The kaleidoscopic lens of history, contemporary and past: aid to viewing translation of architecture into music.

As opposed to biological, ecological, ethnological, or other forms of diversity, which may well be addressed by other delegates at this conference, there is a straightforward view of diversity taken in this paper, namely that of a variety, or multitude of different sample types taken from populations of music and architectural types, where sample strength, size, randomness, variety of sample and so on help validate any conclusions reached. Furthurmore, as will shortly be explained, as this research has developed, wider ramifications have implicated a greater diversity of ideas and concepts than was at first envisaged.

The aim is to find a correlation between architecture and music and specifically find some way of taking the language of architecture and translating this to music, also the other way around. Whilst some of the terminology used fits a statistically quantitive approach, it was decided at an early stage to adopt a qualitative approach, which I felt better suited the topics involved of aesthetics, the mechanisms of translation, related topics of semiotics and philosophy and other broader, both macro and micro, topics of ontology, physics and cosmology. An area that has been currently concerning me is to do with a subtler, maybe softer and wider understanding of architectural objects in space, other than just elements, doors, windows, walls, ceilings and so on, together with the concomitant understanding of sound spaces.

So, architecture has become more than just building and constructed artefacts in and around buildings. It has become more concerned with sociology, city or urban spaces conjoined with buildings, abstract notions related to art, science, the mind, people, and for me a sometimes forgotten entity, animals and creatures, in fact every aspect of the universe that is affected, which with a theory I developed in relation to this research, the Total Field Theory (TFT) (Gover, 2020c), actually does mean the whole universe. So, in the context of this conference's brief the field of study has become diverse, and vast.

Returning to the subject of diversity of sample type, it is my intention to study and write music in relation to a spread of architectural and musical styles, which I have started. I would like to play you some small samples. An easy inference is that there are cross relationships between period styles of say early Italian and English music, the Renaissance, the Baroque, Modern and Post Modern architecture and musical genres.

Finally, before getting to playing the samples, another aim, intended to extend the diversity of the research approach, is to explore different ways of writing and producing the music, classically, experimentally, electronically, aleatorically (using chance methodology of dice throwing and other means) and by other stratagems, so that if the results hold up, whatever that means (for the moment, just seeming to 'feel' right as defined by the philosopher and psychologist Eric Dietrich (2016)), it may be held that there is some substance to the connections between architecture and music.

So: some brief examples. I would like to start with a *Bartók Small Prelude*, which was triggered by the word *Bartók* encountered whilst reading about the architect Stephen Holl's design for his Stretto house (1991) as based upon Bartók's *Music for Strings Percussion and Celeste* (1936). Here the word *Bartók* is semiotic and within my developed sense of architecture and music.

The sound file is here:
..\BFE-RMA 2020\STE-001.wav (played by Aleksander Szram 10.01.2020).
(play from 0:07 to 0:26)

And the first page of the score is here:

Bártok Short Prelude
Inspired by reading about Steven Holl's Stretto House
Grant Gover

Musically, there are modernistic elements such as Stravinskian, or perhaps rather fancifully, Bartókian atonalism, as might be represented in modernistic architecture, staccato rhythm which could be a repetitive architectural motif and the Poulencian instruction for the pianist to lean first to the left then to the right (Rogé,

2004; May, 2019). This shows a syntactic spatial orientation such as might occur in an architectural design or space, as well as a hint of humour as occurs frequently in Post Modernism (Nuri, 2013).

Another example is a renaissance type piece called *Pieta* written for two viols and a viola da gamba (as can be seen in the first page of the score illustrated), an emotional response to Michelangelo's sculpture of the same name (1498-1500), in the idiom of the time yet through a modernistic lens. Towards the end, a line is traced from the figure of Saint Mary across her clothes and the device used by Michelangelo to traverse a volume of space and get over the trick he employed of size and perspective where Saint Mary is larger than life, leading to the outline of Jesus's left arm. This linear approach could be seen as slightly modernistic and architectural at the same time, where lines form an essential part of architectural drawings. The illustration is taken from the score introduction:

http://www.italianrenaissance.org/michelangelos-pieta/

Michelangelo's Pieta, 1498-1500

The score first page illustration follows:

Pieta

da Michelangelo Buonerroti

Grant Gover

The sound file is here: ..\Compositions\Sound\Pieta.wav
(play from 0:00 to 0:34)

Another piece written in the same vein, yet differently, is *A Walk Around Oxford Late at Night*. Similarly: where an emotional response is evoked by the direct confrontation of rounding a corner at night to see the uplit sight of the Radcliffe Camera building, together with the use of conventional scoring. Differently: because the various architectural styles were evoked in an integrated way, covering as one listener put it 'four hundred years' of history and perhaps in a complex way as represented in the initial score instructions: 'sparkling with a complicated baroque swing', 5/4 rhythm and long initial phrase. Here the means of translation is direct, as

justified by my theory TFT and resonant of different time period styles, musically and architecturally.

The sound file is here: ..\Compositions\Sound\A Walk Around Oxford late at Night amended as tutorial with Paul Patterson 28.10.2019.wav
(play from 0:00 to 0:35)

The first page is here:

This provides a taste of the diversity of means by which I intend to justify the relationship between architecture and music. The concentration is more upon the contrast of different style periods. Other compositions explore more the means of making the music which implies a greater emphasis upon means of translation.

One example is: *Folkestone Bandstand* (2019) which utilises architectural drawing methodology, aleatoric dice throwing and other predetermined parameters to assist with setting timbre, texture, perspective, layers, events, instrumentation and other musical features. It is considered that this demonstrates part subjective emotional interpretation of the parameters and part determination by the architectural outline and embodiment of the bandstand itself, so here there is evidence of architecture in music in several ways: empirically, architectural draughting techniques, abstractly and semiotically. There is a start to get away from a personalised interpretation of architecture.

Part of the *Folkestone Bandstand* score is shown here:

The sound file for this is: ..\Compositions\Sound\Folkestone Bandstand Experimental.wav (play 0:00 to 1:30)

Translated into a conventional score, as the first page shows the overall shape:

A detail of which is:
where the instruments' outline can be seen following the bandstand's template shape

The latest area in which I have been working is to express the Daphne Oram building in music. This is taking a more experimental stance, as evidenced by the graphic score below:
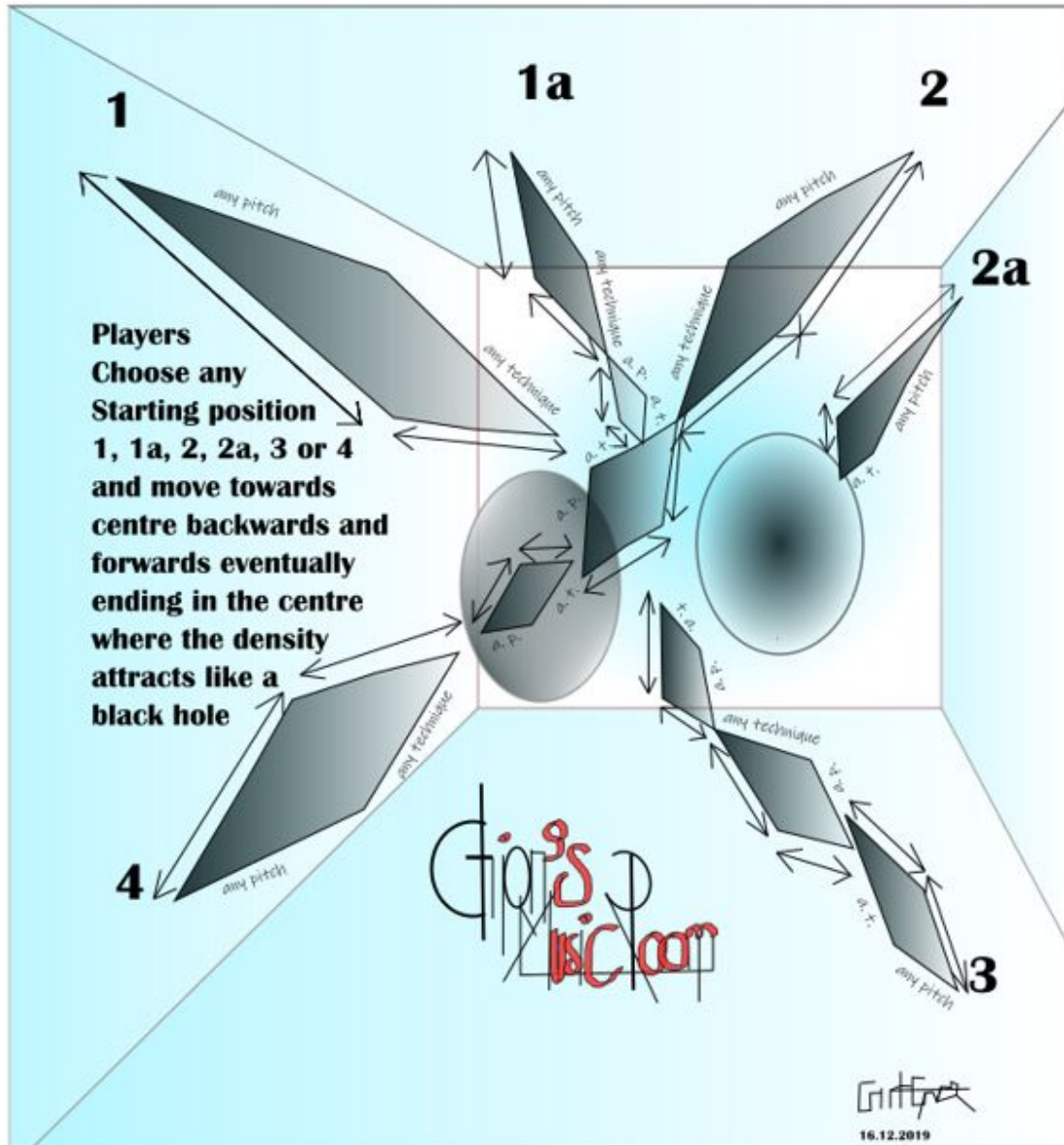
This demonstrates an abstract approach to scoring with an expression of ideas about physical and topological, even cosmological, space, with a direct reference to the new Daphne Oram building on the Canterbury Christ Church University campus. It epitomises a new way of trying to get into architectural spaces so that one can truly say that one has translated the space with a signature of the space rather than a personalised interpretation of data about the space. The following images are taken from Hinsdale Magazine, (2020), Serving Hinsdale, Burridge, Clarendon Hills and Oak Brook, February, Volume 10, Issue 2:

