

The Dalí Dimension

English Script

10:00:05:12 Background sound, Salvador Dalí

Dalí emerging from the egg...

10:00:13 Narrator

This is the image that people usually have of Salvador Dalí - a strident, eccentric artist fond of provocation and money.

10:00:27 Narrator

But there's another Dalí behind the mask.

10:00:37 Narrator

A consummate artist who, like the Renaissance masters, aspired to merge art and science.

10:00:57 Narrator

Dalí's work reflects the main scientific theories and discoveries of the 20th Century.

10:01:19 Narrator

Even his signature was inspired by a scientific image.

10:01:24 Salvador Dalí (Archive)

This is a crown of milk - its a liquid crown based on the morphology...

10:01:29 Narrator

The liquid crown is the stroboscopic photography of a drop of milk.

10:01:35 Narrator

The American engineer Harold Edgerton created this image in 1936. Dalí employed it for the first time in 1938 and would never let it go.

10:01:45 Narrator

Science was a lifelong obsession for Dalí.

10:01:49 Salvador Dalí (Archive)

- DALÍ** - Every painter paints the cosmogony of himself.
INTERVIEWER - Of himself. And it's as simple as that...
DALÍ - Raphael paints the cosmogony of Raphael, Raphael is le Renaissance period... Dali paints le atomic age and le Freudian age, nuclear things and psychoanalytic things.

10:02:39 Salvador Dalí

Thinkers and literati can't give me anything. Scientists give me everything, even the immortality of the soul.

10:02:55 Thomas Banchoff

I had the feeling Dali wanted to know what my mindset was. As I looked at the same objects he was looking what kinds of questions I was asking, how was I using it.

10:03:10 Ilya Prigogine

It's obvious that Dalí was influenced by science in many ways.

10:03:19 Thomas Banchoff

We always spoke pretty much as equals.

10:03:26 Jorge Wagensberg

I think that the sound of science, the words and concepts used by scientists and the way they talked... - it was like violin music to him.

10:03:50 Narrator

November 1985. For a few days the music of Science filled the dome of the Dalí Museum in Figueres.

10:03:59 Narrator

The Catalan painter hosted a high-brow scientific meeting at his museum. The event was organized by a young physicist from the University of Barcelona.

10:04:08 Jorge Wagensberg

My first interview with him was a surprise because I hadn't expected a conversation with an artist to begin with questions like "What are your latest discoveries?". or "What are you doing?" It's the kind of question that you would expect from a scientist. I realised straight away that he felt at home with the way scientists spoke.

10:04:35 Narrator

The Figueres Congress dealt with the role of Chance in Nature. Among the speakers, all top-ranking researchers, were several Nobel Prize-winners. Scientists, philosophers and artists made up the audience.

10:04:51 Rolf Tarrach

The atmosphere was remarkable - philosophers, musicians, writers, mingling with scientists. You felt that you could discuss things there that you would have found difficult to talk about in any other setting.

10:05:06 Lluís Racionero

Dali wasn't present. But he was nearby. We knew he was watching everything over a closed-circuit TV. So we felt we were being closely observed.

10:05:28 Narrator

Dalí was 81. His health was too poor to let him take part in the Congress. He followed it on a TV monitor from his bedroom.

10:05:42 Jorge Wagensberg

We paid him a visit about mid-way through the Congress. Dalí had listened to several discussions and was very excited by what he had heard. And the scientists were fascinated by Dalí...

10:05:56 Background sound, Jorge Wagensberg

Professor Lansberg...

10:06:00 Jorge Wagensberg

When greeting him, everyone tried to connect somehow with Dalí's thought

10:06:08 Background sound, Dalí

Where is René Thom?

10:06:19 Ilya Prigogine

He wore a dressing gown but still had an aristocratic air. He was very kind but a little reserved at that meeting.

10:06:38 Narrator

Prigogine took the opportunity to ask a key question.

10:06:41 Background sound, Jorge Wagensberg (Congress footage)

Professor Prigogine has a question. He wants to know if your soft watches were inspired by Einstein.

