

Breaking Through the Routine of Time

(Gespräch vom 29. April 1990 in Lissabon zwischen Stockhausen und Christopher Aretta, Dozent für Literatur, sowie Dr. Antonio Manuel Nunes Dos Santos, Chemie-Professor, beide Lehrer an der Universität von Lissabon. Zugegen waren Suzanne Stephens und Kathinka Pasveer. Das Gespräch wurde in englischer Sprache auf Tonband aufgenommen und von Henning Lohner übertragen.)

Aretta: We were thinking that this would be more of a conversation than an interview.

Stockhausen: Very good.

Aretta: ...because we would like to use it in a seminar that we are giving on science and literature. It should be a conversation for the students. Here is a small gift for you [*presents a book to Stockhausen*].

Stockhausen: Thank you very much.

Aretta: Jorge de Sena is a Portuguese poet, dramatist, essayist, and critic. He died in 1978, but he left a very vast oeuvre. One of his most important collections is entitled “*Metamorphoses*”.

Stockhausen: I would appreciate it if you could give me your names and addresses. Our conversation will appear in a book and then I can send you a copy.

Aretta: Certainly – thank you. This is the original Portuguese edition with an Italian translation.

Stockhausen: Yes, I can read it.

Aretta: I thought that perhaps an Italian translation would be more accessible.

Stockhausen: I also understand Portuguese because it is a mixture of Italian and French. Thank you very much.

Aretta: There is also another book by Jorge de Sena entitled “*The Art of Music*”, in which he poetically discusses about 45 musical compositions, transposing them into the verbal medium. It’s quite extraordinary how he metamorphosizes one particular organic form and transports it to another. I don’t have a copy yet, but I would love to send you one in the future, if you like. It is very interesting, especially in respect to what you do.

I was reading the programme notes for your concerts during the next two weeks that you will be here, and read about your vast opera LICHT. The idea of writing a work for each day of the week immediately reminds me of the biblical creation, the magical number 7. You talk a lot about music as creation, and especially as self-creation. This opera seems to be a work with both mythical aspects of music and music as extension – extension of information about ourselves. Very traditional, very biblical, and very modern at the same time.

One of the things that struck me about your presentation of the other night (“*Musical Metamorphosis*” with examples from *ARIES for trumpet and electronic music*) was, that you speak about “organicity”. At the same time you are surrounded by technical aspects – “technicity”. How do you succeed at that? Of course you have succeeded brilliantly in assimilating, absorbing, transposing “organicity” into technical aspects, “technicity” into the organic. How does that place in your evolution as a musician and a composer?

Stockhausen: When you go into a museum of musical tradition, as we did two weeks ago in Moscow (the *Glinka Museum of Music*), you are confronted with instruments. All the director of this museum could show me, were musical instruments of many different regions of Russia, of the Soviet Union, and of the surrounding countries.

When he wanted to demonstrate how these instruments sounded, he – fortunately – played recordings for me. A hundred years ago he could not have done this. For the musician, the instrument is just an extension of his body – it is not something different. So the polar thinking which you have brought into this question is foreign to me. A musical instrument is another kind of voice: it did not originally grow in the body, but man has made it, and it has become man. I think that all instruments – including the most complicated technical apparatuses produced in our time – become our body, like glasses belong to our eyes; otherwise we would not function anymore as machines. Man himself is an electrical system. You know that artificial bodies in genetic laboratories can either be made of all kinds of metal substances, or of chemical substances. It is just a question of how costly a robot should be. It is not so far-fetched to think that you can buy a robot and decide – according to the investment that you can afford – whether you buy a chemical robot or a metallic robot. Similarly, it is easy to imagine computers which are made out of liquid material similar to the human brain. It has advantages concerning the recording quality and it has disadvantages concerning the speed of communication, of information signals between the synapses, etc. So I don't see this dualism you suggest between organic and inorganic. There is no clear line.

Auretta: Or if the duality does exist on some level you have managed to create a unity of it!

Stockhausen: It's not so easy. I have a son, my sixth child, who is 22 years old – Simon is his name. I watched him three weeks ago in a studio in Cologne where he helped me while I was mixing down a part of **MONDAY from LIGHT**, which we recorded four years ago (1986). He had to play another layer into a 24-channel digital recording of all sorts of soloists, instruments, and synthesizers, because he wanted to repair certain mistakes which had happened, and he used a computer. Watching the screen of the computer, he perfectly synchronised this additional layer with the pre-existing layers. This stunned me. He used this computer like I have – for many years – used a car. I don't drive anymore, not because I don't want to, but because I have the opportunity to be driven by my partner Suzanne Stephens who likes to drive. I read while she is driving – and we are always together. I read or I write in the car, as a matter of fact. One moment in 1968 I drove a car – I remember this very clearly – with my eyes closed for several kilometres; naturally it was a route which I had driven already many, many times and I was playing dangerously. What I am trying to say is that my car became like a horse. I really had the feeling that what we call a “mechanical” machine was part of my body.

Auretta: So you're almost a kind of centaur: half man, half car. A synthesis!