..\WinterSound 2020\00010-3-1.m4v (play from 1:43 to 3:25)
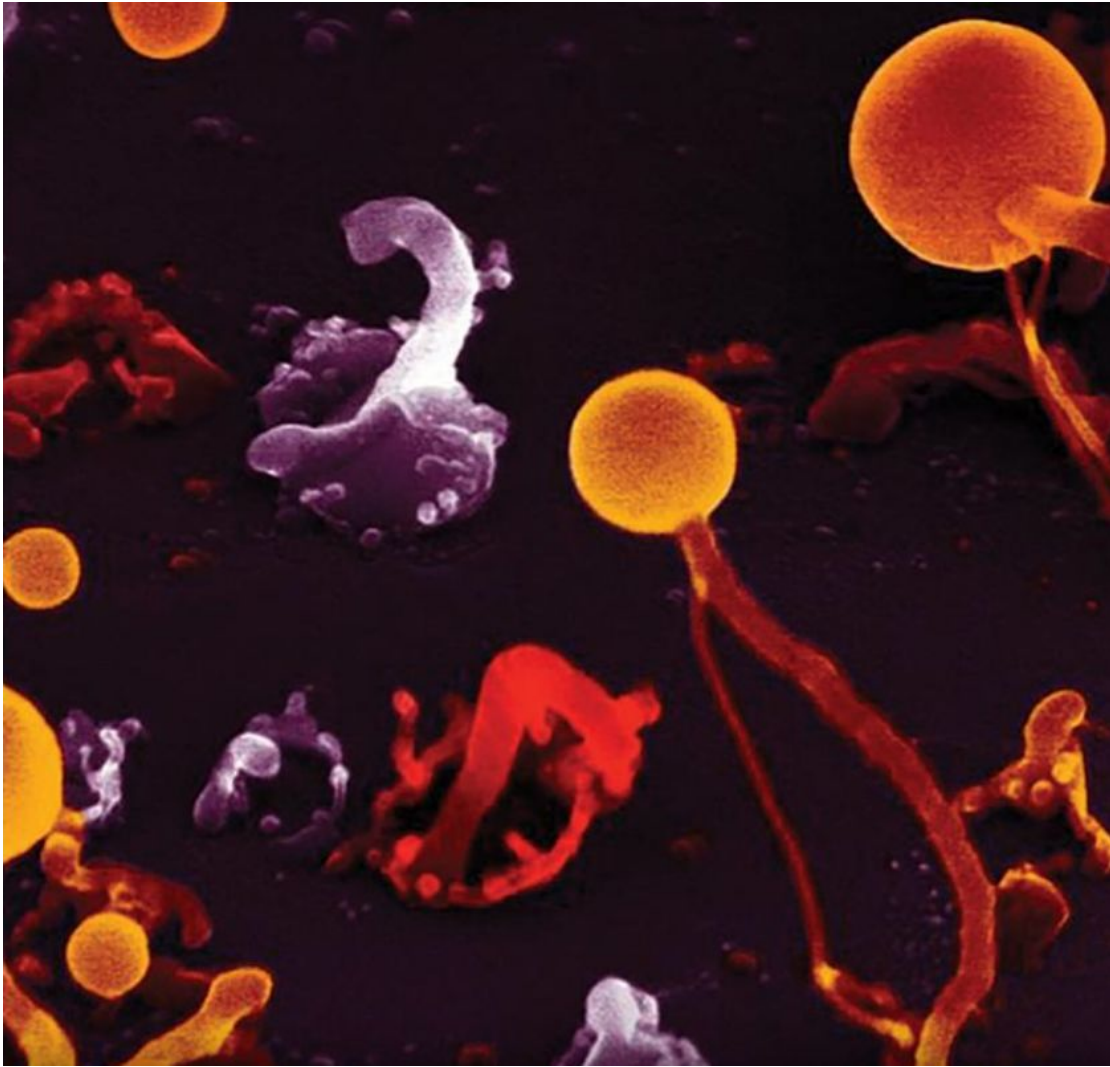
Glimpsing into matter with an electron microscope: here cathodes for lithium-ion batteries at nano scale are being made from indium and silicone at the Argonne Laboratory at Lemont, USA, where the orange spheres are indium droplets.

The exploration of matter, what it actually constitutes, at ever smaller scales, to see into the heart of matter, is the goal. It is hoped for this project that somehow the secrets of matter *in situ* will reveal some of the hidden glories of particular architectures that can then be translated, transmuted or transmogrified, somehow into music, that *is* actually of that particular architecture.

This is at a small scale and is connected with heat, heating the elements to obtain the desired end result to use in lithium-ion batteries.

The score *Chion's Music Room* tried to 'get into' the actual space called the Performance Space on the ground floor of the Daphne Oram. When it was practiced for half an hour earlier in a different space, the St Gregory Centre, then the music produced was similar, yet different. Having explained the score the players seemed to empathise completely with the graphic instructions and what I imagined the sound to be 'note for note' quoting the violinist. I did say that it would be different in the other space in the Daphne Oram and it was. This is due to it being a different piece of architectural space with different acoustics, with an audience present and of course

their own thoughts and feelings as performers being different: people relating to space.

Additionally, a phenomenon which I contend is in line with the TFT theory, Scott McLoughlin (2020) demonstrated by video, at a seminar held at Christchurch University, using microphones in a room under similar circumstance yet at different times, that sound profiles of points in space could not necessarily be replicated. In fact, the contention seemed to be that although the space looked similar, it was in fact different, different sounds were produced on different occasions. Whilst every effort was made for circumstances to be similar, in an empty still room, McLoughlin even wearing the same pullover, there would have been variables in the mechanics of reproduction, yet the implication seemed to be that space itself is different from moment to moment, that it is in a state of flux. This seems to bear out with latest ideas about space in quantum mechanics where again seemingly empty space has a lot going on (Greene, 2020). A given area or volume of space is unique and is not just 'space', like a blank page to be drawn upon, as perhaps student, or fledgling, or even more mature, architects might initially think, a clear unmoulded volume that awaits an architecturally designed structure. It is a lively matrix that has a life of its own.

Zaha Hadid seemed to hint along these lines when she discussed her architecture in an interview with Stuart Jefferies (2004) where Jefferies described her work in traditional yet innovative terms, as 'distinguished by sharp angles, flowing lines and dramatic juxtapositions' and 'as almost geological in her jagged and extruded forms, as if her buildings had been created not by woman but by the force of nature.'. Setting aside the feminist angle and concentrating upon the architecture, these are, as it were, still plain architectural terms for conventional building elements, albeit in radical ways that would win Hadid the Pritzker Prize, the highest architectural award. Jefferies goes on to cite that Hadid avers to respond to 'the site's landscape'. This is still in a way conventional architectural terrain. Then he states that 'she likes talking about 'porosity, estuarial flows.'. This is more the terrain that I am interested in with regard to her view of architectural space. Then she states that with regard to a specific project in Leipzig, "the idea was to create areas where everything is accessible and everybody can flow everywhere – to move from the normative notion of the perimeter block as a fortified space.". This then provides a glimpse of her notion which I classify as anti Chion with his enclosing film frames (1994) and continues to add that this is 'political', yet emphatically not 'democratic', more 'open'. This accords more with what I am after, which is to not necessarily consider space in straightforward architectural terms, with my current concern of 'getting into' the architectural space. There is a political element there, but it is not of an overt political agenda, it is more to do with the topology of space, of its interpretation as more than just a confining box of walls, floor and ceiling. There is something more to this space than that. Yet it is to do with people. There is a sociological 'flow' which is brought to the architecture. It must also be stated that she is concerned with typical architectural matters, yet frequently in a challenging non-orthodox way, at least for the time—she was a pathfinder in many ways. In a discussion with Achim Borchardt-Hume (2014) she expounded upon many of her themes including some standard architectural topic areas: engineering, planning, urbanism, the ground, layers, perspectives and much more besides, all around the central theme of one of her first influences, the Suprematists, especially Kazimir Malevich and his Tecktonik.

In responding to Borchardt-Hume's delicate prodding Hadid elaborated on some of her ideas that drove her architectural designs, such as notions of abstraction, even abstraction from abstraction, fragmentation, explosion, fluidity, purity,

metaphors of valleys and mountains, an antipathy to 'typology' of say art galleries and museums, and for me very interestingly the conceptual yet real idea of taking the 'object' from outside, say from a city and placing it within the 'field' of the architectural site, to name a few. The object for me is problematic and the field strikes a chord with my TFT theory. These are notions that for me extend the idea of 'space' to be imbued with characteristics and flavours beyond the initial starting viewpoint of architectural space. These, for me, to be completist and honest about interpreting architectural space musically need encompassing somehow in the musical scheme of composition.

