Bardi conte di Vernio — Lettera a G. B. Doni [16 XII 1634] see Solerti, *Le Origini*, pp. 143-145.

³³ Polanyi, *Personal Knowledge*, p.197. Chapter 6. §13 provides the answers to fully understand Polanyi's view on this part of his theory.

³⁴ The letter of Pietro de Bardi mentioned earlier describes the reaction of Jacopo Peri and Giulio Caccini to adopt the endeavours of Galilei in the new style, "sfuggendo (avoiding) una certa rozzezza (roughness/simplicity) e troppo antichità (too much antiquity)." Solerti, *Le Origini*, p.145.

³⁵ Polanyi, *The Tacit Dimension*, pp. 23,24.

³⁶ Polanyi, *Personal Knowledge*, p. 201.

³⁷ Charles Rosen, "The Benefits of Authenticity" appeared earlier as 'The Shock of the Old', in the *New York Review of Books*, 1990.

‘new movement of art’ the re-appreciation of earlier performances is obvious. They are mostly considered ‘outdated’ when measured to standards of historical evidence but can still be valued based on other parameters. These aspects that prevail above the historical informed are most of the time related to the tacit knowledge of performers and their traditions. The ethical card was not only drawn by the 20th-century Early Music Movement. The idealism that motivated Galilei’s ardent research and experimentation also carried a component of projection.

Pietro de Bardi stressed the support Galilei received from his father, Count Giovanni Bardi, who specialised highly in the same material as his companion. The Count's help was needed and much appreciated as we read in the dedication of Galilei's *Dialogo*, printed in 1581. From that book, we see Galilei's wider context and belief in experiments as a condition for proper research. He had found the right companion in his sponsor because apart from investing financially, Count de Bardi 'toiled for entire nights for such a noble discovery.' (*il quale le notti intere, e con molta sua spesa si affaticò per sì nobile acquisto*). The consequence of choosing that path is described by Pietro de Bardi as an arduous undertaking that was then considered ridiculous.³⁸ New artistic phenomena have been ridiculed very often, certainly since the early modern times. In this case, it is remarkable that the values of the past were taken as a starting point, and Galilei was determined to go against what he considered the delusions of his day and restore values. In his enthusiasm, he even attributes words to Aristotle that are not found literally in the philosopher’s texts:

*& parimente Aristotile: dicendo egli, che quella musica la quale non serve al costume dell'animo, è veramente la disprezzarsi.*³⁹

(...& likewise, Aristotle says that music which does not serve the custom of the soul is really to be despised.)

Galilei was determined to go against the fashions of his days and made a moral appeal to his contemporaries to seek the higher values of their art instead of satisfying the senses with entertaining novelties:

*Tra i Musici antichi di pregio, fu sempre grandemente reputata la severità, & la curiosità avvilita; dove per il contrario quelli de nostri tempi, hanno senza rispetto alcuno à guisa degli Epicurei, anteposto à ciascun'altra cosa, la novità per diletto del senso;*⁴⁰

(Among the ancient Musicians of merit, seriousness was always greatly esteemed, & curiosity vilified; where, on the contrary, those of our time have, without any respect, like the Epicureans, put novelty before everything else for the sake of delighting the sense;)

³⁸ ‘Il primo a far sentire il canto in istile rappresentativo: preso animo e aiutato per istrada sì aspra, e stimata quasi cosa ridicolosa.’ (The first who made [people] hear singing in the stile rappresentativo encouraged and helped [by count Bardi] on this road that was so tough and judged as a more or less ridiculous thing). Solerti, *Le Origini*, p.144.

³⁹ Galilei, *Dialogo*, p. 84. Palisca (*Dialogue*, p.209, fn. 405.) reminds us that such a dogmatic statement was uncharacteristic of Aristotle but that he wrote about the influence of music on the moral character in education. (Aristotle, *Politica* 8[1340b]).

⁴⁰ Galilei, *Dialogo*, 84. (translation based on Palisca (*Dialogue*, p.209).

Even though his experiments were embedded in a movement of avant-garde, he still had to stick his neck out with something that initially risked being misunderstood even by his peers. In the history of artistic development, there are many pivotal changes we can point to as moments an artist broke out of an existing structure. Validation was often only possible in the aftermath of the event, and the implications were initially uncertain, as with all appearances of new knowledge.