10:06:54 Jorge Wagensberg

Everyone thought it was more or less the case, but to everyone's surprise, Dalí said "no, not at all it is much more general than that". Of course they were an allegory about time, and not specifically about the General Theory of Relativity.

10:07:17 Narrator

Prigogine was a specialist in the study of Time from a physics standpoint. After the Congress he asked Dalí again about the soft watches.

10:07:27 Ilya Prigogine

I wrote to him saying that I was very interested in the Time aspects of his work and asked him if he had been influenced by Einstein.

10:07:39 Einstein

It follows from the Special Theory of Relativity that mass and energy...

10:07:45 Narrator

Prigogine was on the right track. Einstein and Freud had decisively influenced the young Dalí.

10:07:53 Narrator

In the early 1920s the Catalan artist was already displaying an interest in scientific writings. It became a lifelong passion.

10:08:05 Narrator

Einstein visited Spain in 1923 and gave a series of lectures on the Theory of Relativity.

10:08:14 Narrator

Spanish intellectuals, like those elsewhere, found it difficult to grasp his ideas, which had upset the fundamental concepts of physics since 1905.

10:08:24 Rolf Tarrach

Up until then Space had been thought of as a given, static thing - Newtonian space. It was a preconception and it was deemed to be the same for everyone. Time was thought of in the same way, it was something that flowed regularly and that lay beyond our influence. And then Einstein came along and said "No, this is just not true."

10:08:50 Rolf Tarrach

For example, time passes more slowly on the street than here on the first or second floor, where we are now. And this has been scientifically verified. Therefore, people on the street age more slowly than you and me. Of course, in this case, the difference over a lifetime only amounts to a few millionths of a second, so you can say it doesn't really make any difference. But the discovery that time and space have a dynamic of their own was an extraordinary revolution.

10:09:34 Gavin Parkinson

Dalí was very excited by relativity theory because it seemed to offer to surrealism this notion that the real isn't simply reducible to a unitary temporal flow.

10:09:46 Gavin Parkinson

Dalí's most famous painting, "The Persistence of Memory", has this kind of floppy watches, three watches, in the image --so it suggests that different temporalities within the same frame are being expressed.

10:10:07 Narrator

Surprisingly, Dalí said that his soft watches were not inspired by relativity theory but by the surrealist perception of a Camembert cheese melting in the sun.

The painter insisted on this explanation in his reply letter to Prigogine, who took it as Dalí's reaction to Einstein's coldly mathematical theory.

10:10:30 Ilya Prigogine

With Einstein's theory, time doesn't have a direction - the future is essentially the same as the past. That's why he says that time is an illusion. But the melting cheese has a time direction - the cheese's past is not the same as its future.

Objects are transformed in one direction – all things undergo change, not only in plants, animals, or people, but also inanimate objects. Dalí basically took up the idea once again of a universal time that lies within things. And I totally agree with Dalí in that respect - time is reality itself.

10:11:21 Salvador Dalí

Other worlds obviously exist. These other worlds are to be found here on Earth. And precisely right here under the dome of the Dalí Museum we find a surprising and astonishing surrealist world.

10:11:47 Narrator

The name Salvador Dalí is inextricably linked to Surrealism - one of the most influential art movements of the 20th Century.

10:11:54 Gavin Parkinson

The first world war causes such chaos, such havoc, it's such a massive catastrophe, that there's the feeling that there must be something more than this, there must be some way of transforming the way we think and feel, and also transforming our view of the world through these two great new sciences that were developed by Freud on the one hand and by Einstein on the other.

10:12:19 Dawn Ades

Freud really comes to the fore as an inspirational source for Dalí once he's interested in joining the surrealist movement.

10:12:34 Narrator

Dalí and the surrealists are fascinated by the role played by dreams in Freud's theories.

10:12:41 Salvador Dalí

Myself work constantly in the moment of sleep. Every of my best ideas coming through my dreams et le more Dalinian activity consist in this moment of sleep.

10:13:02 Narrator

With the mysterious force of the unconscious, the surrealists set out to dynamite the very foundations of conventional bourgeois society.

