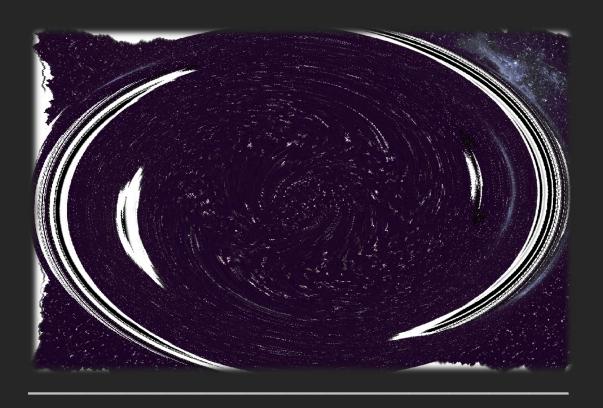
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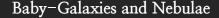
IN THE LARGE MAGELLANIC CLOUD_____



MICHEL CASSÉ

Indigenous Australians are ahead of us for the simple reason that they have discovered "intelligent" extraterrestrial creatures who are none other than ourselves, the invaders, while we are still searching for them.

I would like to pay homage to them by evoking the sky of the southern hemisphere and in particular the Large Magellanic Cloud, with some images taken with the European telescope of Chile (VLT, Very Large Telescope).





The image above indicates the existence of two baby-galaxies at the core of the Large Magellanic Cloud, two republics of stars captive to our Milky Way, which shelters the wise Sun, star of the silent majority. The little cloud, known as the Small Magellanic Cloud (on the image's left side), has 3 billion stars and the Large one (on the right side), 30 billion. In the images, we see them as small spots, but they are vast societies.

In his *Book of Fixed Stars* (964) Persian philosopher Abd al-Rahman al-Sufi called the Large Magellanic Cloud "Al Bakr," the White Ox. In his diary of the first round the world trip, Antonio Pigafetta (1480–1534) makes a dazzling description of the Cloud:

"The Antarctic pole is not as starry as the Arctic one is. For we see in it several small stars congregated together, which are in the form of two clouds a little separated from each other, and a little obscure, in the middle of which are two stars not too big, nor very shiny, and moving very little."



When we get closer to the Cloud, we realize that it is actually what the ancients called nebula, a sort of poetic and diffuse cloud. In fact, it is a part of our galaxy that seems to have become independent, as if a demiurge had scissor—cut the Milky Way and thrown two pieces of it into the sky.

This is the Large Magellanic Cloud and this red dot is perhaps the most fertile region of the nearby universe; it is a real nursery of stars. Stars are born like rats, cats or mice: by lineage. Barely perceptible, this drop of blood is called the Dorado nebula, or the Tarantula nebula, according to the mood of the moment.

The colors of matter



When I see some red, that particular red (just above), I say hydrogen. Atoms are like violins, they emit notes of lights and this red is specifically the red of hot hydrogen. Other colors emanate from the clouds so that we can discern their composition without setting foot on them. Why should we move when light comes to us? We're armchair astronomers.



Hydrogen, helium, carbon, nitrogen, oxygen, all the elements that are in your body exist in this cloud, so there is a kind of genealogy of matter. The star is the mother of the cloud and the mother of our atoms. The cloudy effervescence and chaos of stellar birth are good. Massive stars emerge and they play — in the general economy of the universe — the role of conscientious craftsman. Like bees, stars work. They open life up; we owe them great respect.



In 1987, a new and transient star visible to the naked eye appeared in the southern sky, a supernova. Tycho Brahe in 1572 and his pupil Kepler in 1604, each had the pleasure of seeing one supernova. The astronomers of the Renaissance had therefore seen a new star appear in the reputedly immutable sky and. With this one look, they exploded the crystalline spheres of Aristotle and with them the cosmology that reigned since antiquity. The sky became the site of evolution, mutation, and therefore death.

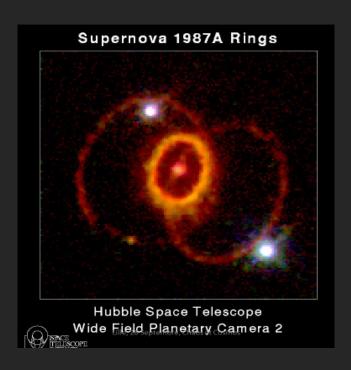
The supernovae were blooming in the telescopes, but since the Renaissance the sky was, for our eyes, uncommunicative. Meanwhile in 1610 Galileo, third founder of astrophysics – this marriage of heaven and earth in the human thought – invented the telescope. Galileo saw mountains on the moon whereas the moon was supposed to be the line

between the (mortal) sub-lunar world and the (eternal) supra-lunar world. The first world was centered on the Earth, where corruption and death reign, while the second one was presumably made of a "quintessence" – neither water, nor earth, nor air, nor fire, but a fifth uncreated and eternal essence giving to the stars their substance.

Observing mountains on the moon, Galileo deduced in 1610 that the moon is earthy. One can reverse the argument and say that the earth is heavenly: actually, the first equation in astrophysics is earth equals sky.

Star remnants

In the year 1987, all the telescopes of the world, those of the visible and those of the invisible, radio, infrared, UV, X and gamma telescopes, including those with neutrinos, were pointed towards the supernova, as if the globe of planet Earth was an eye turned toward her. This beauty has been observed from every angle, we shed light on it: like poets, with our transparent paper, we have traced the invisible.



Today, we can see the strange vestige of the exploded star, its still—hot corpse. Strange image of death, but actually of life: the explosion in the sky is creative and when analyzing the light of this region, we realize that its matter is full of carbon, nitrogen, oxygen, magnesium, silicon, sulfide, and iron, all elements favorable to life. Humankinds (*les humanités*) to be born are there, in the ashes of defunct stars.

This story will not be played forever because it will have an end. There are corpses called black holes, or neutron stars, or white dwarfs, truly excluded from this evolution.

That's what the Warlpiri say, as anthropologist Barbara Glowczewski reports:

"When someone dies of old age, of old age only, man or woman, at the moment of his agony all his relatives sing. They know that the person is leaving the *kankarlu* life from above. They sing a Dream track that was her Dream track, to which she was initiated, so that something of the person dissolves on the paths traveled during his life. But, there are two other parts of the person that remain. The child spirit, which had caught its mother and its father to be born, is the incarnation of a verse of song that has condensed into a name after having being sowed by one of these ancestral peoples of dream in a particular place. So, when a person dies, her child—spirit, with her sung name, returns to the same place to reincarnate herself into a new person."

ⁱ First published as "En rêvant dans le grand nuage de Magellan" in *The Conversation*, April 3, 2018. I thank Michel Cassé for the images he sent me.

ii See M. Cassé and B. Glowczewski, "Chaos between matter, myths and realities," Revue *Psychiatries*, p.169–170, September 2018, édition Afpep. Glowczewski's quotation continues as follows: "It is said that these children–spirits, these songs, these lines of condensed songs, are in fact *ngampurrrpa*, "desiring to live" always in a new form. But a person is not just that. She has also accomplished a destiny that is completely singular. This spirit of the dying person, of a certain age, is carried away while people sing with and by the two Magellanic Clouds. The Warlpiri say that the Little Cloud approaches the big one. In fact, it's not just two-dimensional flat two clouds that are getting closer, it's that they're sucking up the spirit of the dead."