Conclusion

In conclusion, we see that by playing music from the (remote) past, an infinite quest for more knowledge will be generated after the interiorisation of every discovery. On a large scale, this has been made clear by the Early Music Movement that started in the 1960s. The commitment of that community ended up in a collectively shared 'personal knowledge' raising an increasing awareness that the most wanted knowledge would remain forever tacit because it died with its owners. The positive side of this fact has manifested itself as a quest for a 'lost' ideal that, in a parallaxic movement, travels in time with all the searching artists, thus stimulating creativity.

A parallel can be drawn with a similar movement at the end of the 16th century, the Camerata dei Bardi in Florence. Their efforts to develop music drama based on ancient Greek tragedy were guided by Vincenzo Galilei, who had a visionary approach to reviving vocally recited drama. Understanding these efforts along the lines of Michael Polanyi's theoretical model of the probe, or in this case, a collective interpretative framework, we have a clear example of a path to the discovery of new knowledge (in this case, the *stile recitativo*) by dwelling in shared beliefs and explicit theoretical facts of ancient Greek music. Galilei's probe functioned like a telescope,⁴¹ going from more recent authorities like Guido of Arezzo, via Boethius in the Early Middle Ages, to Aristotle, whom he considered the main authority in his search. Indeed, this path would lead to the important discovery of mimesis, a tacit process of learning by imitation, as a guiding principle in creating a vocal style. This would preserve the actor's available tools in representing a dramatic character while singing.

Galilei's theory about imitation in this context is not only endorsed by Michael Polanyi's explanations of the 1950s but also confirmed by neuroscientists like Damasio and Cozolino 70 years later.

Monteverdi, who chose this practical way, as we saw in the letter to Doni quoted above, considered reconstructing Greek music impossible for himself. Nevertheless, he took notice of Galilei's writings, profited after Jacopo Peri and Giulio Caccini from the newly developed *stile recitativo*, and, according to his colleagues, led it to a higher level of perfection. Comparable steps towards an ideal of merging spoken language and song in twentieth-century opera, like those of Leos Janáček or Bertolt Brecht and Kurt Weill, can be deducted to originate from a similar process of applying their tacit knowledge.

⁴¹ Thus preceding his son Galileo, who would use a self-constructed telescope to bridge a physical distance, contemplating the universe.

Michael Polanyi

From science to epistemology

Michael Polanyi, (born as Miháli Pollacsek), was born in Budapest on 11 March 1891 and died as a British citizen on 22 February 1976 in Northampton. He was a polymath with expertise in medicine, physical chemistry, economics, political theory, and philosophy. A broad and intensive education from the very start of his life determined Michael Polanyi's multifaceted scientific career. His parents were secular Jews, and after his father's death in 1905, his mother established a salon that was frequented by the intelligentsia and artists of vibrant Budapest.

In the wake of his elder brother Karl (later a famous economist), he became involved with the Galileo Circle, a scientific student community that discussed social, economic, and political issues.

After finishing his medical studies at the University of Budapest, he became more interested in continuing his studies in chemistry and profited from the opportunity to spend a year at the Hochschule in Karlsruhe. His professor there shared some of Polanyi's papers with Albert Einstein, who was very positive about the content. This first contact was followed by a twenty-year correspondence with the famous scientist. While serving in the army during WWI, he finished his first pathbreaking article in thermodynamics during sick leave, published in the *Proceedings of the German Physical Society*. When Polanyi was invited in 1921 to present his theory about the adsorption of gases at a special meeting where Einstein was invited, his unconventional method was heavily attacked¹ for showing a "total disregard for the scientifically established structure of matter."

It was the time that Polanyi's outsider position came to the surface in a confronting way. But he stuck to his conviction and nine years later was proved right. This experience taught the young scientist that he could stand alone outside the scientific community without distrusting or ignoring the discipline.

Two weeks after taking a position in Berlin at the Institute of Fiber Chemistry, he made an important discovery, again outside the routine, delivering a breakthrough in X-ray analysis that became the new method. He spent three years in the institute working on X-rays and crystals² before moving on to his real passion, studying reaction kinetics at the Institute of Physical Chemistry. In the 1920s, Berlin was the world centre of scientific avant-garde and knowledge development. Polanyi later described his participation in the weekly Physics Colloquium, having informal discussions surrounded by the brightest physicists, such as Max

¹ Mark T. Mitchell, *Michael Polanyi, the Art of Knowing*, in the series 'Library of Modern Thinkers', (Wilmington Delaware, ISI Books, 2006) p. 6.

