ETA CARINAE

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CD Booklet essay

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Busoni: 'Let us take thought, how music may be restored to its primitive, natural essence; let us free it from architectonic, acoustic and esthetic dogmas; let it follow the line of the rainbow and vie with the clouds in breaking sunbeams.'

Scriabin: 'I would like to have been born as an idea, to fly round the world and to fulfil by myself the whole universe. I would like to have been born as a wonderful dream of young life, a motion of sacred inspiration, an impulse of passionate sense.'

Stezhko: 'Compelling music has two essential characteristics: sensuality and intellectuality. Scriabin and Busoni fuse those aspects into a beautiful and ever-fresh experience, opening doors to the new sensations that I strive for in music.'

MUSIC

It is fascinating how music, which in its simplest form equates to mere vibrations in the air, is in fact powerful enough to reverberate deep within our innermost selves. An artist can be likened to a storyteller, entrancing the listener with his or her unique interpretation of the composer's score. Each aesthetic choice a performer makes can result in the birth of an intriguing new story. Even the order in which pieces are programmed on a CD can have a massive effect on how narrative is perceived. I see this album as a whole, and while each piece on this record is a masterpiece in its own right, I would recommend listening to the album from beginning to end.

The narrative of the album was not immediately obvious to me when I was learning the individual pieces. I began to realise that those works could be seen as a whole only as I was researching the lives and minds of the composers and their historical context, sometimes finding parallels to my own life experience. I felt that music was telling a story that is simultaneously dark yet enlightening, distant yet immediate. A story that described the difficult and strenuous journey towards Truth by an *anonymous spirit* or creative force known as *Pneuma* in Stoic philosophy. The main inspiration for this story was drawn from two protagonist figures that are strongly present in Scriabin's and Busoni's music of their later period: Prometheus and Faust, and their corresponding myths that contemplate the theme of human curiosity and quest for knowledge. I first explored this narrative in an experimental multimedia project titled *Pneuma**

Intoxicated that was staged in the Sir Jack Lyons Theatre at the Royal Academy of Music in September 2010. The show combined the music on this album with rhythmic and contrapuntal arrangements of avant-garde films by Hans Richter *Rhythmus 21* (1921), *Rhythmus 23* (1923), *Filmstudie* (1926), Friedrich Wilhelm Murnau's silent classic *Faust* (1926), writings by Goethe and Nietzsche and light design.

In the whole of human history, the first two decades of the 20th century always fascinated me most as it was such an unparalleled time of profound change in all spheres of human life: social, scientific, artistic. Some of the most revolutionary music was also created during that period and Alexander Scriabin and Ferruccio Busoni can be seen as two of the most original and idiosyncratic artists of their time. While both Scriabin and Busoni exerted an influence on later composers, neither created a 'school' or distinct musical movement. Their influence, one might say, was more aesthetic than formal or stylistic. For example, Scriabin's harmonic language is almost instantly recognizable, particularly in his later works where the harmonic and melodic development is based on the infinite progressions of one chord - C, F♯, B♭, E, A, D, also known as *Mystic* or the Prometheus chord. If you listen to the openings of Op. 73 (track no. 1), Op. 74 (track no. 4) and Op. 62 (track no. 10), you will find that practically all melodic and harmonic material derives from the transpositions and variations of the self-contained Prometheus chord. The very essence of Scriabin as a man, artist and mystic could be condensed and conceptualised in this one pervasive and astonishing harmony. For his part, Busoni devised an innovative system comprised of a series of 113 new scales. Instead of familiar semitones he created a new mode of notation that would incorporate his new division of whole tones into sixths of one tone thus, in his opinion, moving away from the "tyranny" and restrictions of the well-tempered major-minor relationship. In *Sonatina seconda*, he uses neither key nor time signature. During the first three minutes of the piece, the rhythmic patterns change rapidly, either interrupting each other or just breaking off. The resulting effect is strange, unsettling, even agonizing at times and chimes with the restless thoughts of Faust – the main character of the piece – in his fervent quest for knowledge. Just as composers were moving away from traditional tonality into the atonal world, Busoni dared to imagine a system in which tonal relationships not only cease to exist, but the twelve-tone octave itself stops being a significant component of the compositional method. This distinct quality parallels the vibrating ultra-chromaticism of Scriabin's morphing *Mystic* chord.

As mentioned above, the figures of Prometheus and Faust are central to the creative output of the two composers. One of Scriabin's particularly groundbreaking works is his Symphony no. 5 - *Prometheus: The Poem of Fire* premiered in 1911. The pieces on this album were composed not long after the premiere and they seem to reflect the glow of that magnificent work. Busoni's *Sonatina seconda* and *Toccata* both contain material from his opera *Doktor Faust,* with *Sonatina seconda* being a preparatory study for that operatic masterpiece. The two protagonists can be seen as two sides of the same coin: Faust symbolizes the searching man, constrained by the limitations that the physical world and society inevitably impose on him and Prometheus symbolizes the man as seeker of the ultimate knowledge, with the mystery and peril that its acquisition entails.

