Peter Weibel im Gespräch mit Oswald W und Olafu DER NEG TEIL 3 Donners 26. Nove 14.00–17 UdK Berli Fakultät Bildende Kunst Institut für Raumexperimente Christinenstraße 18/19 Haus 2, 2. OG 10119 Berlin

Peter Weibel
im Gespräch mit
Oswald Wiener
und Olafur Eliasson
DER NEGATIVE RAUM.
TEIL 3
Donnerstag
26. November 2009
14.00–17.00 Uhr
UdK Berlin
Fakultät Bildende Kunst
Institut für
Raumexperimente
Christinenstraße 18/19
Haus 2, 2. OG
10119 Berlin

Das Institut für Raumexperimente unt
von Prof. Olafur Eliasson ist als Pr
Fakultät Bildenden Kunst der Univers
Künste Berlin (UdK) angeschlossen un
die Senatsverwaltung für Bildung Wis
und Forschung, Berlin gefördert.

Universität der Künste Berlin

Negativer Raum. Teil 3

Die klassische Skulptur geht von der Gleichung aus, dort wo Materie ist, ist auch Raum, dort wo Raum ist, ist auch Körper. Diese Gleichung hat sich besonders in der anthropomorphen, figurativen und gegenständlichen Skulptur ausgearbeitet. Raum besteht gemäß Descartes aus den res extensa, den ausgedehnten Dingen. Die moderne Physik hat sich von dieser Raumdefinition entfernt und spricht sogar von Raumzeit-Kontinuum und schwarzen, raumverschlingenden Löchern. Die Leistung der Skulptur der Moderne besteht hingegen darin, die Vielfalt anderer Raumerfahrungen wie gespiegelter Raum, Schatten, Licht, leerer Raum, virtueller Raum, Vorstellungsraum, sozialer Raum zu entfalten. Diese Vorlesung fasst diese Tendenzen des immateriellen Raumes unter dem Begriff „Negativer Raum" zusammen.

Classical sculpture assumes the equation that where there is matter there is also space, where there is space there is also body. This equation has developed and been reiterated by anthropomorphic, figurative and representational sculpture. According to Descartes, space consists of the res extensa – the extended things. Modern physics has moved past this definition of space. It speaks of a space-time continuum, of black, space devouring holes. The achievement of modern sculpture on the other hand consists of unfolding the diversity of different experiences of space into new realms of the imagination, like mirrored space, shadows, light, empty space, virtual space, and social space. This lecture merges these immaterial tendencies of space into a concept of "Negative Space".

Der negative Raum. Teil 2

Today in the beginning we speak about something that we see here all the time: so called "mathematical models and mathematical sculptures". As we said, it would be fruitless to refer all the time to the work of Olafur Eliasson and the work which is done in the studio, because it is very evident – *no?* Even when I don't mention it, it is always on my mind and you can make the relation to the objects which you see in the space and you see his own work, you can make the relation to the works in the studio very easily by what I try to describe to you, *hum*.

So, what you see here is some mathematical models which have been built – *ya* – in the end of the 19th century – *ya* – in France and Germany. *Ya*. And that is something very interesting, that these mathematical models look very much like artworks, abstract artworks 50 years later. So it was around 1870, that Felix Klein, a German mathematician who was at that time in Erlangen, the founder of the famous Erlangen Program, started to introduce mathematical models. What is the meaning of this I will describe to you very soon. What kind of revolution it was, what kind of difficulty it also included – *ya?*

Following this model of Erlangen and later of Göttingen – *ya* – it was the French mathematician Poincaré – *ya* – who also introduced mathematical models as teaching models, – *no, ya*. In his class – *ya* – in mathematics.

Here you see something interesting: On the right side you can see it is a Boyle's surface as a wire frame model – *ya?* In computer technology we speak about wire frame models. I will explain to you later. But you see already that the scientists started to make a model of the surfaces with wire, – *ya*.

And the same you see here, this is an anonymous work. And what you see here is a Naum Gabo piece. On the other side you see a plaster model or wood model – *ya* – also an anonymous work of this famous p-function. On the other side you see a work which is very similar – *no?*

Or here another picture: Georges Vantongerloo: Construction of a Sphere. He is one of the founders of the famous school of "Abstraction Creation". This was about 1930, – *ya*. These people have been for abstract art, – *ya*. So he founded it together with many people: 'Abstraction Creation. This was a kind of geometric abstraction, – *ya*. You see here a model of Clebsch' diagonal – *ya* – from 1870 – *ya*. Again 40, 50 years earlier done in mathematics.

Here you see a picture – *ya* – of the Geometry Room in Göttingen. 1893 – *ya*. And then you see a picture from around 1900 – *ya* – from the Institute Henri Poincaré, – *no, no?* So you see here precisely at the end of the 19th century we had the following debate, ya, ya: "Is it allowed – *ya* – to make a mathematical model?" This debate is very important and there I have to give you some references to understand what you are doing here – *ya* – in the studio – *ya?* And what is the reason why this was a strange revolution.