² Much later, he dedicated a small chapter to crystals, *Crystallography*, in his book *Personal Knowledge* of 1958, clearly based on his experiences of those years in Berlin. PK, *Order*, p. 43-48.

Planck, Albert Einstein, Erwin Schrödinger, Max von Laue, Otto Hahn and Lise Meitner, as the most glorious intellectual memory of his life.³

These discussions were in stark contrast to the threat of repression when the Nazis came to power in the new decade. Initially hesitating to leave Germany, he later gratefully accepted an offer from the University of Manchester to take a Chair of Physical Chemistry.

Just before and during the years of war, Polanyi resisted⁴ the tendencies to conflate pure science and the applied sciences, with the Soviet Union as a negative example, and made a plea in Britain to not follow that track and let science follow the pursuit of knowledge for its own sake.

In 1944, he was elected a Fellow of the Royal Society and a year later, he gave his Riddle Lectures at the University of Durham. In these lectures, he chose a more philosophical angle. He initiated some of the ideas that would later grow into a comprehensive new theory about knowledge by including implicit components as its fundament.

Manchester University created a separate position to make sure Polanyi would not move to the USA, where there existed a substantial interest in the original scientist. Avoiding discussions with the Philosophy department, they offered him a Chair of Social Studies to further develop his theories. Some colleagues saw with dismay how he moved away from science to dedicate himself entirely to the epistemological adventure. The philosopher Isaiah Berlin was very negative about this step: "... here is a great scientist giving up the Nobel to write mediocre works of philosophy."⁵

But Polanyi was already convinced that he had found his true vocation and that his laboratory years were essential as a fundament: "...an experience in science is by far the most important basic ground for developing philosophic ideas."⁶

Theories of an outsider

Polanyi entered the discipline of philosophy as an outsider, and again, this was in many ways an advantage as in his previous multidisciplinary excursions. However, he also felt a lack of overview when preparing his Gifford Lectures for 1951/52 in Aberdeen, where the blueprint of his theory about tacit knowledge was exposed for the first time. In 1950, he met the philosopher Marjorie Glicksman Grene in Chicago, who (in Polanyi's acknowledgements)⁷ "seemed to have guessed my whole purpose, and ever since she has never ceased to help its pursuit." So, Grene not only provided him with a crash course in philosophy, but she also

³ Mitchell, *Michael Polanyi*, p. 17.

⁴ In 1940, Polanyi published his collected essays about economics and freedom of inquiry in *Contempt of Freedom*.

⁵ Mitchell, *Michael Polanyi*, p. 17.

⁶ *Idem*.

⁷ "Setting aside her own work as a philosopher, she has devoted herself for years to the service of the present enquiry." Michael Polanyi, *Personal Knowledge*, London, University of Chicago Press, 1958. p. IX

remained his critical sparring partner while writing his magnum opus, *Personal Knowledge, Towards a post-critical Philosophy*. Polanyi must have owed a large part of the referential solidity and authority in the field to this assistance, which he acknowledges on the first page of the book.

The ideas and determination of the almost ten-year writing project were completely Polanyi's. His main purpose was to liberate the modern world from its belief in objectivism and reintroduce, for the first time since the teachings of church father Augustine had lost their influence, a post-critical alternative based on belief, commitment, intuition, guessing, and imagination.⁸

Polanyi had grown gradually to this new conviction. Looking at Polanyi's publications until the 1950s, outside the field of science, we can conclude that he had followed and commented with intelligent social commitment on political and economic processes for decades. On top of that, as a European Jew, he knew too well the dark side of technological progress that was detached from humanistic embeddings.

He knew the world of scientific discoveries from the inside and had seen the fallacy of positivist belief in detached observations and neutral descriptions if scientific breakthroughs were made. While Albert Einstein's discovery of relativity was regarded as an illustration of such a positivistic conception of science in his day, Polanyi considered it the opposite, which he underpinned in chapter 1.3 of *Personal Knowledge*, 'Relativity'.⁹

He opposed objectivism by establishing a theory based on a fiduciary framework of embedded beliefs within a like-minded community. Conditional is that these beliefs are continuously reconsidered during exploration and exegesis.

The findings of Gestalt psychology inspired the first steps in developing a new view of knowledge. Though Polanyi stresses the differences in his writings between the Gestalt theory¹⁰ and his own approach, he admits that this was an essential opening to his concepts of how knowledge is experienced. An important lead was the concept of the Gestalt theory, which is akin to the theory Polanyi developed later: the process of 'integrating our awareness of particulars without being able to identify these particulars.'

