

What kind of man was Alexander Grothendieck?

Etienne Klein receives Alain Connes (4.10.2025)

Etienne Klein : You're on France Culture, listening to La conversation scientifique by Etienne Klein. Today, "what kind of man was Alexandre Grothendieck?" Alexandre Grothendieck was this brilliant mathematician, a near-legend, who one day decided to go off on a tangent, so to speak. The son of a German mother and a Ukrainian father, he arrived in France in 1939. During the war, he experienced internment camps.

It was in these circumstances that he discovered the inner refuge that would become his world, even his kingdom: mathematics. He quickly became an incandescent researcher. Then he abruptly left the world of mathematics to become a radical ecologist, before retiring to a remote village in Ariège.

This is how he had 3 or 4 successive lives between his birth on March 28, 1928 in Berlin and his death in 2014 in Saint-Girons. Because of the choice he made to live as a hermit for the last 23 years of his life, Grothendieck embodied in his own way the promotion of evanescence in radical ontology. For this choice suggests that it summarizes and recounts it more than anything else.

He indeed projects his shadow back onto all the previous events of his life as if he had never had any other intention than to one day escape the company of men. But to reason in this way would be unfair, because it would be to forget the man, his lives and his work, which is monumental and remains partly unexplored. To respect the desire for total self-effacement that he made known at the end of his life, we should not pronounce the name of Grothendieck or even evoke his works.

This claim had little effect. His discoveries have had a large and irreversible impact on contemporary mathematics and continue to inspire researchers. And recently, Gallimard published *R'ecoltes et Semailles*, a rich collection of Grothendieck's texts on mathematics and its particular poetry, reflections on ecology, and even spiritual meditations.

But who was this multifaceted man? Does the recent publication of part of his correspondence, written between 1975 and 1989, allow us to better understand his personality? To answer these questions, I have the pleasure, the joy, and the honor of welcoming Alain Connes. Hello.

Alain Connes: Hello.

Etienne Klein: You are a mathematician, you held the chair of analysis and geometry at the Collège de France. You were awarded the Fields Medal in 1982 and, together with Patrick Gauthier-Lafaye, you wrote the preface to a book that has just been published by Odile Jacob entitled *Alexandre Grothendieck, the Hidden Years*. It is a work that contains letters written by Grothendieck and commented on by Christian Escriva.

Today is the science festival and I am delighted to celebrate it with you.

Transcription: Denise Vella-Chemla, assisted by Turboscribe, October 2025.

on the airwaves of France Culture. I had already received you, Alain Connes, you remember, for a book that already spoke about Grothendieck. You had also written, with Patrick Gauthier-Lafaye, a book entitled In the Shadow of Grothendieck and Lacan: a topos on the unconscious in which you brought into resonance the geometric notions invented by Grothendieck and the works Lacan's on the unconscious.

By the way, you noticed, Alain Connes, that your anagram is "Son Lacanien". It's not bad. And I found "Salon Ancien" but it's not as good. "Son Lacanien" that was found by Olivier Garcia.

Alain Connes: There is also "Non Alsacien".

Etienne Klein: There's also "Unchanneled." Maybe that's a bit of it too. I know you have never met Grothendieck.

Alain Connes: No.

Etienne Klein for : But do you remember when you heard about the first time?

Alain Connes: Let's say that in my time I never met Grothendieck and he appeared a little bit like Salvador Dali, that is to say he was followed by a court and I really almost had the obligation to keep myself away from this world, if only to exist mathematically. So in fact my relationship with Grothendieck was made through reading and in particular well on the reading of R'écoltes et Semailles which, long before being published by Gallimard, was available for mathematicians. And reading Harvests and Seeding has completely changed my understanding of Grothendieck. I understood how much I dislike the word brilliant, but to what extent it had a dimension which was far beyond the strictly universe mathematics, and in fact to what extent, he was an extraordinary writer with a control of the French language which far exceeds the average, and at a given moment moreover, at the time of the death of his mother, he had a crisis regarding mathematics, it was in 1957, and he had was tempted to become a writer and really leave the mathematical world, already in 1957.

So in fact I need to clarify a little bit Grothendieck's trajectory in relation to the mathematicians.

Etienne Klein: This courtyard that surrounded him, was that before he disappeared?

Etienne Klein: Of course, that was before he disappeared. And besides, I think that the hidden meaning of Harvests and Sowing is that he reaped what he sowed. That is to say, he accepted to be surrounded by a court which then of course betrayed him as soon as possible. But in Harvests and Sowing, He settles a lot of scores. I think it's in relation to himself, that is to say, he says that he He reaped what he sowed. I interpret it like that.

So I still have to retrace his career a little bit in relation to mathematicians. and I explain a little bit about this radical change that he had. So his career compared to the

mathematicians I am going to read a very short text that he wrote.

He said in relation to 1948, that is to say the moment when, coming from Montpellier, he arrived in the Parisian mathematical world. He said:

“The strange thing is that in this world where I was a newcomer and whose language I barely understood (since he came from a small university) and spoke it even less, I did not feel like a stranger. While I hardly had the opportunity to speak, and for good reason, with one of these merry fellows like Weil, André Weil, or Jean Dieudonné, or with one of these gentlemen with more distinguished looks like Cartan, Leray or Chevalley, I nevertheless felt accepted, I would almost say one of them. I do not remember a single occasion when I was treated with condescension by one of these men, nor an occasion when my thirst for knowledge and later again my joy of discovery was found rejected by arrogance or by disdain. If it had not been so, I would not have become a mathematician, as they say. I would have chosen another profession where I could give my measure without having to face contempt.”

