SURVIVING GALERAS

Stanley Williams and Fen Montaigne

Analysis by Valérie Tosi

Memoir

Stanley Williams and Fen Montaigne's *Surviving Galeras* (2001) is a memoir that combines scientific reportage with first-person narrative to recount the 1993 tragic eruption of the Galeras Volcano, Colombia. Williams and Montaigne explore the allure and peril of volcanology, portraying the volcano as a fascinating living entity whose unpredictable, violent behaviour unveils the limits of human knowledge. The novel also examines the themes of loss, trauma and recovery.

Year of Publication	2001
Publication Place	London
Editor	Little, Brown, and Company
Entity	14th January 1993 eruption of Galeras

GEOLOGICAL ANALYSIS

Volcanic eruption 14th January 1993 eruption of Galeras

REAL EVENT

Time	January 14, 1993
Location	Nariño Colombia
Coordinates	1.221550, -77.359234
Impacted Areas	the volcano's base
Base/Complex	Northern Andean Volcanic Arc

Typology

Explosive

"the volcano ejected tons of rocks and ash […] a fusillade of red and white-hot stones – some the size of tennis balls, some the size of large TV sets – sizzled through the air" (Williams and Montaigne 127)

	Explosive "the volcano ejected tons of rocks and ash" (Williams and Montaigne 127)
Volcano/Eruption Typology	Terrestrial Complex "a stratovolcano with a large breached caldera located immediately west of the city of Pasto" (Smithsonian Institution, Global Volcanism Program, https://volcano.si.edu/volcano.cfm?vn=351080)
Anthropization Level	Cities
Ecological Impacts	Changes In The Volcano's Shape "The western rim, where Geoff Brown, Fernando Cuenca, and Carlos Trujillo stood, had been partially blown away by the eruption. Portions of the crater's southwestern lip had collapsed. Even the outer flank of the crater, where I had run for my life, had changed, its lower reaches littered with boulders — some as big as washing machines — thrown from the volcano" (Williams 10)
Social Impacts	Deaths Igor Menyailov, Nestor Garcia, Geoff Brown, Fernando Cuenca, Carlos Trujillo, José Arlés Zapata, Efrain Armando Guerrero Zamboni, Yovany Alexander Guerrero Benavides, Henry Vasquez Injuries Stanley Williams, Andy Macfarlane, Michael Conway, Luis Lemarie Trauma "Mike, Luis, and Andy would say that my version is wrong. I concede that my memory of events just before the eruption may be faulty, but given the trauma we all experienced, I don't accept their account as gospel, either" (Williams and Montaigne 209)

Volcanic eruption 14th January 1993 eruption of Galeras

LITERARY EVENT

Time	January 14, 1993
Location	Nariño Colombia
Coordinates	1.221550, -77.359234
Impacted Areas	the volcano's base
Emphasis Phase	Pre-disaster (causes / context), Disaster (phenomenal and social dynamics), Post-disaster (consequences)
Base/Complex	Northern Andean Volcanic Arc
Volcanic Risk Ref.	Referenced
Typology	Volcanic Bombs, Ash Rainfall, Gases
Volcano/Eruption Typology	Terrestrial, Complex
Anthropization Level	Cities

Ecological Impacts	Changes In The Volcano's Shape
Social Impacts	Deaths, Injuries, Trauma, Recovery

INDIVIDUAL REACTIONS & AFFECTS

Attitudes

Name	Stanley Williams
Age	Adult
Gender	Male
Native Place	Usa
Nationality	American
Reactions	Awareness, Caution, Fascination, Curiosity, Acceptance

Name	Igor Menyailov
Age	Adult
Gender	Male
Native Place	Russia
Nationality	Russian
Reactions	Awareness, Caution, Fascination, Curiosity, Calm, Happiness, Acceptance

Name	Nestor Garcia
Age	Adult
Gender	Male
Native Place	Colombia
Nationality	Colombian
Reactions	Awareness, Caution, Calm, Fascination, Curiosity, Acceptance

Name	Geoff Brown
Age	Adult
Gender	Male
Native Place	Uk
Nationality	English
Reactions	Calm, Curiosity, Fascination, Awareness, Caution, Acceptance

Name	Fernando Cuenca
Age	Adult
Gender	Male
Native Place	Colombia

Nationality	Colombian
Reactions	Calm, Awareness, Caution, Fascination, Curiosity, Acceptance