Max Wertheimer, the founder of the Gestalt theory, served as a research psychologist during the First World War in Berlin, close to Einstein's house. Wertheimer became friends with the scientist and profited from learning more about the Gestalt-like method Einstein applied when he developed his theory of relativity. It is fascinating to see how several roots of the

⁸ Polanyi saw a fundamental difference between the "supreme immediate knowledge, called intuition," as articulated by Leibniz, Spinoza or Husserl and the "discovery by steps" in a "work-a-day skill of scientific guessing." Michael Polanyi, *Knowing and Being, essays by Michael Polanyi*. ed. Marjorie Grene (London, Chicago University Press, 1969) pp. 143,144.

⁹ Michael Polanyi, *Personal Knowledge*, pp. 9-15.

¹⁰ "Perception, on which Gestalt Psychology centered its attention, now appears as the most impoverished form of tacit knowing." Michael Polanyi, *The Tacit Dimension*, (London, University of Chicago Press, 1966) p.7.

theory of tacit knowledge dated from the beginning of the century, with Berlin as a meeting point.

Though Polanyi did not take part in any philosophical discourse and was eagerly catching up after WWII to get an understanding of the discipline, his ideas were not growing in a vacuum either. Gilbert Ryle was a British philosopher who worked out a similar concept that resisted Cartesian dualism based on the separation of body and mind. Ryle's focus on the difference between 'knowing how' and 'knowing that' (the German *Können* and *Wissen*) were considered of the same structure by Polanyi, who concluded, however, that both types were always present in the total process of knowing.

What separated Polanyi from most of his contemporary scientists and thinkers was his conviction that modern mechanistic objectivism had to be replaced by a restored trust in belief. Or as he puts it: 'All knowing depends on a fiduciary framework.' He deliberately conceived a theory beyond the critical tradition as inherited from Kant, based on the *Confessions* of Augustine; *nisi crederitis non intelligetis*, 'you will not understand, unless you believe.'

Marjorie Grene later summarised this step they both made as "a kind of lay Augustinianism in which we recognize that our reasoning always rests on an attempt to clarify and to improve, something we already believe, but believe, of course, in such a way that we recognize that we might be mistaken."¹¹

Consequently, Grene and Polanyi shared the view that the modernist concept of truth was something that we can only know and prove, leaving behind all we know but cannot prove, excluding matters of beauty, morality, justice etc.

It is precisely in this latter area that Polanyi wanted to offer an alternative to objectivism. The recent war destructions influenced his conviction that truth claims of scientism had moral and political repercussions. The philosopher Eric Voegelin, also a refugee for the Nazis, drew a similar conclusion. "Scientism seeks to reduce all knowledge to what can be empirically verified. Historically, the murder of God is not followed by the superhuman but by the murder of man."

It is significant that, somehow, after both world wars Polanyi endured, he oriented his own existence to the Christian faith. In 1919, he converted to Catholicism, as he stated, inspired by reading Dostoyevsky's *Grand Inquisitor* and Tolstoy's *Confession*.

In 1947, he was invited to participate in the discussion group *The Moot*, around the Scottish missionary and ecumenical pioneer J.A. Oldham. He filled the void after the untimely death of his compatriot, the sociologist Karl Mannheim, with whom he had been a member of the Galileo Circle. (see above). Mannheim was an important founder of the sociology of knowledge, and since his dissertation, 'Structural Analysis of Epistemology', he had kept an

¹¹ Quoted in Phil Mullins, "In memoriam Marjorie Grene", in *Tradition and Discovery, The Polanyi Society Periodical*, 36,1 p. 60.

interest in researching the interconnection of the disciplines. The Moot was a mixture of renowned scholars, clergy and artists (like T.S. Eliot); their agenda included the position of Christianity in the post-war social restoration. Polanyi did not share himself automatically in the category of Catholics because his views were in many ways leaning towards Protestantism or independently philosophical, but for that reason even more appreciated by Oldham.

After accepting the Chair of Social Studies from the University of Manchester for this purpose, he dedicated most of his time to elaborating his theory of tacit knowing, which included an important role for faith or trust.

As he summarises in his chapter *The Justification of Personal Knowledge*, the invitation to dogmatism was a 'corollary to the greatly increased critical powers of man.'