10:13:11 Dawn Ades

They were challenging the value which is placed upon the rational, the pragmatic. If the unconscious, which is full of irrational forces and irrational fears and desires is actually of permanent, you know, continuous daily importance, then we have to understand it.

10:13:39 Dawn Ades

And what Breton says in the First Surrealist Manifesto is that “we as poets have just as much right to do research and do experiments in this field as the scholars and scientists do”. And so, he was setting up surrealism itself as you like almost as a kind of pseudo science, as a kind of arena for experiment.

10:14:08 Narrator

Dalí made a decisive contribution to the history of painting through his pictorial representation of the hidden world of the unconscious, first revealed by Freud.

10:14:20 Dawn Ades

Paintings like “The Great Masturbator” or “The Accommodations of Desire”... These are, even as they are outrageous paintings, they are wonderful but they are extremely explicit about Dalí’s sexual anxieties. And yes, of course, they include symbols of the kind that Freud explains to us in *The Interpretation of Dreams*.

10:14:49 Narrator

Dalí once wrote “Freud is my father”. In 1938, after several attempts to see him in Vienna, Dalí managed to meet Freud in London, where the Viennese doctor had fled to escape the Nazis.

10:15:04 Salvador Dalí

There was a terrible scene there... I showed him my painting, “The Metamorphosis of Narcissus”. He liked it a lot and said: “now I realize that I have not really understood the surrealists - I thought they were just a bunch of drunkards and drug addicts. Now I’ll take them a bit more seriously because this painting...”. And I told him “Forget about the painting, I would like you to read my thesis on critical paranoia”. But he kept turning back to the painting, and I kept insisting that he read my scientific thesis. Finally I banged on the table and said “I want you to read it this very night!”. Freud was taken aback and said to Stephan Zweig “I have never seen such a perfect example of a Spaniard - the man’s a fanatic.” Those were Freud’s very words.

10:15:59 Narrator

The paranoid critical method is Dalí’s main theoretical contribution to surrealism. He employed scientific discourse to explain the workings of his creativity. Paranoid criticism is expressed in his paintings in the form of double images.

10:16:14 Dawn Ades

When he was thinking about paranoia and using that term, he didn't understand it in the way we tend to understand it now, as a kind of a persecution complex. For Dalí, paranoia was a form of, as I say, delirium of interpretation.

10:16:38 Gavin Parkinson

Instead of ignoring his own hallucinations, ignoring his own fantasies, that he experiences day by day, hour by hour, Dalí fastens on to them, he gets hold of them, he wonders about them, he thinks about them. There's a great acceptance of the value of hallucination in Dalí.

10:16:59 Dawn Ades

In other words, he related it to a systematic misreading of objects in the world, the capacity to read into any one configuration something completely different.

10:17:24 Dawn Ades

You have to interpret the painting either with one image or with another one. The association between those images, of course, can be revealing and you know can give you some sort of notion of an unconscious preoccupation.

10:17:42 Gavin Parkinson

I wouldn't want to overemphasize Dalí's interest in psychoanalysis, because when you look at his writings --and it's very important to look at the writings side by side with the paintings because he is a prolific writer-- well, that's when you start to wonder if his work is as motivated, is as driven by psychoanalytic themes, as it has been suggested. It seems to me that always in Dalí's work there's a blending of lots of different discourses if you like, around morphology, and biology, and physics, and psychoanalysis... I wouldn't reduce his imagery simply to a psychoanalytical framework, I would say it's an immense blending of a massive amount of reading.

10:18:26 Narrator

Dalí devoured scientific writings, especially those covering a new discipline that was revolutionizing the nature of physics. While the surrealists explored the unconscious, a new generation of scientists were going beyond tangible reality. Researchers like Schrödinger and Heisenberg studied matter at the atomic level and laid the foundations of quantum mechanics.

10:18:52 Rolf Tarrach

Heisenberg's is famous for his Uncertainty Principle. This states that one can know a particle's position or speed but not both. There are intermediate situations but it is impossible to accurately measure both a particle's speed and position at the same time.

