

# NEW WAYS OF SEEING

## Ep1: INVISIBLE NETWORKS

BBC Radio 4, Wednesday 17<sup>th</sup> April 2019

In the 1970s, the writer John Berger created 'Ways of Seeing'. His landmark TV series and book revealed how images – from paintings to photographs – can influence our perceptions of society, and of ourselves.

Now on BBC Radio 4 – in 'NEW WAYS OF SEEING' – the artist JAMES BRIDLE reimagines some of John Berger's themes, for our digital age. This week, in the first programme, James is "looking for" the internet... with the help of other artists, including Hito Steyerl.

0'00"

HITO STEYERL: I think I remember the first time it really occurred to me that the internet and the real world were linked in a very material way. People used to laugh about other people that would think that "The Cloud" – in the digital internet sense – had anything to do with real clouds, or the weather? But then a real hurricane – Sandy, I think – hit New York, and knocked out many of the big cloud servers that were sitting there, so that the digital cloud of course ended up being affected by the weather, by literal flood surges and storms.

**FX WEATHER / STORMS**

**FX EAST INDIA DLR STATION**

A few years ago I was waiting for a train near Canary Wharf in East London. Across the platform I saw an amazing building. It was eight storeys high, completely square, no windows, but it had these huge metal grates on the top. The front of it was covered in blue and grey panels, which made it look like it had been pixelated.

**MUSIC: Hakon Stene – Holt**

It took me a while to find out what it was, but it turned out... it was the internet.

I mean – it was part of the internet, but a very important part.

1'41"

This building is one of several that make up the London Internet Exchange, a collection of datacentres and carrier hotels on the edge of the city, filled with thousands of computers. And

every day, the internet traffic of most of the UK, as well as millions of internet users around the world, passes through these buildings: every email we send, every web search we make, every website we visit.

The internet and other digital technologies affect every aspect of our lives, our politics, our society. They're rooted deep in our shared history. They determine our future. They've changed our world.

And yet, if you walk down the street, it's as if hardly anything has changed. Houses, cars, even people, appear much the same as they did twenty or thirty years ago – apart from the people talking to themselves, or staring at their hands.

As a result, we tend to think about the internet as something invisible or ethereal, like a “cloud”. We can't see it and we can't touch it. And most of us don't understand how it works, or the reality of its effects on our lives.

How come the biggest changes of the last few decades are completely invisible? It's as if a crucially important part of our world has slid out of view. It's disappeared behind glass, it's been translated into computer code that only some people can read. It makes it hard to see what's actually happening in the world today, and to know how to respond.

3'33”

### **FX JOHN BERGER ON TV (FADES IN)**

BERGER: This is the first of four programmes in which I want to question some of the assumptions usually made about the tradition of European painting...

In 1972, the writer and critic John Berger made the ground-breaking television series “Ways of Seeing”.

### **MUSIC: “New Ways of Seeing’ theme**

He wanted to show how political and economic ideologies were encoded in the aesthetics of Western culture. He argued passionately that we could understand something about ourselves, and the times we live in, not merely by looking at artworks, but by understanding how we ourselves saw them:

BERGER: The process of seeing paintings – or seeing anything else – is less spontaneous and natural than we tend to believe. A large part of seeing depends upon habit and convention.

Over the last fifty years, the development of digital technologies has encoded these habits and conventions into the tools we use every day. They're in our phones, our computers, and our information networks – even if we aren't aware of them.

BERGER: It isn't so much the painting themselves which I want to consider, as the way we now see them, now, in the second half of the 20<sup>th</sup> century. Because we see these paintings as nobody saw them before.

**In the first half of the 21<sup>st</sup> Century, we're seeing not just paintings, but the whole world as nobody has seen it before: through the lens of digital technologies and the internet. If you're able to see these technologies, all sorts of things suddenly become clear – and, just as in Berger's time, it's artworks and artists that can help us to see this world differently.**

OLIA LIALINA: Things are getting so invisible, and so hidden, that you start to think you can do only what is on the surface, what is visible.

MOREHSHIN ALLAHYARI: Artists can help to facilitate that space, to bring attention to it, to make things that are invisible more visible.

STEPHANIE DINKINS: My question as this artist making these computational things is, like, "well why not? Why can't we do it? And how do we make it happen?"