These [critical powers] have endowed our mind with a capacity for self-transcendence, of which we can never again divest ourselves. We have plucked from the Tree a second apple which has forever imperilled our knowledge of Good and Evil, and we must learn to know these qualities henceforth in the blinding light of our new analytical powers. Humanity has been deprived a second time of its innocence and driven out of another garden, which was, at any rate, a Fool's Paradise.

Innocently, we had trusted that we could be relieved of all personal responsibility for our beliefs by objective criteria of validity - and our own critical powers have shattered this hope.

Struck by our sudden nakedness, we may try to brazen it out by flaunting it in a profession of nihilism. But modern man's immorality is unstable. Presently, his moral passions reassert themselves in objectivist disguise, and the scientific Minotaur is born.¹²

His description of modern science's failure to maintain high moral standards is relevant even today. The alternative he suggested with meticulous substantiation in his magnum opus, *Personal Knowledge*, is the proposition to 'restore to us once more the power for the deliberate holding of unproven beliefs.'

Throughout his life, Polanyi remained tacit about his private religious convictions in the circles of philosophers because, like Marjorie Grene, many were hostile to religion.

Two years after the appearance of *Personal Knowledge* (1958), the dedicated consultant and sparring partner Grene discovered Maurice Merleau Ponty's work, which was a revelation for her. She saw the 1945 publication of *Phénoménologie de la perception* as a complementary enrichment to Polanyi's theories to form her own synthesis of both in *The Knower and the Known* (1966). In his article "The Structure of Consciousness,"¹³ Polanyi admitted that parts of Merleau Ponty's theory had been foreshadowing his own, such as the experience of the body as an existential act, not based on observation or thought. However, despite his agreement with profound observations of that theory about the consequences of bodily perceptions, he saw his own ideas going a step further in addressing the Cartesian dilemma (supposed separation of body and mind) by 'acknowledging two mutually exclusive

¹² Polanyi, *Personal Knowledge*, p. 268.

¹³ in: Polanyi, *Knowing and Being*, p.223.

ways of being aware of our body', which was fundamental developing his theory about tacit knowledge.

Polanyi's Tacit Dimension

Michael Polanyi baptised the two mutually excluding ways of awareness **focal** and **subsidiary** awareness. When we perceive the world from the proximity of our body, we either consciously pay attention to something or subconsciously register particular elements that we cannot report but that all contribute to perceiving a whole.

If, for example, you were swindled by a person who spoke intensely to you, the focus of your attention was most probably all the time on the meaning of the words. If later the police ask you to identify that person out of hundreds of pictures, you will see immediately which is the right one. But you cannot tell how you recognise the person because the particulars of the face (and maybe at a later confrontation voice as well) have not consciously entered your mind. Subsidiary awareness played a crucial role in getting the result. Polanyi speaks of subsception to subliminal stimuli, a process we cannot control.¹⁴ The process as a whole is what Polanyi called "Tacit knowing."

We can know more than we can tell.

These observations led Polanyi to a conclusion about the essence of human learning and discovery. As mentioned above, he saw a kinship with the Gestalt theory, but he considered the role of perception in that theory primordial.

The essential difference with his theory is that subsidiary awareness is not random in its functioning but, as he formulated it, has a bearing on the result. An active shaping of experience is taking place in the pursuit of knowledge, and this shaping or integrating is, according to Polanyi, the tacit power by which all knowledge is discovered and held to be true.¹⁵

In the theory of tacit knowing, there is always a direction, hence the use of the verb. If we consider a skill (knowing how to) as knowledge, we enter the field of practitioners. We rely 'on our awareness of a combination of muscular acts to attend to the performance of a skill.[....] attending *from* these elementary movements *to* the achievement of their joint purpose.'¹⁶ In this functional structure of tacit knowing, we are usually unable to specify the elementary acts. Certainly, if we consider higher crafts, such as surgery or playing a musical instrument. The complexity of the elementary movements presupposes, in those cases, a complete reliance on automatism. In this context, Polanyi defines reliance as a personal commitment involved in all acts of intelligence by which we integrate some things

¹⁴ Polanyi, *The Tacit Dimension*, p. 14.

¹⁵ *Idem.* p. 6.

¹⁶ *Idem.* p. 10

subsidiarily to the centre of our focal attention.¹⁷

The so-called phenomenal structure of tacit knowing means an awareness of the proximal term (such as the muscular acts mentioned earlier) from which we are attending the appearance of a second term. The combined working of both structures reveals what we call *meaning*. Even though we know the meaning of something, it is possible that we are not able to specify its particulars. There is a distance between both that we can bridge with the help of a tool.¹⁸ Using the tool transposes meaningless (at least unspecifiable) feelings into meaningful ones, which are then at some distance from the original feelings. This is the semantic aspect of tacit knowing.

