

# JUST BENEATH THE SURFACE: A REPORT ON THE TRANSDISCIPLINARY FUME RESEARCH AT THE TEMPLE OF APOLLO AT DELPHI

*Elisa Cuttjonn, S.R.C.*

**I**n addition to all of the ancient traditions surrounding the Oracle at Delphi, modern science has recently verified the geological and chemical bases of this revered site. This study leads us through the modern developments that have astounded scientists and historians alike.

Just beneath the surface of everyday life lies something extraordinary, something magical. Perhaps nowhere has this been better demonstrated than in Delphi, home of the ancient Oracles—the women prophetesses.

Ancient historians reported that gases, wafting from the floor of the Holy of Holies in the Temple of Apollo, coincided with the Oracles' extraordinary abilities to see beyond the usual limits of time and space; however, European researchers in the early part of the last century put an end to such nonsense. The findings from the excavations at the newly uncovered temple showed no crevasses or fissures through which such gases could have escaped, casting doubt on the source and even the existence of the Oracles' abilities. This theory dominated academia for almost one hundred years.

Then, in the last years of the twentieth century, serendipity brought together researchers from various fields to vindicate the ancient sibyls. Their transdisciplinary research uncovered one of the most elusive secrets of the ancient world—one of the possible sources of the Oracles' ability to reach other states of consciousness. This synergistic collaboration between a geologist, archaeologist, geochemist, and health professional resulted in a convincing



Aegeus consults the Pythia, who sits on a tripod. From an Attic red-figured kylix by the Kodros painter, ca. 440-430 BCE.

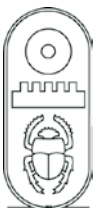
argument that overturned the prevailing theory that had misled and stifled researchers for almost a century.

## Who Were the Oracles at Delphi?

At least as far back as 1600 BCE, women in the area of Delphi demonstrated an unusual ability to see beyond the usual limits of time and space. Later, the newer Olympian-based religion appropriated Delphi as an important center dedicated to their god, Apollo. The Oracles then became priestesses who spoke on behalf of the god himself. The ancient writer Plutarch, a Delphic priest, among others, wrote about their prophetic sessions. He described gases wafting up from the floor of the Holy of Holies, the *adyton*, and a sweet smell that accompanied the Oracles' unique abilities.

## What Was Known Before?

Beginning in the late 1800s, French archaeologists excavated the temple area. Their reports stated that there was evidence of a spring, which as Pausanias had suggested, rose up in the Holy of Holies.



However, there were no fissures, no vaporous clefts, nor a bottomless abyss. The official report stated, "Thus, on the level where the Western foundations were established, the ground is virgin, without the remains of pottery, without a trace of upheaval. *There was never a crack in this part*, much less an artificial or natural excavation."

Several scholars, venturing outside their fields of expertise, perpetuated this theory until the possibility that there was a physical source for the Oracles' abilities or that they even possessed such abilities was generally disregarded. In 1904 a young English scholar, Adolph Paul Oppé, published a paper entitled, "The Chasm at Delphi." In it he stated that the foundations of the Temple showed no signs of an adyton or fissures, and there was no possible means for production of the fumes. He went on to present his own geological guesswork (he was an historian, not a geologist) that was erroneous in almost every way.

In 1907, Frederick Poulsen, a Danish scholar specializing in classical art, wrote in his influential book on Delphi, "The French excavations have not exposed any bottomless abyss from which strong and stupefying gases

could be supposed to rise. One does well to reject the physical and hold fast to mental causes, hysterical affections, which in every religion make women serviceable media."

The renewed interest in Delphi and its priestesses that began in the 1800s subsided. Now, officially certified as "hysterical" women, the Oracles would lie voiceless again for nine more decades.

### What Modern Researchers Discovered

The recent discoveries began with the work of Jelle de Boer, a geologist who grew up in seismically active Indonesia. In 1979 he was hired to assess the geology around Delphi. The Greek government was considering building nuclear power plants in the area to deal with their energy shortage and pollution problems. While exploring the area, de Boer saw a large fault running east-west through Delphi.

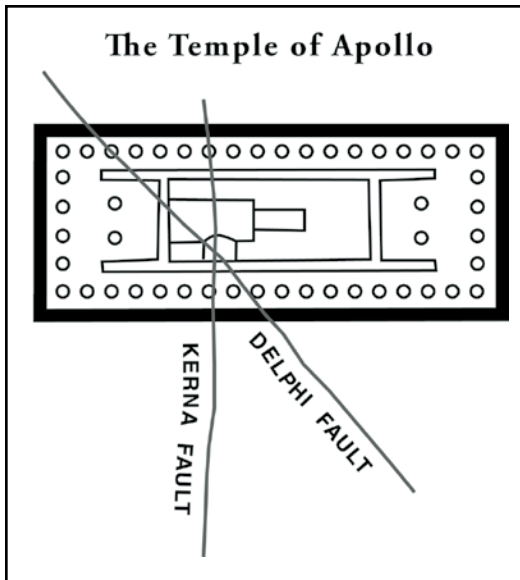
In 1995 he happened to meet John Hale, an archaeology teacher at the University of Louisville. Hale was working on an archaeological site in Portugal and had some questions that required the expertise of a geologist. One of Hale's colleagues told him that she knew of a geologist, de Boer, who happened to be in Portugal at the time. The two met and eventually de Boer shared his experience of seeing the fault at Delphi. Hale told him this was impossible, as researchers had ruled out this possibility. Thus began their collaboration.