Stockhausen: Well, we are all that. People who have a certain prosthesis can arrive at a state where they don't feel – for example – artificial teeth anymore. They integrate them. And in this way human beings have integrated the strangest objects into their bodies. A body is very flexible.

Auretta: As you say, one of the basic metamorphoses, one of the most frequent metamorphoses is: as human bodies, as human instruments – almost as human scientific instruments – we are in metamorphosis. The machines that we invent, the amplification of our senses that we are able to create through electronic equipment of course increases our capacity exponentially, doesn't it? So there is a unity, a harmony, as you were saying, between man and machine – which wasn't always the case, of course.

We have come – we have evolved – to discover that man is not subservient to the machine. But you are revealing how machine and man have a kind of symbiotic relationship: they become a new organism, a new synthesis of a new *Homo Musicus* beyond *Homo Sapiens* perhaps. At the same time machines – your electro-acoustic equipment – increase our perception: we experience your music.

When we listened to your lecture and presentation the other night I was very much aware of how you were striving – or appealing to our innate ability – to expand ourselves perceptually. That is at times very difficult because we are not trained to do that. We are still very lazy human beings...

Stockhausen: But for musicians that is completely different. The flute is an extension of the voice. The first man who made a flute must have had the strong desire to be able to do what the birds can do. I think we are placed – as human beings – into natural surroundings in which we are permanently invited by other beings to be able to do what they can do. And by this we extend the possibilities of the body of the monkey – which naturally has developed enormously, but basically it's not the body of a dolphin or of a condor. When we see aeroplanes flying – from Icarus to the present day – we want to be a condor. We want to be even more. So, if you talk about the Homo Musicus then it is also the Homo Angelicus. We want to become transparent, we want to become invisible, or visible whenever we want to be visible. We want to fly – not only around this planet – but wherever we desire to fly – to any part of the universe – and it all will come.

I think “organic” signifies more than a biological-chemical substance compared to the dense matter. It is something else: “organic” means that all the elements in a composition of particles work together to make a clock. All these elements should function to such an extent that no element is in the way of the other, but rather helps the other to produce something qualitatively more than the sum of the quantity of elements. This is what “organic” is all about. When we say that something is alive, it's not just that it moves like a robot! Norbert Wiener could have invented a tortoise which makes pee-pee, or doesn't run against a wall because it has the capacity to feel the wall and move backwards. These are elementary possibilities of pseudo-living beings. But real living beings can make you smile, can make you laugh, can make you cry, can make you love. So there is much more than the quantity of information and the quantity of stored intelligence. It is an inhabited machine as compared to an uninhabited machine. The inhabited machine is a machine which has a secret pilot. As you know, for about two and a half decades, all the neurologists have been looking for this pilot. And they perform more and more brain surgery and can't find it! **There** is the real problem, you see, which is very interesting and very challenging.

We musicians are mainly pilots with very poor machines and that is our diabolical fate because we always want much more than we can do and we hear a new music which we cannot realise with these awfully slow and retarded machines that the engineers and instrument makers are making for us. When I see Suzanne Stephens, clarinet and basset-horn player, struggling with her reeds I just can't believe that after thousands of years she has this kind of problem every day and is worried tremendously about the humidity in a room or about the climate of Lisbon: because of her reeds! She has to withdraw for hours to make reeds for the clarinet, reeds for the basset-horn, and reeds for the bass clarinet. All have to be humid to a certain degree. There is this instrument which is herself; without this instrument, she cannot speak, which is terrible because then the music doesn't sound, and everything she can do as a spirit becomes immobile. There you see what I mean by organic. Organic is much more than just being flexible or being “software”; it is a spiritual state.

Auretta: Right. You appeal to us as listeners – to our modes of apprehension – and you suggest, and you show us by your music that our modes of apprehension – what we can apprehend, what we need to apprehend to become as fully human as possible – are really inexhaustible. What 20th century music, what technical developments have allowed music to do for us, and other arts, and just the exponential growth of information on the planet Earth, is to show us how far we really can extend ourselves.

You mentioned computers and minds and what not: that there is an indwelling pilot. I'm going to share a little story with you. We both teach, my colleague and myself. My colleague is a scientist, I am predominantly a teacher of literature; but as I said, we teach a joint course, in which we try to join the aesthetic and the scientific. I have many students who are computer specialists or hope to become computer programmers, etc.

I often play the devil's advocate with them and I presented a poem that was written in 1955 – I can't recall the name of the author right now. The poem describes a surgeon who had opened the cranium of a patient to search for and remove a tumour. As he probes with his instruments, voices discharge from the brain in response and finally – it's a wonderful image – the surgeon has gone too far, has dug too violently and has destroyed more than he has repaired or healed. The image is of a clock unwinding as the final voice empties out into the snow of winter. It's an extraordinary image and I said, "Now look at the computers you play with day and night." And as the devil's advocate, I was cynical on purpose and continued, "That computer occupies space, but it doesn't inhabit space." And I asked, "Or does it? How does it inhabit space? How do you co-inhabit that space with your computer? Or can you? Is there any unity there? Or is there any communication or dialogue there?" Of course, my students are much less articulate than you and they are not musicians, or perhaps they are not aware of the plurality of languages, of the communication which nature and our inventions give to us, so I said, "No, I'm not right because there is a way that technical inventions are indeed creations."