Here, Polanyi gets to the core of his theory: “All meaning tends to be displaced *away from ourselves*, and that is, in fact, my justification for using the terms ‘proximal’ and ‘distal’ to describe the first and second terms of tacit knowing.”¹⁹ The terminology was borrowed from the anatomy and structure description of plants, meaning closer or more distant from the body axis or trunk. But in this case, the orientation in perception even goes from indefinite processes inside the body to attending qualities from things outside. By using a probe or any other sentient extension of our body, we can incorporate the thing outside as if it is interior (or as if our body extends outwards) and dwell in it. This interiorisation is a learning process, a practice, that creates new tacit particulars on the proximal side as a reference.

If we focus on the particulars, separating them from their relation and subsidiary role, we destroy our understanding of the whole.²⁰ That process is, however, reversible, and we can interiorise the isolated particulars once more through concentration on the entity. This is a common process in learning a piece of music, and after isolating some technical details, we pay full attention to the ‘music’ as an undividable whole. This does not bring back the spontaneous original meaning we experienced when we were sight-reading. Explicit re-integration does not replace the tacit counterpart.

At this point, it is interesting to read what Polanyi remarked about rules and skills in chapter 4 of *Personal Knowledge*:

- The aim of a skilful performance is achieved by the observance of a set of rules which are [during the performance, JB] not known as such to the person following them.
- Rules of an art can be useful but they do not determine the practice of an art. They are maxims which can serve as a guide to an art only if they can be integrated into the practical knowledge of the art. They can not replace this knowledge.²¹
- Efforts to distil the rules out of art will not bring art into an alternative shape.²²

¹⁷ Polanyi, *Personal Knowledge*, p.61.

¹⁸ see an example in the chapter Episteme <https://www.researchcatalogue.net/view/1688046/2348734#tool-2359438>

¹⁹ Polanyi, *The Tacit Dimension*, p. 13.

²⁰ This is why Monteverdi corrected Artusi about highlighting the ‘particelle’ in his madrigals.

²¹ This is the core of the Monteverdi-Artusi conflict.

²² This remark is particularly relevant for those who try to restore an art by following its rules without taking into account what the position of tacit knowledge was in the entity of the work.

Rules are, of course, necessary if we want to mark the boundaries that determine form in any field of study. However, that attitude approaches the world by its tendency to give priority to the tangible and visible elements. It does not clarify the entity of relations. It was Polanyi's conviction that not by looking at things but by dwelling in them, we understand their joint meaning. It is illustrated by the way a painter looks at his or her subject.²³ To rely on a theory for understanding nature is to interiorise it.²⁴ It could be a definition of Monteverdi's conclusion after going the path of nature when discovering how imitation works in music drama.²⁵ Or, as Polanyi states: "...its true knowledge lies in our ability to use it."

Just like Monteverdi, Polanyi also stumbled on a problem that Plato addressed in relation to discovery. He quotes the paradox of the *Meno*: '...to search for a solution of a problem is an absurdity; for either you know what you are looking for and then there is no problem; or you do not know what you are looking for, and then you cannot expect to find something.'²⁶

Polanyi introduced a third way of looking at this nod. It is not that we don't know what we are looking for, but we are incapable of articulating it. He formulated the intimation that many searchers have at the beginning of a research process and called this a *hunch*, an idea based on feeling for which there is no proof.

He quotes Einstein,²⁷ who spoke of '*ein intuitives Heranfühlen an die Tatsache*.' Sensing the presence of a hidden reality to which undefined clues are pointing. By committing oneself to such a conviction, one takes responsibility for pursuing this hidden truth. Holding that position implies a temporarily solitary existence.

This isolation counts mostly for those in the avant-garde of scientific or artistic discovery. A large part of the arts and sciences are learned tacitly, preceded practically by apprenticeship with a master, and embedded in tradition. Tradition presupposes the existence of a community that holds its achievements high as the fruits of collective personal knowledge.

²³ See the description of Rembrandt's struggle at page 138

²⁴ Polanyi, *The Tacit Dimension*, p. 17.

²⁵ See p. 135 about "La via naturale all imitazione."

²⁶ Polanyi, *The Tacit Dimension*, p. 22.

²⁷ Polanyi, *Personal Knowledge*, p. 150.