5'39"

**I'm James Bridle. I'm a writer and artist. I mostly think about the world through technology. But I think that when we talk about technology, we're really talking about ourselves – how we see and understand the world, and how that shapes our everyday lives, our politics, and our society. I work with words and code, with artificial intelligence and digital networks, to try to understand how the way we see the world is shaped by the tools we use – and thus, if we change the way we see, we can change the world.**

**In this series, inspired by John Berger's "Ways of Seeing", I'm going to meet other artists who use digital technology to see the world differently. Berger believed that only by looking long and hard at the world could we come to understand it – and begin to change it. So what does it mean to look long and hard at the world today?**

6'49"

JAMES: It's a Monday morning in New York City, we're on the Avenue of the Americas – outside number 32 – which is a huge and very beautiful 1930s art deco building with an amazing history. We're here to meet Ingrid Burrington, an artist and writer who explores the history of buildings like this, and also what they mean for our present and our future. It's -20C, so we're gonna go and meet her inside.

JAMES: The first thing you notice when you come into this building on the wall on your right, is a huge, two-storey high, map of the world in tile – with America pretty much at the centre of it, but

connected to the rest of the world by these green mosaic bands. And as you look up, you see the whole ceiling that extends almost a whole city block, continues those bands which have now turned gold, and have turned into wires connecting the regions of the world, which are depicted as a series of figures with a kind of winged, Greek goddess figure at the centre, knitting together these webs or wires that connect anything. And if you discover what the history of this building is, the reason it all appears to be made of wires immediately becomes clear.

INGRID BARRINGTON: We are in the former headquarters of the AT&T longlines division, which managed long distance communications for the AT&T empire. This was a building with lots of switching boards with people making sure telephone calls got dispatched to the right place. Later in its life, many decades later in the 1990s, it was turned into what's known as a "carrier hotel" – a "switching station" for the internet. There are no people moving around the calls, it's just a lot of computers. So the great legacy of this building is it was where the heart of telephone communications was dispatched from, and now it's home to a huge piece of how the internet moves through New York City and the world.

8'50"

**Like me, Ingrid sees the internet everywhere – inside buildings, but also on rooftops, and even under the street...**

INGRID: ...the other way you can see networks, are these markings we're looking at on the ground...

JAMES: Yes, surrounding these manholes, and extending all the way up the street, is this network of constant scribbles in various colours – there's oranges, reds, blues, greens, spray paint on the ground – these kind of mystic symbols, arrows and cross hatching, little code words, I've no idea what they refer to, what are they?

INGRID: Once utilities got moved underground, there needed to be a system for keeping track of where things were. And when streets needed to be opened up for excavation, for repairs, there had to be some way of knowing what else was buried nearby. So, there's a national standard for colour coding of markings for buried utilities... in the US orange happens to mean telecommunications... we're looking at this orange coming out of this manhole and angling across the street... you can see labels intermittently along this line, and the width of the line, you can see two dots around the label, indicates how wide the duct is so probably multiple tubes inside, and fibre optic cable... etc etc

10'24"

INGRID: The two things you don't really do as a pedestrian is look up or look down! ..... I've found that one of the most useful sources of information is..... I'll just go up to them and say "what are you working on?" I think it helps that I'm a girl and that I kinda look not particularly threatening!

JAMES: And how forthcoming are they when you do that?

INGRID: I mean, sometimes they're busy but it's like, no-one ever asks them what they do, no-one treats them like experts, so they can be pretty excited to get into it. Cos like, nobody thanks the guy who keeps the internet on!

JAMES: Suddenly, when you start to see the signs – and you do look up and you do look down – suddenly they're all around us, the signs! This infrastructure is immediately visible when you start looking for it...

INGRID: ...it's everywhere!

**MUSIC: Ultramarine – Equatorial Calms (Les Disques du Crepuscule)**

11'37"

**When you do look up, what you see can be astonishing.**

**A couple of years ago I took a bike ride, starting in Slough, heading east – right through London, and out the other side to Basildon. I was looking for two important, but well-hidden locations: a datacentre belonging to the London Stock Exchange, and another belonging to the New York Stock Exchange. To find them, I followed the line of microwave dishes which connects them – some perched on pylons, others on water towers, or tall buildings. These beams of data carry millions of high-frequency financial transactions – and thus, billions of pounds of trades – through the air, above our heads, completely invisibly.**

**Close to Heathrow airport, I looked up and saw something that perfectly embodied what happens when the most powerful technologies of our time – the forces that bend politics and society – are so hard to see that most of us aren't even aware of them. The microwaves I was following, carrying billions of pounds every day, passed through two huge dishes atop Hillingdon Hospital, a pioneering 1960s National Health centre suffering – like much of the NHS – from a shortfall in funding. For a rent of a few thousand pounds a year, the machinery of private finance perches atop the crumbling infrastructure of the welfare state... all that money, flowing invisibly just a few metres above the patients inside.**

**This is how a difference in visibility translates into a difference in power: those who can see, can understand – and thus shape and direct the world to their advantage.**

13'34"

**As well as looking up, we can also try looking down. Right down.**

TREVOR: I've done a number of projects that ask a very simple question – which is, what does the Internet look like? And I mean that just incredibly literally, like: “Where is the internet? What does it look like in the earth?”

