STORY *Bernadette Gilbertas*

In love with lava

For thirty years, volcanoes have been the consuming passion of the photographer Olivier Grunewald, whose pictures attempt to capture the world as it may have looked in its formative stages

Previous pages: Ol Doinyo Lengai in Tanzania is the only volcano in the world known to throw out so-called "carbonatite" – that is, carbon-rich lava. The liquid lava is black but whitens when it cools and solidifies. These pages: Olivier Grunewald (right) spent nearly 30 nights shooting the blue flames at the Kawah Ijen crater in Indonesia, where miners work to extract sulfur (left)

PHOTOGRAPH THIS PAGE: FABRICE DIGONNET

Charred tree trunks raise their scrawny skeletons against the black sky. The forest at the top of the volcano could not withstand the assaults of the wind that drove the toxic fumarolic gas onto its slopes. In the beams of our forehead lamps, the stones glow with a strange intensity: these are little lumps of rock that have fallen from the heavily loaded baskets brought up by the miners, day after day. At the opening of a narrow gully, the wind suddenly changes direction. The whole crater is revealed, an acid-green lake shimmers under the halo of the moon, and, in another direction, there are bright ice-blue flames. Those are torches of burning gas, up to 16 feet high, dancing and licking, flying along a hill of sulfur, in a gigantic blaze that can be seen only at night. Muted, repeated blows resonate in the depths of the declivity. The sulfur miners of Kawah Ijen in Indonesia are surrounded by toxic gases, illuminated by the orange light of their torches. They are working hard to extract the solid precious mineral that is formed when the liquid sulfur cools.

It is for such scenes, reminiscent of creation itself, for the extreme emotions generated by the grandeur, intensity, and beauty, and for the wildness of nature in its raw state that Olivier and I, respectively as a photographer and a journalist, have been traveling around the planet for more than 30 years.

It all began in Iceland, with our first journey and our first exploration of the geologically young island. Overwhelmed, we walked over the austere landscapes, where the history of the earth unfolds on an almost daily basis. Iceland is highly volcanic; its landscapes are still in gestation, and its frozen lava flows vividly evoke images of the creation of the world. We heard muted knocking echoing on the edges of hot springs and geysers, and saw icebergs floating in the chiaroscuro of the Arctic summer, sulfurous emanations from turquoise pools, and the softness of moss furring the surface of ancient lava. It was there, in the middle of still smoking lava, on the top of windbeaten cliffs where thousands of puffins swirled in the air, that our shared passion for nature, wide open spaces, and wild animals became the focus for the direction of our lives.

Then, a few years later, we visited the peak of Stromboli in Italy, seeking visual inspiration for *Images of Creation*, a photographic book on cosmogony that we were planning to publish. For the first chapter, on "chaos," we spent sleepless nights on the summit of that big volcano, which thrusts up among the Italian Aeolian Islands. It was nearby Etna, the powerful and redoubtably active almost 11,000-foot giant that dominates Sicily, that first inspired Olivier's passion. It was the first time he and I witnessed incandescent

Erupting since 1983, the Kilauea volcano, on Big Island in the Hawaiian archipelago, spouts out torrents of lava (left), which flow through tunnels and stick their claws into the ocean. Although tiny in comparison, Tavurvur (right), on the island of New Brittany, Papua New Guinea, offers some spectacular visual and aural experiences

lava flows – constantly changing forms, color, and movement all creating an incredible dynamism.

Since then, Olivier has thought of only one thing: to continue exploring the world of volcanoes and experiencing the heady thrill of the lava torrents.

"Setting out to conquer the volcanoes, I discovered that there was a community of fanatics ready to head out wherever the earth's sudden caprices were making the news," says Olivier. "Today, I am one of them. We keep an eye on tellurian activity around the world and are glued to the logs put out by volcanological observatories, to the specialist websites and weather reports...With them, I have learned how to deal with volcanoes, how to adapt, how to limit the danger. I get no pleasure from danger. What attracts me is the power of phenomena, of their beauty." The risks involved are always carefully assessed. The main one comes not from volcanic activity itself but from the difficulty and inaccessibility of the terrain. "While, of course, my equipment needs to be protected from the heat of the ashes, there's more to the constraints than just technical matters. Being physically ready for the work takes a lot of preparation. You don't get much sleep and must carry a heavy load over rough terrain that is full of surprises," he says.

Logistical preparation is thorough when it comes to carrying equipment: one hundred porters were needed when going to the summit of Nyiragongo in the Democratic Republic of Congo in 2011. The same applies to the potential need to carry the injured. But passionate volcano observers rarely have accidents. As for Olivier, the worst conditions he has experienced were in Kamchatka, Russia, but not because of volcanic eruptions: it was due to the cold. After 11 days spent camping in temperatures ranging between -4°F and -22°F, one of his feet became frozen, not something that you would usually expect to happen on a volcano.