There's something Faustian – I can't help but place you in a Germanic concept and the Germanic tradition. I think about Faust and the Faustian myth – you refer to myths all the time: LIGHT, the opera of the Seven Days, your use of the Hebrew language in INVISIBLE CHOIRS, for example. There's an aura, something sacred there. There's the sublime. When you talk about the inapprehensible, the search for the inapprehensible that goes beyond our general or habitual perceptual habits, you're really striving to create access to the sublime. Bach did the same thing within his musical idiom, within his canons. Within his time he combined his non-human inventiveness – the fugue and what not – strove to reach that kind of sublime level. And I think you are doing the same thing and you are able to show – I wish my students were here – how we co-inhabit with our creations, even the creations that at first sight seem non-organic, but are indeed really full of ourselves and an extension of ourselves and give us back ourselves in an extended form. That's really very exciting.

As I said, my colleague here is a chemical engineer, so I know that he was very excited about your comments on our chemical components and the neurological search for the hidden pilot. When we were discussing this conversation, we tried to relate what you showed us and what you played for us and what we know of your work, to 20th century physics and 20th century chemistry. Of course the 20th century has been a revolutionary century in more than one sense: musically, poetically, in all the aesthetic languages that exist, and also scientifically; we think mostly of Einstein and the development of quantum physics. When you talked to us the other night, you had to explain to us before we could apprehend even minimally what you are doing in your music. First, you broke down your composition for us – a kind of decomposition – because metamorphosis includes decomposing and composing. You explained to us that you discriminate between melody and harmony, for example, and then you alter, you permutate continuously the intervals and periodic structures of melody and rhythm, and then, of course, it's a constant permutation. And that permutation (when you diminish it to micro-levels of pitch and micro-frequencies) goes beyond our very primitive abilities – eyes and ears and mouths – to apprehend fully, and yet with some understanding we do reach a deeper level of perception and understanding! Your music is a kind of illumination.

Stockhausen: It has become a very important experience in our century not only to philosophise about the atomic world, but to be able to manipulate it. If you look at this table, then all you see is this table, but for about forty years now you know how the table is composed atomically to give the impression of being wood. This knowledge makes it possible – for the first time – to think of transforming the table into an elephant! This enables us to look at the table in a new way: the table is a potential elephant. This is interesting after millions of years of being confronted with objects which were a mystery – be it a table, a tree, or an apple. Now suddenly we can understand that the apple can, in the next moment, be transformed into a tree – or into a piece of music, which means into acoustic vibrations. It's just a question of transposing it into another realm of perception and then the vibratory structure is perceived by different senses. And as the senses of the sensual perceptions are different, you may perceive it as heat or as sound or as light. Or finally you may perceive it as what we call extra-sensory information: cosmic rays and all that. So that is – for the first time – a consciousness, which we can use; we can not only "feel it" or think about it, like philosophers in the past, but we can scientifically – practically – use it: we are makers.

The Homo Faber is now in his full bloom. And he already feels the next state: that he cannot only transform the world, but that he can also enter hidden realms of the universe. When I say “the universe” I don’t only mean the macrocosm, but I also mean the microcosm of what we call organic and inorganic substance. The transformational character of man becomes obvious: up until now it was clear that the difference between animal and man was that man could make an instrument and play the instrument and could eventually become a musician, which means using the most refined instruments which transmit the subtle vibrations of his spirit and of his living and dying soul (there are two, as you know). The musical instruments really transmit the essence of man. What man is all about. More than any other instruments. Yet now we see that we could imagine instruments which are not only acoustical, but which allow transitions from one sensory region into another sensory region. This reveals what we ultimately are: beings who can metamorphosize themselves, identify with other beings and become other beings. We can dream of this flexibility like the ancient philosophers were dreaming of atomism. Now we can dream about the more spiritual substances, like passing through ether and even lighter material, and that we could become like light and move with the speed of light or even faster. That’s what we are dreaming about!

Auretta: The Spanish philosopher Ortega y Gasset wrote about 20th century physics as well as about Goethe and Faust, and at one point he says, “El hombre tiene el privilegio de sentirse descontento”:
“Man has the privilege of being – feeling – discontented with himself.” Therefore that surge, that need for extension. When you mentioned the table, the wood in front of us, it reminds me of a phrase by the British astrophysicist Sir Arthur Eddington. He says, “There are two writing desks in front of me: the writing desk that I know – that I sit at – is made of wood; I write on it, I place my cup of coffee or tea on it. But there’s also that other writing desk which is simply a shadow.” It is shadow material. It is mostly void.

Stockhausen: Or if you would know the magic formula it would just fall apart.

Auretta: There it is!

Stockhausen: Because you would dissolve the electromagnetic matrix which holds it together. And then you pulverise it – it becomes something else.