So this is an extremely important text because it shows that he was welcomed at that time, he was barely 20 years old, in 1948 therefore, he was 20 years old, he was welcomed with absolutely extraordinary kindness.

Then he went to Nancy. In Nancy, Schwartz and Dieudonné set him problems in analysis, which he solved very quickly. And there was a turning point in his mathematical career, which was occasioned, I would say, I think, by his second thesis.

That is to say, at the time, when one was doing a thesis in mathematics, he did a thesis on nuclear spaces that he had completely invented and which was magnificent. And there was a second thesis. The tradition of the second thesis was that the subject of the second thesis had to be completely disconnected, different from the subject of the first thesis.

And the subject of Grothendieck's second thesis was sheaf theory. So, you have to know that sheaf theory has a history. And this history is the history of Jean Leray.

Jean Leray was in a prisoner of war camp during the war. The prisoners were giving lectures to each other, etc. And Jean Leray had only one fear: that the Germans would know that his research could be useful, because he was doing research on differential equations. And that, well, indeed, if the Germans had known, it would have been catastrophic.

So, Jean Leray was looking for a subject that was as abstract as possible.

And it was on this occasion that Leray invented the fascicles, which he called carapaces, if I remember correctly. And so, we see a little bit of the irony of things.

Etienne Klein: The worry of being useless.

Alain Connes: The concern of being useless, which made it sheaf theory, which Grothendieck had taken as the subject of his second thesis, and which completely changed his orientation, which led him towards algebraic geometry. And it was sheaf theory, in the hands of Jean-Pierre Serre, which completely revolutionized algebraic geometry, the understanding of things. And

That, that comes from Jean Leray. Grothendieck changed direction at that point. There is a rich correspondence with Jean-Pierre Serre. There, Grothendieck was able to give his full measure.

He had a phenomenal capacity for work. That is to say, he was able to work eight days, sleeping two hours a night, incredibly intensely. Afterwards, he slept for 24 hours. So, he had a capacity for work that was absolutely phenomenal. And he said himself that he didn't consider himself to be particularly gifted. He considered his primary quality such as his working power and the fact that he was able to stay on a subject until it really understand the ins and outs of the subject in question.

He said, for example, "later, I had the opportunity, in this world of mathematicians, to meet many people, both old and young, more or less my age, who, obviously, were much brighter, much more gifted than me."

Etienne Klein : It is said that he had a little trouble counting, for example.

Alain Connes: Yes, that's a bit ridiculous. But, indeed, what characterizes the spirit of Grothendieck, if we think of trying to characterize him, it is because he had a capacity for abstraction phenomenal.

Etienne Klein: But at the same time, Alain Connes always started from concrete problems.

Alain Connes: Yes and no, because there is an anecdote, for example, it is Michel Demazure who said that once he was going down with Grothendieck to have lunch at the IHES cafeteria, and Demazure posed to Grothendieck a problem on a group which was well known to mathematicians, which we call $SL(2, \mathbb{R})$. Well, that won't mean much, but it doesn't matter. So, he asked him a concrete question about $SL(2, \mathbb{Z})$. Grothendieck's answer was: "But the question is badly posed!"

And from this question which was badly posed, one of the SGAs was born, I believe it is SGA3, which is the theory of algebraic groups, seen with the theory of schemes, which had already been terribly well advanced by Chevalley. And in the end, the answer to the question was a more or less trivial. So, we must come to understand his mind, which is an extremely particular mind, which is a mind in which understanding comes first through the way in which one grasps a problem, to situate it properly. And once the problem is well situated, is well defined, etc., the solution must fall like a ripe fruit.

Etienne Klein: But you say that he said there were many mathematicians more brilliant than him.

Alain Connes: At the same time, he was quite brittle.

Etienne Klein: And we learn in this book that the mathematicians who really found thanks to his eyes, among the dead, there are Cauchy, Poincaré, Riemann, and then he speaks of you too, in a...

Alain Connes: I haven't seen it, yes.

Etienne Klein : Didn't you see?! It's in the book!

Alain Connes: Yes, okay. But generally, when I see my name, I go.

Etienne Klein of a : Here, Christian Escriva, who is the recipient of the letter, says that when conversation... Yes, it is a conversation. Grothendieck spoke about you with, he said, a admiration mixed with respect.

Alain Connes: Yes, well, okay. But in any case, I mean, one of the lessons fundamentals of Grothendieck...

Etienne Klein : It was in 1978.

Alain Connes: Yes, one of Grothendieck's fundamental teachings is that it is fundamental in creativity that the ego be put aside. So, I mean, in general, independently of Grothendieck, I have always used this adage, if you like, because I will read you a passage that he has on creation and which goes exactly in this direction.

So what happened was that Grothendieck was able to give his full measure. He gave his full extent in algebraic geometry. And also, on this occasion, he discovered the topos.

I mean, because he describes very well that when he arrived in Paris, there were lots of diagrams that were written on the board and all that. And it's funny because in the first one The work he did on sheaves was to arrive at defining the cohomology of sheaves on any topological space, he already had an example which showed that he was on the trail of topos.

