

Artistic Science and Scientific Art.
Forming a Harmonious Balance Between
Subjective and Objective
In Relation to James Turrell's installation -
Within Without,
Canberra Australia

Lecture given by
Adriana Koulias
19th February 2012
National Gallery of Australia, Canberra

Artistic Science and Scientific Art

This lecture will try to answer these two questions in relation to James Turrell's installation - Within Without:

How can we make our Art more scientific?

How can we make our Science more Artistic?

I come from a family of Artists. I was an Artist myself for many years, a musician and am now an author so I understand how Art is an expression of the world as it is seen and experienced through life of feelings, the life of the soul.

A subjective view of the world.

I was also a Nurse for many years and have studied biology, chemistry physics and physiology. So I also understand how ordinary Science tries to bypass the subjective life of feelings, in order to explain the physical world of nature through thinking and reason.

What many would call an objective view of the world.

For a long time the artist and the scientist in me have pondered how Art can become a more thoughtful, more conscious and truthful representation of the world and how Science can explain the truth in a beautiful and moral way. In other words I have pondered how Art can become an objective acknowledgment of what Science in its truest, spiritual aspect, can reveal to us.

Years ago I tried to achieve this by working for an entire year with Rudolf Steiner's Colour lectures, while also, at the same time, working with his book Knowledge of Higher Worlds.

At the time I was a successful artist/musician and I gave up both to find a different way of expressing what had been revealed to me through my scientific work. I began to write books that could incorporate what I had discovered and about the same time began to give lectures, but only recently have I felt that I could bring twenty four years of living with the above two questions into a workshop format. So I thank you for the opportunity to be here today!

First of all, let's begin by asking a question: what does making Art more scientific really mean and what would it look like?

Science prides itself on objectivity and on its findings being based on empirical laws. Objectivity disregards personal sentiments or opinions and leans only on what can be seen and experienced with the senses and calculated through thought, through being outside oneself - objective. Empirical data is based on experience or observation; data that is capable of being verified or proven by observation or experimentation - in other words, empirical laws.

If I can see it and you can see it, in exactly the same way, time and time again, regardless of sentiments or opinions, it is objective. And if it can be measured and verified and proven through experimentation it is empirical.

If one said that all Art had to become objective by disregarding the personal element, and moreover, that every drawing, painting, sculpture had to be verified empirically through observation and experimentation, modern artists would be horrified because art is still felt to be something

more than just observation and experimentation. Certainly these form a part of every artistic endeavor, but even artists who try to create an exact representation of what they can see and experience with the senses know that what they are expressing is seen through the lens of their souls. Moreover, in contemporary art, many artists set out not merely to express what they see, but what their mind 'imagines' they see, such as the relationship between things perceived. Rudolf Steiner called this artistic imaginative faculty, Phantasy.

One can say that every scientist strives to understand through thought and explain the world in the same way, while artists strive to perceive and express the world differently.

The two seem diametrically opposed.

But I would say to you that this has not always been so.

Art and Science were once a unity.

Art has only been a personal, subjective experience since about the time of Giotto. Before that Art was far less personal. The icon painters never signed their pictures and their pictures relied far less on the 'personality' of the artist and far more on their experience of a universal archetypal individuality. It was a way of acknowledging the spirit.

In the past Science was not as amoral as it is today. It was the religious pursuit of both alchemist and priest - sometimes in one and the same person. Before the Renaissance the separating out of spirit substance from matter was the alchemist's task, while the priest's task was to encourage the union of spirit and matter in the form of Transubstantiation. Both led to revelation. Chemistry, Biology, Physics, Geometry,

have only become objective and amoral since about the same time that art became more subjective and personal.

In the times before the Renaissance, when an artist depicted the astral body as an aura around the head of a saint, for instance, both painter and the observer of the painting acknowledged the truth, the empirical truth of it, because they could either see it, or they were told it existed by those whom they respected, the priests and alchemists who had experienced a Revelation of the spirit.

Why is this not so today?

