Hello and welcome to a podcast from Royal Collection Trust. Today's lecture at the Queen's Gallery Buckingham Palace is given by Richard Williams, Learning Curator at Royal Collection Trust. In this lecture Richard explores the possible ways in which Vermeer achieved such a startling illusion of reality in his paintings. Other talks and lectures within our events programme can be found using our What's On Guide on our website.

Right well to get straight in then I’m starting with Vermeer himself to introduce him. He's one of the painters of the so called Dutch Golden Age of the seventeenth-century, but what do we know about Vermeer the man? Well the answer to that is precious little beyond a pretty sparse list of biographical facts. They're predominantly of the births, marriages, deaths, court cases variety. It's remarkable how many artists lives we can trace through court cases. Well he's not as bad as many of the others, but some of the key facts is that Vermeer was born in Delft in 1632 in the Dutch Republic. But born in Delft 1632, baptised in the New Kerk, the New Church in Delft and his father was a weaver, but I think interestingly and intriguingly his father specialised in weaving fine satin fabric and I think that's significant, because if you think of some of those ladies that Vermeer paints in these remarkably sparkling silk and satin finery it shows us that this is a painter who really understood that material right from a very early age. His father though alongside the weaving was also an art dealer and was registered as such with the Painter's Guild and was obviously very successful because he bought a house on the market square. So you had the new church, the old church, the town hall around the market square. And that's where Vermeer's father bought a house. It's the sort of Knightsbridge and Belgravia of Delft if that makes sense. So they were doing very well for themselves.

Vermeer inherited this art dealership from his father, but already by 1653 Vermeer was registered as a master painter in the Painter's Guild of Delft, the Guild of Saint Luke. We can trace various facts of his subsequent life through his marriage, the children up until his death in 1675, but the really intriguing thing about him is that gap between the baptism and
becoming a master painter. How did he get to that point? This just raises a whole series of questions to which we simply don't know the answers. So for example who even taught Vermeer how to paint in the first place? We have no idea. How was he trained? Did he undergo a formal apprenticeship? Was he somehow self taught? We simply don't know. How long may this training have taken place? Where was it? Was it in Delft or was it somewhere else? We don't even know how well travelled he was. Well we know that he went to The Hague and other places, but did he go beyond that? Did he go outside of the Netherlands itself? And finally what kind of a person was he? We don't know if he was a great thinker and an intellectual, whether he was knowledgeable about 17th Century art theory, and so much of the reason behind this is that we have no writings by him. We have no written documents that have come down to us from Vermeer's own hand. But as many artists, particularly point out and David Hockney among them a painting is a form of document in its right. A painting is a document of its own creation and so by looking at Vermeer's paintings and there are thirty four that are universally accepted as original Vermeer works.

By taking a closer look at those we can at least begin to explore some of these questions. When I show you just a couple of examples of Vermeer's earliest surviving works they come as a bit of surprise. I mean I think if you encountered those fresh you might not really think of Vermeer at all when you see those. They don't have the qualities that we particularly associate with that artist. What you can't tell from the projection on the screen is that his early works, including these two are of a larger scale, on a larger canvas than some of the ones that we're more familiar with, but the other principal thing is the choice of subject matter is remarkably different. The one on the left is a story from classical mythology of Diana and her companions and the one on the right is a religious story from the New Testament; Christ in the House of Mary and Martha. Not only is the subject matter different from what we would expect later on, but the very treatment as well. He's clearly not remotely interested in describing naturalistic settings or elaborate constructions of perspective. That's not what these paintings are about. We do know for a fact that they are definitely by Vermeer, because he signed both of them, and as always they're quite difficult to spot. But in the bottom left hand corner of both paintings, just to the right of the dog in fact of the painting on the left. So his signature is in the form of a monogram made up of the principal letters of his name. But he was soon then to change dramatically what he painted and the way he painted it, and his subjects shift to two principal ones. One is cityscapes; so views of Delft, and the most famous is the one on the screen literally called The View of Delft today. But the other are genre pictures set in interiors showing the daily lives of the so called
middling sort. So the merchant professional classes, the fairly wealthy people and one of the great glories of the current exhibitions of Dutch paintings here in The Queen’s Gallery and of the Royal Collection as a whole is this work by Vermeer; The Lady at the Virginals, the Virginals being the musical instrument at the back of course with a gentleman of the early 1660’s. So these are genre pictures but they’re all about the naturalistic setting, the perspective and an opportunity to give a virtuoso depiction of the fall of light. And this shift in approach and subject obviously paid off because Vermeer in his lifetime soon established a very high reputation for himself as an innovative, important artist. And that reputation extended beyond Delft to the whole of the Netherlands. So he was a very successful painter in his lifetime, but unfortunately after his death Vermeer was one of those unfortunate number of artists who was then completely and utterly forgotten about and in his case for two hundred years.