10:19:12 Rolf Tarrach

The scientist's apparatus inevitably affects the observations made. Reality is determined by what the observer decides to observe.

10:19:27 Rolf Tarrach

I think that is what really excited Dalí – “so these scientists are telling me that my observations affect reality itself. I can obtain some information but other information escapes me in the process. Where is that other data?” But Quantum Mechanics tells us that certain information always slips through our fingers no matter how hard we seek it. I imagine that realisation must have greatly inspired Dalí.

10:20:03 Narrator

From a quantum mechanics standpoint, Dalí’s double images perfectly reflect Heisenberg’s Uncertainty Principle: what one sees depends on the observer.

10:20:17 Narrator

In the same way as he had done with Freud, Dalí assimilated a new scientific theory and reworked it visually.

10:20:24 Gavin Parkinson

The amazing thing about Dalí in the 1930s is that he quotes Edwin Schrödinger. Dalí actually quotes one of the most important quantum physicists of the time, I don’t know of any other artist who was aware of Schrödinger’s writings in the 1930s, let alone quoting them, but seems extraordinarily farsighted.

10:20:56 Salvador Dalí

Every of my paintings, everybody laughs, in the moment of look for the first time but Almost after 12 years every scientific people reconnaiss que every of this painting is one real prophecy.

10:21:24 Jorge Wagensberg

I don’t think Dali needed to understand things in the way scientists do - I believe he probably did not fully comprehend their ideas. But he was incredibly intuitive and that is very important, both for scientists and for artists.

10:21:44 Thomas Banchoff

He didn’t pretend to be a mathematician and I don’t pretend to be an artist. It’s certainly clear that in interpreting mathematical forms he was acting in many ways like a mathematician.

10:22:03 Lluís Racionero

Great scientists and great artists want science and art to march hand-in-hand. It’s an age-old dream which dates back to Pythagoras, and the discovery that a musical note has a direct relationship with a number. The number is Science, the sound is Art. So you can see the idea of a fusion between art and science dates back to Pythagoras.

10:22:38 Narrator

1934. Dalí's first exhibition in New York. The painter felt at home in American society, whose boundless optimism for the future was based on faith in scientific and technological progress. Dalí created a Surrealist Pavilion for the 1939 World Fair but in reality he was already parting ways with the movement. The Surrealists accused him of becoming a showman and of trivializing his work. They ended up expelling him.

10:23:10 Narrator

A new stage was beginning in Dalí's career.

10:23:26 Gavin Parkinson

Dali saw this sort of almost miraculous but also horrific event as being absolutely fundamental to the way that human beings thought about their future... so from the late 1940's onwards you see a much greater interest in nuclear physics in his...in Dali's paintings.

10:23:54 Salvador Dalí (Archive)

DALÍ - Le modern atomic age is very gay. Nothing is more gay que le collision and explosion of intra-atomic conflicts of nuclear physics.

INTERVIEWER - You feel that this livens things up enormously?

DALÍ - For me is le more happy thing is look this terrific conflicts about electrons and pi mesons and atoms... Everything jumping and rumping in a completely extraordinary eurythmic feeling.

10:24:30 Narrator

Nuclear physics fascinated Dalí because it opened up a mysterious world, a new dimension of reality and matter. In his paintings, all kinds of objects disintegrate into particles that float in space.

10:24:46 Rolf Tarrach

The galaxies, seen from a distance, are small specks floating in the vast emptiness of space. But the same is true of the micro-cosmos. In the micro-cosmos, the atoms that make up matter are sometimes close together and sometimes far apart - for example, in a gas.

When we look closer, we discover that atoms mainly consist of empty space. The electrons orbit a nucleus, which only makes up a hundred thousandth of the atom. Once again, we find tiny fragments of matter floating in a vast vacuum. He realised that everything was made up of tiny pieces of energy and matter floating in space and I think that is what he was trying to reflect in these pictures.

10:25:57 Salvador Dalí (Archive)

INTERVIEWER - All your wonderful jokes that we know about, taxicabs with the rain inside and so on, you're gonna go on with these jokes?