Olivier's credo could be summed up as follows: leave in a hurry, but not at the price of safety. He is never alone on a volcano. He knows that he needs to be surrounded by teammates who are capable of anticipating and warning him in case of danger, while he, himself, keeps his eye on the camera.

Of approximately 1,500 potentially active volcanoes worldwide, around 20 to 30 will be in a state of eruption, and whenever he travels to a new destination, Olivier

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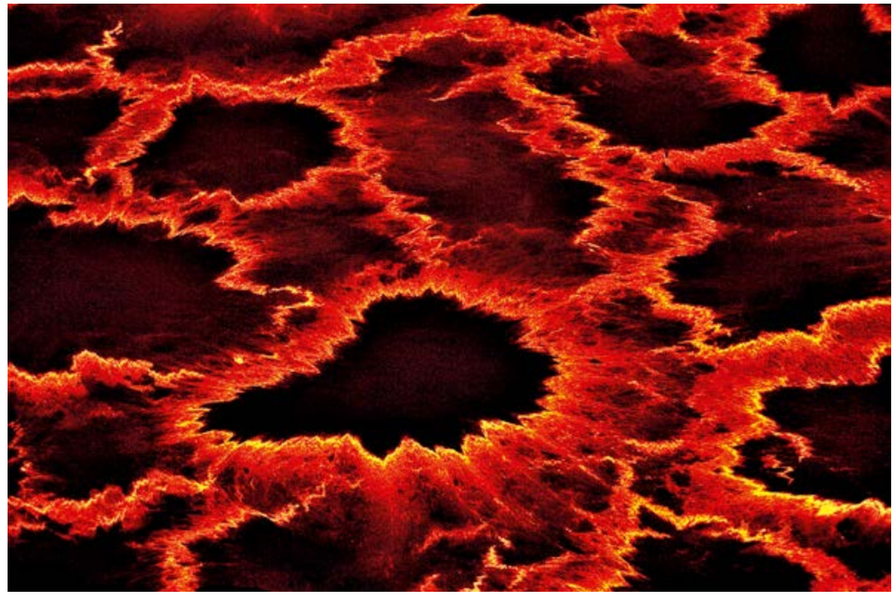

Previous pages: Erta Ale, known as "the smoking mountain," in Ethiopia's Afar region is a caldera (or crater) more than 260 ft deep. Until recently, it contained one of the world's few active lava lakes, which collapsed in January 2017. Left: in Hawaii, this gargoyle-shaped solid lava form spouts magma. Right: rafts of solidified lava float on the surface of Nyiragongo's lava lake (in the Congo), which glows beneath the gaps as if warning us of its menace

strives to illustrate the diversity of volcanic phenomena, to find the most surprising images. The challenge is to bring out those curious annular plumes of ash at Santiaguito in Guatemala; to magnify the strange orange incandescence of lava on the Tanzanian volcano Ol Doinyo Lengai; to capture the power and dynamism of the explosions of Yasur on Vanuatu, in the South Pacific, whose shock waves shake us to the core. How do you reveal the beauty of the lava fountains that spout from the immense volcanic spaces of the Russian Far East, that temporarily warm the cold shroud of ash and snow?

Thirty years and 40 volcanoes later, Olivier's passion is intact. For both of us, nature reportage has always been an end in itself and an opportunity to share powerful moments and strong sensations. Equally important to us is our engagement alongside activists and scientists who devote their lives to protecting nature. For example, Olivier has made several expeditions with members of Geneva's Society for Volcanology to help scientists working in the immense crater of Goma, where the volcanologists of the Democratic Republic of Congo have few resources. In 2010 the team made its collective dream come true: to walk on the shore of the biggest lava lake on the planet. "For a few minutes, I felt completely outside reality, hypnotized by the boiling magma at my feet. Only the crackling radio of my teammate, who had stayed there to monitor my progress, made me realize that the activity was getting extremely close and brought me back to earth, so to speak," he says.

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On our most recent expedition, to the hydrothermal site of Dallol in Ethiopia, we launched a research program with French and Spanish scientists, looking at the biology of extreme environments. Based on studies carried out in 2016 and 2017, it is believed that the hot springs in the East African part of the Great Rift Valley could offer a fairly accurate picture of the world when life first appeared three and a half billion years ago. But today this scientific crucible is threatened by potash mining. And we face a new challenge: persuading the local authorities to ensure the protection of this unique site, which may give us the key to understanding life on earth and – why not? – on exoplanets. ✥

Translated by Charles Penwarden

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