Art

Katie Paterson
by Dean Kissick

REFLECTION ETERNAL

Katie Paterson's artistic practice journeys from the backyards of the Supernova Hunters to the W.M. Keck Observatory atop Mauna Kea, and from the present day to the beginnings of the universe. For POST she exhibits a map of every dead star ever observed in history, and a recording of Beethoven's *Moonlight Sonata* after its score was transmitted to the moon and back.

Swipe up

27,000 DEAD STARS AND 100 BILLION SUNS: TO INFINITY AND BEYOND

In Jose Luis Borges' very short story *Of Exactitude In Science*, he tells of an imaginary college of cartographers that made a 1:1 map of its empire, overlaid exactly on top of its empire, which eventually had to be abandoned out of impracticality: "Succeeding Generations came to judge a map of such Magnitude cumbersome, and, not without Irreverence, they abandoned it to the Rigours of sun and Rain. In the western Deserts, tattered Fragments of the Map are still to be found…" It's a tall tale of cartographic folly, and yet it's echoed in the stellar ambition of Katie Paterson, intergalactic mapmaker and artist-in-residence at University College London's Department of Physics & Astronomy. By attempting, and then achieving, impossible-sounding tasks – such as charting all 27,000 of the dead stars ever seen, or colour-matching every one of the 3,261 gamma-ray bursts ever photographed, or creating a lifelong slide archive of images of darkness from throughout the 14-billion-year history of the universe – Paterson's artworks travel out of space and towards the infinite.

Dean Kissick: So how did you become artist-in-residence at an astrophysics department?

Katie Paterson: I began working with Professor Ofer Lahav on my artwork ***All the Dead Stars***. Professor Lahav's a renowned cosmologist and Head of Astrophysics at University College, and his research centres on Dark Energy. Together we came up with the idea of creating an artist residency, and now I am part of the department, participating in lectures and seminars, and visiting the observatory, the library and the archives.

DK: And what was ***All the Dead Stars***?

KP: Following on from ***Dying Star (Doorbell)***, a work involving the sound of a dying star – which is close to a Middle C – I had the idea to create a map of every dead star in the universe, ***All the Dead Stars***. I wrote to over 100 astronomers, astrophysicists and "Supernova Hunters" – people who search the skies for exploding stars using telescopes in their backyards – all over the world, and this sparked off a discussion about what a "dead star" could be. Eventually we determined that there are six different types, including supernovae, white dwarves and stellar black holes. There are nearly 27,000 dead stars represented on my map, and each has a right ascension and a declination point, its coordinates in the sky. So I collected every single one of these points and, together with Dr. Mark Sullivan from Oxford University, plotted the map as an Aitoff Projection – a common way of mapping the observable universe. The map shows all the dead stars that have ever been seen and recorded by people since the beginning of time, starting from 1006 AD, but not every star that has ever died in the universe. Because every five seconds a star is dying somewhere, but we're observing them only in certain places. This is

stars – particularly along the central line, which is our galaxy.

DK: You're also showing a work called ***100 Billion Suns*** at James Cohan Gallery…

KP: Yes, every day at 3 o' clock a confetti cannon is being set off in the gallery. All the pieces of paper are different colours, each corresponding to the colours at the centre of the very brightest explosions in the universe – gamma-ray bursts, which burn as brightly as 100 billion suns combined, and are so bright that they outshine their entire galaxy. I collected all 3,261 images of each of these gamma-ray bursts, and colour-matched them, and had the colours printed and cut into confetti. I like to think of every burst of confetti as a miniature explosion containing all of these vast universal explosions.

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DK: Have you visited any of the great astronomical observatories?

KP: I travelled to the Keck telescopes, on top of Mauna Kea [a dormant volcano in Hawaii], and spent several weeks there on a trip organised by Professor Richard Ellis, from Caltech. I visited the telescopes on the summit, and also worked at base station with Professor Ellis's team. We were looking at very early stars and galaxies to have formed in the universe, and the period described as the Dark Ages. It's extraordinary that we can use the Keck telescopes to look back in time, to almost the beginning of the universe, charting cosmic history. We were looking directly at events that happened 13 billion years ago, a time before even earth existed, and yet we could see them right there, live on the screen.

DK: While we're talking about the early universe, can you tell us about ancient dust and the ***Crystal Mountain***?

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KP: For last year's Whitstable Biennale I created ***Every Night About This Time***: a series of 13 artworks that appeared and disappeared through the festival, in Whitstable and in different parts of the world. ***Crystal Mountain*** was a public notice tied around a lamppost, requesting planning permission to create a mountain made from cosmic dust. Around 300,000 tonnes of cosmic dust falls to earth each year, ancient dust falling from space, from asteroids, meteors and other planets. It surrounds us and it's part of the air that we breathe. I imagined burying a large magnet under the grass on a vacant site in Whitstable, and over 45,760,500 years it would attract the falling crystals and form a mountain.

DK: And finally, I'd like to talk about ***Earth-Moon-Earth (Moonlight Sonata Reflected From The Surface Of The Moon)***, which is playing in the background. How was it composed?

KP: I came across the technology Moon Bounce – or Earth-Moon-Earth radio transmission – with which people all over the world are sending messages to the moon and back in Morse code. It may sound fictitious but it's real. When the transmission is sent, not all of the information is reflected back from the moon, due to the craters and the lunar surface… I chose to send ***Beethoven's Moonlight Sonata***. It's quite a melancholic piece, and I liked the idea that when it came back from the moon it was somewhat shattered and broken up – and the piece of music that returned now plays on a self-performing digital piano. And the music is still recognisable, but in a way it's been torn apart by the moon. The absences and missing notes are pronounced in the imagination, as drifting in interstellar space.

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