Auretta: You mentioned something else the other night in your demonstration, in your performance. You said – as you were diminishing the time-frame of the original ARIES melody – that you present it and then it is gradually diminished to a micro-second. But you said something very interesting: that, of course, for a fly or certain insects, or certain micro-organisms which live for only a split second, or an electron where it collides with another electron, it exists for a micro-second, or an electron...

Stockhausen: ...a millionth of a second...

Auretta: ...with that perception: it would be perceived.

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Stockhausen: Yes. It would even be of gigantic proportion!

Auretta: Of course, it could be a millennium.

Stockhausen: That is what I’ve just said: we try more and more to conquer the capacities of other beings surrounding us. I think the meaning of the multiplicity of the beings around us – what we call nature – is exactly like being in a school: we see other beings and want to become like them.

Auretta: In his special theory of relativity of 1905 Albert Einstein says exactly that: “Copernicus taught us that we could no longer accept a geocentric view of the world. We have to think of the world as if we were inhabitants of the sun.” Of course, I think that we have not continued that evolution which Copernicus has suggested.

Einstein said, “We have imposed our terrestrial frame of time and space onto the universe.” We have limited the world and we have limited nature because of our very primitive conception, and indeed, misconception of the actual physical laws and nature of the universe. He said that there are infinite numbers of frames for time and space. We have to learn to extend our scientific and perceptual and aesthetic imagination in order to be able to see multiple, plural space and time frames. Otherwise we are inhabitants of a very local and restricted speck of dust in the universe. And this seems to be a place where your music – which is so aware of 20th century sensibility – draws hands with the really revolutionary scientific thoughts of this century.

Stockhausen: But not enough spirits have said the following: this planet, like many other places in the universe, is a school. The majority of the students has to learn what can be learned on this planet in its frame. There are a few supraconscious teachers who have to be infinitely patient most of the time because they always have to teach the same stuff – that which can be perceived by the students. These teachers know that there is something else. They have the unpleasant function to teach the planetarians what can be learned within the frame of their task as students, whereas the teachers know that a supramental sphere exists. The teachers – to a certain extent – sometimes talk about what they really would like to, and the students stare at them and don’t understand because these teachers don’t seem to enjoy living here, whereas the students do. This is a real problem: to be a planetarian is a great joy as long as you are a convinced planetarian and as long as you are perfectly content – within the frame of this planet – to justify all the limited parameters of this planet as local truth within the entire universe. But the moment you are aware that you are an extra-terrestrial, then this planet becomes a prison and the body becomes a prison and remains a prison.

When I talk about this translation – in musical terms – of all the parameters and of all the scales, the translation into all the possibilities of this planet what concerns the capacity of the instruments, the perception of the people, and so on, then you go mad – because madness is nothing but the unhappiness of a spirit to be in this prison and to constantly deal with mediocrity. One is obliged to deal with something that is just very plain and very primitive in spite of the fact that one knows something better.

Here in Lisbon I have worked seventy hours for the last seven days rehearsing SIRIUS, which I had already rehearsed for five months in 1976, together with four soloists, and many more months since then. The conditions are very difficult: it takes up to fifty minutes in dense traffic to drive to the *Beato Cloister*, and we have to drive this distance four times each day – twice forth and back. The roof of the cloister leaks during the frequent hail and rain storms; trains and aeroplanes thunder by, and we try to recompose the very complex musical organism of SIRIUS (which I composed from 1975 to 1977 in an electronic music studio in Cologne and then rehearsed it, together with four soloists)– just to reconstruct what had already existed almost perfectly. Three of the soloists are the same performers as fourteen years ago, and yet, last night was the dress rehearsal and I cried afterwards. It was not at all the level of what it should have been, compared to all the effort that I have put into this. The listeners would not be able to tell the difference between a perfect performance and the imperfection I noticed last night.

What I’m trying to say is that, for forty years, I have been repeating – in endless rehearsals – the same things, and I have written more than 200 individually performable works, all of which are unique musical organisms. I try to make them alive and sound beautiful – and yet, in every performance they have imperfections. This fighting against imperfection, this struggling for perfection and beauty is something that goes beyond the capacity of a human being. I am a prisoner and I really don’t know how to get out of this world of imperfection and compromise. There is something tragic about being a terrestrial. I know more than what I can achieve here, and I know of another world. When I talk about it, the others stare at me as if I were an idiot. They call me naïve and all that, and they write it. They have written it – in many different variations – for 40 years now. It is not so, that through the will to fight and the will to progress I really see the shore of a new world on this planet. I rather see the opposite!

This is a mystery that only God can solve. I obey, I'm a good worker, but I think that there is some tragic misery in all of this. The majority of terrestrials is not striving to become angels.