So Vermeer’s name simply disappears from the public consciousness for the next two hundred years. I mean there are various reasons for that. One is that he fails to get mentioned in some of the standard histories of Dutch painting written in the 18th Century. But also the very practical reason that there are a very limited number of these canvasses by Vermeer. And in the 18th and early 19th Century almost all of them were still in Holland and in private collections. So this is before photography, so people just didn’t see them, and so they simply didn’t register. But a very good illustration of this falling from consciousness is illustrated by our painting in the Royal Collection on the screen here. It was acquired by the Royal Collection in 1762 by George III. So a hundred years roughly after it was painted, and it was effectively bought in a job lot of artwork that George III purchased from a British diplomat in Venice, at the British Consul called Joseph Smith. So it simply happened to come along with all the other things that George III was slightly more interested, such as the Canalettos, the watchers, the other objets d’art that he acquired. And in fact when it was brought over it was misattributed to another Dutch painter called Frans van Mieris, a painter based in Leiden. And so effectively perhaps the greatest painting in the Royal Collection arrived here by mistake which seems quite a remarkable thing. There were various other Vermeer paintings in the 18th and 19th Century that were likewise misattributed to other Dutch painters. It shows though that they were appreciated to an extent, but the name Vermeer simply didn’t mean anything and this is even though they are signed, which seems so remarkable today.

To summarise what happens next; in the 1860’s a series of art history publications really bring Vermeer back to public consciousness and his fame and popularity then increased from that point onwards. So much so that by the 1930s he was famously being forged by one of the most famous forgers of the 20th Century; Han van Meegeren and if you’ve ever wondered
how on earth you manage to successfully forge a Vermeer painting well very cleverly what Van Meegeren was doing was painting in the style of those very early Vermeer paintings, the ones that don't look that Vermeer like. So he was able to get away with it because people weren't so familiar with those. But following that as the 20th Century progressed of course this picture, which I don't think will need an introduction; The Girl with the Pearl Earring, the famous book by Tracy Chevalier really catapulted Vermeer's name to a huge audience. And so whenever the National Gallery and elsewhere put on a Vermeer exhibition it's always difficult to get in. He's very, very popular indeed. But what is it I would ask about Vermeer's paintings that has such a resonance, particularly with a modern audience in our own time. There are many, many things that you could raise in that respect, but one is just the very general basic reaction to how incredibly real these paintings look, real in inverted commas. The fall of light; if you look at how the light enters, the directional light enters from the window on the left here, the quality of the shadows, the detail. If I zoom in slightly closer to our painting here you feel as if you can observe every individual knot in the carpet placed upon the table in the foreground. We have the texture of the carpet, the wooden instrument, the fabrics that they're wearing, the jug on the table, the metal tray on which it's standing. This amazing truth to life is something though that is broader than Vermeer. It's something that the Netherlandish tradition can claim as its hallmark right since its initial foundation, and that goes right back to the late Middle Ages. But Vermeer gives the modern viewer a greater sense of recognition than just that, not just the general appearance to reality. It may not be a coincidence that the sudden fascination with Vermeer towards the second half of the nineteenth-century coincides with the invention of photography. And almost from the start people noted how Vermeer's paintings look remarkably like photographs. There are so many points of similarity between the two. He's not just showing us what we see in the world around us. He appears to be showing us that but how we see it through the lens of a camera which is something differently really that had gone before. So this does raise that question – were lenses of some sort involved in Vermeer's production of paintings such as this. He predates photography of course but Vermeer does not predate the introduction of glass lenses, convex lenses. And so this raises the question; did he use a lens of some sort, a camera obscura which I will go back to in just a moment to define what that is. It's remarkable how many professional photographers and more recently people who specialise in computer imagery seem to recognise in Vermeer one of their own. They see various effects that he creates that they utilise in their own work, but on the other side there are certain people who really find all that sort of thing distasteful and they want to claim Vermeer as the genius painter who only uses his own genius and you have two extremes of two camps. Some people who claim that he did not use lenses, some that he did, and then there's a big area in
between where he may have used them for some things, but there is no consensus on this
debate. The two sides do get very, very heated, and therefore I have absolutely no intention
of coming down on one side or the other this afternoon. I'm far more intelligent than to fall
into that trap. I'm not going to tell you what to think. In the time honoured tradition it is up
for you the audience to reach your own conclusion, but hopefully simply by exploring some of
the possibilities you might find this interesting.