Name	Carlos Trujillo
Age	Adult
Gender	Male
Native Place	Colombia
Nationality	Colombian
Reactions	Calm, Awareness, Fascination, Curiosity, Caution, Acceptance

Name	José Arlés Zapata
Age	Adult
Gender	Male
Native Place	Colombia
Nationality	Colombian
Reactions	Calm, Caution, Awareness, Fascination, Curiosity, Prayer, Fatalism, Acceptance

Name	Andy Macfarlane
Age	Adult
Gender	Male
Native Place	Usa
Nationality	American
Reactions	Calm, Awareness, Fascination, Curiosity, Caution, Acceptance

Name	Michael Conway
Age	Adult
Gender	Male
Native Place	Usa
Nationality	American
Reactions	Awareness, Calm, Fascination, Curiosity, Caution, Acceptance

Name	Luis Lemarie
Age	Adult
Gender	Male
Native Place	Ecuador
Nationality	Ecuadorian
Reactions	Awareness, Acceptance, Calm, Caution, Curiosity, Fascination

Reactions

Name	Stanley Williams
Age	Adult
Gender	Male
Native Place	Usa
Nationality	American
Reactions	Terror, Escape, Survival Instinct

Name	Igor Menyailov
Age	Adult
Gender	Male
Native Place	Russia
Nationality	Russian

Name	Nestor Garcia
Age	Adult
Gender	Male
Native Place	Colombia
Nationality	Colombian

Name	Geoff Brown
Age	Adult
Gender	Male
Native Place	Uk
Nationality	English

Name	Fernando Cuenca
Age	Adult
Gender	Male
Native Place	Colombia
Nationality	Colombian

Name	Carlos Trujillo
Age	Adult
Gender	Male
Native Place	Colombia
Nationality	Colombian

Name	José Arlés Zapata
Age	Adult

Gender	Male
Native Place	Colombia
Nationality	Colombian
Reactions	Escape, Survival Instinct

Name	Andy Macfarlane
Age	Adult
Gender	Male
Native Place	Usa
Nationality	American
Reactions	Terror, Escape, Survival Instinct

Name	Michael Conway
Age	Adult
Gender	Male
Native Place	Usa
Nationality	American
Reactions	Terror, Escape, Survival Instinct

Name	Luis Lemarie
Age	Adult
Gender	Male
Native Place	Ecuador
Nationality	Ecuadorian
Reactions	Escape, Terror, Survival Instinct

Name	Patty Mothes
Age	Adult
Gender	Female
Native Place	Usa
Nationality	American
Reactions	Order, Cooperation, Solidarity

Name	Marta Lucía Calvache Velasco
Age	Adult
Gender	Female
Native Place	Colombia
Nationality	Colombian

Reactions	Order, Cooperation, Solidarity

COLLECTIVE REACTIONS & AFFECTS

Attitudes

Name	Scientists
Reactions	Calm, Acceptance, Curiosity, Fascination

Name	Indigenous people
Reactions	Calm, Fatalism, Awareness

Name	Politicians
Reactions	Scepticism

Affects/Reactions

Name	Scientists
Reactions	Escape, Terror, Survival Instinct

Name	Women
Reactions	Order, Cooperation, Solidarity

LINGUISTIC & STYLISTIC ANALYSIS

Keywords	Volcanology; Disaster; Survival; Unpredictability; Geological Time; Ethics Of Risk
Metaphors	"moonscape" (Williams and Montaigne 2); "chain of incarnations" (82)
Similes	"whooshing sound much like that of a steam machine used to clean buildings" (Williams and Montaigne 2); "like the sullen growl of an angry wild beast" (32)
Motifs, Topoi, Mythologemes	Cruel Nature, Nemesis, Death, Technocracy, Superstition
Syntax	Hypotaxis, Complex Noun Phrases
Punctuation	No Peculiarities
Morphology	Preference For Nouns Adjectives