Etienne Klein: Remind us what a topos is, this geometry without points.

Alain Connes: Well, I don't want to talk about it for too long, but I still want to insist on the fact that it was one of Grothendieck's discoveries that he held most dear, along with that of motives, and that this discovery, unlike motives, is a discovery which has a scope that goes far beyond mathematics. I will try to explain why. I think that It's important for the listener to appreciate that.

So, what is the essence? Because we have an example now, we have a psychoanalysis seminar in which we try to convey this notion of topos. But it is clear that we will not succeed. to get it across by trying to turn psychoanalysts into mathematicians. It won't work not.

The only thing we can do is try to explain it with metaphors, with comparisons, in such a way that the idea is explained, and so the scope of the idea is usable.

That's what I'm going to try to do. To do that, I'm going to use a comparison.

And if you like, the classic way, before Grothendieck, of considering a space was the way that consisted of looking at it, and by looking at it, trying to understand its properties. And this way, I would make it analogous to that of a doctor who sees a patient arrive, and who goes to examine him, auscultate him, etc., to try to understand what the problem is. So, Grothendieck's method is extraordinary.

And it required an unusual power of abstraction. Why? Because what does Grothendieck do to try to analyze a space? He doesn't look at space. He puts it aside.

And he's going to do ordinary set theory with parameters in this space. That means we're not going to take... For example, suppose the space simply has two points. Well, we're going to do the theory of two sets. It seems silly, but when we do the theory of two sets, we don't just have true and false. We have true, false, and we have true-false. And so, the logic changes.

So, what we have to understand is that by doing parameter set theory, Grothendieck succeeds in seeing very small differences, very small nuances with ordinary set theory. And it is these very small nuances, which seem imperceptible, which will allow him to understand the properties of this space which would be inaccessible to sight. And I draw a parallel with the replacement of the doctor by a psychoanalyst who will tell the patient, not who will look at him, who will tell the patient to lie down outside the psychoanalyst's view and who will ask him to speak. And who will, in his language, who nevertheless speaks of ordinary things, because when the patient will speak about his life, etc., it does not interest the psychoanalyst.

What interests the psychoanalyst is when he talks about the weather. And in this language, in this way of speaking, he will be able to detect tiny subtleties that will tell him much more about the patient, about what the problem is.

Etienne Klein: If I understand you correctly, "in the manner of Alain Connes", does that mean that the idea of topos allows for nuance in mathematics?

Alain Connes: What this allows is more than nuance, because most mathematicians are a little disturbed by the notion of topos for the following reason: the only spaces with which they are familiar are ordinary topological spaces. Now, what Grothendieck is saying is to replace an ordinary topological space, so here I am going to use rather frightening words, but when we have the mental image of the psychoanalyst, we will understand.

These rather frightening words are, we replace space with the category of bundles of sets on this space, bundles in the sense of Leray. And then, of course, this, this seems like something quite abominable, because we have a space, we can look at it, and instead of looking at it, we are going to look at this category of set which is something terrible, in a certain way.

Space is left behind. Of course. But then, what people don't know, what mathematicians, most of the time, don't realize, is that there are 36 other examples of topos

which are not topological spaces, which are very very simple, and which in fact correspond...

So, I know that there was an episode of The Scientific Conversation in which Grothendieck's speech at CERN was discussed.

Etienne Klein: Yes, with Nicolas Chevassus-Au-Louis.

Alain Connes: Here is Grothendieck's speech at CERN in 1973.

Etienne Klein: 72.

Alain Connes: 72. So, what is absolutely mind-blowing is the following: at the end of this speech, there were questions. And among the questions, there is an extremely revealing question from someone to whom Grothendieck replied that mathematics did not have the tool to be able to say what a door is that is neither open nor closed.

Whereas the theory of topos provides exactly the tool needed with intuitionistic logic to be able, with extremely simple topos, but which are not topological spaces, to say for example, and this, I mean, is a very, very striking example of a topos, to say that we are three steps from the truth, ten steps from the truth, fifteen steps from the truth. Yes, this traces a path towards the truth. For example, in each topos which is what we call a topos which is dual to a small category, we have the paths to the truth and we have, if you like, all sorts of nuances on ordinary logic which make me say that we are helpless in the face of complicated political situations or conflict situations, etc.

We are helpless, why? Because we are limited, in our use of logic, to binary logic. And we are forced to take sides, to be part of one camp or another, etc. Whereas, precisely, the logic that underlies a topos is a logic that allows for infinite nuances and which would allow, if we were capable, to use it.

Etienne Klein: But couldn't we say the same thing about quantum mechanics with the principle of superposition?

Alain Connes: So, be careful, there are two fields that speak to each other and, I mean, in the work that I have done, it is the fact that these two fields speak to each other that has been one of the most significant things. There are two fields that speak to each other. The field of topos, therefore, as I was saying, which are out of the ordinary because they describe spaces that are far from topological spaces.

And quantum mechanics, and in particular noncommutative geometry, which deals with spaces that are quantum in nature. But the marvel is that these two worlds, if you will, the world of topos, what I consider to be the world of who we are, speak with the quantum world and the world from which we are. There are great connections. Great connections, very deep connections that are not at all obvious and which, precisely, require to be explored more and more deeply.