The more refined we have become in our abilities to see represent and explain the natural world the less capable we have become, in our abilities to see explain and represent the spiritual in the world. We have lost touch with the spiritual within ourselves and for this reason we can't see it outside of ourselves (Revelation) and we can't therefore, express it through art truthfully (Acknowledgement).

How is it so?

Compare a cave painting of primitive peoples with Egyptian hieroglyphs and say a painting by Raphael, his Sistine Madonna for instance. We notice a gradual evolution of consciousness. As our perceptions of the world have become fine-tuned and thoughts have become clear-cut we have gradually lost the ability to see the Revelation of the non-perceptible, the spiritual world. This gradual increase in clarity has resulted in our estrangement from the gods and since we did not have the right organs for perceiving what before this time could have been perceived only through grace we have become spiritually blind. When the goddess of grace finally pulled away from humanity human beings were left with the goddess of nature.

This condition was a necessary one. We had to learn through our own efforts, to create new organs for higher spiritual perception.

I would suggest to you that we are living at a time when these organs are already there and all we need to do is to unite the faculty that makes us both Artists - Perceptions, and Scientists - thought, in order to become conscious of them. Many of us are already clairvoyant but have not realized it yet and because of it Art and Science have, in a sense, come to a standstill. After all, how many times can we draw a bowl of fruit and find something different in it to portray? How long can we go on explaining the world by dissecting surfaces? In the end we have to admit to ourselves that we are standing upon a threshold - a limit to our knowledge. But it is a limit that we have imposed upon ourselves. And yet we are always living beyond these limits, all we need to do is learn to see and think differently.

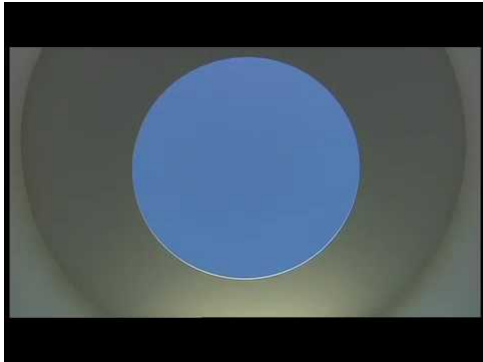
Sounds hard? It isn't so hard at all.

Today we will explore how we are, in our times, always crossing the threshold that divides the physical and spiritual worlds, and we will also explore how James Turrell was trying in his own way to understand this.

We begin with a Blue dot.



I have used this blue dot many times before, and we will see that it is no coincidence that James Turrell's installation here in Canberra is a beehive dome structure with a circular aperture through which one is able to observe the blue sky as a disc.



Let us take the blue dot and look at it, concentrate on it, but not with our eyes focused. Let us look at it rather, with a soft focus, allowing our eyes to see the periphery. Then let us transfer our gaze to the white paper next to it.

What do we see?

What do we think we are seeing?

We are often in the habit of looking at the world as if we were just passive observers but the fact is we are always actively entering into the world and recreating it inside ourselves with every sense perception. We are always creating the afterimage/complement (colour, form etc) of everything we see, but science doesn't understand what this is.

Look at this dot again and now close your eyes. Take note of what colour you see inside you. Take note of where it is in your

inner vision. You are creating this in that part of your soul called the Etheric body. This image of what you see - lives not on the paper now but in your soul, it has been imprinted.

Why is it that we all see the same thing? Because it is a true experience. It is objective so one cannot call it subjective. Whether we look outside of us or inside of us we all see the same thing. We always see a complimentary colour/afterimage. This is an objective observation that we can verify empirically through observation and experimentation as we have done.

But what is this after image/complementary colour?

Rudolf Steiner taught the idea that perception always comes before thought. We see the world around us, then we internalise what we see. We do this by feeling something about what we see (if we don't connect what we see with our feelings we rarely remember it) and then we make a memory picture of it so that we can later reflect on what we have seen and felt and compare it with other things we will see later - this is thinking. For instance, visually we see the rose through the agency of light and darkness. Light falls on the darkness in which lives the rose and we see its form/shape, line and colour as an expression of the interaction of light and darkness. Actually we are really reaching out and touching the rose with our souls, and we imprint the after image of what we see on our etheric bodies, as we have seen with the blue dot. We are just not conscious of the process because straight away we create an exact replica of the rose in our memories. We don't even notice the process it is so quick.