In the same discussion with Borchardt-Hume, in answer to questions about alleged labour abuses in her projects in the al-Wakrah stadium in Qatar, and the Guggenheim presumably in Abu Dhabi, she disclaimed that she was involved with the Guggenheim, which to my knowledge is correct (Ray, 2015) (according to Ray it was Frank Gehry who was the architect for this project) and washed her hands of any power to do anything with regard to the al-Wakrah (Riach, 2014; Ray, 2015), which, though sounding harsh (she did express concern in the Riach article for the *Guardian* (2014) elaborated upon in the following joint article by Wainwright and Gibson (2015)), depending upon the terms of her contract of engagement as an architect, could very well again be correct. In fact if she said so, then we must give her the credit of believing her—she would, using her word, not have had the 'power', that is the legal power as set up within the contract terms and conditions. The questioner would have been trying to get at Zaha Hadid's concern (which has already been noted) and any wish to further become embroiled to use her influence to assist with workers' health and safety rights on her and other contracts in the region. Frank Gehry according to Ray (2015) did become involved and worked over a period of time to use his influence for the betterment of workers' rights and working conditions. Here he was most likely stepping out beyond the legal contractual responsibilities and acting simply out of a sense of morality. In another interview with Michael Blackwood (2004) she did state that architecture was all about the wellbeing of people.

With this in mind and her talk about people as components of her architectural thinking (Zaha Hadid, 2014) it is fair to say that Zaha Hadid did value people but she abided by the contractual limits, not considering it her responsibility to step out of line to speak up for workers' rights. There may well be more information behind this episode that has a bearing, such as known prejudice that Zaha Hadid suffered as an Iraqi, a female, an outspoken person, or other reason and there may have been pressure put upon her from the client in Qatar. I do not know, this is simply conjecture. She did state that the workers' rights were an issue for the state involved (Riach, 2014; Ray, 2015).

The *Telegraph* report (Singh, 2015) of her refusing to speak further to Sarah Montague on Radio 4's Today programme over this issue describes the BBC apologising over the statistics in question applying to Qatar as a whole and not specifically her job, further, that they, the BBC, are 'happy to accept that there is no evidence of deaths at the main stadium site.'.

Mustafa Qadri of Amnesty International (of which I declare myself to be a supporter) is quoted in the same BBC statement outlining serious labour abuses generally in Qatar. The last word on this subject and in the same BBC statement goes to a spokesperson for Zaha Hadid stating categorically that no "accidents causing lost time" had occurred at the stadium and that the site operated "to the highest levels of workers' health, safety and welfare.".

The reason that this issue has been examined in some detail is as regards another aspect of the architecture that I have come to consider important when trying to resolve the problem of expressing the architecture musically, the human aspect, also, where Zaha Hadid has for some years been a paradigm personally for me as an architect, it has been salutary to find that however vindicated she feels and is over this subject, she has slightly fallen off the pedestal for me, yet this in a way strengthens the respect and affection for this person of undoubted great ability and to know that she is was a vibrant breathing human being.

The word diva has been applied to her (Lee, 2020). Lee (2020) is just one with whose sentiments I resonate, including drawing a picture of a vital person whose ideas on architecture evolved increasingly with a concern for human welfare, wellbeing and happiness, people flows in cities and perhaps an unfulfilled wish to do something for social housing (Stevens, 2016, reiterated this, also her wish to design hospitals); a quick internet search will vouchsafe this 'diva' term, and Sarah Montague in her interview alluded to her reputation as 'scary'. This may well be true. Her demeanour in the Achim Borchardt-Hume (2014) discussion bears out a haughty disdain of what she considers to be foolishness. In fact, in a subsequent article in the *Guardian*, Wainright and Gibson (2015) bring clarity to the matter: apart from not acting like Frank Gehry beyond the official line of duty she is completely vindicated in all that she stated.

So she is back on the pedestal, coloured with a new understanding and compassion, and, I believe that she did to a certain extent try to raise awareness of labour injustice issues in the middle east 'within her powers'. Whilst a strong person it cannot be disputed that she did suffer prejudice initially against her seemingly outlandish ideas, as a woman in a man's world, in a complicated way as a foreigner and in other ways, on grounds of cost of her projects, winning competitions then not being awarded the contracts and a long hard struggle to make it in the commercial world.

Finally, in the Radio 4 (Singh, 2015) interview, also in the Oxford Union question and answer session, where again the labour issues describes earlier were raised, I think disingenuously for the sake of sensation (Oxford Union, 2016), it was stated that she had been awarded the RIBA (Royal Institute of British Architects) Gold Award, and the first woman to have done so, as with the Pritzker Prize; these facts speak for themselves.

In order, then, to capture all of this musically, returning to starting from a more functional viewpoint, as some sound signature, might pose some problems, since the captured sound, or the sound profile imagined or interpreted in some way, might be different from when it was captured, or recorded, even before a process starts of interpreting the data in the profile. What is it that one is capturing or rendering somehow musically? Perhaps the method employed in *Schion's Room* is one method at least that could provide some success. The ingredients for this are: human interpretation, for me: honesty/ integrity/ purest of intention, which is another point I believe emanating consequentially from the TFT (due to the interrelatedness of things and knock-on effects—if it were not pure and honest then the consequential effects would be negative and harmful in a wide reaching way), also fundamental principles of law and therefore jurisprudence (that is where good intention forms a cornerstone of binding contracts) and architecture of several schools of thought at various times in history where 'honesty' and 'integrity' are bywords, almost woven into the fabric of design and construction; a connection and understanding of the fabric and architectural ethos of the building, including research about the namesake

Daphne Oram (to date research has revealed a fascinating person, a quiet, determined, scientific and spiritual innovator, again, like Zaha Hadid, suffering injustices in a man's world yet persevering and succeeding (Goldsmiths, 2020)); sympathetic players/ performers/ interpreters of the score and the intention of the score; and a generalised approach, in a way smoothing out time so that the minutiae of time differences such as implicated in McLaughlin and his colleague's (Thurley) work are not so noticeable, do not matter so much, where abstract ideas, yet related as much as possible by the intention, knowledge and sensitivity of the composer to the reality of the place, the performance space, together with the audience at a particular event, have an overriding cogency.

There is much more that can be analysed about this particular scenario, however sufficient factors in relation to the dilemma and possible solution/s or partial solution/s are indicated here and show some light upon the task of really getting into the stuff of architecture and representing it musically. In an interview with Philip Stevens (2016), Zaha Hadid said that as an exercise she worked on one space to see how many alternatives she could come up with. Most students would probably only come up with a handful of possibilities. She said:

> I focused on one apartment to see how many variations you can come up with in a given space with the same parameters. I would work on this repeatedly for days and you see that there is maybe seven hundred options for one space. this exercise gives you an idea of the degree at which you can interpret the organization of space, it is not infinite but it's very large. imagine if you multiply that to the scale of a bigger space, and the[n] to the scale of a city. it is like a pianist constantly practicing – it's the same level of intensity. it increases the repertoires immensely – it is unpredictable. some people really live and work within the same doctrine, the same diagram with the same logic. we produce many diagrams to start with and that's why we have a large repertoire.

She liked not to repeat herself, which is something I gravitate towards musically, also, she is tending towards the ultimate realisation within the total field of the TFT, which would most probably be infinite. Seven hundred permutations for one apartment is impressive. From a very prosaic point of comparison, if one tries to consider how many possible bed positions there are in a typical bedroom, often the answer is about two at the maximum! Extend this thinking to other parameters in say a one or two bedroom flat and typical students might come up with a few layout variations, but seven hundred is fantastic and provides an insight into how she conceptually thinks of space. Her drawings and paintings show an almost multi-dimensional approach, which when imbued with her design ideas about archaeology (Oxford Union 2016), layering and so forth, the numbers soon multiply. Her fields (Oxford Union, 2016) of 'fields on fields' tend towards my concept of fields. The task then is how to translate this musically. Perhaps what it does is offer a framework to work within.

The elaborated point made centring around one of my key architectural figures, Zaha Hadid, in all her humanness, was simply that: the point of 'the human' needs to be taken into account. The architect, the clients/s, the user/s, player/s/ performer/s, and from the constructional point of view the construction workers. There will be others missed out. From the TFT point of view everything and everyone is valid to be included. That is a tall order, but if one concentrates solely upon cold architectural parameters, or even some formulaic pattern derived from the architectural blueprint, or the building as manifest, or even drill down into the material and its atomic or sub-atomic structure one may miss something that needs to be included.

There is possible ground to examine any one or more of these ingredients, working within the framework related to Zaha Hadid's apartment type possibilities, to make, as it were, a partial piece of music, such as *Folkestone Bandstand*, that would perhaps, if successful (whatever that means and again using Dietrich (2016) as the yardstick), be considered as whole, yet where we are looking for answers: to translate the very heart of architecture to music, then, one has to be completely honest about whether this can be done, also be non-selective or non-excluding of the material, components or elements that go to make up the entire material being rendered musically.

What does the 'human' entail within the context envisaged? Yseult and Abib (2017) interviewed Terry Smith in his studio, an artist working within the framework of the Folkestone Creative Foundation. I had the pleasure of meeting Terry in the same studio. A cross between an eccentric artist and a pin-stripe suited office manager (though without the pin stripes this time) he clearly was a successful though non-affluent artist (although he had had a mercurial career to date where success in monetary terms had played its part), he was obviously venerated by the other artists in the group. His studio was upstairs with a large central table or workbench and occupying a large area together with an adjoining area. He showed me glossy books in which he had played parts, told me about his varied and interesting life, successful milestones, such as being commissioned to graffiti-ise some building frontages, a wall piece with bars that seemed to speak of cello music, an interesting work, one of his signature pieces, of framed text showing pencilled editorial corrections and comments, all in an unassuming and quiet way.