Etienne Klein: So, let's come, if you don't mind, Alain Connes, to this book that you have preface with a psychoanalyst who is Patrick Gauthier-Lafaye. How was this book born and what is it? what you learned from Grothendieck, about his works, perhaps not much, but in any case, on his personality?

Alain Connes: So, what I learned about Grothendieck, if you like, I changed radically : from the normal mathematician's point of view, Grothendieck was brilliant. He worked in mathematics from absolutely brilliant way until the 1970s, the beginning of the 1970s. And after that, most mathematicians will tell you that he has gone mad.

That is to say, he started to... For example, I mean, he would go to Jean-Pierre Serre's conferences, he would sit at the back and he would say "Legion of Honor, Legion of Honor", because he criticized Serre for accepting the Legion of Honor. He refused the medal. No, he didn't did not refuse the medal, but he refused to go and get it in the Soviet Union.

Etienne Klein: Yes, but that was a political question.

Alain Connes: But then, in fact, what we need to understand is the evolution of Grothendieck. I think the first trigger in Grothendieck's evolution was when he went to Saigon in 1967 and that he really received in full face the horror of the use of science to kill people.

He became anti-militarist, really fundamentally. And there, I mean, it wasn't something something superficial. That is to say, in fact, when Grothendieck understood something, there devoted his whole being.

So, that, I think that was a radical change in him. And so, it's funny because Everyone said that Grothendieck left IHES because IHES was partly financed by NATO, etc. That's the normal discourse.

I had the opportunity, for years, to go to lunch with Léon Motchane, the founder of the IHES that he had founded in 1958 for Grothendieck. Well, really. So, the reason why I was going to have lunch at Léon Motchane's was that Léon Motchane thought he had solved a problem mathematical problem called the Souslin problem.

Now, this problem is known to be undecidable. So, I had a very difficult task, which It was that when I said to Léon Motchane "But, it is not possible that your demonstration works because. . .", he said to me "But why do you take this additional axiom?" So, My task, in fact, was each time to find the error in Léon Motchane's demonstration, ...

Etienne Klein: While being a diplomat.

Alain Connes: While being as diplomatic as possible. Except that what happened, therefore, was that I went to their house, he was with his wife Annie Motchane, he received me very very cordially, I went to his office, and after a while, there was a great excitement in

the office because I had found the mistake, and Annie Motchane would knock on the door, she would say "Lunch is served". So, at that time, we would have long discussions at lunch, and I had, of course, used this opportunity to ask Léon Motchane the question: "How come Grothendieck left the IHES Institute?" And then, Léon Motchane had another explanation.

I'll give you Léon Motchane's explanation, I don't know what it's worth. And he said that Grothendieck couldn't stand the fact that Pierre Deligne was more intelligent than him, was better than him. So, that was Léon Motchane's explanation.

So, it was surely, probably, neither of the two explanations. Why? Because in fact, Grothendieck had realized the following thing. He had realized that one could be a very great mathematician and be in a state of total spiritual decay.

So, I think he understood that his total dedication to mathematics did not, in fact, answer fundamental questions that he had.

Etienne Klein: Yes, he says that all his life he struggled against inner disaster, that he always had to fight for the survival of his being and not sink into despair.

Alain Connes: Yes, so, with Patrick Gauthier-Lafaye, we think, well, he's a psychoanalyst, I don't know him well enough, but having at least one terribly traumatic event, the terribly traumatic event, is when he was, we can say, abandoned by his parents, and by his mother because his father had left before.

So when he was abandoned near Hamburg by his mother, after Grothendieck had been shown his room, he was barely 6 years old, he had just turned 6, after Grothendieck had been taken to see his room, when he came back down, his mother had left, without saying goodbye to him.

So, it's obviously an traumatic event, he was with a half-sister anyway, but I mean, he had a childhood, which he describes very well, when he talks about the praise of the mother, which he describes perfectly, as being a very, very happy childhood, when he was less than 6 years old, and then afterwards, he had this terrible trauma, more after everything that happened, of course, after when he returned to France.

against pain, because : But you mean that his research in mathematics was perhaps a palliative Etienne Klein, or a way to fight he also says that one day, he went to the dentist, he refused anesthetics, he set himself a math problem to be well concentrated during the operation.

Alain Connes: No, but that's a technique well known to mathematicians, I mean, I used it too. It's not specific to Grothendieck, no, I don't think so, I think it would be a mistake to believe that, I think that was something, if you like, that he loved math so much, as such, that he had no need to repair a trauma or anything through it. No, I think that what happened is much more complex, that it was a fundamental trauma.

Well, afterward, if you like, he lost his mother, as I said, in 1957, and he already had doubts about continuing to do math. Afterward, in 1970, well, he had this kind of awakening that made him think deeply about the fact, if you like, that doing science could be used very, very badly, that's for sure. And, well, there was a series of unfortunate events that occurred, because his attitude was contradictory with the possibility, if you like, of remaining in the system in a certain way.

He ended up taking refuge in Montpellier, teaching in Montpellier, and that's where Christian Escriva met him. It's a very, very interesting encounter, because we see Grothendieck's true personality beginning to emerge. That is to say, well, Escriva was very surprised to see that such a renowned mathematician, etc., as Grothendieck had, you could say, buried himself, or taken refuge, if you will, in Montpellier.