So what I thought I’d do is start by trying to put Vermeer back into the Northern tradition,
the Netherlandish tradition of painting of which he was a part. Sometimes the more technical
studies tend to extract him as an isolated figure, an isolated genius. Well no, he was very
much a part of a painting tradition. So I'll just give a quick thumbnail sketch of what that is.
And then I’ll put up some of the features of Vermeer's paintings that suggest that perhaps a
lens of some sort had been used in its production or at least its inspiration, then look at
arguments which question that and then finish by just asking what this tells us about our view
of art itself. Because it's a much broader I think and intriguing conundrum that's much
broader than just whether a camera was used, a camera obscura was used or not. So to begin
with the tradition in which Vermeer was a part; the Netherlandish tradition of painting was
founded two hundred and fifty years earlier by amongst others Jan van Eyck. He's perhaps the
best known today, and I've put up on the screen Jan van Eyck's Arnolfini double portrait in the
National Gallery cos it's just up the road and hopefully many of you will have s

So what
effectively happens in the 1420's and 1430's is a shift from egg tempura paint to oil paint. So in
other words it's using oil paint which had been around for centuries prior to that, but using
oil paint in a way it hadn't been used before to create astonishing visual effects, recreating the
fall of light for example and again with this example here you can see how the light pours in
from the windows on the left hand side. What van Eyck and his contemporaries do is
manipulate oil paint by creating transparent glazes or translucent glazes of oil, one layer on
top of the other, and what this does is it creates the subtle effect of soft shadows falling on
objects. He creates incredible visual effects and if I put the van Eyck on the left next to the
Vermeer on the right actually the longer you look at that comparison the more similarities
you will see in fact. I mean not only do we have two figures in a room, although Vermeer’s
have turned their back on us, we have this astonishing effect of the light coming through the
window on the left. And the atmospheric effect of the light and the shade which gives a unity
to the painting as a whole. There's also another detail of comparison between the two and
that's that famously the Van Eyck picture has a mirror on the back wall in which you
apparently see the whole of the rest of the room reflected in it. Well Vermeer does that as
well. If I just go back to the two side by side; above the musical instrument Vermeer has also
put a mirror and there it is. You can see the lady reflected, the lady who's playing the
instrument and there they are side by side. So Vermeer is following in a fascination, an optical
fascination if that's the word to use which explores how you can create a convincing illusion.

Just one other example of Jan van Eyck; this is one of his works still in Bruges today, the
Virgin with Canon van der Paele. That's the donor Canon van der Paele on the right. What
you have in this picture; is not just an astonishing fall of light but the way that light describes
objects it creates a three dimensional feel to the figures and the objects, but more than that it
gives you a sense of the very textures of the fabrics that the figures of wearing for example.

So the best way to show you this is with a close up. The left hand figure Saint Donatian in the
blue, there's a close up view of him. When you look at this painting you would be convinced
that that gold, that effect of gold thread is simply real gold that's been applied to the picture.