Because in mathematics for many decades what you call "Anschauung", – *ya* –, also visualization, intuition – was completely forbidden – *ya?* For example: One of the best mathematicians of the 19th century – *ya, no, so* – he might even be the best – his name was Joseph Louis Lagrange, he wrote a book in 1788, – *ya*. It was called "Analytical mechanics, ya?" Mechanic Arithmetic. 1-7-8-8. So it was the time of romantics, – *ya?* which is important. In art it was romantics, – *ya*. And he was the best mathematician and astronomer of his time – *ya*. And in the preface he wrote: "One" – the reader – "will not find figures in this work. The methods that I expound require neither construction nor geometrical or mechanical arguments but only algebraic operations, subject to a regular and uniform course." What it said, if you use constructions – *ya* – if you use mechanical arguments, if you use geometrical arguments: this is not science – *no, ya?* This is a book of science, – *ya* – this is a book of physics. It's naming the mechanics of the world and it is done only by algebraic operations. This is the beginning of what we today call "Digital Philosophy". *Ya, Ya*. You explain the world only by the relation of numbers, – *ya?* And he expressed very heavy the conviction of this time that only mathematical rationalization could explain the world correctly, – *ya*.

So Hegel, at the same moment, when he wrote his „Phenomenology of the Mind", – *ya?* – at the same time – *ya* – around 1800, he calls this "The Construction of the Absolute", – *ya*. This is very important to understand what you do here and what is behind our theory of Negative Space, of Absolute Space. Therefore we have to go back 200 years to understand what happened. Lagrange – *ya?* – had followed the ideas of another famous mathematician, – *ya*.

This was Leonhard Euler. He was the president of the Berlin Academy, – *ya* – where he worked until 1786, – *ya* – and he wrote also books like "Theory of the Analytical Function" and "Theory of Functional Calculus" – *no?* And he also, – *ya* – said only algebraic tools and operations, – *ya, ya*, only a mathematical form – *ya* – can give the truth about the world. So when we want to understand how the heaven functions, the movement of the planets et cetera, we don't want these drawings of ellipsoids that we have seen – *ya, ya* – by others. This stupid visual arguments we don't accept, – *ya*. All what these mathematicians said, that we can explain the world by pure algebraic operations that made it possible that later Einstein could develop his theories of relativity, – *no?* Because he developed a theory of the motion – *ya* – of the planets, of the gravity, which was contra-intuitive, – *ya*. This is important, – *ya, ya*.

So on the one side we have the romantic school, which said, "Anschauung", intuition is the only thing how to explain the world. I give an example, – *ya* –: The champion, the philosophical champion of romantic philosophy – *ya, ya*. So we don't speak about the artists which we know and which are very famous – *ya, ya* – all these painters, – *ya*. But these painters had fighters on the side, and the most famous one is Schelling, *ya?* Schelling is even so important that our pop hero of contemporary philosophy, Slavoj Žižek – *no, ya* – another one who is on our loop, – *ya?* Slavoj Žižek took Schelling's Abyss. He is a Slovenian philosopher, he wrote 2 volumes about Schelling's philosophy. And Schelling wrote his famous book 1800, precisely around 1800 "System of Transcendental Idealism" – *no?*

So it was an idealism which is transcendental – *ya*, and he wrote in this book, – *ya* – he said – *ya* – "Only intellect and contemplation and intuition – *ya*, *ya* – can understand the world." On the other side – *ya* – we had Hegel, – *ya, ya*. He wrote in his "Phenomenology of Mind": It is NOT the contemplating's Absolute, it is not the feeling, it is not emotion, it is not intuition – *ya*. Only working with concepts – *ya* – we can gain the reality of the Absolute."

So already around 1800 we have 2 schools, – *ya?* The one is the romantic school which continues up today to Joseph Beuys and all those people, – *ya?* The school of Anschauung. And on the other side we have the school of Hegel and Kant, the school of concepts and algebraic operations and they go back to mathematics. Therefore "mathematical objects" in art are a revolution. (TBC)

Only mathematical formula we accept. Then later came Gauss and then later came Bernhard Riemann.

And now comes the point: Bernhard Riemann said "Okay, when we have just a mathematical formulation of space, going beyond "Anschauung", going beyond visualization, going beyond intuition. Then I can make another mathematical model of the world which is even more dimensional, – *no?* So when we speak today of more dimensional space, of several dimensions, this is a product of this revolution around 1800, – *ya*, that people said: Space goes beyond "Anschauung". So, I don't say that these people are right. But only to give you an introduction of the history of ideas and why these ideas are so important.

You see already around 1800 started the idea that the conceptual space goes beyond visualization, goes beyond "Anschauung". That we have to develop tools, mathematical tools which can describe and sketch a space and experience of space which goes beyond our eyes, – *no?* And therefore suddenly people like Riemann and others could describe – *ya, ya* – n-dimensional space, – *ya* – And their idea of 4th dimension which is so important for Einstein, – *ya?* –, could not have been developed 100 years later without these people, – *no?*

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