Stanley Williams and Fen Montaigne's *Surviving Galeras* (2001) is a co-authored first-person account of the 1993 Galeras disaster, a volcanic explosive eruption in the Northern Andean volcanic zone that injured four scientists, killed six of them and three local tourists. The memoir deals with the Galeras expedition on January 14 and the unexpected tragedy, combining Williams' memories with others' memories, accounts of historical eruptions, and reflections on volcanic risk and the profession of volcanologist. The expedition was the outcome of a scientific conference held in the city of Pasto, Colombia, in January 1993, which was part of a United Nations program named "International Decade for the Rweduction of Natural Hazard". On that occasion, Williams agreed to organise a geology workshop, leading twelve scientists on the volcano to study gas emissions, microgravity, temperature and pressure variations. Galeras had been quiet for decades until 1988, when it began to eject pyroclastic material. By 1993, the volcano consisted of a mile-wide amphitheatre with a 450-feet-high cone in its centre. On January 14, some scientists of the group went to the rim of the cone, while others entered its inner lip to collect gas samples. At first, the study trip went well. Then, at 1.41pm, the volcano began to shake. Pressure that had been accumulating beneath Galeras's dome erupted violently and without warning. Scorching-hot rocks, some as large as television sets, were hurled skyward and then began to fall on the group of scientists below. One of the rocks hit Williams, who, severely injured, stumbled down the slope. Two geologists who had been working not far from the volcano on the path of the Camino Real, namely Marta Calvache and Patty Mothes, finally rescued him. Five members of the party – Igor Menyailov, Nestor Garcia, Geoff Brown, Fernando Cuenca, Carlos Trujillo – disappeared without trace, while four bodies – those of the volcanologist José Arlés Zapata and the three tourists who had climbed Galeras intrigued by the scientists' investigations – were found dead among the rocks.

Surviving Galeras is not merely a chronicle of a disaster; it is a profound meditation on humanity's relationship with the primal forces of nature. Through vivid descriptions, scientific explanations, philosophical reflections, and psychological introspection, Williams depicts the sublime beauty of volcanic landscapes while exploring the complex psychology of the volcanologist, and the existential tension between human and geological time.

In the Prologue, Galeras's crater is described as a fascinating "moonscape" (Williams and Montaigne 2), a place of desolation, sulphuric vapours, and a spectral silence reflecting "the eerie quiet of the earth's interior" (2), while its fumaroles emit a "*whooshing* sound much like that of a steam machine used to clean buildings" (2, emphasis in original). The author's sensory-rich description of colours, smells, and sounds, and his use of figurative language transport the reader into a landscape that is both hostile and mesmerizing. For the common traveller, the surrounding environment of Galeras may appear to be a tropical paradise dotted with bougainvillea, banana plants, and coffee trees. Yet to the trained eye of the geologist, this landscape is deceptive. Indeed, Williams does not contemplate an exotic Eden but observes the fossil record of past catastrophes: ash deposit, lava flows, and pyroclastic layers hidden beneath pastures and paths.

The characterisation of the crater as an alien space serves to introduce the figure of the volcanologist as a sort of science hero, whose main attribute is a deliberate defiance of terror. While ordinary people instinctively flee eruptions, volcanologists "head straight for them" (5). Williams and his colleagues embody this paradox: their profession, as he notes, is "counterintuitive" (5) because is rooted in a conscious decision to confront risk. The fascination they feel is deeply tied to a sense of awe, an awareness of standing at the boundary between Earth's surface and its fiery heart. Volcanoes, Williams writes, release "the most basic energy of the universe" (6), reminding us of the Earth's origins and humanity's insignificance. He also emphasizes how his work is more than scientific, it is humanitarian: the volcanologists' goal is not just to understand but to save lives by forecasting eruptions. The volcanologist is therefore a tragic figure: on the one hand, they embrace risk in the hope of progress; on the other, their endeavour is constantly humbled by nature's unpredictability. In chapter 6, "The Volcano Lovers", which seems to take its title from Susan Sontag's biofictional novel on William Hamilton, Williams offers an overview of various scientists that, over the centuries, fell in love with volcanoes, and in some cases met death while carrying out their investigations. Among those mentioned are Pliny the Elder, William Hamilton, Katia and Maurice Krafft. The volcanologist's scientific and humanitarian mission demands a willingness to accept that absolute certainty is impossible, as Patty Mothes explains to a reporter who is in search of a "prediction" (27). Reporting

her statements also to evoke the reader's empathy, Williams highlights how volcanology is a science still in its infancy, full of ambiguities, gaps, and inescapable risks. In this context, volcanologists are not just scientists but also existential gamblers: they must always be "watchful" (27), placing reason and experience in opposition to the unpredictable whims of nature. By using subtle similes, the author clarifies how volcanic risk is never easy to predict. In chapter 2, "Puzzle", the author maintains that

> decipher what [is] going on inside a volcano [is] like trying to put together a complex, three-dimensional puzzle for which you [have] only a quarter of the pieces, [having to] fill in the blanks with your best assumptions (44).