In my own quest for knowledge over the past few years the past few years, I have moved away from the original abstract philosophical ways of looking at the composers' works as I have become increasingly interested in astrophysics. Now I broadly interpret the story on this album as a timeline of the physical transformation of matter, which in turn serves as an allegory for the progression of human reason. This evolved narrative can be divided into two main parts. The first part of the album (Op. 73, *Sonatina seconda* and Op. 74) represents the inception of a star in deep space or an idea in a human mind; the second part (*Toccata*, Sonata no. 6) embodies further evolution towards the star's or idea's prime and at the end of the journey, the transformation that brings on a new beginning. Some might see this process through the prism of religious mysticism and its notion of the eternal cycle of life. Others might see it as the manifestation of the universal laws of physics, in particular the first law of thermodynamics, which states that energy can neither be created nor destroyed.

SCIENCE

The idea that the world, as we see it around us, is an illusion that simultaneously illuminates and hides the actual reality, resonates with both Eastern and Western systems of thought. While the Eastern system puts this concept at the centre of the various mystical and religious teachings, the West places the *dual* nature of reality at the very cornerstones of modern science. For example, the unpredictability of the behavior of subatomic particles described in the wave-particle duality in quantum mechanics stands in stark contrast with the predictability of motion posited by classical Newtonian mechanics for macroscopic objects. From every perspective, the world around us is different from the one we think we see.

The period during which the pieces on this album were composed (1912-1920) was extraordinary in terms of scientific advancement and our understanding of the natural world. In 1911 Ernest Rutherford used alpha particles as atomic bullets to probe the atoms in a piece of thin (0.00006 cm) gold foil. He established that the nucleus was very dense, very small and positively charged. He also assumed that the electrons were located outside the nucleus. This was our first proper look into the structure of an atom. In 1923 Louis de Broglie discovered that electrons exhibit a dual nature (particle/wave duality) – one of the first notions of quantum mechanics. And, of course, Albert Einstein opened new horizons in physics developing the theory of relativity.

Underpinned by evidence, science strives to understand and describe nature to the best of our current knowledge in an objective way. It not only satisfies our curiosity but also brings stability and security to our existence by reducing, if not eliminating, the fear of the unknown. The answers it provides to many important questions are so beautiful, mind-boggling and, in many ways, fantastic that they can fulfil any innate need one may have for mysticism and religiousness. In this light, it would be perhaps more accurate to replace the initial concept of an *anonymous spirit* in the project with the one of an *anonymous reason* that strives towards a society of progressive and cultured individuals.

The open, inclusive and collaborative nature of scientific research creates an environment where people overcome their differences in order to make discoveries that will ultimately benefit all mankind. Science unites people to the same extent that music does. Music can transcend the barriers that a multitude of sociopolitical, cultural and religious forces puts between us, by speaking directly from one heart to another, while science transcends the same barriers by engaging our capacity for reason. Working together these two domains form an immensely powerful force capable of transforming our society for the better.

SYNERGY

Eta Carinae, in the constellation of Carina, about 7,500 – 8,000 light years from the Sun, is one of the most massive binary star systems that we are able to study in great detail. The system contains at least two stars that are a million times more luminous than the Sun with a mass of around 150 solar masses. Because of its enormous size and mass, the system is very unstable and could explode as a supernova at any time. It might happen tomorrow or in a million years from now, but this explosion will be so powerful that, when its light reaches us, it will for a moment outshine the entire Milky Way, leaving a black hole after the blast. In 1843 Eta Carina erupted, ejecting a proportion of its matter more than 10 times the mass of the sun and producing as much visible light as a supernova. Most other stars would have been destroyed in this case but Eta Carinae survived. The event is called a supernova impostor event and is one of the major interests for astrophysicists as they try to establish the cause of such eruptions, which still remains unexplained.

Einstein once said:

'The most beautiful thing we can experience is the mysterious. It is the source of all true art and science.'

The symbolic title of this album reflects two important aspects. From one side, Eta Carinae represents the mysterious - something that we may never be able to observe directly in real time. Nevertheless, what we now know with certainty is that stars are the birthplaces of the heavier elements produced through nuclear fusion or nucleosynthesis. Often a supernova explosion would provide the impulse to the formation of new stars acting, at the same time, as a distributor of those star-produced elements, which will eventually become the building blocks of any organic life form, including us on Earth. At times an explosion of a very massive star or a star system like Eta Carinae will leave a black hole behind. Is it not truly wonderful that we can firstly theorize about all these cosmological events and then subsequently predict their outcome with astonishing precision using the laws of physics developed from our theoretical analysis? From this perspective, Eta Carinae symbolizes the accomplishments of reason.