The crucial thing for me in respect of this research was when he was showing me into the other space with what appeared like television/s balanced near the entranceway, he ran a video of a singing project of his, where old ruins or church type parts of buildings were dramatically shown in dark tones, one of the female singers stopped and sang at the one of the walls. This somehow made an impression upon me. I discussed this with him and he clearly thought that the singing could influence the masonry, imbue the wall, the material with something, something from the singing. I had wondered about that when at boarding school whether the molecules of building walls of a chapel or church or cathedral could in some way have an imprint upon them from the usage. I had wondered whether the molecules were in any way measurably changed, chemically, physically, even metaphysically. Or is it just plain imaginative imbuings along the lines of Ackerman's (2020) account of how 'meaning' could be imputed, when really it could be just the workings of the mind? He seemed to think that it definitely had some effect upon the wall, sort of calmed it down or put some peaceful, even musical, vibes into the wall. It could be easy to dismiss this as new age hippy type nonsense. From the degree to which I have described this, it can be seen that somehow I accord this some credibility. If it is true, then when making music from architectural spaces, then events, happenings, imprints from people could, perhaps, have some story to say uniquely tied up with the building fabric, and maybe the architectural space too. If this is true, then the stories of people, even of the building workers could somehow be involved in a discrete way.

Claire Orme (2019), of a Margate, Kent, group, Athelstan Sound, obviously feels that this is possible where she states that 'The structural framework of certain objects and locations can absorb energies and memories as time passes'. Using what she called the Stone Tape Theory she attempted to 'replay' the 'electrical mental impressions' from emotional events 'stored' in 'moist rocks and other items'. The music on her website www.claireorme.com clearly depicts voices and instruments which I would

think are of those who participated in the event. This then would be another instance of interpretation of the space, possibly influenced by the atmosphere, possibly just as suggested by the mental associations. This could be another case of the mind being the originator of the music rather than it coming directly from the building material.

A later event in the Athelstan calendar run by Stefano Kalonaris (2017) is all about games, music and improvisation, such as 'popularised by John Zorn's experiments (Cobra, Hockey, Lacrosse, Xu Feng, Spillane, Godard)' and 'Game Pieces [which] have a long legacy [including] J. Cage, M. Kagel, S. Tetsu, I. Xenakis, as well as ethnic musical practices like Inuit throat singing, promising 'workshop original approaches and strategies for game-based systemic improvisations'. The banner heading talks about 'group experiments in sound & improvisations'. The Facebook entry for Athelstan Sound posted on 8th February 2019 explains that it was founded in 2015 and has held thirty events, open to professional and amateur musicians alike and any other interested persons. This would seem to confirm that the group is an open ensemble specialising in 'sound arts' and that the Claire Orme Stone Tape type music is essentially a construct by the participants.

Whilst the Athelstan Stone type tape music has been seen not to support the theory of building fabric being impregnated by human actors over time it still remains that this could be possible. Via the TFT where everything and everybody is linked, it would seem highly selective to just choose bricks and mortar to be the heroes of the music made. The human stories should be woven in, even if it is all largely, or even totally, the construct of imagination. In this light perhaps Claire Orme's experiment is justified.

Where a new building like the Daphne Oram is concerned the stories are yet to be told to be woven into the fabric of the building like a large Borge's library (Ogasawara, 2015; Lynch, 2017). However, from the very beginning stories are told, the builders' lives, the financial and political machinations surrounding its inception, the teaching and learning going on daily, the coffee bar, the inaugural concert recital and seminars of the Winter Sound 2020, within which the imagined *Schion's Room* was played. Did it capture any of the essence of the Daphne Oram? For me it did. The audience applauded. Perhaps I should have questioned listeners but the spirit of the moment was in enjoying a feast of innovative electronic music and seminars which is Daphne Oram's legacy, as an electronic pathfinder and one time teacher at Canterbury Christ Church University. The most appropriate person to ask would be Daphne Oram herself. The next best thing is to research about her. The quest has begun via Goldsmiths University (2020). Oram did possess a combination of views on electronic sound art and esoteric mysticism. She might well consider that the spirit of place might be able to be captured sound-wise.

Unless, either by describing in some way scientifically architectural construction, or somehow memory of life can be embedded in masonry, or some other associated phenomenon can be encapsulated in relevant music, the conclusion is that it is all in the mind. As Andrew Graham-Dixon, the art critic, said at his opening address to a Constable exhibition at the Victoria and Albert Museum, Constable was a radical and for the first time in the history of art, certainly English art, mentioned the word 'feeling'. Graham-Dixon also used the word 'emotion'. In a BBC programme the ABC of Art (2020), he summarised Constable vis à vis the reality of the countryside which he was depicting as essentially a personal process going on in the head of John Constable and he showed that the brush strokes were at variance to the end product, they almost had a life of their own in a different parallel universe. Here both extrinsic and intrinsic realities are shown. Is there any correlation between the

two? Many have contextualised Constable's art, including John Pevsner (1955) in his Reith lectures, where it is clear that Constable was acutely aware of what he was trying to achieve, the reality of the all in the countryside and all the prevailing thoughts on what should constitute landscape painting, choosing to concentrate on prosaic subject matter. Whilst commentators at the time had different ideas upon what landscape should be, mannered as the French, wild and free as the English, picturesque or natural, it is evident, from the removed perspective of history, that there was a common idea of what landscape actually was.

An analogy, is that where many differ as to the nature of reality, whether it is there, whether it is the product of a dream, a computer simulation (to use a modern concept), a projection from a two dimensional wrapping (one cosmological postulation), a universe among many, differing perceptions in space and time according to different brains and other potentialities, the answer seems to be provided by the driver and the car, or the drivers and the cars—if there were not a common reality, drivers in cars on busy roads would bump into eachother more than they do: they obviously perceive sufficiently similarly, road markings, signs, signposts, junctions, lanes, slipways and so forth, knowing the Highway Code and applying it. In other words whilst there are different space-time and mental perceptions, there is a sufficient hardcore of reality that is agreed by consensus as there.

To apply this analogy to Constable, there was reality there, the countryside, but the question is as regards this research: did he render that reality into his paintings? Or was it just all in his head? Or was there a connection between what he perceived and thought about and the final artistic product? A real one.

According to Pevsner (1955), at the end of his life, Constable likened his attempts at painting to scientific experiment. This is not too dissimilar to the attempt to render musically an architectural building, part of a building, or space, with all the attendant problems to do with reality and the artistic object. It also seems to provide a commentary about the degree to which he thought about the reality that he was portraying. Did he then cogently capture a bit of reality in his paintings, even if they were painted using off-the-wall techniques. From our modern day perspective, I personally, think he did.

Another important point as regards Constable for this research is that according to all the commentators, contrary to his being a trite portrayer of idyllic country scenes, he was articulate and of intense feelings. He chose humble subject matter. He was passionate. This for me is important because it accords with one precept that I have evolved: that, coupled with the proximity and contiguity angle, to be expounded upon shortly, the portrayer of the subject matter must be of the utmost sincerity. As I have noted this seems a natural concomitant of the TFT as well.
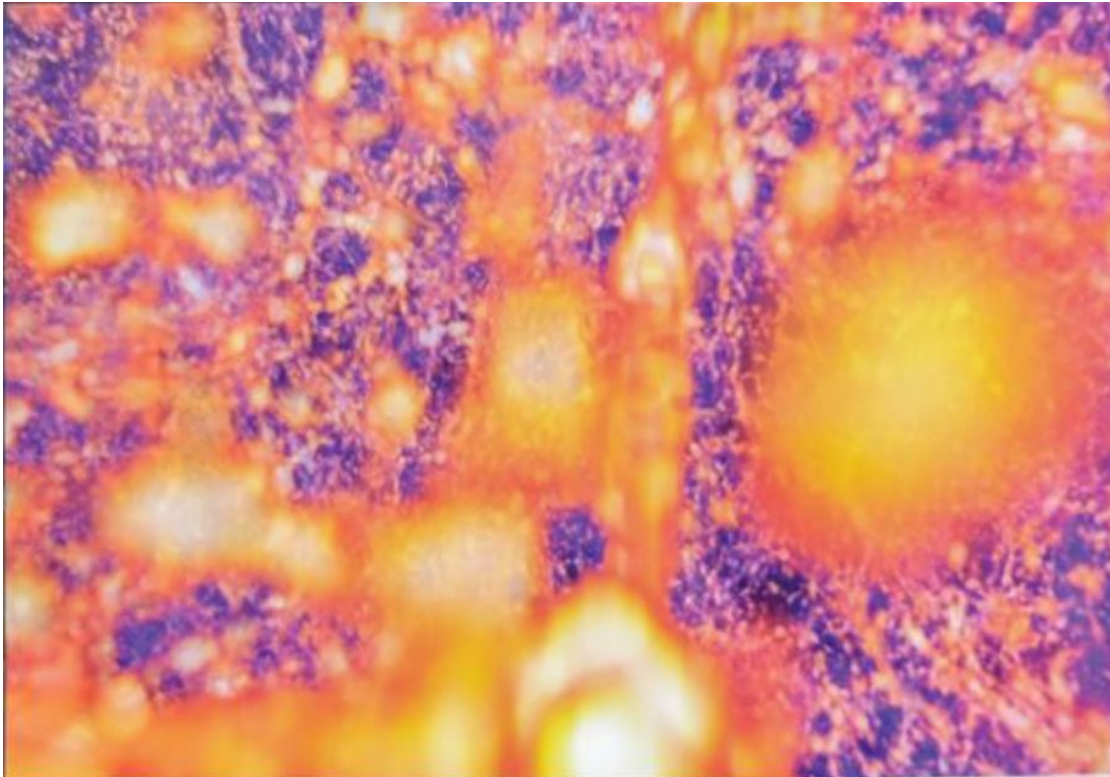
*Larry Atseff, HinsdaleMag.com* | HINSDALE MAGAZINE February 2020

       This image is produced by a super-computer, MIRA, at the Argonne laboratory (its last task before retirement and dismantlement, before the next generation super-computer Aurora comes online), creating a realistic simulation of the entire universe at high resolution from 50 million years after the Big Bang up to the present time, checked against known information. This is a snapshot and where the last image was of a micro type, this also could be seen as micro, yet of a macro scale, that is, looking into the heart of creation of the universe.