By using another striking simile, Williams compares volcanologists to "pathologists" (7): as pathologists perform autopsies to investigate inner damages, volcanologists examine the "bodies" of dormant or extinct volcanoes to understand how and why catastrophic events occurred. This analogy humanizes the volcano, casting it as a living organism with its own life cycles and crises. Moreover, instruments like the gravimeter are compared to medical CT scans, as if they were tools for reading the hidden mechanisms under the volcano's surface. By using gravimeters Williams and his colleagues "tak[e] the volcano's pulse" (3) and try to look inside "the earth's core" (66) as if it were a maternal womb.

In 1986, during his first excursion on Galeras, Wiilliams received a burn on his forehead. In his memoir, he ironically states that on that occasion Galeras had "welcomed [him] with a kiss" (91), emphasizing the volcano-body metaphor, and the representation of volcanologists and volcanoes as lovers involved in a complex and sometimes destructive relationship. The personification of Galeras involves also a reference to its "chain of incarnations" (82), presented as a family tree from the ancestor volcano, Coba Negra, to grandfather Jenoy, father Urcunina, and finally young Galeras. What strikes the reader is that the 'biography' of Galeras in chapter 4 comes shortly before the biographies of the volcanologists in chapter 5, as if Williams aimed to underline the insignificance of human time compared to millennia of geological transformations. The concept of deep time has become a tool for science communication, especially in the context of Anthropocene. Cinema and literature have similarly used the idea of deep time to encourage a shift in public perception of climate change, natural disasters, and human responsibility (Menley and Taylor 2017; Chakrabarty 2018). While the eruption of January 14, 1993 was a catastrophic event for those involved, the author points out that, on the scale of geological history, it was barely a "hiccup" (10). What to us is disaster, to the Earth is routine. This relativization challenges our concepts of catastrophe and permanence: human beings and civilisations are extremely fleeting compared to the slow, relentless processes of plate tectonics and magma movements.

The personification of the volcano involves also the semantic field of monstrosity. In the Prologue, Galeras is characterised as a roaring entity blowing poisonous vapours (Williams and Montaigne 6). Even in the historical digressions Williams builds on images pertaining to monstrosity. For example, he reports that the sound produced by a *nouée ardente* during Mont Pelée's eruption in 1902 was described by volcanologists John S. Flett and Tempest Anderson "like the sullen growl of an angry wild beast" (32). Also French volcanologist Katia Krafft defined volcanoes "beast[s]" (101) always ready to catch [their] observers. Williams saw erupting Galeras as "a large beast that was toying with [him]" (141), making him feel "helplessness, vulnerable, inconsequential […] at the volcano's mercy" (141). Other personifications evoke the earth-body metaphor: when Igor was on the Sheveluch, the Russian volcano "cleared its throat" (59) throwing stones into the air; Marta uses the expression "throat-cleaning eruptions" (73) to define pyroclastic flows; in January 1993, Michael Conway did not know whether Galeras "was just coughing a little bit or was clearing its throat in preparation for a major eruption" (143-144). During the eruption, Galeras' behaviour was that of a boxer, "knocking [him] on the ground" (128) by means of a barrage of rocks. The volcano "behaved capriciously, as natural forces are wont to do" (151), while scientist were "fooled" (151) by its deceptions and fecklessness. In these passages, the use of personification emphasizes the unpredictability of Galeras in both its involuntary organic performances (the throat-cleaning and coughing) and apparently intentional hostile behaviour (the stone-throwing). This anthropomorphic portrayal underlines the idea that nature, while not conscious in the human sense, has a power that appears sentient when unleashed, testing the limits of human understanding.

On a stylistic level, hypotaxis dominates the prose of the memoir. The narrator uses complex, subordinate sentences that mirror the intricacy of scientific investigation. Adverbs of manner and time, subordinating conjunctions, dashes and parentheses are used to build complex arguments and clarify sequencing. Parataxis is used in the most dramatic scenes, where shorter sentences and abrupt punctuation contribute to expressing tension and pressure of events. The memoir is rich in geological jargon, reflecting the author's professional background. However, terms like "fumarole", "gravimeter", "pyroclastic flow", "nuée ardente", "magma dome", "tornillos" are explained to help the non-expert reader to understand complex scientific arguments. Furthermore, in several passages, technical language is tempered by vivid analogies that facilitate the reader's mental visualization of the phenomena described.