Music is inherently abstract and subjective but as with any art, it is a means of exploring, reflecting and comprehending the world around us. It is always important to project my worldview through the music I play rather than simply treating it as a form of high art or using it as a respite from everyday life. I feel that in his later music Scriabin in a way intuitively anticipated the wonders of scientific discoveries, especially in astrophysics. While not claiming that he would abandon his mysticism altogether, I nevertheless think that if he had lived today, his fascination with the cosmos and its forces would be well-suited to the crucible of

modern knowledge. My interest in astrophysics was in fact partially sparked by Scriabin's later piano and symphonic works. The luminosity, explosiveness and 'cosmic' nature of his music inspired me to engage enthusiastically with the subject, as it became a true passion.

In my opinion, Scriabin's very last and one of the most mysterious and strange compositions – Five Preludes Op.74 – is one of the examples of this intuitive artistic connection with the scientific concepts. The set was composed before scientists discovered how stars form, develop and die and yet, at least in my opinion, this music provokes a very strong visual and semantic association with the physical processes in the cosmos. I link every prelude with a particular cosmic phenomenon: No.1 is a nebula - a vast cloud of gas and dust from which future stars will be born. No.2 has a fluctuating dual harmony at its base that I associate with the quantum property of an electron (wave-particle duality). No.3 is the beginning of the gravitational collapse of a molecular cloud into a protostar. No.4 is a white dwarf - the remnants of a star similar in mass to our Sun after it completely burns out its fuel supply. No.5 is a red giant - the later stage of stellar evolution preceding the white dwarf phase: after hydrogen in the star's core is exhausted and thermonuclear fusion begins in a shell around the core, the star violently expands, swallowing its surrounding planets in the process.

Boris de Schloezer, a writer and musicologist who was closely acquainted with Scriabin, writes in his book *Scriabin. Artist and Mystic:*

> 'A work of art, [Scriabin] never tired of repeating, must carry the observer beyond its own appointed limitations; it must stimulate action and creative effort and animate further developments. To Scriabin, art was a means of transforming phenomenological reality, of liberating it and make it transcend its limits; it was also the reflection of the revolutionary essence of his own being. His objective was an instantaneous, catastrophic abolition of reality and a spiritual translation to a higher plane of consciousness.'

Similarly to Scriabin's fascination with theosophy and mysticism, Busoni was drawn to the occult at some point in his life. It is, in fact, one of the main themes explored in his *Sonatina seconda*. At the forefront of the intellectual scene, Busoni was however who a true Renaissance man would have fully embraced the scientific discoveries. The fact that the figure of Faust is central to Busoni's many great works speaks volumes about the composer's own thirst for knowledge and his persisting desire to obtain a more profound understanding of reality. The two composers also shared very similar thoughts on the ultimate aim of music. While Scriabin saw art as a means of transforming the phenomenological reality that would carry the observer beyond its appointed limitations, Busoni made the following statement in his *Sketch of a New Esthetic of Music* published in 1907*:*

> 'Let us take thought, how music may be restored to its primitive, natural essence; let us free it from architectonic, acoustic and esthetic dogmas; let it be pure invention and sentiment, in harmonies, in forms, in tone-colors (for invention and sentiment are not the prerogative of melody alone); let it follow the line of the rainbow and vie with the clouds in breaking sunbeams; *let Music be naught*

else than Nature mirrored by and reflected from the human breast; for it is sounding air and floats above and beyond the air; within Man himself as universally and absolutely as in Creation entire; for it can gather together and disperse without losing intensity.'

As human beings, we always strive for the unknown experiences beyond our sensual and mental limits. Music is one of the means by which we can fulfil this desire. Physics is another as it allows us to have a glimpse of worlds that may be very different from the one we currently inhabit but that are as real as our. Human minds are filled with awe as we contemplate the grandeur and complexity of both great works of music and cosmic entities such as Eta Carinae. The birth, development and death of those entities is governed by the laws of physics, but the depth of our reaction is comparable to the transcendental thrill of religious devotees striving to come closer to their chosen deity. Music and science can provide a truly elating experience by liberating us from the straitjacket of dogma. Scriabin and Busoni both fuse the sensuous and intellectual aspects of music into a compelling, ever-fresh experience, opening doors to those new sensations that I strive for in art. I hope you too will make your own exhilarating discoveries whilst listening to this album.