       Can any clues for formulating music be gained from this? Well, some patent observations seem to be about clumping, agglomeration of matter into discrete clumps of varying sizes, with varying amounts of space in between, strands of varying sizes forming a matrix, perhaps like a plasma—and so on. This accords, I think, with asymmetry and theoretical predictions from my theory TFT. It is worth postulating that music could be drawn directly from my theory, possibly from a computerised model linked algorithmically to a music producing source. This, also, could be fertile ground for producing some sort of pattern for constructing some sort of music, perhaps electronic, where parameters matching the visual arrangement could be mimicked. This might be a starting point, perhaps easier than linking a model of the expanding universe, as MIRA Argonne, to a sound generating source. Another feature is the depth of field. These ideas could provide interesting challenges to produce in some way and to some extent music that might start to really get into the nature of architecture, its very molecules and atoms. Would these ideas when realised just be shadows of the reality or in some way truthfully capture at least something of the subject or object under scrutiny? There are many who believe that this is so and make music in a variety of ways in association with architecture—but to what degree are they *really* doing this so that one can say they are *translating* architecture. Maybe

their aim is not the same as mine, in that they are happy to simply produce music that in some way is stimulated by architecture. That is fine, and in many ways, on occasions, I am happy to do the same. In this case, the music may well be more in my head than representing something empirically.
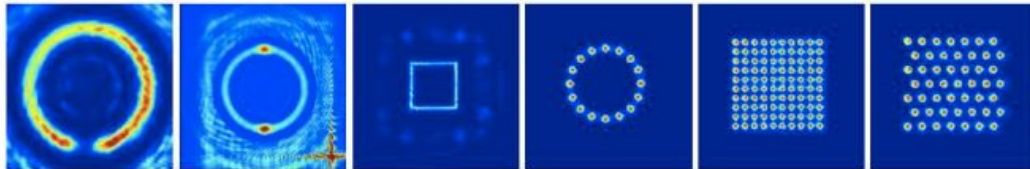

Example patterns of light that can be made using a Spatial Light Modulator (SLM) device, developed by my colleagues at the University of St Andrews. Atoms are drawn to the bright spots, so by making these patterns with light, we can place the atoms in any arrangement we wish.
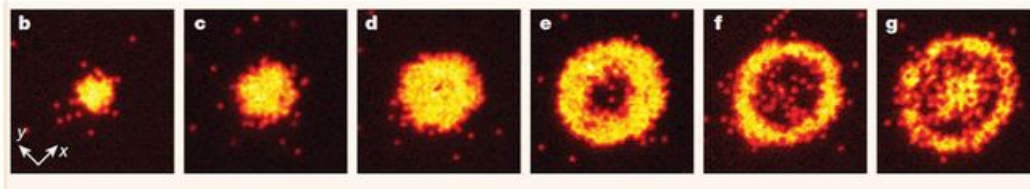
Some real images from a quantum gas microscope – the bright dots are individual atoms. The uniformly-filled regions show the atoms in a Mott insulating phase. (Image from Sherson et al. (2010), reproduced here under Fair Use Policy.)

The images above are from Steven Thomson's blog site Broken Symmetry's
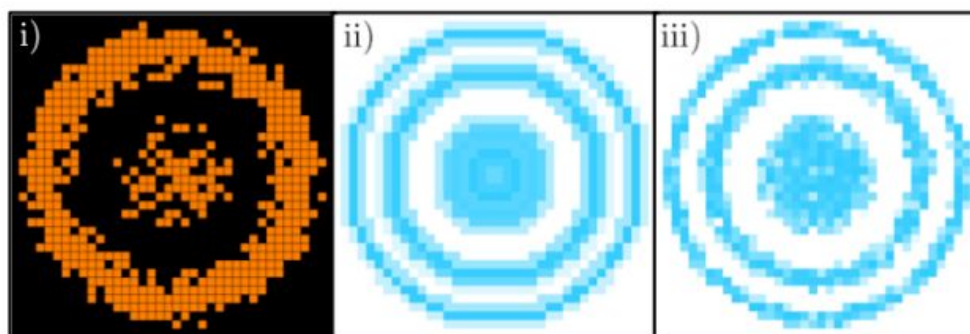
Some theoretical work done by my colleagues and I, showing what a quantum gas microscope would see in a disordered optical lattice (left) and calculations of which regions of the simulated image contain a phase of matter known as the Bose glass, shown in blue. (Image from my PhD thesis using data from Thomson et al. (2016).)

article 'Seeing into the Quantum Heart of Matter', looking at atoms via a quantum gas microscope where they can be studied and arranged. This operates at the other end of the heat scale, that is close to absolute zero and suggests, musically, that composers can take components of architectural matter, taking control of the constituents to arrange them in a way that suits the composer. An intuitive reaction about interfering with nature could seem reasonable. Another thought could be, that mankind has

evolved to a point where it can do such things as rearranging atoms and that this could produce insights into the nature of the universe as well as have other practical uses. Furthuremore, patterns such as these could produce interesting modes of music, suggesting fractal patterns as a source of music beyond conventional imagining.

A thought in this regard is then to do with the closeness of the artefact to the subject, where here the subject is atoms, possibly artificially rearranged, controlled by a human hand, relating to, in another context, to material in a building element and where the mode of music is directly related to this. The process is contiguous and proximate. There is less room for empty space, as it were, of unrelated meaning, to enter the picture. Then in the proximate and as closely as possible contiguous process the material is transformed to sound, rather as Mileece Petre (Mok, 2014) does with her plants, via attached sensors, a transponder and a series of electronic codifiers of the electrical signals to sound as music produced by the plants. Here, is music made actually *from* the plants? It could be argued that it is not *sui generis* music directly made by the plants, but if one accepts the premise that this is possible then the ultimate result would seem to certainly speak of something generated by the plants. To use words that I have used in this research, there would be a sound 'signature', like DNA, bespeaking some essential nature, or property, or properties, of the plants, unique material, not just fancifully imagined by the composer in relation to the subject, but actually *of* the material. This is significant for the search, to be able to translate from one medium to another, from a material, here plant material, in another context, architectural material, to music.

To return to the topic of physical matter, one approach to translate architecture to music, is to somehow take the material as Mileece Petre has done. Possibly, there could be a combination of direct translated sound, sound from allegories or descriptive formulae, or a combination of the two. There may be a grading between these two states. They would be permissible because (a) there may be sufficient germination in a hybrid formulation to satisfy the true translation test as being questioned throughout, and, (b) it may not be necessary to always actually 'translate' to make some relevant music in connection with the artefact. In fact, to qualify further, to make some nice music, some pleasant music, some interesting music, maybe some challenging music, music that may highlight some condition in society that needs redressing, such as provision of sustainable affordable homes for young people and key workers, as just one example, or to highlight the 'beauty' of a building or aspect of a building, maybe in a bygone, modern or mash-up style. This could be in the Redhead vein (see below), as political (2015), or for those who think it achievable in a Platonic sense, or in some other sense, whatever that is. Perhaps one could leave that arbiter to as per 'meaning' in a mash-up between Dietrich (2016) and Ackerman (2020), in effect a mash-up between Kant, Hegel, Kierkegaard, Spinoza, Nietzsche, Schopenhauer, a host of modern philosophers, analytical, logical positivists, constructivists, existentialists, structuralist, post-structuralists, and psychologists, who explain the workings of the brain. Somewhere out of this comes the notion of 'beauty'. For me, all of these factors implied, together with complexity where relevant, otherwise simplicity, resonant with a deep chord in one's being, like a super string at one's core.