Hale began researching original texts from ancient writers such as Plutarch, Strabo, Homer, and Euripides. He happened to come upon several important documents that proved to be especially helpful to de Boer's geological work. Hale wondered why this area in particular was so special, how did it set the conditions for the unique abilities of the Oracles?

In the late 1990s, the team needed a geochemist to analyze rock samples they took from the adyton, with special permission from the Greek government.



Entrance to the sanctuary of the goddess Gaia (Earth) and former spring. Underneath the Temple of Apollo. Photo from the Rosicrucian Archives.



Map showing the two faults that cross under the Holy of Holies in the Temple of Apollo.

The travertine rocks, a natural stone made of calcium carbonate, may have trapped ancient gases inside them as they formed. They chose Jeffrey P. Chanton with Florida State University in Tallahassee. Chanton found ethane and methane in the rocks, but neither of these would have caused the behavior or abilities of the Oracle.

De Boer asked Chanton if he found any ethylene, a colorless, flammable hydrocarbon gas known to ease pain and induce euphoria and dreamlike states. Chanton reported that no ethylene had been found, however this did not surprise him since it was lighter and evaporated much more quickly than the other gases that had been found. He suggested that water samples be taken from nearby springs (the main spring that ran through the Temple of Apollo had dried up centuries ago). Ethylene would not disappear as quickly in the water samples.

Not only did the water samples contain ethylene, Chanton found that the highest concentrations were in areas where two faults crossed. Now the researchers knew why this area in particular was so special. De Boer had previously discovered a second fault that intersects in Delphi, forming an X under the adyton in the Temple of Apollo.

In 2000, a fourth collaborator was brought in to explore the effects of ethylene on human beings. Rick Spiller, a toxicologist, was the director of the Kentucky Regional Poison Center in Louisville. Hale called on Spiller to provide information on the effects of inhaling ethylene. Spiller researched the history of ethylene, a sweet smelling gas that had been used as an anesthetic for many years. In 1882 William James, Harvard Professor and president of the Society for Psychical Research, wrote an essay on his experiments with ethylene. He stated, "The keynote of the experience is the tremendously exciting sense of an intense metaphysical illumination. Truth lies open to the view in depth beneath depth of almost blinding evidence. The mind sees all logical relations of being with an apparent subtlety and instantaneity to which its normal consciousness offers no parallel." In the 1970s ethylene was replaced by less volatile anesthetic gases, as ethylene is highly explosive.

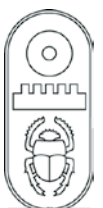
Spiller also led and even participated in an experiment in which he and two other subjects inhaled ethylene. This produced giddiness in all the subjects and an insensitivity to pain.

### Implications of Recent Findings

What are the implications of the recent findings?

It took the entire team to produce their results—more than a geologist, archaeologist, chemist, or health professional would have been able to accomplish alone. Their transdisciplinary expertise included such diverse areas as Greek history and religion, toxicology, academic validation, chemistry, volcanoes and earthquakes, continental drift, and much more.

Collaborating and sharing their knowledge and expertise may have solved one of the most intriguing mysteries from the ancient world. However, what may be even more important is what their research did not reveal. The Oracles at Delphi inspired Greeks for millennia. Surely, their



source of power was something more than getting high on ethylene.

The team's leader, de Boer, points out that "the team's discoveries said nothing about a range of oracular feats that were indisputably real. For instance, the chemical stimulus in no way explained the Oracle's cultural and religious power, her role as a font of knowledge, her liberation of hundreds of slaves, her encouragement of personal morality, her influence in helping the Greeks invent themselves, or—by extension—whether she really had psychic powers. Even if her prognostications were judged to have no basis in literal foreknowledge, it gave no explanation for how she reflected the underlying currents of ancient Greek society and how her utterances stood for ages as monuments of wisdom. It said nothing of how the priestess inspired Socrates or functioned as a social mirror, revealing the subconscious fears and hopes of those who sought her guidance, or of how she often worked as a catalyst, letting kings and commoners act on their dreams."

Research such as this inspires us to open our minds to other ways of knowing and to the wisdom of the mystics. William J. Broad, science writer for *The New York Times*, begins his book, *The Oracle: The Lost Secrets and Hidden Message of Ancient Delphi*, with the

following statement, "This book is about a voice from the remote past that has come back to question the metaphysical assumptions of our age, to urge us to look beyond the claims of science and reexamine our attitudes toward spirituality, mysticism, and the hidden powers of the mind. The Oracle of Delphi has prompted this kind of reassessment before, starting three millennia ago, and, as improbable as it seems, is doing so again. Her message challenges some of the most basic tenets of our day, suggesting that we have deluded ourselves into thinking we know more than we really do."

Perhaps, with humility, we can finally learn one of the secrets that lie just beneath the surface, in Delphi.

## Bibliography

A&E Television Networks. *Oracle at Delphi, Secrets Revealed* (The History Channel documentary). New York: A&E Television Networks, 2003.

Broad, William J. *The Oracle: The Lost Secrets and Hidden Message of Ancient Delphi*. New York: The Penguin Press, 2006.

De Boer, J.Z. and J. R. Hale. "The Geological Origins of the Oracle of Delphi, Greece." From McGuire, W.G., D.R. Griffiths, P.L. Hancock, and I.S. Stewart, eds. *The Archaeology of Geological Catastrophes*. London: The Geological Society of London, Special Publications, 171, 2000.