It hasn't and I can show you an even closer close up and it's just yellow paint. What he's done
is he's layered his yellow paint and by dragging and dotting on top of it, sort of dragging the
brush and making pointillist points he astonishingly creates this effect of gold thread going
through blue velvet. And the blue velvet is simply two layers of blue paint, a lighter on top,
stumbled on top of a darker colour, and this then is clearly just the sort of thing that Vermeer
is fascinated in reproducing. So another of one of Vermeer's interiors of a woman with a
pearl necklace. Moving slightly closer into that picture again you have the amazing effect of
light coming through the panes of glass on the left hand side, the absolutely spot on shadows
cast according to the direction of light, but as with the van Eyck he gets the effect of lustre
and sparkle. Going back to the van Eyck you can see the jewels in the Bishop’s mitre here.

You can see the reflection that the sparkle, the effect of light refracting through a jewel. It's
done with amazing facility and do go and have a look at this picture if you ever get the
opportunity to go to Bruges. So Vermeer is following in this tradition. He's drawing on all
these effects, even the pot with its reflected light in the left hand corner of Vermeer's picture
really has a debt to Vermeer and the founders. But here's that silk or satin fabric I was talking
about. His father wove this stuff and the way that he's basically dragged his brush loaded up
with thick yellow oil paint and by dabbing it and dragging it across the surface of the canvas he
creates this amazing effect of that sort of bunched up, folded effect of the silk or the satin. But
Vermeer was also interested not just in these general illusionistic effects, but the rather flashy,
showing off kind of effects as well. Another, he does like his ladies that open windows,