So, the current concern is to try to find the hidden mysteries within matter that can sing of music like Ptolemy's music of the spheres.
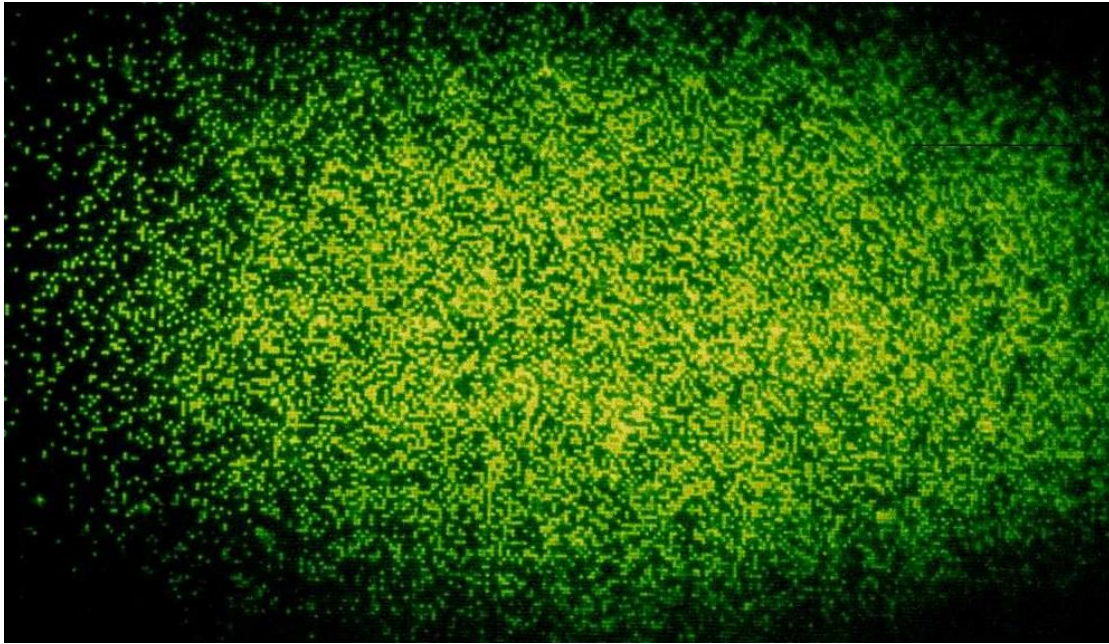
'[This] figure is an in-situ image of a thermal cloud where the individual atoms/sites can be clearly resolved over a large field of view of over 100 microns. […] The temperature of the cloud [can be lowered] below the condensation point, to obtain 2D Bose-Einstein condensates with temperatures of ~5nK [….]. In this image, the edges of the Thomas-Fermi profile are clearly seen, and the condensate is surrounded by some thermal atoms. Source: Markus Greiner, Harvard University' (Bakr et al in *Nature*, 2009).
Steven Thomson used this as a cover image to his article.

The images above indicate a view of matter in a way that could be similarly examined in the Daphne Oram building.

Recently, with the advent of the Corona Virus, Covid19 (originally named SARS-CoV-2 according to Yasemin Saplakoglu, LiveScience, 2020) this time using two types of electron microscopes, 'scanning' and 'transmission', images have been obtained that in some way resemble the images above, especially the first to do with lithium-ion batteries. These images are shown below.

With all the death and suffering associated with Covid19 it has caused some pause for thought as to whether this material can be used here. The rationale for using it is there is no diminution of the empathy for those caught up in the pandemic. It is viewed from a different perspective, of scientific interest, and aesthetic interest too.

The argument is similar to the infamous Stockhausen remark he made about the 9/11 planes crashing into the twin towers in New York, where he found that to be the ultimate beauty. He basically went off the world radar after that and I personally cannot empathise with this statement due to the suffering caused. I can understand the comment and with the TFT in mind can think that the two viewpoints can sit side by side. Lauren Redhead in her article *The beautiful and the political* (2015) explained that for her beauty was political. To crudely paraphrase, out of the rough and tumble of life comes the beauty. She also mentioned the Stockhausen remark seeming to endorse its acceptance as valid. I may be wrong in my interpretation. She may have just been making a statement for readers to make up their own minds about.

How I think the inclusion of these images is valid is that they are empirical, phenomenologically there. To ignore their presence would be to turn a blind eye to a

part of life. Those working in laboratories to analyse the virus and any mutations to understand how it operates and find antidotes would look at the images dispassionately as far as doing their research, otherwise their minds might be clouded, they might not think sufficiently clearly to observe and make appropriate decisions. Invariably they would have their own emotional, even passionate feelings about the virus and the devastation that it causes, but they would on the whole be able to distinguish between the two mind states. There is the unfortunate case of at least one nurse who apparently was so overcome by the amount of deaths that she could not handle it and took her own life. This is so sad and beyond regrettable.

In a way like the Stockhausen statement there seems to be a beauty in the images as similar to the more nominally benign images first shown. To deny this would be to deny the biology of life and the beauty of atomic, subatomic particles and the patterns that nature can provide, such as in the Mandelbrot and Julia sets (Devaney, 2006). I say 'benign' because I believe that we impute meaning to a set of circumstances (as Dietrich, 2016 and Ackerman, 2020), as interpreting space according to our own mix of intrinsic and extrinsic parameters applied to our internal perception of the empirical external world (as Constable), in other words our value judgement system as applied. Yet in this instance there is in simple analysis a sound basis for calling the first 'benign' as opposed to the second, which has similar looking structures, yet which causes so much devastation. This does not take away from the structure of the world where atomic and sub-atomic structures form real components. I personally do not want to form a biased viewpoint in assessing any structure from such an atomised viewpoint, that is where the atomic structure of a lithium-ion battery could in any way resemble the structure of a virus, where I am looking for an honest interpretation in being able to say that here I have actually captured a building or a part of it and rendered it musically.