DALÍ - This correspond of first period of my life, le moment of myself is very big interest in psychoanalysis, come in London for meet le doctor Freud. Mais now my interest is only about le tremendous progress of nuclear recherche and nuclear physics.

INTERVIEWER - And so, those are a dead representative phase in your career, those jokes we all knew about, and now you move on and all your life will be to the rythm of atomic explosions?

DALÍ - Exactly, one new kind of atomic and nuclear mysticism.

INTERVIEWER - Thank you very much. That's a fascinating phrase: nuclear mysticism...

10:26:59 Narrator

During the 1950s, Dalí continued depicting the atomic equilibrium and fragmentation of matter but his paintings increasingly incorporated elements drawn from religion.

10:27:10 Gavin Parkinson

Within science, within Dalí's own thinking, there is a fascination with the unseen world, you might say. It seems be an issue to do with what lies beyond, what lies beneath, what is unseen, what we can not grasp, what is intangible. All of these issues seem to take in a certain notion of religiosity.

10:27:33 Salvador Dalí

I believe in God but I have no faith. Mathematics and Science tell me that God must exist but I don't believe it.

10:27:49 Tim Phillips

He was a Catholic who never went to Mass. He took his inspiration from Thomas Aquinas, and from Augustine...

10:28:02 Narrator

Tim Philips, the son of an American millionaire was an aspiring young painter in the mid-1950s. Dalí invited him to Port Lligat as an assistant.

10:28:10 Tim Phillips

I was a pupil very much like the old masters had apprentices. And sometimes I would make drawings, and other times I would actually paint on minor parts of canvases. It was a wonderful experience to paint on a canvas of such great master.

10:28:29 Salvador Dalí (Archive)

INTERVIEWER - Mr. Dalí, who apart from yourself would you regard as a good portrait painter today?

DALÍ - Myself believe it no exist one in modern times.

INTERVIEWER - Nobody at all?

DALÍ - Picasso is the only possible create extraordinary good portraits mais no like this kind of activity...

10:28:50 Lluís Racionero

Dali used to say that he was painting's saviour. Salvador Dalí - the saviour of painting. He wanted to continue the great tradition of European painting. And clearly, the Italian Renaissance was a key moment in European painting.

10:29:09 Narrator

Like the Old Masters, Dalí applied science to artistic composition.

10:29:19 Narrator

The Rumanian mathematician and aristocrat, Matila Ghyka, advised him on the use of the Golden Mean, a harmonious proportion known to the Ancient Greeks which is commonly found in Nature.

10:29:39 Narrator

Ghyka's collaboration played a decisive role in some of the most important works of that period.

10:29:45 Tim Phillips

He actually thought that Ghyka had solved the problem of geometrical composition. For instance here is a... this is a transcription of Matila Ghyka's Golden section composition diagram that Dali used all the time.

Dalí swore by Ghyka and he used the diagram on practically everything.

10:30:24 Dawn Ades

Some of Dalí most powerful images are, at first sight, religious images. But I think that they are actually also closely related to his continuing interest in physics. And I think this is something we have to understand in terms of the ambition both of physics and of religion to explain the world. Both are attempts to make sense of what remains a great mystery.

10:30:55 Tim Phillips

For Dalí, there was... first at all, there was a metaphysics that came from God. Then this metaphysics diversified into science and art, they bifurcated.

10:31:13 Salvador Dalí

The specialization of modern science is a tragedy. Physicists know nothing about painting, painters know nothing of physics, biologists little of physics, and so on. Everything is too specialized.

10:31:35 Tim Phillips

He thought that the last great expositor of art and metaphysics was Leonardo da Vinci. And he thought that by an intense paranoid delirious focussed effort he could bring them together again. And he did!

10:32:04 Thomas Banchoff

Some of the things that show up are very familiar to mathematicians who are geometers or even other part of mathematics. When you see an image like that, it's clear that Dali is looking at it in a different way from the mathematician but it's at the same time a new view, a new idea, and can often make the mathematician go back and take a look at his or her work or favourite images and look at them in a new way.