Vermeer. Here's another one that's in Dresden today, but the window is actually open in this
example and showing you the close up; can you see that that lady's head is reflected in the
apanes of glass? It's not a mirror. It's glass in a window and it's absolutely remarkable. It's a sort
of transparent reflection. What an amazing thing. But I just wanted to point out that this again
is something that had fascinated Nederlandish artists right from the foundation of this school
because van Eyck was doing it two hundred and fifty years earlier.
Here is a painting done in shades of grey effectively; an annunciation scene. They look like sculptures but zooming in to the figure of the Virgin Mary on the right, I don't know if you can make it out but it's painted to look as if behind that sculpture of the virgin is something like black marble perhaps. But can you see that there's a transparent reflection in the marble as well, in the shiny surface of the marble? So again this is something that Vermeer isn't inventing. He's building on foundations of generations that had gone before him. But what happens to Netherlandish painting after the van Eyck and his contemporaries of the 15th Century is that the subject matter broadens out throughout the 16th and into the 17th Century. So not just religious pictures and portraits but different types of genre pictures; landscapes, still lives, low life scenes of peasants and so on. There's a broadening out of secular subject matter, not just religious. But when we get to Vermeer in the 1650's it's intriguing why Vermeer makes the shift that I described earlier, starting out with his earliest works which are religious and mythological in subject matter, he makes that shift to views of cities and the genre pictures of interiors of houses with figures. Well it may be down to a shift in the tradition of painting in Delft itself because beginning in the 1650's a new style of architectural painting became very popular for a while and it was probably inspired by the two primary churches in Delft, the old church and the new church that I mentioned at the start. And a particular painter who was in Delft in this time Gerard Houckgeest created a series of pictures and I'm just giving you one example that's in the Mauritshuis today showing the tomb of William of Orange. This is inside that new church in Delft which we saw at the start. But it's not about the figures, it's all about the perspective. You have this extraordinary complex perspective view, an unusual viewpoint as if you're just coming around the corner from one of the isles perhaps in the body of the church. It's very much an atmospheric evocation. There's no deep emotion here. There's no religious content. There's a slight distancing in that the figures usually never look at you. They've got their backs to you. And then Delft also saw the arrival of another significant painter in 1654; Pieter de Hooch. And there is well at least one painting by Pieter de Hooch in the exhibition so do go and have a look at it when I've finished, a Courtyard at Delft at evening with a woman spinning. This then isn't a portrait. You can see again the woman's got her back to us. It's all about this incredible facility to create a perspective view and an atmospheric effect of light which creates the space, that the light creates the space between and around the figures. De Hooch also paints this which you can see in the National Gallery; a woman drinking with two men and it does have a very Vermeer look to it as I'm sure you can see, but this I'm afraid just raises another one of those unanswerable questions – what was the relationship between this artist and Vermeer. Was Vermeer following the lead of this artist? Did they meet in Delft? Were they influencing one another or inspiring one another? We simply don't know. But as I say many points of
similarity with the works that Vermeer was to produce immediately after really the appearance of Pieter de Hooch in Delft in that time. So that's really a thumbnail sketch of the tradition in which Vermeer was working. Other artists were producing paintings not that far from what he was producing, but there is something very oddly different about seventeenth-century Dutch paintings that you don't find in earlier ones, and that's something that you may be able to see if I show you again a closer view of the Royal Collection painting. You see that the edge of the table with the carpet covering it is sharply in focus, but do you notice that the rest of it seems to dissolve away out of focus. It's this out of focus quality of Vermeer's works that comes as such a surprise. A much more obvious example is the one on the screen here that's at National gallery of art in Washington, this is a lady writing, but a close up will show you, you see how very blurry that image is. Now this is not another technical fault on our part, this is what the painting actually looks like. And you can see why photographers are fascinated by this because I always think that it reminds me of those 1950's Hollywood romantic films and the leading lady is shown in soft focus. And it is very reminiscent of the effect that we see in this painting here. You also end up with oddities of what's in focus and what is out of focus. So another famous work by Vermeer that's still in Holland today in the Rijks Museum; the Milkmaid; there she is pouring milk from a jug but look at the wall behind her, and can you see these lovingly portrayed holes in the plaster wall at the back. You also end up with oddities of what's in focus and what is out of focus. So another famous work by Vermeer that's still in Holland today in the Rijks Museum; the Milkmaid; there she is pouring milk from a jug but look at the wall behind her, and can you see these lovingly portrayed holes in the plaster wall at the back. So they look like nail holes that have been hammered in. Those are perfectly in sharp focus whereas what she's actually doing in front of her, this sort of still life group of basket with bread and so on, you see how peculiarly out of focus that is, and you have this characteristic speckled effect of highlights looking like little globules of paint on the surface of the woven basket. The contrast can be quite remarkable with the earlier tradition. This painting I've chosen the Art of Painting by Vermeer because at the top we have a chandelier and I thought it would make an interesting comparison with the van Eyck painting which we saw a moment ago which also famously has a chandelier. But put them side by side and what do you get? Well that's the effect and I've got an even closer view which hopefully you can see clearly, but you see how remarkably different they are in the whole approach of these two artists. The van Eyck on the left; every last detail is meticulously rendered and in perfect crystal clear focus. Whereas Vermeer's seems to be a sort of hazy, sketchy approach. This is one of the fascinating things because realism can mean completely different things. Van Eyck's paintings have often been described as incredibly realistic, often described as being photographic. But of course they're not because every single detail in van
Eyck’s paintings, every detail is in perfect sharp focus. Now that is not how we view the world. Our eyes can’t see everything all in focus all together. What Vermeer seems to be doing is getting closer to how our eye actually operates and we focus on certain things and whatever is surrounding it is slightly out of focus by comparison. And it comes as quite a surprise to people who say how incredibly real Vermeer’s pictures are when you look at some other details because at the back of this room in the painting, the Art of Painting is a map. It was very common, very popular in the sixteenth- and seventeenth-century to have maps as wall decorations. But when you have a close up look at that map it’s not what you would expect because there is a close up and you see it’s, well for want of a better word just a lot of grey blobs of paint really. From a distance you would swear that every last detail has been meticulously rendered but it’s a much more impressionistic (with a small i) idea or representation of what that map actually is. So this raises the question then; why does he do this for example? How does that effect come about? There are certain things that you see in the way that Vermeer paints that the eye itself doesn’t see but a camera or a lens does see, and so this is what’s raised this strong possibility that lenses played some part in Vermeer’s work.