The personal interpretation point of view seems to pertain. That is that one makes of a particular set of circumstances what one will (Ackerman, 2020). That could be interpreted as making an aesthetic interpretation musically of data, such as carried out by Mermikides (2020). Scientifically, it may be perfectly straightforward and valid to draw conclusions from data. That would of course include any findings in relation to Covid19, such as infection rates, length of incubation period, any possibility of reinfection, mutation possibilities, response to antidotes, the nature of any antigens and so forth. The difficulty resides in the interpretation of data as music with the concomitant claim that the music is somehow translated faithfully from the material. Whilst bound up with the search for 'meaning', linguistically, semantically, semiotically, heuristically, philosophically and psychologically, broadly as outlined by Ackerman (2020), in the first instance, I am after verification of the validity of the actual data itself, that connection between the thing, the object, and the result, the artwork.
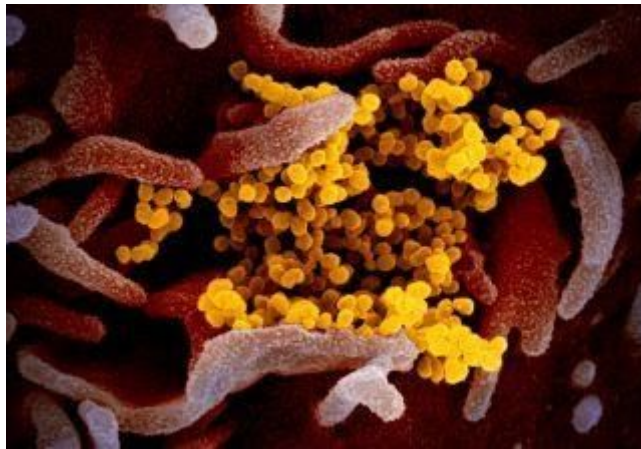
SARS-CoV-2 (yellow), human cells (pink), Saplakoglu, 2020
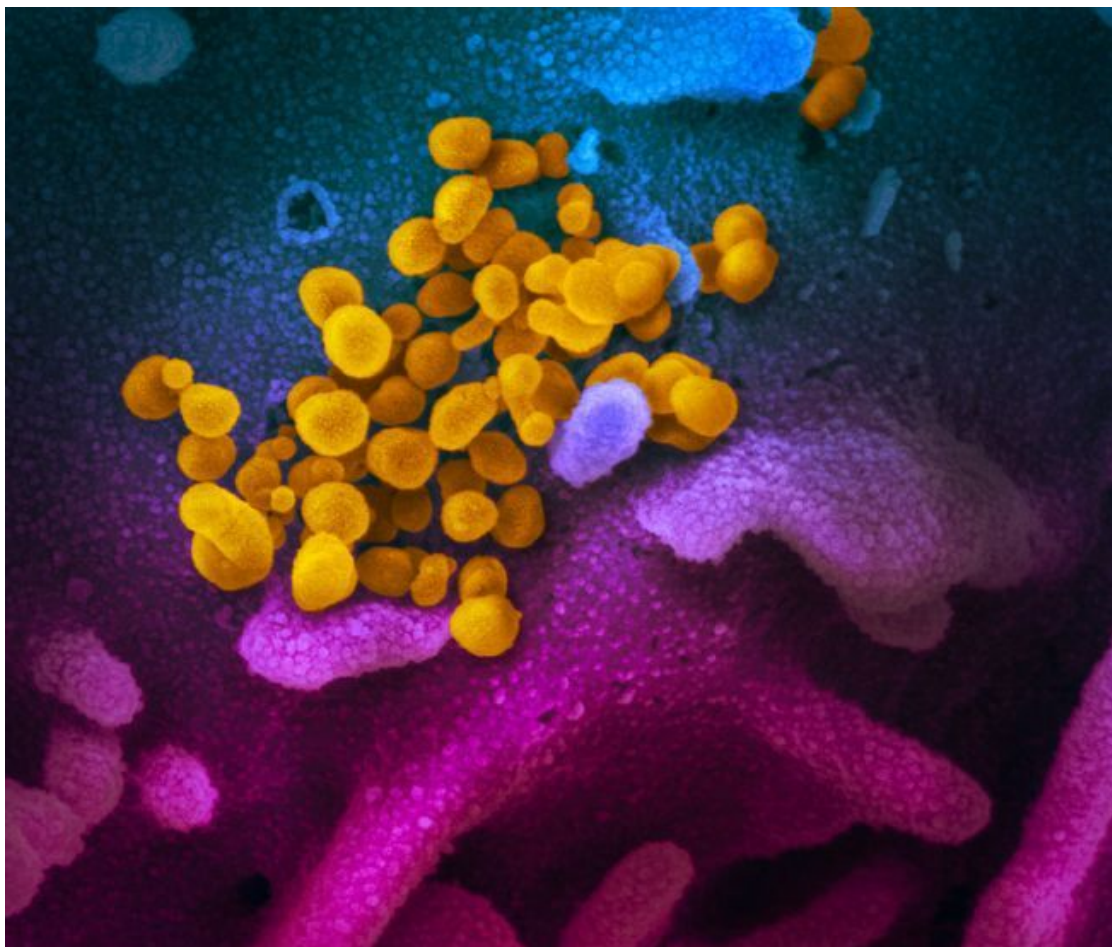
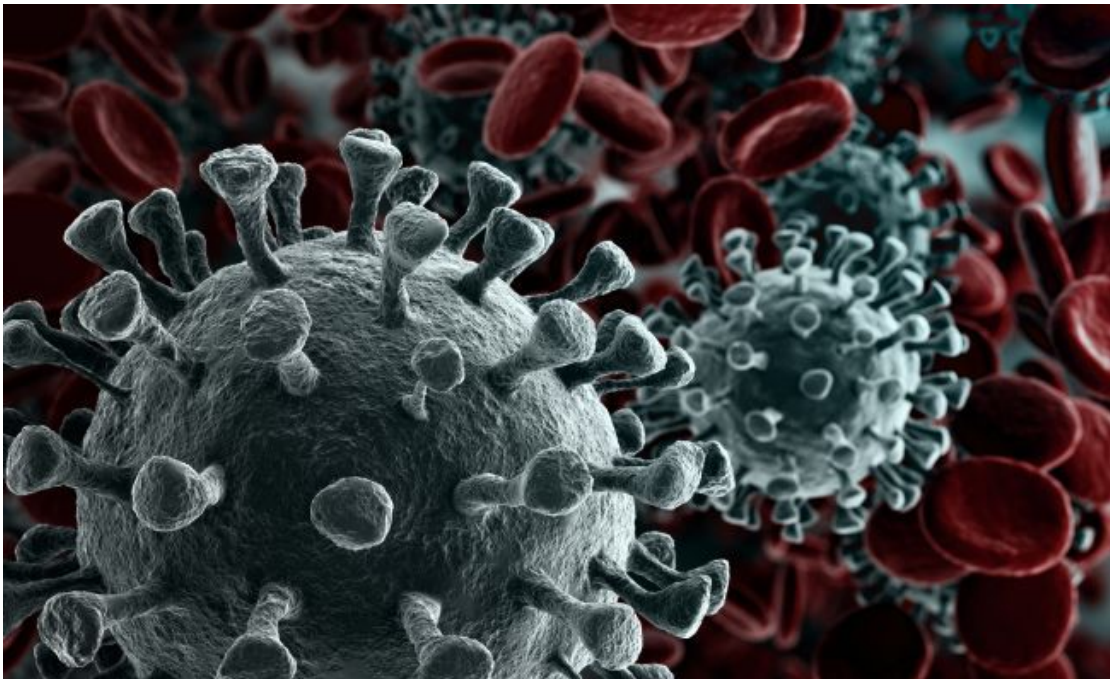Coronavirus (yellow), human cells (pink, blue & purple), Saplakoglu, 2020
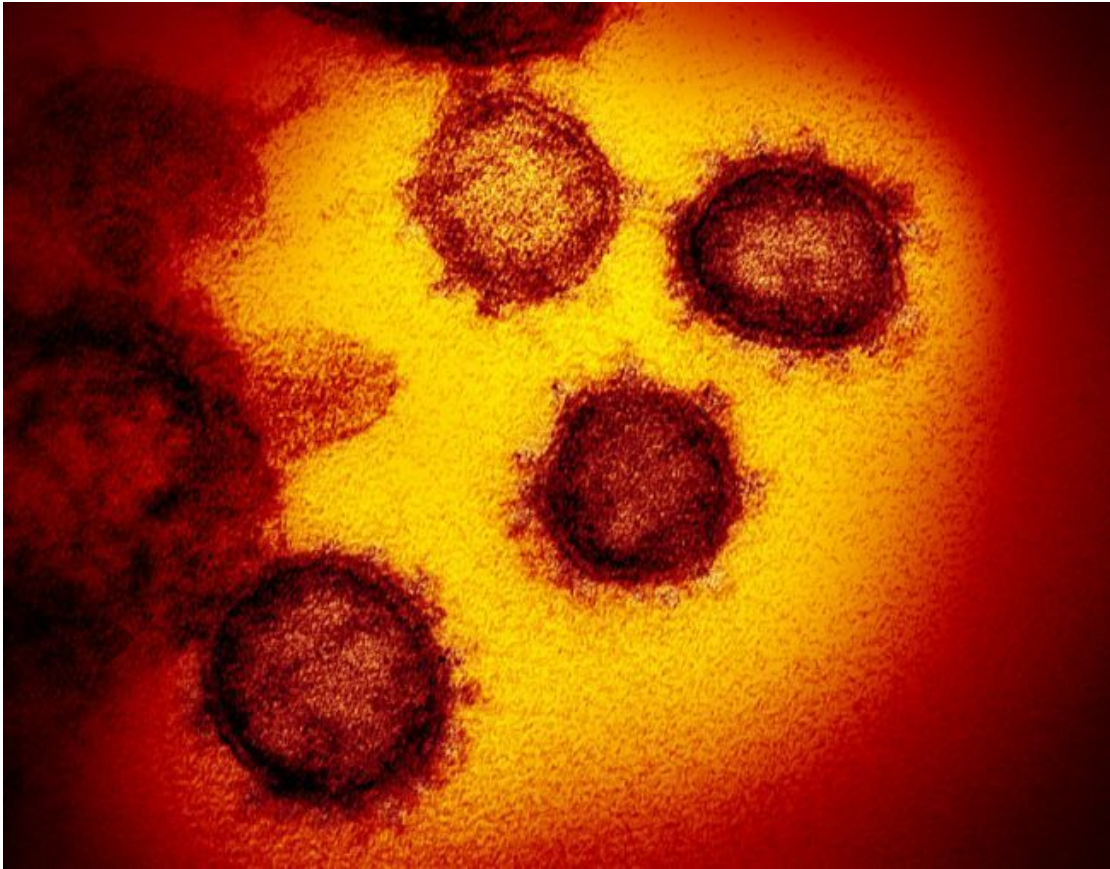
Coronavirus with crown-like shape 'emerging from surface of human cells',
Saplakoglu, 2020

A similar image to the widely publicised view with spikes of the corona virus

All these images of the corona virus tend to suggest that the amount of store that can be put into the previous images looking into the heart of matter may not possess sufficient significance as to form a basis as a template that can be read as a source of musical notes, a signature of a particular architecture's building materials, unless, it can be stated the other way around that all materials whether, as it were, benign, or, malignant or pathogenic, can possess their own signature that can be uniquely interpreted and translated musically. There is precedent here when Milton Mermikides made music from his own blood disorder in a life threatening disease (2016, 2020).

So, to: investigations of modern methodologies that can represent a spread of overall methodologies that can assist in suggesting the significance of making music from architecture. Another factor yet to further explore is to what degree is music an essential element of the universe. Is there a music of the spheres? Are the Vedics right? Could it be seen in any way that the universe started with the sound Om? Are there sounds at the quantum level? Is string theory correct and if so can the strings vibrate and produce sounds? I believe so (Gover, 2016).

Several methods could be used as from my research so far to look into the heart of the matter in order to make music representing the Daphne Oram (Gover, 2020a & b). More than representing it would be considered that one could be looking closer into the signature or the genotype, or the DNA of the building, or a part of it.

These are:

1) A Katrina Burton type sound bomb to obtain the representative sound wave properties of the particular materials used (probably via impulse and convolution, in audio terms) (2017, 2018).
2) To listen to the materials using special microphones. Perhaps as Mileece Petre (2015) the sound artist, who captures music from plants, or as other sound artists (Kieffer, 2010; Buffenstein, 2016).
3) To 'feel' the materials as imagined in the film series Expanse (Fergus and Ostby, 2019), or, poetically, as Katrina Burton for the Carr Chapel in Chicago.
4) To imagine or find some construct (plan, structural calculation, molecular construction) of the material structure and construct a piece of music as based upon this structure.
5) To examine the materials from a 'new materialism' point of view as per Petra Lange-Berndt (2015), where the material which is the subject (or object, depending upon the viewpoint) talks to the sensitive creative person interacting with the material.