### **MUSIC: Henry Mancini – Lujon**

**That's Trevor Paglen. He's an artist who's spent many years following the flow of information, in order to explore the flow of power – from tracking secret CIA flights to photographing Area 51. For him, this process of seeing power is a natural continuation of a long artistic history of trying to understand the meaning of the world through its representation – even if that representation is hidden right at the bottom of the ocean:**

### **FX DIVING INTO OCEAN**

TREVOR: I thought well, what would happen if you went into the sea? Could you go and scuba dive and find the Internet? And it turns out you can. It's not particularly easy to do – you have to hire underwater crews that know how to do navigation and that sort of thing – but when you do everything right, you can literally go scuba diving on the bottom of the ocean and see the cables that connect the continents together, and that 99 percent of the world's information is flowing through.

These are places where all of the fibre optic cables that encircle the planet, that are lying on the floors of the oceans, become attached to the countries and continents where they make landfall... In Europe the main ones would be in Marseilles in France, some are in northern Germany, in Cornwall... in the United States there's about four or five different major locations on the East Coast, and again a similar number on the west coast... there's a big one in Hawaii, Guam, Singapore, South Korea... and they're not evenly distributed around the world. So... for me, this speaks to something about the state of the planet that we find ourselves living in.

**The internet travels around the globe in glass tubes, under the ground and under the ocean: but it's not evenly distributed. Off the coast of West Africa, a cable travels in from the deep ocean to arrive on the beaches of Ghana and Nigeria. But this cable doesn't connect to the rest of Africa, or to the US or Europe: rather, it runs direct to the UK, the former colonial power. Likewise, the best connections in Cote d'Ivoire, Mauretania and Senegal all travel back to France. While there are more than twenty cables linking the US and Europe, the first direct connection from Africa across the Atlantic only opened in 2018. That's a legacy of European imperial power which lives on in today's digital infrastructure. That's the state of the world today.**

16'42"

**If you think back to the cities of the past, all of the major civic and commercial activities happened in big buildings – and these buildings looked like they meant business. In the centre of town you'd find the banks, the town hall, the library and the post office, and the big department stores. You could even go into them, and maybe ask questions about what they did. You could**

see them working, and thus understand how they worked. And with this visibility, with this weight of bricks and mortar, came the possibility of accountability, and social responsibility. But most of those places are coffee shops now, because all those civic and commercial functions – all the things that make up, govern, administer and control society – they take place on the internet.

Our banks are on the internet – not notes in vaults, but apps on our phones, and numbers stored in databases. We shop on the internet, sending money to websites, and getting stuff back from who knows where. You can pay your taxes online, get a new passport online... even politicians seem to do much of their work online, if their Twitter accounts are anything to go by. And almost everyone uses Gmail: all those private messages – from citizens and businesses and politicians alike – all stored on hidden servers, owned by private companies, somewhere else in the world.

And the same is true of our social relationships. Chatting to our friends, messaging our loved ones, finding dates, recording intimate details of our lives – from exercise routines, to periods – it all happens on the internet.

18'35"

INGRID: There's a sort of intimacy to the experience of a screen interaction, it's increasingly primarily something that you're literally holding in your hand, right? But... the power dynamics of this seemingly intimate space that you share with a piece of glass, and some aluminium and other minerals, is itself private space. You are basically "squatting" on a bunch of private companies' property, when going online. There's this misunderstanding that it's a personal environment. Once you start to look at how fibre optic cables get laid, and the extent to which they're leased or owned by their companies, you start to understand how much goes into building all of the infrastructure that makes the internet possible, the power dynamics of just sheer ownership of that space becomes a lot more viscerally evident.

**The internet is everywhere. It's absorbed most of the essential civic, commercial, and social activities of the world... yet, we can't see it. And this means it's pretty hard to think about it, and to understand who's running things.**

19'47"

JULIAN: You can ask just about anyone how the postcard that you sent them arrived in their mailbox, and they will be able to give you a relatively coherent description of how that postcard arrived in their mailbox. They'll be able to describe things like postcodes, and that we find the names behind the numbers – so we'll go to a number and expect to find a name there, on the outside of that building. And maybe if we can see the mailbox, we can put the letter or postcard into that mailbox. But if you ask the same person how an email reached their inbox, they will be reaching for magic realism at best. Sometimes you get some extraordinarily colourful and deeply

imaginative descriptions. Oddly enough, one or two of them are partially correct, as though they would intuit something about the way network packets do actually flow over infrastructure. Or flocks of birds that coagulate back into the form of the email, as it reached them in their webmail interface, Gmail or whatever. People – children, especially – will know more about how a flower works, or the solar system, than they do about an infrastructure that they depend upon, every day. And that is something that providers of infrastructures would prefer. There’s a tremendous economic and political advantage to infrastructural ignorance. Tremendous, vast.