10:32:35 Narrator

Thomas Banchoff is a specialist in the visual representation of objects of four or more dimensions and one of the pioneers in the field of computer-generated images. In 1975, his research was featured by the Washington Post. The article was illustrated with one of Dalí's works. A few days later, Banchoff got a call from New York.

10:32:57 Thomas Banchoff

And I called up and a woman answered and said: "Oh yes, Salvador Dali is in New York City, señor Dali would like to meet you". So I said to my colleague "what do you think?" and he said "Well it's either a hoax or a lawsuit, but the worst we can get out of it is a good story."

10:33:19 Thomas Banchoff

When my colleague Charles Strauss and I got on the train to go to New York, I remember we talked about what we might expect, and we were really not sure what it would be like. We weren't sure whether we'd see Dali alone, we haven't been given any real warning by the person who invited us to come down.

10:33:44 Thomas Banchoff

Dali was more or less holding court at the Saint Regis hotel cocktail lounge. Various people would come in to see him but we were the featured people at the time, the ambassadors from mathematics land. He was asking us questions immediately about some of the mechanical aspects of achieving the effects that he was looking for. At a certain stage, we began talking about the central object from his painting that had been featured on the cover of the Washington Post article, and it really was an unfolded polyhedral object. The object I have here is quite old. Almost as old as my first visit with Dalí, because I made it shortly after my visit. The object itself is an unfolded hypercube and I was able to show him this object which we had designed. He was quite taken with it, he liked to play with it, moving it back and forth and asking questions about its construction.

10:34:53 Narrator

In 1955, twenty years before his meeting with Banchoff, Dalí had already painted an unfolded hypercube.

10:35:04 Narrator

The hypercube is a 4-dimensional geometric object. But we live in a 3-dimensional world and we cannot imagine these kinds of objects. However, we can understand them through mathematical approximations. In the same way as four segments of a line can be folded to make a square, six squares can be folded to make a cube. To make a four-dimensional cube, a hypercube, we would have to fold eight 3-dimensional cubes.

10:35:36 Narrator

Both the Christ figure and the hypercube are tangible representations of a higher dimension. Dalí had achieved his dream of merging Art, Science and Religion.

10:35:47 Tim Phillips

The idea of Corpus Hiperubicus was to enlarge on the idea of Saint John of the Cross. Saint John of the Cross saw the crucifixion from the father's aspect. Now, Dalí wanted to project the idea of the sacrifice of Christ into the fourth dimension. In other words, to make it eternal.

10:36:14 Thomas Banchoff

The idea of unfolding the fourth dimensional cube into three dimensional space and seeing that as a representation of the crucifixion was Dali's genius. He saw it as an unfolding of the transcendental object into our ordinary world.

10:36:40 Dawn Ades

I think Dali was interested in science for several reasons. I think he was interested in it as, you know, a highly intelligent, cultivated man who wanted to have the answers to certain aspects of our being in the world. I think he was also interested in the way in which science is also to do with the imagination, I mean, what are these great scientific theories if not wonderfully imaginative ways of describing the unknown.

10:37:15 Jorge Wagensberg

Landscape artists need to see natural light – that’s why they go for walks in the countryside. But I firmly believe that Dalí’s remarkable creativity was nurtured by scientific knowledge.

10:37:42 Lluís Racionero

He loved reading about scientific matters. And he certainly read a lot. I once took him a copy of Darcy Thompson’s book “On Growth and Form” and he said “I’ve already got it”.

10:38:02 Lluís Racionero

He had all of these books and had even spoken with their authors. He always wanted to keep abreast of scientific discoveries.

10:38:17 Narrator

April 1953. A history-making article written by two young researchers is published in “Nature”. Watson and Crick will earn the Nobel Prize for the discovery of the structure of DNA. The double helix is published for the first time.

10:38:34 Rolf Tarrach

DNA contains all the information our cells need to produce to produce proteins, which in turn allow the bio-chemical processes that constitute life itself. What they guessed is that this genetic code was the same for all living things - plants, animals, bacteria, fungi, everything... and that all life is basically the same. It was a major breakthrough which turned Biology into a hard science.