And for a while, he didn't dare write to her. Then, in August 1975, he wrote her a letter, it was a bit like a message in a bottle, and I'm going to read you Grothendieck's response, because it's still incredible. That's where we realize.

The answer to the first letter. He said to him:

Dear Christian, (he uses the familiar form of address, he says to him), Come anyway, if you like, between now and September 10th. In principle, I'm not moving from home. Especially since I have a broken leg and for a while, I'll still be walking with crutches.

My address is 34700 Villecun. Villecun is a small village 6 kilometers from Lodève. Lodève is about 60 kilometers from Montpellier.

In case you don't have a car, I would like to point out that there is no SNCF train station in Lodève. You have to take the bus from Montpellier to Lodève. From there, you can take a taxi or walk up.

To avoid any problems, let me know the day of your arrival, either by letter or by calling. (He gives his phone number. And then he says:) You can sleep at my place if that suits you.

So he offers to let her sleep at his place, it's great!

Etienne Klein: But he knows he had him as a student?

Alain Connes: No, it doesn't matter. He welcomes him the way he was welcomed by the mathematicians of Paris when he went to Paris. He welcomes him with open arms.

Etienne Klein: Christian Escriva, he wanted to do physics at that time.

Alain Connes: Yes, at that time, Christian Escriva wanted to study physics. But between the two, a very, very long and wonderful dialogue began which, in fact, I mean, it must be said about this book, where, on whatever page you open in this book, you come across a text that forces you to

think. But that's what's great. But it's a correspondence.

Etienne Klein: So, we only have Grothendieck's letters.

Alain Connes: Yes, but we have Escriva's answers because, in addition, Escriva provides the context. He comments. He comments, he gives his answer, etc.

Etienne Klein : There are some very long letters.

Alain Connes: There are some very, very long letters. And so, I am obliged, because I mean, I would be betraying this wonderful text if I didn't read certain parts to you and make certain comments. So, in fact, there is a part, a part that I find completely topical, really, one cannot say otherwise, in this text.

And this is a part that concerns the period in which we live and which I think Grothendieck would have described as "the paroxysm of castrating repression." Let's go. So, I'm reading a letter from Grothendieck, which is the letter of June 29, 1979.

Grothendieck had asked Christian for texts on the origin of sexual repression. So, Christian, I think, had sent him Totem and Taboo, by Freud, of course. And so, it's a reflection that is quite long, but which relates to psychoanalysis and which relates, of course, to the prohibition of incest.

So, I will read you the letter of Grothendieck's reply. He said to him:

Dear Christian, thank you for your letter about "The Castrator," in quotation marks, which I have just read. I have the book Totem and Taboo in German. (It must be said that Grothendieck's mother tongue was German and that he had a perfect command of English, German, and French. French, you realize it when you read it) and I will take it with me just in case.

From the explanations you give in your letter, there seems to be little more than a rationalization of the taboo, internalized with such force in Freud, no doubt, that anything seems good enough to justify the taboo. And it seems to me that you are somewhat in the same situation, confusing the cosmic necessity of leaving the mother, with a small m, for the Mother with a capital M, (that is the cosmic Mother), which, Mother with a capital M, is also found in creative tasks approved by society, and the taboo of incest, which has the opposite effect of freeing you from the mother with a small m. And Freud and the psychoanalysts who followed him know something about this in their daily practice. And anyone who has eyes to see and uses them knows well that what is forbidden is surrounded by a powerful halo of additional attraction.

But a priori aside, looking at reality a posteriori, we see impotence paralyzing everyone's life. Even those who don't go to psychoanalysts.

And we see that creativity is most affected in those who internalize shame the most in their bodies and their impulses, and not the other way around.

It wasn't the ban on sleeping with your mother with a small m that forced you to run the wide world, but the ambiguity of your relationship with your mother, perhaps breaking a momentum from the start, that made it difficult for you to be free of her. And I know very well that if there was strength and momentum in me, it was because in the first years of my life, which we were talking about earlier, my relationship with my parents, mother and father, was free of all ambiguity, that is to say, of all fear. It is true that shame in one's body truly castrates

man and woman, so that, no longer being himself, he becomes docile material in the hands of the leaders. This was clearly the case in the time of the Bible. Yet the leaders themselves are castrated. Everyone apparently loses by finding themselves divided, inauthentic.

And the gratification of the pride of the leader, be it a Stalin or a Mao, is itself derisory.

It is obvious that without castration, the evolution of humanity would have been entirely different. Almost all human activities are activities of escape, replacement, and outlet. There would probably not have been what we call the great civilizations, all of which were built on conquests, oppression, the thirst for gain, power, and honors. Of course, what the said civilizations have brought that is valuable, according to my personal criteria, and the development of a certain systematic and quantitative knowledge of the world by the scientific method, does not lack certain attractions, seems to have been paid for at a truly exorbitant price, in mutilation and suffering for everyone.

Exorbitant is too weak a word. There is no word strong enough. For the moment, the only meaning I can discover for universal castration is this. (Now listen carefully.) It is that the meaning of man's life is not to spend his days happily and creatively in a human world that is welcoming to his person and to the creative impulse received at birth, but that he must lose himself and rediscover himself during a long wandering in the world of castration. The castration of all seems to serve as a framework for individual opening, which is indeed the rediscovery of oneself, the rediscovery of one's lost unity, putting an end to the castration of one's person.