### **MUSIC: Jon Bap – \_Stuck\_**

**21’15”**

**I met the artist Julian Oliver in his studio in Berlin, which he shares with Danja Vasiliev. It’s filled with antennae, bits of wire, soldering irons, and all kinds of computers. Julian and Danja are often referred to as “media artists”... but they prefer the term “critical engineers” – two words that aren’t often paired together. They wrote a manifesto for critical engineering, which begins: “The Critical Engineer considers Engineering to be the most transformative language of our time, shaping the way we move, communicate and think”. As Danja tells me, a critical engineer is also something that anyone can be:**

DANJA: In the critical engineering manifesto itself, we do elaborate on the importance of our artistic approach. That is something that gives us the freedom and courage to think against the stream. And, we need to recognise engineering outside of our commercial context, outside of the industrial context, and sort of bring it back to the society itself, and develop it as the craft. And sort of re-own it, if you will.

**When you understand what the internet looks like, and how it works, you can start to “re-own” it. A few years ago, Julian and Danja developed a project called “NEWSTWEEK”. It looks like a normal wall plug, but inside is a tiny wireless device. When you plug it in, it connects to the local WiFi network, and literally changes what other people on the network can see – for example, by rewriting the stories on news sites. The artists were praised and criticised for highlighting the vulnerabilities in WiFi and for the confusion they caused. But what they did was help people to “see” and thus to become more aware of the network itself. Their hope is that all of us should be in control of this technology – and why shouldn’t we?**

**23’15”**

### **FX – VINTAGE GERMAN RADIO**

**As far back as 1932, the poet and playwright Bertolt Brecht argued that the then-new technology of radio should be more democratic: “There was a moment”, he wrote, “when technology was advanced enough to produce the radio, and society was not yet advanced enough to accept it. ... Radio is one-sided when it should be two. It is purely an apparatus for**

distribution, for mere sharing out. So here is a positive suggestion: change this apparatus over from distribution to communication... a vast network of pipes... to receive as well as to transmit... to let the listener speak as well as hear... to bring them into a relationship instead of isolating them.”

**MUSIC: Max Bruch – Violin Concerto No 1 In G Minor, Opus 26: 1<sup>st</sup> mvt, Allegro Moderato**

DANJA: Brecht was arguing about radio... and the very same thing happens with the internet...

JULIAN: Yeah... it’s curious how our DSL and cable connections are so typically configured around more download than upload. We’re supposed to be consumers of data, but not producers of it. That in itself is a clue to an asymmetry...

DANJA: ...I often go even as far as to say it’s disrespectful of the internet providers, as a kind, to provide such service that would disempower by definition. It’s like, we don’t even expect you to know how to do things, we just want you to take things.

24’44”

**MUSIC: Ultramarine – Equatorial Calms (Les Disques du Crepuscule)**

**Today, we might say, technology has become advanced enough to give us the internet, but we’re still finding out if society is advanced enough to accept it.**

**My friend Olia Lialina has not only “accepted” the internet – she’s been distorting and disrupting it for well over twenty years, as one of the world’s first “net artists”. For these artists, the connection to the internet was what made their work radical – and persuading others to connect was one of their goals. Olia’s most recent works are only available if you install multiple different browsers on your computer – browsers that increase your privacy, or share files without paying big companies for the privilege.**

**The intention – as she explains to me over the internet – is not to be difficult, but to give the power to see differently back to her audience:**

OLIA: Things are getting so invisible, so hidden, that you start to think you can do only what is on the surface, what is visible. So, the operating system comes with a browser you use it for years, and it never comes to your mind that you could install another browser! The knowledge that you could, and the act of installing it, I think it’s already a precious thing to do! ..... From the very beginning, from mid 90s, was the purpose or the goal of net artists – always to show something that is invisible, what is hidden, and at least to show how there is more than you see!

26’27”

**Digital networks have fundamentally changed the world around us. But because they’re often invisible – buried underground, hidden by design, or written in incomprehensible code – we**

don't often see that change happening, and can't respond to it. On the other hand, when we do see it, all sorts of things become clear.

So keep an eye out for the manholes, microwave dishes, data centres and wifi networks that surround you.

In the 1960s, the Paris students used to say "Beneath the paving stones, the beach" – but beneath the paving stones today, there's a whole new world, waiting to be seen – and changed for the better.

27'28" ends

And next week, James Bridle will be looking at the reliability and power of digital images.

NEW WAYS OF SEEING is produced by Steve Urquhart. It's a Reduced Listening production for BBC Radio 4.