The most likely piece of equipment that is posited is the camera obscura. Literally camera obscura translates as a darkened room because the idea is that if you have a darkened room as in my illustration on the screen here, so completely blacked out apart from a small opening allowing in a very limited ray of light, the light will form a projection on the opposite wall of your room. So the light comes from the outside world, enters through this little hole and naturally creates a projected image on the opposite wall. Because of the way that light waves work the projection is upside down and back to front. It’s also very feint and very small and so the way that you create a more effective camera obscura is in the hole, the aperture by placing a lens, a glass lens that concentrates the light. It allows you to have a wider opening to allow more light in to get a bigger image and slightly brighter. But the problem with this technology is that it creates the worst conditions for an artist to work because you don’t want to be sitting in a dark room with a pallet of coloured paints and you simply can’t see what colour you’re attempting to paint with. This is not very helpful. So there are various other possibilities, well endless possibilities I should say for what may have occurred. Rather than a darkened room or a section of a room that’s separated off the portable camera obscura emerged in the mid seventeenth-century. And here’s a diagrammatic representation there. So you can see how this was the forerunner of the camera, of the photographic camera, you know, it’s part way there. So you can simply trace the image that comes through the lens that is then reflected upwards by a mirror and that helps correct the image so that it’s not upside down. And later on there are even very
elaborate versions where you could go out into the landscape with your own portable darkened room. So the man would draw the curtains, the opening is up at the top there and it comes down like a periscope, but this is much more of an eighteenth-century example. Well the camera obscura fascinated people in the seventeenth-century. It wasn’t something restricted to a tiny elite of gentlemen scientists. It's something that all artists had heard of and probably would have seen at some point.

So in terms of access to the lenses and the technology that's not an issue. If Vermeer could have afforded it he could have acquired it. So did Vermeer set up a room in his house with his darkened area or some other arrangement of a lens and basically reproduce what was in the room, in his studio? Well this would be remarkable because this was never part of the tradition of Northern European painting prior to that. This is something that certain scholars, not with an art history background are often caught out by. They will often see a portrait from the sixteenth- or seventeenth-century and assume that the setting is a real room somewhere. Well nine times out of ten it is not. It's an artificial construction. In very early works, paintings that's very obvious and this painting on the screen is by a contemporary of van Eyck, so this is from the 1420's. The Archangel Gabriel coming to the Virgin Mary on the right. And just look at those objects in that room. They're painted with incredible detail and remarkable truth to life, but the way that they're arranged in this room is very unconvincing. This is what's sometimes described as fragmented reality. So the details are incredibly real looking but they don't create a realism in the unified whole. I always think that artists in this tradition start out with the figures and the objects and then improvise the room around the objects, and the perspective is wonderfully bonkers. If you look at the tabletop there this was famously described to me by Lorne Campbell who was curator of the National Gallery as the annunciation with a large digestive biscuit. And so there's the angel bringing the biscuit and having said that, that has ruined this picture for me now. I can never, as I have ruined it for you, you'll be pleased to know. But even in the sixteenth-century when a mathematical perspective becomes the norm in many northern paintings.