Because of this process we can call up what we've seen again and again, but we also note that what is imprinted on our memories has lost some of its vigor - the rose is never as red or as beautiful in our memories as it is in real life. Why is that?

Because our ordinary memories are really made up of dead pictures. They are like the reflection of ourselves that we see in a mirror. They have no 'life'.

Take a look at the Blue dot again and allow the after image to fade away inside you, now try to remember the afterimage. We soon realize that it is very hard to recreate in memory what we see spiritually - unlike what we see physically. This is because what we see spiritually is a living thing. It needs to be experienced anew every time. The Blue Dot allows us to see what we generally don't notice, the conscious 'creation' of thought. We take notice of the origins of thought. Perceiving the afterimage, is catching the moment when an outer visual colour/form enters into us and is met by that part of us that would complete it. That is, that part of us that would show us what really lives behind the object/colour/form. It is like catching the moment before what we see becomes a thought.

Rudolf Steiner says that this colour and form we see is an imaginative soul manifestation of the spirit that lives behind all visible things and that now it has slipped inside us to have an independent life there. We can liken this to the fact that the colour of our skin and the form of our bodies that is seen by others outwardly is only a soul expression of the spirit living inside us.

Everything we see lives in us and dies away in our consciousness when we make it a phantom, that is, a thought. An ordinary brain-bound thought is a dead reflection, a corpse of the living spirit thought/being behind all things. These living thoughts are far more vivid than our ordinary thoughts, far more vibrant than a memory.

James Turrell has stated in interviews that he has always been interested in light - particularly light seen with the eyes

closed. When we enter his installation, we approach it from the outside; it is covered in grass and surrounded by water representing the Etheric world. As we enter this installation we also have a feeling that we are entering into the womb of the eye, from which we are looking outwards to see the blue disc of the sky, the outer etheric. In this beehive structure (which in its form is also related to the etheric) we can observe the very act of the after image creation in the etheric eye when we observes the colours inside the chamber change at dawn and sunset.



So let us take a closer look at the mechanics of the after image creation.

We know that all our perceptions of the world are acquired through our senses. For this to happen we need a nervous system that connects our sense organs by way of nerves to our spinal cord and brain. What physical Science doesn't take into account is what Rudolf Steiner calls the Astral body. The nervous system - that is, all our organs of sense perception,

brain and spinal cord etc. are according to him, merely physical manifestations of a spiritual body he calls, the Astral body. This is the inward soul aspect that allows us to experience the difference between our inner, independent selves and the outer world.

What we perceive through our senses always enters our soul at every moment, in order to become a feeling, then a thought, which may or may not lead to an action. Moreover, in the physical sense we don't only have nerves and senses and a brain but also inner organs, our lungs heart and liver, blood etc., which, Rudolf Steiner tells us, are the physical manifestations of another spiritual body he calls the Ether body or the body of formative forces. The Ether body or the Etheric body is essentially a body of currents that form a spiritual scaffold responsible for nourishing and enlivening the physical body. Generally speaking, when the etheric body leaves the physical body, the physical body loses its form and becomes a corpse. The Chinese call the etheric currents that move through etheric organs, Chi, the Indians call it Prana. It is the spiritual body that animates and supplies the physical body with warmth and life and it is also connected with our memory and our more subtle feelings of warmth and cold.

So, let's look at it again. What we perceive enters our soul and if we are to think about what we've seen it must be imprinted in us, in our memory so that it can be reflected back to our intellect by our physical brain. That is why thought is sometimes called 'reflection'.

When we try to remember the blue dot through the faculty of the brain-bound intellect we always remember it as blue. This memory picture is the phantom, not the reality; it is just a mirror reflection of the outer blue dot. The truth, the reality, is the after image. The after image is the soul expression of

the spirit behind the colour of the blue dot, and we are imprinting these soul expressions of the spirit onto our etheric bodies through the Sentient Soul of feelings all the time but we don't realize it. Why don't we see it? Because we use binocular vision - vision necessary for seeing the physical world of three dimensions.