10:39:19 Salvador Dalí (archive)

REPORTER: Salvador Dalí, a man like his paintings, most unusual, very interesting

DALÍ: The only legitimate structure today is the molecular structure of deoxyribonucleic acid!

10:39:39 Jorge Wagensberg

He was very excited about DNA. He not only grasped the idea but also realised how important it was. He pushed the message home: “Ladies and Gentleman, this scientific discovery is immensely important”.

10:39:53 Salvador Dalí

I believe that all living molecules, from the lowest up, is genetically transmitted by Watson and Crick’s famous staircase or spiral - deoxyribonucleic acid.

10:40:19 Rolf Tarrach

I think Dali's passion for DNA had something to do with the fact that Watson and Crick were very good at selling their ideas. If we had to name the ten most important scientists of the 20th Century, they would be among them. But Watson and Crick were also excellent communicators. They immediately wrote books - "The Double Helix" was not only fascinating but also a good read. There was an element of public relations about the whole thing - something that scientists at the time did not engage in. But Watson and Crick were very good at it.

10:41:00 James D. Watson

I met Salvador Dalí in 1965.

I had written a few chapters of my book "The Double Helix" and I had seen Dalí's painting in Boston, Galagalacticidanucleicacid

A bank in Boston bought the painting and it was in the newspapers that they bought the painting and I went down and saw it. So I realized he had an interest in DNA and I thought he could illustrate my book. So I was talking just jokingly with friends who lived in Sheridan Square in the village about Dali and they said "He lives in the Saint Regis Hotel". So we went to the hotel and I sent him a letter, a short note. It was something like "the second brightest man in the world wishes to meet the brightest". And he was down in ten minutes. He came down from his room and he invited me to have lunch with him about a week later at the Saint Regis hotel.

10:42:32 Narrator

The Saint Regis was Dalí's headquarters in New York.

10:42:37 Thomas Banchoff

The bar itself was set up as a stage for Dalí. People would come up to him and he would speak to them in French or Spanish or Catalan, so it was really difficult to understand but people didn't care, the effect was what was important. But when he was really serious he talked to you in his room. He had a specific question to ask, he knew the background, he would ask the questions in a way that was quite understandable. If you were ever confused at all he would repeat and he would ask you to repeat if you had said something he didn't get the first time. So the emphasis was on communication, whereas the emphasis for a lot of people who visited him it was showmanship.

10:43:16 James D. Watson

Dalí then had a very mixed reputation. He was an intelligent man, you know. But, you know, I mean his comment "the double helix proves the existence of God"... He took it one way, to me it was just the opposite: "the double helix... no need for God".

10:43:38 Narrator

Dalí didn't illustrate Watson's book in the end. However, his fascination with DNA continued throughout the 1960s and 70s.

His paintings during that period include many images that frequently appeared in the scientific journals of the time.

10:43:58 Salvador Dalí (Archive)

When I spoke about this marvellous deoxyribonucleic acid thirty years ago, people simply had no idea what it meant. Now you can read all about DNA in even the most mundane newspaper pages. And cancer, which people used to curse, will now probably be the key to saving our lives and will help us us attain immortality.

10:44:29 Salvador Dalí

INT. Tell me this: what do you think will happen to you when you die?

DALÍ Myself no believe in my death

INT You will not die?

DALÍ No, no believe in general in le death but in le death of Dalí absolutely not, not.Si believe in my death becoming very unfraid, almost impossible.

INT You fear death?

DALÍ Yes.

INT Death is beatiful but you fear death?

DALÍ Exactly, because Dalí is contradictory and paradoxical in anything.

10:45:00 Narrator

Not even Dalí could avoid the laws of Biology.

Gala died in 1982. Dalí fell ill. He left his home in Port Lligat and set up in Púbol, where Gala had spent the last years of her life. His friend Tom Banchoff paid him a visit there.

10:45:18 Thomas Banchoff

In May of 1983 we came here to the castle in Púbol to show our films and new objects to Dali. The nurses brought him and made him comfortable in a chair, right here. And after he was ready we showed our first film: "The Veronese Surface".