This is in the Royal Collection. It's in Windsor Castle by the Flemish painter Hans Eworth. This is Lord Darnley, the famous Lord Darnley who married Mary Queen of Scots, it would be a bit after this, with his brother. Looking at that room this has got a very convincing perspective and for years art historians were trying to work out well which room in which palace might that be. Until in the 1990's someone discovered this print and basically if you can compare the two the background is just a complete copy of that print, and the print is by a Dutch designer Vredeman de Vries, Jan Vredeman de Vries, so it's the design idea for architects to use if they wish. It's a space that was never actually built but if you look at the shape of the triangular ornament here, the pediments he’s even copied the table with the
tablecloth on it if you notice. So every detail is meticulously rendered, and you notice where the print ends and then there's just a bit of the bare paper at the bottom. He's even done that. He's copied that in the painting and I thought what on earth is this painter thinking cos the floor ends there and you have this sort of weird no mans land at the bottom, and it's only when that's pointed out that all of a sudden you realise how remarkably artificial that painting actually looks. It looks like two figures standing on a stage with a painted backdrop behind them. So this is the norm to have simply an artificial interior concocted by the artist, but is Vermeer different? Is there evidence that Vermeer actually did set up a room in his studio? Well comparing his paintings they do look remarkably similar in terms of their interior views. These two ladies at a window, it looks like the same corner of the same room with the same window. The same with these two paintings by Vermeer, the geographer and the astronomer. We even have the same piece of furniture here and sometimes the same globe makes its appearance. There is evidence that perhaps he did and he was just painting what was there in a room set up in his house. But is there other evidence that some kind of lens was used? Well some people have said look at the extraordinary cropping of this view that Vermeer painted of a street in Delft itself. On the left hand side this is where the actual edge of the painting is. It's not that we've propped it to project it. It just slices through the window. It just seems to suddenly stop and the top of the building is chopped off. This is what, it may resemble some of your holiday photographs when you sort of chop the tops off. It seems, you wouldn’t imagine an Italian artist to do this for example. It would be more beautifully coherently constructed. It's also been pointed out that there are peculiar seemingly jarring instances of scale in some of Vermeer's paintings. So the Officer and the Laughing Girl that's in New York today; do you notice how enormous the man's head appears to be in the foreground compared to the much smaller head of the lady. Now that's not how you think it ought to be, but if you look through a lens of a camera that's often how it appears. That's how it comes out, this disparity, this disparity of scale, and perhaps the best example of use of or potential use of a lens is the Girl with the Red Hat by Vermeer in Washington today. Because when we zoom into that you notice again how very, very blurred the whole effect looks, but the extraordinary highlights, these sort of glowing shimmering spots of highlight, it's an effect that's described as halation or circles of confusion which is a wonderful description of them. Basically it's circular reflections of light that are created on account on the poor depth of field when using an early lens. So if you have a lens that's not to modern specifications and you look at an image projected through it the highlights will have this sort of weird circular glowing effect on it. And that's something that Vermeer has created in this picture. Even more extraordinary is the lion finial which is at the top of the chair in front of her. You see at the bottom here there are two lions heads, but just look at the way that those are painted. It
looks like an abstract painting, and I couldn’t resist one final van Eyck comparison if you will forgive me.

His Virgin and Child that’s in Frankfurt today, on her throne of Solomon inspired by you have two lions here, and there’s van Eyck’s lion in perfect crystal focus as you would expect, but compare that to Vermeer’s and you see it’s a different vision world that they’re inhabiting now. There’s something very intriguing going on in what van Eyck is doing. There’s also another technical huge disparity between the van Eyck tradition and what Vermeer does because in fifteenth- and sixteenth-century Netherlandish paintings you often have a very detailed under drawing.

So the artist draws the contours on the surface of the panel or the canvas and you can see those under drawings using an infrared camera which sees below the surface layers of paint to the drawing underneath, but when you look at Vermeer's paintings, particularly the Girl with the Pearl Earring, you can’t see any drawing whatsoever. Now it may be that it's just not showing up using the technology that's currently available but it looks as if he just started out by painting it in monochrome, sort of working out the light and shade and then builds up coloured paint layers on top of it, and that's an astonishing way to work and it raises the question well how did he therefore create something like that. And there are various possibilities that could account for this. But what about the question of Vermeer using some sort of technical instrument in order to help him create his work? This is something that certain people don’t like the sound of because they think that that is in a way cheating in inverted commas. You’re not actually just using your own hand and your eye and your talent, but something that I’ve just passed that, something that I had to point out to my undergraduates when I was teaching is that painters in the fifteenth, sixth and 17th Century were businessmen. They were not romantic painters in their garret struggling to express themselves. Many of them were just there running a successful business, and moving again to the 15th century cos there are good examples of this, what painters in the Netherlands would have is a standard stock of drawings. This happens to be Mary Magdalene with her ointment jar and every time an alter piece was commissioned including Mary Magdalene they’d just get out the old drawing and copy it onto the panel.