Auretta: That means, there are few strata of our existence. Here again you remind me – what you are saying recalls a mystic matrix: Odysseus. You are an argonaut, you are exploring. There's something ethical about your music. You are searching, of course; your ethic is not one of space, of unknown continents, but of time, of human time. When Odysseus returns home to his Penelope, what must he do? He must put up with a lot of barbarians and keep on slaughtering quite a few who have no humanity in them; he – who has had this incredible forty-year experience of wandering and of tragedy. It makes him both human and extraordinarily fragile, precarious. area of life who chooses to live on the frontier, so-to-speak, the frontier of now and the potential now, must pay for that with a very high price because so much of the world is still barbaric, primitive. We are trapped in bodies which are still so ensnared by the immediate reference, right? I do not know if you noticed – I'm sure you noticed – my colleague and I were struck by the fact – that when your son Markus joined you and went up into that kind of pulpit there in the cloister and began playing the trumpet (you were playing the tapes, you were in the centre of the stage, your son on the lateral side of the stage, on the periphery), what did the audience do? The entire audience moved and focused their eyes – and ears – our primitive sensory apparatus on – on whom? On Markus! Why? Because we are so lazy, we are so obsolete, we find it more comfortable to refer to what is immediately accessible. There's the trumpet, there's a whole tradition that inhabits us – there's a sensory tradition that inhabits our ears and our eyes. We need to focus, we need that anchor. It's easier because your tapes immerse us in something that is not immediately accessible – it takes us further...

Stockhausen: Be careful – you make a remark which is not complete. I had switched off the lights which were focused on me: I did not want to be seen.

Auretta: You didn't want to be seen? Hm – so you staged that?

Stockhausen: Yes.

Auretta: That was on purpose?

Stockhausen: Yes, and I always do that.

Auretta: But I think that underneath there is an intrinsic need in most of us – still – to anchor ourselves, to find security in what is immediate.

Stockhausen: Yes, but I wanted to disappear.

Auretta: Hm. Why?

Stockhausen: Because I am only an instrument. What is important is what sounds. The people should concentrate on the invisible, on what goes through the ears; the ears are the door to the soul. There is an ancient Indian saying: "The eyes are the mirror of the soul, and the ears are the portal to the soul." I prefer that the people experience themselves through my music, rather than experiencing me.

Auretta: Hm. [Long pause] Yes.

Nunes Dos Santos: Another thing that I'm surprised about in listening to your music is this: I found your music to be quite aleatoric, but when you explained it as you did last night, as a scientist I feel a kind of intrinsic order in it. It surprises, you see, because on the surface, you have a different perception of what it is inside the music. This happens quite often to us in science, especially in this century. Only in this century have scientists realised that even the natural law is a statistical and aleatoric law. I find that very exciting.

Stockhausen: I see.

Auretta: At this moment we are in the midst of translating a book by Erwin Schrodinger from the English to Portuguese. One of his most important chapters is “*The Law of Chance*”, in which he says: “We think that our laws represent absolutes, absolute qualities, absolute quantities, but what underlies human invention, and what we think is chance is the basic order. There is no question about this, if you look into the stars at night. We have made an artificial firmament in the auditorium for SIRIUS – if you come to the performance you will see it. The lighting technicians have punched a few small holes into metal sheets which are placed in front of the lenses of several projectors. To most people it looks just like the nocturnal sky because they don’t see any meaningful order there, but we all know what a fantastic clock – a super- clock – the firmament represents. What looks like chance is, for more developed spirits, and above all for the intelligence of all intelligences – God – the most perfect order. Human beings perceive this as disorder or aleatoric behaviour, but secretly it is a wonderfully coordinated clock, otherwise it would collapse.

Auretta & Nunes Dos Santos: Yes, yes.

Stockhausen: Consider the molecules in this room: if they were not distributed like they are, then in a certain place you couldn’t get oxygen anymore. It is very good as it is – it is a perfect order. The spirits who invented this knew that we move in space, so they created conditions which statistically are valid anywhere. This leads to an apparent statistical organisation, but it is another form of highest order.

Auretta & Nunes Dos Santos: Right, right.

Nunes Dos Santos: We are taught – especially in science – that order is fundamental, otherwise it will be very difficult to establish a law. But in this century we try – in quantum physics – to say that chaos and a kind of disorder will be the law. This is very difficult for scientists to accept – even now, after so many years.

Stockhausen: As I said, the translation into terrestrial concepts – to make something intelligible to the possibilities of the human brain – is a tremendous restriction.

Nunes Dos Santos: You know that – as you have just said – every time you perform your music you have a different type of emotion. In science, when you repeat the same experiment you expect the same result. There is not this kind of interrelationship between the subject and what is observed as in art, or in literature. For instance, every time you read a poem you can feel a different kind of emotion, but not in science.

Stockhausen: Don’t you think that – when you teach your students – the perception of the students determines what you say?

Nunes Dos Santos: Yes, that is right. But when I work with equipment, for example, I have disposed of the audience, the students, the humans. I think I often expect the same results of the experiments. I feel quite content if I get the same result! That is one of the reasons why in science you have this kind of ‘normal’ science in which 99% of the scientists work.

Stockhausen: We have a similar situation in our performance practice. For instance, all the performers with whom I rehearse are daily working on this degree of perfection. They have an ideal performance in their mind, in their soul, and they try to reach that every time. They know what mistakes are, and they recognise the smallest mistakes; they record themselves regularly and compare; they imagine an ideal performance of a given composition, and the longer they work on a piece the more they discover what perfection means. Perfection is not an end – and I think this is also true for the application of a mathematical formula: as soon as a formula is applied to the behaviour of certain matter, then the matter itself is like a dull material which must be refined; one must make it more flexible in order to manifest the impact of the formula. That is the same in a musical score. The more refined the score is, the more precious details the score contains, the higher the challenge for the performer. It is true that I have decided to include performers already early in the field of electronic music – also for the future.