This possible meaning implies a kind of divine will or cosmic intention concerning human destiny. I will return to this later. It seems as if a powerful hand is throwing us, each in turn, naked and innocent, into an indescribable, unimaginable mess. One must be as exhausted as one is not to be astounded by the absurd enormity of the human mess. (I think this is quite topical)...

Etienne Klein: I look at you, reading this text, and I have the impression that it resonates with you.

Etienne Klein : Absolutely. So, I'm not finished. (resuming his reading)

And very quickly, we ourselves become part of the general shit. The world takes care of quickly castrating our innocence and our enthusiasm...

So, I won't continue because then he has a wonderful neologism. He says that we are all "emmerdificot'es".

Etienne Klein: Oh yes, I saw that.

Alain Connes: So, I would like to read another text before making an important point.

Etienne Klein: First, I have a question for you. Do you consider that Grothendieck, for you, it's a kind of kindred spirit? Do you understand it better? I have the impression that you understand better than others.

Alain Connes: No, it would be pretentious to say that. I let myself be invaded. I let myself be invaded, That's all. When I read it, I let myself be invaded.

I'm going to read another passage that is very important. The son of a friend who died of a heart attack this summer asked me to think of his father. Here, I think of his father and I read a passage from Grothendieck on death.

Grothendieck speaks of the Mother with a capital M, therefore the cosmic Mother. He writes "The Mother is (is : is) death". He says the following thing, he says:

Death is the lap of life. In it, everything takes root. From it all springs forth. birth. Death is nothing other than the intense and silent labor of life preparing itself to be born. With an overwhelming force, constantly renewed, this knowledge comes through the act (he is talking about the sexual act). And this knowledge is constantly deepening day by day by all that we observe about the life and death of plants, animals and men, by all that we can learn about the processes of life and dead since the origins of life on Earth. And the death of everything around us is opportunity, rarely seized, for a renewal of our life by looking within ourselves to which this death invites us.

So there's something that completely disturbed me, I would say. It's that, in fact, I had to reread part of this book. I was walking in the forest and I realized something that really troubled. In this text, there is very often talk of the Lap and the fact that death is the return to the Giron. What troubled me was that Grothendieck died in Saint-Girons.

Etienne Klein: Yes, I said it in the introduction. Saint-Girons with an s.

Alain Connes: And he died at the hospital in Saint-Lizier.

Etienne Klein: Ah!

Alain Connes: And he lived in Lasserre. Lasserre, that is to say Jean-Pierre Serre in the feminine.

Etienne Klein : Ah! Oh l'al'a!

Alain Connes: So there, I mean... That's why I read you the text in which he spoke of a cosmic destiny. We understand better. But when we speak of a cosmic destiny, there, I mean, we can't imagine that Grothendieck settled in Lasserre 40 years after having

writes his lines.

Etienne Klein: You were the first to see this kind of correspondence, this "Lacanian sound"...

Alain Connes: Lacanian or Jungian, I would say, because I mean, there really is a cosmic resonance. That is to say, we have the impression that he was in phase... And then, there is another story that I absolutely want to tell on this subject, because I mean, these are still very disturbing things. The other story that was told to me by the bookseller who brought back from Lasserre the... I don't know how many thousands of pages, 60,000 or whatever, of Grothendieck on the problem of Evil. So, this bookseller, Grothendieck, died on November 13, 2014.

In the meantime, there were all sorts of twists and turns because his texts had to be given to the... had to be given, I mean, they had to be accepted within six months, etc., in Grothendieck's will. It wasn't done. So, this bookseller came down to Lasserre a year later, with a break. He put his... So, his texts, first of all, you have to know that when his family arrived at his house, Grothendieck was going to die, but they saw an absolutely incredible mess, there were flowerpots everywhere, there was just a tiny space to make a path among the flowerpots, there were barrels of alcohol. But extremely well arranged in binders, there were his 60,000 pages on the problem of Evil. So, the bookseller came, he loaded these 60,000 very, very well arranged, very, very well classified pages into his station wagon and he went back to Paris.

It was exactly a year later.

During the trip, he stopped to eat, I think, somewhere. He explained to a... lady who was there, that he was bringing back his texts and all that, she kissed him, well, he continued to drive back to Paris. So he had in his trunk these 60,000 pages on the problem of Evil. He turned on the radio, it was November 13, 2015, the day of the Bataclan attack. He told me that he never got over it. So he arrived late in the evening in Paris, he turned on the radio and he learned that it was the evening of the Bataclan. And he told me this, I mean, it's not a story I would have heard from someone else, it's him who told me this story. So now, of course, these texts have been recovered, fortunately, they have been put in the National Library, they will be scanned and given Grothendieck's extraordinary intelligence, his perspicacity, his power of analysis which exceeds all bounds, we can expect that among these texts, there will be nuggets. And so I have another example, anyway, excuse me for talking a lot, but I have another example.

So I have another example, which I still want to talk about, because it's an episode that happened to me. Well, I'm sorry to talk about myself, but it's an episode that's about Grothendieck and well... So, alongside Harvests and Seeds, there's another text by Grothendieck which is The Key to Dreams. And at one point, I was asked at the Collège de France to participate in a back-to-school conference on refugees.