Then, a thought is: as related to my TFT theory, that rather than particularised research, such as looking for a graviton in connection with gravity, or a particular architectural structure, whether at real life scale or smaller, that all aspects, all perspectives, should be taken into account, including the newly become aware topics in connection with architecture, of sociology, and extending this idea to include notions of embodiment of the actual building workers involved in the construction project and all involved in that, including all topics of construction management. So, a conventional view of examining the material might miss out essential information. It should be a comprehensive composite of all factors, or at least a cross sampling of

factors such as material properties, social factors, including ideally actual people and information relating to them who actually worked on the project, then there is the Zaha Hadid notion of extra spatial, architectural, even philosophical, phenomenal information from the surrounding buildings, train stations, concourse, the 'flowingness' (to coin a word) of the adjacent city, so that architectural objects in space are in a constant flux. Meaning, too, could be in flux, its prominence in flux. Then, two further thoughts are:

a) Where composers constantly search for external means of making music, increasingly in the contemporary idiom, with formulae, pitch class sets, data sets, aleatoric means, whether within the mechanism or process of composing and or making, producing, mixing even, music, including electronically from programs throwing out exigent material from time to time and or interaction with performers and or audience or some combination of all three, random number generators, dice throwing, Tai Chi, magic squares, algorithms, machine learning and interaction with such, new automatic instruments, programs to change the possibilities of instrumentation and sound generation including interaction with the natural world or ecology including humans, voice and so on, when taken to its logical conclusion, composers seem to be wishing to refine themselves out of the process, to not have sufficient confidence in themselves and their imaginations and indeed give themselves over to machines thereby reducing their capacity to invent music. In the end the goal seems to be to completely hand over to machines. This is not completely fair, because there are many instances of exigencies arising that are interesting, stimulating and creatively fruitful. This seems to me to be as long as man (woman or man) interacts somewhere along the process. As long as the machine learning process has some human element in it, some human DNA, genotype, gene, or organic material, even the smallest possible trace, then there is hope for the machine learnt music. Undoubtedly, machine learning will be able to progress to the extent that it will be able to deceive even the most discerning of listeners and in some cases already has, and where humans are still interacting in the process, some interesting and thought provoking results ensue. These can be stimulating to the creative process, and in this way the evolution of music is extending and crossing new boundaries: this seems to me to be proper and true evolution. But, where AI (artificial intelligence) as linked to machine generated music takes over and outstrips man (woman and man), or at least seems to (which is the crux of the matter), then man (in the complete generic sense) will possibly give up, yield and assign the role of composing to computers. The clause 'or at least seems to' alludes to the concern that machine learnt and generated music will be lacking an essential element, the human element, unless an in-built bit of organic human randomising material is incorporated into the circuitry, or in some way, if machines and computers evolve to a state beyond needing such basic components as circuitry. The conclusion seems to be that, at least in the current state of evolution, that man (in all senses) needs to retain an involvement within the process of any automated process or part of the process of music making, including composing, performing, extemporising, or any mix of music. This would also seem to imply the inclusion of human generated randomness and, crucially, even faults, mistakes, errors. The so called flawed human condition is to be prized, at this state of our evolution, beyond the so called perfection of machines and machine generated music. To

reiterate, this is not to decry interesting and creatively productive experiments interacting with machine learning, algorithms, electronica and computers.

So, what is the conclusion here as regards architecture and music? The answer seems to be to not shy away from interesting experiments in trying to somehow express whatever it is that makes architecture or a part or parts of it musically, but to retain a component of human in the mix. To what extent? This will be determined by each individual composer. At the very least the minimum component of 'human DNA, genotype, gene, or organic material, even the smallest possible trace'. It seems in the parlance of DAWS (digital audio workstations) apps, add-ins, effects controllers, that there is an inherent control that is self-adjusting with a threshold setting of the extent to which the human wishes to be in control proportionate to the degree to which one wants to cede control to the machine[1].

b) The second point, here, seems to be as regards, in very broad terms, 'old type music' as against 'new type music'. There are two camps which are largely mutually exclusive. There is some borrowing, reinvention, reincarnation in a new context of the 'old' camp in contemporary music, whilst the 'old' camp do not understand the 'new'. Their understanding of the 'old' is of completed inviolate works that have hidden workings akin to classically painted masterpieces with some vibrations that resonate with a deep spirit, or poetry that rhymes and scans as opposed to seemingly anarchic modern prose or poetry. It is suggested that both have merits to their arguments and when taken fully into account, as in the TFT, can sit side by side without nullifying the other. There is a strong argument within musicology that historical 'works' by geniuses are redundant, stultified, or ossified, to use another colloquial expression, 'old hat'. Admittedly, there is the HIP (historically informed performance) movement, which both appreciates 'old' music and reinvigorates it by scholarship about information discovered about original instruments as well as discussion about modern instruments and how to play the 'old' music in a lively way as it possibly was originally and or anyway in a lively way relevant to today. In broad terms, there is no redundancy, stultification, or ossification here. Also, a case can be made for so called cross-over music, pop, rock and folk music as reaching into both camps. Of course, this is also a plea for Postmodernism (Harrison, 2017; Brittain-Catlin, 2017; Holland, 2018).

What does this all mean for musical conversion of architecture to music?

Where a concern has arisen in my research, in fact in a cyclical manner, that it is impossible to convert architecture to music—Walter Benjamin (1923), in a way, summarises the classical argument of translation difficulties, whilst offering some hope in the redemptive and novative (to coin a word) aspects of good quality (Benjamin's account of it) translation along with a contribution similar to my plea for the human to remain in the mix—followed by a realisation that it *is* possible, maybe in a relativistically manner, and where it seems increasingly harder to truthfully 'get into' the architecture in question, it may be that these new methodologies might get closer to the beating heart of a building, such as the Daphne Oram, that I can realistically extract music from the substance of architecture and with perhaps a bit of

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[1] Phil Salerno (22.02.2020) informally reminded that there was a 'human' setting in DAWS regarding quantization. This is true and is specific. My model is theoretical and general.

human manipulation turn it into something interesting as well! With my own caveats and Walter Benjamin (1892-1940) in mind (1923), his comments upon the additions that good translators can produce sometimes with trade offs between form, words, sentences, symbols, literalness, faithfulness, freedom, meaning, intention, immanence, language evolution in context of time and cultural evolution, this enforces the idea both of the impossibility of obtaining the perfect translation, whilst accepting that the translator can, in fact, add in quite a creative way to the translation.

In conclusion and to summarise, the argument runs thus:

There are various ways to make music in connection with architecture:

Directly

As via the TFT, where lines of connection are as efficient as can be. With reference to a PowerPoint delivery made at the Winter Sound Orpheus seminars (2020c) on feedback the contention was that loops of communication become so refined in the TFT as to not operate in loops anymore, also not to be as fibre optic cables, where information takes it in turns to go in opposite directions, albeit rapidly, but to be a continuous. The connecting lines are so densely packed, yet probably with space still in between, as in atoms, although possibly less so (this is still in the thought experimental stage) and whilst being intricately interconnected, in fact with everything else, the lines must be direct—there is, as it were, no room for deviation—or error. The error part is interesting and possibly aligns with concepts of asymmetry, mutation, evolution, the Big Bang and clusters formation to make the universe of matter possible, although any such error would have to be miniscule to satisfy 'fine tuning' as discussed by Rodney Holder in his book Big Bang, Big God (2013).

Allegorically

By allusion to parts of architecture whether wholly imaginatively or by some stratagem. This can be broken into two parts. The first part where there is some connection with the architecture, a drawing, a calculation, an equation or more than one, similarly algorithmically, data extracted from the object or objects, then transmuted into music. This could have varying strengths. That is the sounds produced by NASA of electromagnetic recordings at high frequencies subsequently transposed down to the audible hearing range to yield signature sounds of planets passed by the Voyager satellites (Palma, 2019) would have high strength[2]. They may even be classified in the next category. In any event, the music produced would be seen to have quite a high content of DNA (to continue to use my term in this context) from the source objects. The second is where in plain terms the connection with the source object or objects could be fanciful; it might be all in the head of the composer and collaborators, players and listeners, as has been discussed.

Sympathetically

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[2] The comments on the website cited discuss whether sound can be made in space and 'translation' is mentioned. It is admitted that the sound is as stated from electromagnetic vibrations. This could fall into one of these three categories. In my opinion, planetary sound signatures are displayed and they are music, so in that sense translation is possible.

Where there is correlative behaviour between essential parts, or a part, of an architectural phenomenon, that is something related to something architectural, a member, a component, an element, an associated concept as perhaps discussed by Zaha Hadid with her notions of people, cities, flows, objects and fields. This is the opposite, or contra position, of the last, especially the second part. There is some substantive connection between the composer, and others, and the initial object to be 'translated' or in some way rendered musically.

It can be seen that there is relationship between all three states. Within the TFT all is related anyway. This could apply to anything, including allegorically. The last sympathetic state implied a directness, a contiguity, a proximity of connection, or connections, and as such is synonymous with the consequences of the TFT.

Finally, there is the 'humanness' angle. This includes Zaha Hadid in all her full humanness, any frailty and , also her humanity, and, the construction workers, such as of the Daphne Oram. The TFT also implies everything else, so nothing is left out. Where there has been discussion about strength of feelings, even passion, as with the painter Constable, and as a natural concomitant of the TFT, there is a responsibility to render the material in all honesty, with all the best qualities that one can muster, classically, *arete*, virtue.

When this *arete* is applied to interpreting the architectural material in any way, including molecularly, or sub molecularly, there can be no room for best guesses, any dissimilitude, the rendition must be of the best validity that one can obtain. Otherwise the contention that one has translated architecture could be false. That is why the Corona virus discussion has been self-allowed, because there might have been a tendency to attribute qualities to the sub-atomic particles such as of the electron microscope images of lithium-ion production. The questioning of such structures of matter must not be fanciful, they must be substantive to produce meaningful music.

However, the TFT does allow for everything to be included .That would include for all sort of qualities and shades of information, including the 'human' and any other relevant quality. Where the argument as raised by Andrew Graham-Dixon in relation to Constable and the relationship between empirical reality, in his case landscape, and the observer creator, in his case painter, is that (whilst we have seen that there *is* a reality at least agreeable to a commonality of people or observers, much of the reality as portrayed in the paintings of John Constable emanate from within his head. This coupled with his incisiveness, research, education (even from various accounts, his prejudices: these must form a part of most mortals) and above all his passion. There is therefore a relationship between the external or extrinsic reality of the landscape and the reality on John Constable's head. All of this can be equally applied to the composer and those who participate in the composer's realisations, performers and audience.

In a number of ways is has been seen that there can be successful renditions of architecture musically and in some diverse ways, including from the baroque, Michelangelo, The Oxford Radcliffe Camera, via some architectural and aleatoric techniques in *Folkestone Bandstand*, to the beyond, the music of the spheres, the music of the planets.

The fight goes on.

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