There was a time when I had announced the end of instrumental music – because I felt that the traditional mechanical instruments could no longer serve the further development of all the parameters: the refinement of dynamics, of degrees of frequencies; refinement in micro-scales, macro-scales; the expansions, contractions of scales; the projection of sound in space. I even tried to put instrumentalists on a swing, suspended from the ceiling of an auditorium, and to swing them in order to have sound which moves; but then the musicians refused, and finally I refrained from this kind of experimentation and said, “Well then, after all, I will have to deal with dead loudspeakers.”

Auretta: Immobile.

Stockhausen: I invented a rotation table, with a loudspeaker at its centre, and placed eight microphones around the table. I would have loved musicians who can fly, and in LICHT I have composed several situations where levitation is required, but stage directors don't know what to do [*all laugh*].

Auretta: How does one follow that score? A ‘simple’ crescendo!

Stockhausen: There you are: a challenge for the next 2000 years. They have to find a solution, and for now they use all kinds of tricks, which never really work. I like to think of an unlimited capacity of the musician to make sounds, no matter how he succeeds for the time being. This world of imagination is as real to me as the world in which the musician lives right now, where he cannot fly and in which he cannot have seven octaves instead of three with his traditional instrument. I like to challenge the spirit, not only to record a result on tape. I have made very few pieces which exist only on tape and where I can be rather sure that I can hear – using a certain kind of earphones – the same music several times almost the same way. But when I drink coffee, everything changes. Then time passes much faster and I don't like my music. One cannot separate the perceiver from the perceived. Who is who? What is what? What is the music?

Auretta: “Am I the dance or the dancer?”, asks Yeats.

Stockhausen: There is a wonderful challenge. Whatever we make causes more perfection simply by the fact that it is more intelligible for a person who is more intelligent. You can find in a grain of sand a whole world.

Auretta: I wonder if you've seen the film “*Napoleon*” by Abel Gance. In 1929 he filmed this and he placed the cameras on swings above vast groups of people to give an idea of the turmoil – the historical fervour – of the moment, and it struck me as very funny to place musicians on swings and have them fly around as well.

Nunes Dos Santos: It's like electrons: you can jump from one orbit to another depending on the energy.

Stockhausen: I do that! I have had hang-ups for years since the world fair in Japan where I performed my works for 183 days in a spherical auditorium, for about six to seven hours daily. Twenty-one soloists performed these works in a spherical auditorium with fifty loudspeakers in ten rings surrounding the public. We had a special matrix and I could pre-plan any configuration of sound movement. I had rotation mills, which a company built specially for me, and I used them like coffee mills to rotate the sounds of a singer or an instrumentalist around the public. The Japanese – with open mouths and babies on their backs – were staring at these invisible beings flying around them with any kind of speed. It took me years to overcome the inner doubts of having a musician stand somewhere for the eyes and fly somewhere else with his voice or instrument. My colleagues still attack me nowadays for having accepted this possibility – I mean this psychological impossibility. They attack me and say, “One is not supposed to do that.” It is like saying to a genetic scientist, “You are not allowed to make a homunculus.” I agree, to a certain extent: if it becomes laughable, horrible, really monstrous, then we should refrain from such a possibility.

You will experience movements of instrumental sounds around the public also in the concerts here in Lisbon. For example in my composition MICHAEL'S REISE UM DIE ERDE (MICHAEL'S JOURNEY ROUND THE EARTH), there are six groups of loudspeakers surrounding the public, and in each group or each combination of groups are two or three, binary or triangular combinations of loudspeakers. You hear the musicians who move or sit on the stage, projected through loudspeakers. The sound comes from the place where they are, as well as from somewhere else. But for many listeners in the auditorium the sound from the loudspeakers is louder than from the stage. Therefore, every once in a while, one hears these musicians predominantly sounding somewhere else. Levitation or no levitation, the sound is flying. If I completely darken the hall, then the listeners are surrounded by these flying musicians without taking into account that their bodies may be somewhere else. It's like hearing voices and not seeing anything. Up until now this was all called mystery, but this mystery has fully entered into our modern musical experience.

Auretta: Yes, and as I listen to you talk and perform I'm always struck by the fact that if you use, and while you do use the aleatory aspects, chaos and that aleatory aspect are always a door, another door to a deeper creation, aren't they?

Stockhausen: Yes.

Auretta: After your performance the other night, in the car going back home, I mentioned that I keep hearing here, or sensing, a kind of vindication or redemption of the biblical myth of the tower of Babel. Man makes, many times, a prohibiting God. You're talking about God in the sense of complete openness and self-creation and on-going evolution. When man – the human community – in the biblical myth strives to reach the divine by its own means, that God, that angry God delimits, says, "No" and "Now I am going to create chaos and disorder and you will never be able to find unity again." But you say, "No! God is not that prohibition in art and creativity, creation and musical expression. There is no apriori or intrinsic prohibition, there is no intrinsic limitation of our capacities." You say, "No", because the tower is real, we are still creating that tower with our means and there is a God in that sense of intense levitation and freedom.