I had accepted, because you know, when you are asked something more than a year later, you always tend to accept, without realizing what you are accepting. So, I had absolutely no idea what I was accepting. I don't know anything about it. So, it so happens that at that time, my mother, who was 98 years old, had escaped an assassination attempt.

following a burglary. She lived alone at home after my father's death. Afterwards, she fractured her femur and was in a rehabilitation center. But things weren't going well at all, and I went to Draguignan in the South of France to take her home, to get her out of this rehabilitation center where they brought her food, but she didn't eat anything, they took her meals away without doing anything, and she spent her time screaming. So, I told myself that the only way to save her was to get her out of this rehabilitation center, to bring her home. So I took her home and thought I must have something to do at night because she kept screaming, and that went on for a while until she started eating again.

So, I had brought with me The Key to Dreams.

And one night, I found in The Key to Dreams an admirable text by Grothendieck that describes the enlightenment of his father, who was an anarchist, who had been imprisoned at the time of the Russian Revolution, who had remained in prison for ten years, who knew that he had to be released after ten years, who had counted the days and after ten years, he was told that he was not going to be released. At that moment, he began a hunger strike, and after three weeks of hunger strike, he had an enlightenment that made him forgive his jailers, etc. This text is moving.

It is written in an absolutely moving way, to the point that when I came home and wanted to read it to Danye, my wife, I couldn't read it because the emotion was so strong. And so, it was thanks to this text that I was able to give a presentation at the Collège de France entitled Grothendieck, creator who took refuge in himself. I was able to read this text in my presentation because I had read it once before. I absolutely would not have been able to read it if it had been otherwise. So, what must be said is that I am certain that in these thousands of pages, well first of all, it will be very, very difficult to decipher because it was written by Grothendieck by hand. It is not typed, like most of his texts. And so, it will be very, very difficult to decipher. But I am sure that there will be marvels.

Etienne Klein: But Alain Connes, it's surprising because there you are talking about a text in which Grothendieck says that he has taken refuge in himself.

Alain Connes: He is locked up.

: It is you who interpret it. But in this book, The Key to Dreams, this is what Etienne Klein says:

The episode in which I left the mathematical community, never to return, in 1970, was experienced first as a painful tearing away before being felt as a liberation, like crossing a door that I had kept closed to me for a very long time and which had suddenly opened onto a new and unsuspected world.

Alain Connes: Absolutely. What we see in this book, in the book The Hidden Years, we finally see what I would say, what I hope is the real Grothendieck, that is to say, a happy Grothendieck. We see him with a sense of humor. We see him full of ideas, etc. We see him as a writer, obviously, but a wonderful writer. And, contrary to what people might have thought, his creativity in mathematics has not died out at all. Because at the beginning of the 80s, there is an episode that I experienced almost in my flesh, if you like, it is that I was in the CNRS commission when Grothendieck was a candidate, I think it was in 1984, exactly. So I was

in the CNRS commission and I defended Grothendieck. And I was flabbergasted at the beginning of the commission. Because I had seen that there was a secret plan from the unions which consisted of ensuring that we would only discuss Grothendieck when he no longer had a position. So there, if you like, I got upset. He didn't get exactly what he wanted but he still got something, well, despite everything. But I absolutely must say a few words about the text he had given for his candidacy to the CNRS.

It's a wonderful text, he made a wonderful discovery and I still have to say a few words about it. Even if it seems a little technical, it doesn't matter. Because it will show you that math never left him. Math was his true mistress, and he never left it, never. They were always present in his head and the discovery he made at that time was that an idea he had had... For very very learned people, if you like, it is an exact sequence between the π_1 étale of a scheme when we look at its points on an algebraic closure of a field, and then there is the π_1 étale without looking at the algebraic closure, then we take the field of rationals and at the end there is the Galois group of \mathbb{Q} . An extremely mysterious thing. And looking at this thing, Grothendieck understood that in fact a child's drawing gave... didn't give the solution, but gave an element of this mystery. It's something fabulous. That is to say, he succeeded, if you like, in making the connection between the most abstract thing possible which, in fact, gave rise to what he invented, which is not non-commutative geometry, but which is called anabelian geometry. It's a bit of the same root. And so there was a link between that and children's drawings. And it was called Sketch of a Program. And the unions were against him. And the reason they were against him was that he had written explicitly, out of honesty, that he could not take on students. So they wanted to remove him.

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Etienne Klein: We are supposed to take on students when we apply for a teaching position.

Alain Connes: No, but it's something incredible. So, I experienced that. And so, what you have to know is that without a doubt, and if you like, what makes the beauty of the book in question, The Hidden Years, compared to Harvests and Sowing, because you still have to make the distinction between the two, is that first of all, it's Grothendieck happy. It's the real Grothendieck. And it's Grothendieck before a major trauma, which I'm going to talk about. And this major trauma caused the writing of Harvests and Sowing, and unfortunately caused the, how can I say, slightly paranoid side, if you like, of Harvests and Sowing.

But you should also know that in the 1980s, Grothendieck came to see Odile Jacob with the text of Harvests and Seeds that he had in a shopping bag. That is to say, you know, like when you go to the market.

Etienne Klein: There were 20,000 pages.

Alain Connes: No, Harvests and Seeds is 2000 pages. So he suggested that to Odile.