We are always therefore crossing the threshold unconsciously because we are using binocular vision.

When we don't use binocular vision and soften our gaze we begin to enter into a fourth dimension, which is really two-dimensional. Rudolf Steiner calls the etheric world a world of colour dimension.

'But the fourth dimension can exist only through annihilation of the third (physical dimension - Adriana), somewhat as debts annihilate wealth. For we do not, on leaving three-dimensional space, enter a four-dimensional space; or, better said, we enter a four-dimensional space which is two-dimensional, because the fourth dimension annihilates the third; only two remain as reality. If we rise from matter's three dimensions to the etheric element, we find everything oriented two-dimensionally...for in the etheric it is not the third dimension which changes, but color.' Rudolf Steiner Arts and Their Mission.

Seeing the after image is an experience of pure thinking in the present moment in time. It is observing in the fourth dimension, which bypasses the physical brain necessary only for the third dimension.

When we catch the experience as we have done today, with this exercise, we are perceiving how our etheric body pours out

of us to meet the etheric world - it Be-holds it and the etheric world makes an impression on our etheric body.

The interesting thing about this is, that when we become conscious of this perception, it is pretty much the same for all of us. It is objective.

This consciousness of the etheric world Rudolf Steiner calls this Imagination.

One could say that through the blue dot exercise we are experiencing an imagination, an imaginative experience of the realm in which pure thought is created - the etheric world.

Now let us take another exercise.

Look at magenta and green/blue.

Blue is the colour of the sky - why is it blue? Because this is the colour of the ether seen with binocular vision, with our outer eyes. Our binocular vision doesn't allow the elemental world, the etheric world to pass through into our vision. It is held back and what passes through is the colour blue.

Magenta/Peach Blossom is the colour we see mostly inside us; it is what makes us human - why? Because this is what we can perceive of the ether body with inner eyes through the fact that we have red blood circulating in us.

When we stop seeing the blue of the sky outwardly with binocular vision the magenta afterimage can be experienced. Inwardly we begin to see the etheric body, which is blue, when we can pierce through the magenta of our blood.

These are empirical experiences. We can all see the same after image if we work on it. So it is objective. We are seeing in both cases with etheric vision, we are seeing the spirit and yet it is an objective experience that follows empirical, spiritual laws.

We can apply this etheric vision to the sky disc seen through the aperture in the James Turrell installation. When we then look to the clear wall, we see the red/magenta colour disc - the afterimage of the blue.

A more advanced experience is to see the red/magenta piercing through the blue sky itself. When we see this, we realize we are starting to enter into the spiritual world that exists behind the blue/green outer etheric. If we continue we can soon see the stars raying out to us through the magenta sky. We could say this happens naturally every evening at dusk when the blue melts away into magenta and then to the darkness of the night sky.

Conversely in our inner selves when we learn to look beyond the darkness of the inner self and we pierce through the magenta of the blood to the blueness/greenness of an inner sky we are entering the spiritual world. We could say this happens naturally every morning at dawn.

The Within Without installation is beautiful in the morning, and in the evening. The colour graduations move across the spectrum to show how light penetrates through darkness (green/blue) and darkness penetrates through light (magenta). We also enter an inner space, an architectural space which is connected to time. We have to sit and wait for the experience.

When we pour ourselves out into the etheric world we occupy space with spiritual time - with the etheric body. When we

enter into our etheric bodies we enter a place where time becomes spiritually spatial.

Inner/outer/within/without.

James Turrell is trying to make us aware of the process that happens in us all the time. He is showing us a simultaneous picture of what happens in our etheric bodies or rather the etheric part of the eye (which is particularly close to the physical eye) with every sense perception.

Where is the 'eye' that helps us to see spiritually located? It can be found in the region of the pineal gland. This is the legendary third eye or two petalled brow chakra.

Now that we understand a little of the mechanics, how does this affect us as Artists?