Stockhausen: I am not outside of God, but I am a particle of God. What I do is what God does, only in a very insular way. When you talk about God and I see your eyes looking up, then it seems that He is somewhere else. But since triangular combinations of loudspeakers. You hear the musicians who move or sit on the stage, projected through loudspeakers. The sound comes from the place where they are, as well as from somewhere else. But for many listeners in the auditorium the sound from the loudspeakers is louder than from the stage. Therefore, every once in a while, one hears these musicians predominantly sounding somewhere else. Levitation or no levitation, the sound is flying. If I completely darken the hall, then the listeners are surrounded by these flying musicians without taking into account that their bodies may be somewhere else. It's like hearing voices and not seeing anything. Up until now this was all called mystery, but this mystery has fully entered into our modern musical experience.

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Stockhausen: I am not outside of God, but I am a particle of God. What I do is what God does, only in a very insular way. When you talk about God and I see your eyes looking up, then it seems that He is somewhere else. But since I was born, I have profoundly experienced that I am in the belly of God. I really feel that. A bit low in this region; not in his brain, but I am connected to his brain at least. What I do in my best moments, I do in the same fashion as does the sublime intelligence of the cosmos of all universes. So, I am not outside of God.

That changes a lot, because I am not afraid of anything and I don't think that there are any aspects that I should exclude. If there is a tower of Babel, then when it's ready I just kick it over and start another one. It is always a wonderful chance to make extraordinary things even with all the debacle that comes during or after the composition.

Auretta: Babel was not just decomposition, it was composition.

Stockhausen: It is composition. And it looks quite marvellous to imagine this fantastic thing, even if it is unfinished. We have a lot of unfinished great works of art.

Auretta: Isn't it so good that humanity at its best is so unhappy and unsatisfied, discontented with the present state?

Stockhausen: Well, it is the predominant experience.

Auretta: You remind us also – when you speak of God in this sense – of the Hindu writings of the Vedanta. For example, ...we are all God, we are all full, and it is just a question of knowing that. This knowledge is being.

Stockhausen: It needs a child-like nature to find that, to know that.

Auretta: And we all become old so rapidly: when we have boring teachers who are bored to death, who teach us boring topics in a boring way, we die very quickly, many of us, along the way.

Stockhausen: Children can teach the teachers a lot.

Auretta: Oh, yes, that's the key, probably.

Stockhausen: As I said before, most of the teachers are very unhappy because they always repeat what they know, whereas the interesting task is to clarify something that you don't know yourself.

Auretta: Right, and that THURSDAY will not be like MONDAY.

Stockhausen: I know that because I have composed those parts of LICHT. It was one of the challenges to write my letters for four years with green pens: that was the time of MONDAY. When I composed THURSDAY I wrote with blue pens. Now I'm writing in red because I have been working for two years on TUESDAY from LIGHT (predominantly in red – there are always some letters which I write in silver).

Auretta: O.K., we have just a couple of curiosities here – just for our class – to be able to place you in a context of an even more specific nature. Could you express to us some of the – what you feel would be philosophical or cultural – sources for your work? What unleashed your thinking? Was there a beginning point where you said, “Yes, this is what I want to do”? What was that initial comprehension?

Stockhausen: Since 1951 I wrote abstract compositions which were aimed at one process per work for ordering sounds and finding new ways of co-ordinating all the parameters of the sounds. Then I started integrating – into such abstract works – pre-existing elements which I had refused for several years, such as words sung by a young boy in the SONG OF THE YOUTHS, or national anthems in HYMNEN. TELEMUSIK is a composition which pulls – via an historical telescope – events of the past from different folklores into my electronic music. I transformed them and found new methods of intermodulation between pre-existing sound objects and new sound objects which I made myself in the studio.

The next step then was that I again became involved with more abstract concepts in composing processes, which means I wrote instructions of a numerical kind or consisting of symbols which allowed interpreters to create an organism on the spot by playing intuitively and excluding all clichés. It was difficult to find these musicians and it still is a challenge which I have not yet quite solved. I lost friends through this attempt because they said if this was musical composition then it would not be mine, but the interpreters'. Who would be the author? Many moral and legal problems started. One interpreter refused for his name to be mentioned on a series of records of my compositions. I reached a point where I did not compose a 'score' with notes, but short texts of a few sentences – words – for musical interpretation. We would play intuitively together – three, four, five musicians – and interpret the verbal stimuli. After that, I again became involved with a more strict method of composing. I became fascinated by concepts of stellar constellations and composed MANTRA, which I considered to be a small model of a galaxy, and STERNKLANG (STAR SOUND), which lasts more than two hours, in which I included star constellations of a star map. The different sizes of the stars were dynamics, and the distances between the points on the paper became musical intervals. I used names of star constellations and learned these names. The musicians even sing these names, which comprise the text of STAR SOUND. This music is performed in the summer at full moon in parks.