¹Mistral-AI's cat explains to the transcriber that the term "anabelian" is related to the Greek word anabole (elevation, rise), evoking the idea of "moving up" local information to global information.

The transcriber thought that an-abelian was the privative "an-" attached to the adjective abelian and literally meant "non-commutative", the term is misleading, if one does not have a mastery of Greek etymology.

Jacob. So, Odile Jacob looked at the text and all that. She asked him to make some corrections, etc. He didn't want to. He didn't want to touch it. He didn't want to touch a word. And at the time, the text was really, how can I say, iconoclastic in the sense that he attacked many mathematicians in this text. And he attacked them, no doubt, for what I'm going to describe as the second trauma he experienced in relation to the trauma of his childhood, a trauma that totally denied his existence.

That is to say, what happened in 84, I think it was April 19, 84 or 83, I don't know. I don't remember. What happened was that Grothendieck, to help one of his students, had gone to a library, had wandered around in a mathematics library and he had stopped in front of a 400-page lecture notes, tell you what he says about it, because I don't want to be, if you like... So ². And this 400-page Lecture Notes, I have to that's what he says.

Etienne Klein : He says it in Harvests and Sowing?

Alain Connes: Yes, he says it in Harvests and Seeds. So that's what Grothendieck says.
So this is what he says. He says:

Between 1963 and 1969, I introduced the notion of motive and developed around this notion a philosophy and a theory that remained partially conjectural. Rightly or wrongly, it does not matter here, I consider the theory of motives as the most profound contribution I made to the mathematics of my time.

The importance and depth of motivic yoga is no longer contested by anyone today, after ten years of almost complete silence on the subject, since my departure from the mathematical scene. (So there, now he is going to talk about the Lecture Notes that he encountered by chance.) In the first and only book published in 1981, devoted essentially to the theory of motives and where this name, introduced by me, appears in the title of the book, the one and only passage that could make the reader suspect that my modest person is linked in any way to some theory that could resemble the one developed at length in this book, is found on page 261.

This passage, two and a half lines long, consists of explaining to the reader that the theory developed there has nothing to do with that of a man named Grothendieck, a theory mentioned there for the first and last time, without any other reference or precision.

So at that moment, Grothendieck tried to react. He did two things.

He wrote to Springer, since it was Springer that was responsible for publishing the book, and I had the opportunity very recently, a week ago, to meet the person who replied to him from Springer. She explained to me that she was new to Springer, that she had absolutely no idea of the ins and outs of this story. So she replied to him with a letter that was probably of no interest, unfortunately. So, first element.

²Link to Lectures Notes 900, 1982.

Etienne Klein: But Grothendieck, he had published this theory of motives?

Alain Connes: No, so precisely, second thing, Grothendieck called Serre, he called Jean-Pierre Serre. So you have to know Jean-Pierre Serre. Jean-Pierre Serre is, how to say, rationality. I like to compare him to Voltaire, I don't know if I'm right. So the fact remains that Jean-Pierre Serre told him: "But you haven't published anything." It's true. It's true that he hadn't published anything. And it's true that, if you like, at the time, everyone knew that This idea of motifs was Grothendieck's. The problem is the following.

There are two problems. The problem is that at the time, everyone knew. Twenty years later, people forgot. Second problem, terrible, is that he must have felt that his person was denied in this observation. That is to say, he had left. And I think that is what caused the writing of Harvests and Sowing. And that is what made it, if you like, Harvests and Sowing is still a very, very aggressive text. And a text that would have been difficult to publish at the time.

Etienne Klein: But does that explain what I said in the introduction, namely that he has wanted his name and work to be erased?

Alain Connes: No, I think that afterwards, if you like, there was probably... So first, What surprised me a lot was that I met, not so long ago, Paolo Ribemboim, whom I knew very well, and who was very close to Grothendieck, and who continued to remain very close to Grothendieck, even in the most recent years. And Paolo Ribemboim told me that in the 2000s, I don't know the exact date, I don't know if it was in the 2000s or in the 90s, Grothendieck used his apartment, Ribemboim had an apartment in Paris, so Grothendieck asked him to use it... And he came incognito, to Paris, again to try to get Harvests and Semailles published. So, it wasn't published his time, but it is to say to what extent, I mean, the image that we have of it is a false image. A plane ticket from 2005 was also found in his papers, which shows that he went to Hamburg, probably to find memories of Blankenese, where he was when he was a child. So, We have a completely false image of Grothendieck. The image that mathematicians have of me given, it was the image of someone who was crazy, who had gone mad. Now, in addition to that, there is a letter from Grothendieck that he wrote in 2010, when people tried to put him under guardianship, and the title of the letter is "Is Grothendieck crazy?"

Etienne Klein Alain : And the answer is "No!". In any case, if we believe you, it's no. Thank you.

Connes. I spoke very little during the broadcast because I feel that you could speak hours, you will have to come back. But I recommend reading this book that you prefaced with Patrick Gauthier-Lafaye, who is called The Hidden Years. Alexandre Grothendieck with Christian Wrote. It is a book that sheds light on personality, not yet fully understood, of this remarkable man.

Alain Connes: Cosmic personality.

Beauchamp. Program : It was The Scientific Conversation by Etienne Klein with the collaboration of Etienne Klein Thierry produced and broadcast by Souad Boukhorssa.