10:45:44 Thomas Banchoff

Dalí was familiar with this images and aware of the fact that they looked very different from very different points of view. As the object rotates in 4-dimensional space we see a number of situations that Dalí had very much appreciated. He would say "that is marvellous" when he would see something that approached a point of high visual ambiguity, which then resolved. Sometimes the object in the middle has 3 cusps. This is very important because Dalí recognized that the 3 cusps showed that we were near an umbilical catastrophe that was studied by René Thom.

10:46:27 Narrator

René Thom was one of Dalí's long-standing friends. This French mathematician, winner of the Fields Medal, the equivalent of the Nobel Prize, developed a whole new branch of mathematics - Catastrophe Theory.

The curves expressing Thom's equations appear in Dalí's last paintings.

10:46:54 Narrator

Thom was one of the speakers at the Figueres Congress. The high point of the event came when he and Ilya Prigogine hotly debated their opposing views of the universe.

10:47:05 Jorge Wagensberg

It was a critical point - Prigogine and Thom had exchanged shots in writing before but had never met before.

10:47:17 Debate René Thom – Ilya Prigogine (Figueres Congress Archive)

THOM So I am right if I say that there is no logical connection at all between sensitive dependence on initial conditions and time reversibility or irreversibility?

PRIGOGINE No, you're not right!

THOM I'm not right? Explain why!

PRIGOGINE As I just have mentioned...

10:47:38 Rolf Tarrach

They went for each other right from the beginning. Thom obviously knew more mathematics than Prigogine, but then Prigogine used mathematics a lot too. Thom argued that Prigogine was using maths in a clumsy, trivial way.

10:47:55 Debate René Thom – Ilya Prigogine (Figueres Congress Archive)

THOM - You should very carefully distinguish between what belongs to mathematical theory and what belongs to real systems. Mathematics has nothing to say to reality.

PRIGOGINE - That's your point of view, it's not mine.

10:48:11 Rolf Tarrach

In any case, both Thom and Prigogine knew where they were. That's why they acted differently from the way they would have if they had been in a more serious, scientific setting. I think they put on a bit of a show and were a bit more provocative probably because they knew Dalí was watching them.

10:48:38 Jorge Wagensberg

It was the high point of the event. He turned round when I entered the room. He was very excited and said “now they’re doing battle!” He was enjoying himself because it was like seeing two trains crashing head on.

10:48:54 Lluís Racionero

What I do remember is that in the end Dalí told them not to quarrel. Anyway, he called them to his office after the debate, told them not to quarrel and to make up. That’s what he did - he told them to make up.

10:49:14 Narrator

The 3-day Congress gave Dalí renewed energy. The artist once again found the strength to make the world move round him. He summoned the two scientists to his room to give them a message.

10:49:28 Ilya Prigogine

Somebody came up to us - I think it was his secretary - and asked us to go up and see Dalí. You could tell that he had been watching the debate. He more or less said “I can see you don’t agree but I beg you to bury the hatchet, in Schrödinger’s name”. I did not understand why he invoked Schrödinger.

10:49:57 Gavin Parkinson

Schrödinger was a very important figure in the development of quantum physics during the mid 1920s, and on the opposite wing, if you want, of quantum physics to Heisenberg.

Heisenberg believed that it is impossible to recreate any kind of pictorial expression of reality on a deepest subatomic elemental level. Heisenberg refuse to accept that. Schrödinger, on the other hand, thought that it would be possible to develop some kind of pictorial idea of how reality was behaving, maybe that’s the answer to that question, that as an artist, Dalí felt that Schrödinger had some kind, ...there was something in Schrödinger writings that he as an artist could respond to.

10:51:11 Jorge Wagensberg (Figueres Congress Archive)

I’ve been told that Salvador Dalí has recorded a farewell for all of us.

10:51:18 Salvador Dalí

Dear friends, thank you for according me this great honour.

10:51:35 Caption

Salvador Dalí died on the 23rd of January 1989 just 3 years after the Congress.

On his bedside table, he had books by Stephen Hawking, Matila Ghyka and Erwin Schrödinger.

END