Unit 3 NEIL HARBISSON

I Listen to Color

Part 1

Well, I was born with a rare visual **condition**[1] called achromatopsia, which is total color blindness, so I've never seen color, and I don't know what color looks like, because I come from a grayscale world. To me, the sky is always gray, flowers are always gray, and television is still in black and white.

But, since the age of 21, instead of seeing color, I can hear color. In 2003, I started a project with computer scientist **Adam Montandon**, and the result, with further collaborations with **Peter Kese** from Slovenia and **Matias Lizana**[2] from Barcelona, is this electronic eye. It's a color sensor that detects the **color frequency**[3] in front of me—and sends this frequency to a chip installed at the back of my head, and I hear the color in front of me through the bone, through **bone conduction**.[4] So, for example, if I have, like—this is the sound of purple. For example, this is the sound of grass. This is red, like TED. This is the sound of a dirty sock. Which is like yellow, this one.

So I've been hearing color all the time for eight years, since 2004, so I find it completely normal now to hear color all the time. At the start, though, I had to memorize the names you give for each color, so I had to memorize the notes, but after some time, all this information became a perception. I didn't have to think about the notes. And after some time, this perception became a feeling. I started to have favorite colors, and I started to dream in colors.

So, when I started to dream in color is when I felt that the software and my brain had united, because in my dreams, it was my brain creating electronic sounds. It wasn't the software, so that's when I started to feel like a cyborg. It's when I started to feel that the cybernetic device was no longer a device. It had become a part of my body, an extension of my senses, and after some time, it even became a part of my official image.

This is my passport from 2004. You're not allowed to appear on U.K. passports with electronic equipment, but I insisted to the passport office that what they were seeing was actually a new part of my body, an extension of my brain, and they finally **accepted me**[5] to appear with the passport photo. . . .

Part 2

So I really enjoy creating, like, sound portraits of people. Instead of drawing someone's face, like drawing the shape, I point at them with the eye and I write down the different notes I hear, and then I create sound portraits. Here's some faces. Yeah, Nicole Kidman sounds good. Some people, I would never relate, but they sound similar. Prince Charles has some similarities with Nicole Kidman. They have similar sound of eyes. So you relate people that you wouldn't relate, and you can actually also create concerts by looking at the audience faces. So I connect the eye, and then I play the audience's faces. The good thing about this is, if the concert doesn't sound good, it's their fault. It's not my fault, because . . . And so another thing that happens is that I started having this **secondary effect**[6] that normal sounds started to become color. I heard a **telephone tone**,[7] and it felt green because it sounded just like the color green. The BBC beeps, they sound turquoise, and listening to Mozart became a yellow

[1] The term "condition" is often used as a euphemism to describe a medical problem.

[2] Adam Montandon is the computer scientist who worked with Harbisson originally. Peter Kese is the software designer who helped expand the number of colors the Eyeborg could pick up, and Matias Lizana worked on developing the chip for the Eyeborg when he was still a student.

[3] A "color frequency" refers to the rate of vibration per second, measured in terahertz (THz).

[4] When "bone conduction" happens, sound is transmitted to the inner ear via the bones of the skull.

[5] Note that Harbisson's word choice of "accepted me" is not correct English; however, he still communicates clearly that the passport office approved his request.

[6] The expression "secondary effect" refers to a result that wasn't intended or wasn't the main goal, but still has significance. For Harbisson, his main goal was to hear color, but then he started relating colors to every sound he heard, which was also an exciting result.

[7] When Harbisson says "telephone tone," he is likely referring to either the ring of a telephone or the sound heard when the receiver is picked up but a call hasn't been dialed yet.

experience, so I started to paint music and paint people's voices, because people's voices have frequencies that I relate to color.

And here's some music translated into color. For example, Mozart, "Queen of the Night," looks like this. Very yellow and very colorful, because there's many different frequencies. And this is a completely different song. It's **Justin Bieber's**[8] "Baby." It is very pink and very yellow. . . .

So I got to a point when I was able to perceive 360 colors, just like human vision. I was able to differentiate all the degrees of the color wheel. But then, I just thought that this human vision wasn't good enough. There's many, many more colors around us that we cannot perceive, but that **electronic eyes**[9] can perceive. So I decided to continue extending my color senses, and I added infrared and I added ultraviolet to the color-to-sound scale, so now I can hear colors that the human eye cannot perceive. . . .

We should all think that knowledge comes from our senses, so if we extend our senses, we will consequently extend our knowledge. I think life will be much more exciting when we stop creating **applications**[10] for mobile phones and we start creating applications for our own body. I think this will be a big, big change that we'll see during this century. So I do encourage you all to think about which senses you'd like to extend. I would encourage you to become a cyborg. You won't be alone.

Thank you.

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[8] Justin Bieber is an American pop singer.

[9] Harbisson calls his Eyeborg an "electronic eye."

[10] An "application" or *app* refers to software, often with one specific purpose, used on computers or smartphones.