On a thematic and philosophical level, *Surviving Galeras* deals with the theme of hubris, which in this memoir is declined as a blind faith in scientific understanding and measuring tools that reveals itself to be misplaced. Volcanologists think that they "are learning to control or manipulate geological hazards, but the earth has a mind of its own" (207). Williams admits that his initial aim was to "conquer Galeras" (211), before the volcano showed him "who was boss" (211). This personification repositions the human within the geological realm, suggesting that "old good nature" (207) can create or destroy life following its own laws and mechanisms. The only certainty is that "the past is prelude to the future" (218) and that "in volcanology, progress often comes in the heels of disaster" (160).

Concerning risk assessment and preparedness, the geologists, geochemists, and volcanologists present during the 1993 eruption of Galeras were caught off guard. Although they were skilled in monitoring gases, ground deformation, and seismic activity, key warning signs like the "tornillos" (which signalled long-period earthquakes) had not been properly interpreted or communicated. Basic safety measures such as fireproof suits or helmets were overlooked. Furthermore, three tourists living at the foot of Galeras were allowed to approach the crater. The scientists' and tourists' responses to the sudden disaster were driven by instinct and confusion, with fight for survival prevailing over solidarity. After the eruption, Williams responded with shock and emotional detachment, while other survivors like Adams, Macfarlane, and Conway stopped working on active volcanoes. The event profoundly changed their understanding of risk and ultimately led to greater emphasis on field safety and improved protocols within the scientific community.

In *Surviving Galeras*, the attitudes of the media, politicians, and people toward volcanic risk are portrayed as contrasting and, at times, problematic. These aspects were discussed also by Marta Luci Calvache Velasco, who noticed how some local communities "lost confidence in the volcanologists and the government" (Calvache Velasco 1615), while others believed that "the volcano was venting its anger on foreigners that went to disturb it" (1615). After the 1985 eruption of Nevado del Ruiz and the increase of Galeras's seismic activity in 1988, the media often sought sensationalism, exaggerating the threat and leading politicians to proceed preventive evacuations that proved useless and upset local investors and businessmen. This irrational response led to a breakdown in communication and risk perception, until the mayor of Pasto called for "de-Galerization" (Williams and Montaigne 153) to bring an end to scaremongering. In this context, Indigenous residents like Carmilla Bastidas and Doris Rojas maintained that Galeras was their "brother" (224) and the scientists died because "they disturbed the volcano" (224). This cultural attitude clashed with scientific approaches to risk, unveiling not only deep gaps between traditional knowledge, public perception, and institutional preparedness, but also the consequences of neocolonial politics of relocation. These cultural aspects have been discussed in Jessica K. Roberts's PhD Thesis in Environment and Geography: Consaca Indigenous people see Galeras as "something magical" (Roberts 112) and creator of life; the Mapachico community described it as a "friend" (116), while the Genoy people consider it a "father" and "protector" (117).

In her 2001 book on the disasters at Galeras and Nevad del Ruiz, Victoria Bruce argued that Williams had overlooked seismic data indicating a possible eruption of Galeras and had acted recklessly regarding safety, causing deaths and injuries. Furthermore, she accused him of unreliability for having distorted his involvement in the events in his interview with *The New York Times* and in the NBC's *Today Show* (Bruce 2001). Other incidents concerning Williams' appropriation of other scientists' ideas and data were reported by various journalists in the years following the tragedy, resulting in a public questioning of his credibility as a scientist and a man (Dalton 2001). Apart from issues of

attribution of scientific findings, Williams' account of the Galeras disaster is not only a profound, personal reflection on his dramatic experience on the Colombian volcano, but also a moving tribute to his deceased colleagues and the other survivors of the eruption. In chapters 3 and 5, he mentions Igor Menyailov, Nestor Garcia, José Arles Zapata, Fernando Cuenca, and Carlos Enrique Trujillo, highlighting their professional and human skills. Regarding the dynamics of the events occurred on January 14, 1993, he admits that the brain injuries sustained and the trauma he went through might have affected his memory of the tragedy. On a psychological level, *Surviving Galeras* can be read as a tool for reconstructing the events, recovering his disrupted memory, and heal a trauma that has haunted him for years.

Williams' memoir is meaningful also from an educational perspective, introducing key ideas in the science and balancing them with a personal narrative. Indeed, this first-person account from the front lines of scientific research engage readers not only cognitively but also ethically and emotionally, resulting in a better understanding of the sociocultural and psychological dynamics of risk assessment and responses to natural disaster. In a sense, they also offer a multilayered representation of the volcanologist's mind.

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