Artists are by nature good 'perceivers' and one could say that what makes an Artist different from an ordinary person is that he/she has a constitution of soul that allows them to see the 'beauty' in the world in line, colour, form, tone or harmony and to express it. Art is therefore more concerned with sense perception and a desire to capture and to express what the soul has sensed faithfully, in a creative way through a medium chosen by the Artist.

If we agree that Art relies, in the first place, on a form of consciousness that arises through our perception and sensing, then we can say that, when we become conscious of the afterimages and complementary colours that we are always creating inside us, we have acquired a dual consciousness: we are not just conscious of our perceptions of the world with our ordinary senses, but simultaneously also conscious of the truth that lies behind everything we perceive in the world with our

higher senses. We are sensing what makes the world whole - the thoughts of the gods.

We can therefore liken a physical object to a question, a riddle that is answered by the soul when thought is seen with higher vision - so that it is complete. This Perception is what Rudolf Steiner refers to as, true thinking. We are thereby shown the other half, the other side of every sense perception and we realize that we are really here on earth as Artists in the highest sense of the word, when we can Acknowledge with our works the complete picture, because we have found a new way of Thinking.

What does this mean for us as Scientists?

Science is primarily engaged in trying to explain the physical world through thought, that is, by way of intellect and reason. One can say that scientists are thinkers.

We have seen that our pictures of the world live in our intellect as dead reflections of what is living in the afterimage. Scientists don't care much about this afterimage but live mainly in the abstract phantom created in ordinary memory out of physical perceptions. This intellectual contemplation of dead picturing is what they call thought/reason and what Rudolf Steiner calls brain-bound thinking.

Once Science begins to rise up out of brain bound thinking to a perception of the etheric world it will realize that it is possible to have an objective empirical experience of the soul through a higher strengthened thinking that perceives higher thoughts. Scientists will then learn to live in perceptions of soul and spirit, allowing those perceptions to speak forth their truth and answer the riddles that could not be answered by way of

ordinary thinking! This is what it means to allow the facts to speak for themselves.

Science will then become truly holistic (Holy) because it will have taken into account the complement of nature - its spirit. It will understand that the physical is always complemented by the soul and spiritual and that its Revelation can be observed through higher perception, which is nothing else than a new way of Perceiving. A Perceiving that does not rely solely on memory pictures of the surfaces of the natural world and its laws but which perceives the living soul and spiritual which bespeak the moral laws that live behind the world.

Such perceptions will invoke a religious feeling in the scientist, a feeling once felt by priests at their altars and the great Alchemists of the Middle Ages at their laboratory benches. He/she will stand before a laboratory bench as if it were an altar because at this altar, the scientist will experience a Revelation of the spirit.

Science will become a tool for explaining all that is true, beautiful and moral, when through the gate of a new Perception it advances towards Art. And Art will have become more conscious of the thoughts of the Gods acknowledging what is Revealed of the true, good and beautiful, when through the gate of a new Thinking it advances towards Science.

I believe this was the ideal living in the soul of James Turrell when he created 'Within-without'. He wanted us to experience consciously the process of stepping inside ourselves and stepping outside ourselves.

In conclusion if we as Artists and Scientists can bring the complementary soul and spirit aspects into our work then our work can become more than just something beautiful for our

senses or something understood with our intellect. Our work becomes an expression of a Revealed truth and a Revelation which is acknowledged.

Truth is a healing force and Science and Art working together have the potential to become both a creative healing force in the world and an expression of a moral ideal. A harmonious balance between subjective and objective.

In the beginning whenever we wanted to express our experience of the gods through a spiritual outlook it was called Theosophical; when it became a representation of the natural world through a scientific outlook it was called Philosophical, now it must become a representation of the true nature of the world through a combination of the spiritual and the scientific to arrive at truth, beauty and goodness - an outlook that is Anthroposophical.

James Turrell in this beautiful installation has united the idea with the ideal, Science and art, inner and outer, within and without and insofar as it does, one could call this building Anthroposophical.

Within/Without – National Gallery of Australia - Canberra