After having worked with stellar constellations and cosmic figures I became intrigued by the cycle of the year. I composed TIERKREIS (ZODIAC) and then, for several years, SIRIUS and some other works which have to do with the ZODIAC. I asked myself: what are the twelve months musically? What is a lunar year? What is a solar year? As all cycles are music for me, these periods became music. They are metre and rhythm, rhythm within cycles.

Since 1951 I have developed serial composition, which brought to the 20th century a synthesis of Occident and Orient, namely, from Indian music the tala and raga concept, and from European music the concept of serial composition. I chose Messiaen as a teacher. He is a very religious person and became involved with Indian rhythms and their implications; also with ragas, the Indian modes of melody and harmony. Messiaen connected this tradition with the twelve-tone technique of the Viennese School, which was a revival of the technique of the Renaissance composers who used tala and color for rhythms and pitches, models which they used for composing a kind of modal music.

With these new concepts for structuring an entire organism of music with a few *Gestalten* (forms, figures), I wanted to musically form a year, and composed the 12 months and the four seasons. I became acoustically involved with the four seasons. In the "Presentation" of SIRIUS, you can hear the elements connected with the four seasons. **Winter**, the north, the man, is related to the element earth: ice, snow, the Earth. So you hear a shovel and the noise of hacking – very difficult to record. Ice is breaking, a man in boots is walking through frozen snow. The recording is very realistic. The bass singer greets the planetarians. After that comes **spring**, east, trumpet, fire. You hear a match being struck and a whole stack of dry wood begins to burn, recorded by many surrounding microphones. It sounds quite realistic. Next comes **summer**, south, the woman, water. The fourth season is **autumn**, west, bass clarinet, wind, the friend and beloved. I used the recording of a special kind of Siberian wind, which I chose from many winds which I ordered from sound archives. During a transition from **autumn** to **winter** I used a mixture of two winds, Siberian and Sahara winds. These elements appear in SIRIUS every now and then, in words or in movements, and gestures of sound. This is how I became involved with the elements.

But already in GESANG DER JÜNGLINGS (SONG OF THE YOUTHS) – electronic music composed from 1955 to 1956 – I have musically interpreted the stars, sun and moon, winds, ice and snow, the cold, bleak winter, fire, water. I composed these natural phenomena in a fairly abstract fashion, comparable to paintings of Mondrian, Malevich, Klee, and texts of Joyce, as in "*Finnegans Wake*". I have never given up this abstract forming, have expanded it and tried to become aware musically of the different natural appearances and cycles which have been created as examples for us.

For me, it is completely natural to be involved with the musical significance of *The Week*. For twelve years I have been composing the week. And it will take another fourteen years. Then I want to work on *The Day* and find out what the day is. I see myself already as an older man waking up for a longer period at three o'clock in the morning to find out how it feels. After that at four o'clock, and so on. Particularly in the night I want to listen because normally I sleep like a bear in the night and I don't really know what the second half of the night is... well, I do know some mysteries because I live in a forest. Nevertheless, most of the time after midnight I sleep.

I think that these cycles are very mysterious, and as long as one is here as a human being one should try to find out what night and day are all about. I was strangely curious at a certain point in my life, when I had to give seminars at the International Music Courses in Darmstadt. I surprised my composition students, who had come from all over the world, by saying, "Tomorrow there is a seminar at three-thirty in the morning." They looked at me stunned – if you would have seen how they appeared [*all laugh*] and what they understood. I had imagined this beforehand and went to sleep quite early. In the early morning I was completely awake and fresh and had already made all the necessary preparations to be alert, but they were there like – like...

Auretta: ...drunk with sleep!

Stockhausen: Yes. Then I announced the next seminar – never saying what would happen the next day – for six-thirty in the evening, and that evening taught until two o'clock in the morning, staying in the same room without a break.

In Darmstadt I gave seminars for six, seven hours without a stop in a large town hall. There were several hundred people who went out and in, drank, ate. I saw that and just stood there and enjoyed myself and was talking, explaining, and playing music from tapes. I know that breaking through the routine of time makes things reveal the mystery.

Auretta: You intensify what we take as ordinary and banal.

Stockhausen: Yes! That is the reason why I have expanded the duration of my works. Many people said and wrote – when the first works "without movements", as they called it, lasted 25 minutes, then 34 minutes, then 2 hours, then 3 hours, then 5 hours, and now one work lasts 24 hours – that I am mad because it doesn't fit into the normal timing of people who are used to having so and so much music at a time. This is something that intrigues me: to get out of normal human cycles, bodily cycles, and discover other cycles.

Auretta: You strike us as a musician who is also a marvellous teacher and who is also a very wise child. You are recapturing – you have your childhood.

Stockhausen: Isn't it true that when, for example, you fall in love, you like to do unusual things? You sleep outside in the night, at the sea-shore...

Auretta: You walk in the rain, you sing in the shower, you eat more [*all laugh*]...

Stockhausen: There you are! It is a higher state!

Auretta: Thank you for coming to Portugal!

Stockhausen: Thank **you!** I hope you can use this.

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