

The temperature of heaven and hell

Writing for this section a few months ago (February p72), Malcolm Cornwall of the University of Brighton recalled how the world's media went into overdrive after discovering that he had worked out the number of pebbles on Brighton beach. Although he had merely performed an order-of-magnitude calculation, which he had included in his scientific booklet *On Brighton Beach*, the media were amazed that someone had worked out such an apparently intractable quantity. Despite his protestations, they were convinced that he had in fact spent years on his hands and knees sifting through tons of pebbles. Cornwall's cautionary tale served as a warning to all science popularizers.

Although my own brush with the media began just like Cornwall's, it eventually took a different – and more positive – turn. It all began three years ago this month when *La Voz de Galicia* – one of Spain's biggest newspapers – published a full-page news story explaining that I knew the temperatures of heaven and hell. "Two Galician physicists demonstrate that hell is hotter than heaven" was the headline emblazoned across the top of the page.

La Voz de Galicia based its story on a letter that I and my colleague José Viña from the University of Santiago had published in *Physics Today* (July 1998 p96). Actually, we hadn't calculated the temperatures of heaven and hell, but rather recalculated one of them, correcting a previous publication (*Applied Optics* 1972 **11** A14). Using Biblical references, the anonymous authors of the 1972 paper had estimated heaven to be hotter than hell; our recalculation showed that heaven was actually cooler.

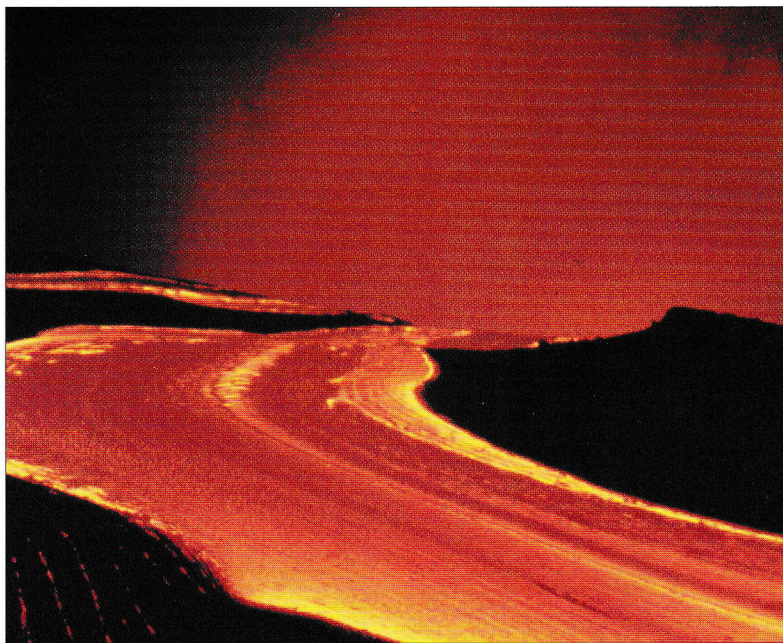
Immediately after the story appeared in *La Voz de Galicia*, it caught the eye of several radio and TV stations. We ended up being featured on one of the top chat shows on *Tele 5*, one of Spain's national TV stations. As with Cornwall, I had to insist that our calculations had nothing to do with our research, that we had merely carried them out for curiosity's sake, and that, no, we were not mad.

But the best was yet to come.

A few days later, a journalist from *New Scientist* got in touch with me by e-mail. He asked me some normal questions followed by a few humorous ones. The result: a half-page article about our calculation in *New Scientist* (1 August 1998 p21). A few days after that, a Canadian journalist called Allison MacGregor phoned me for more information. Her story about our work ended up on the front page of the *Ottawa Citizen*.

Something strange was beginning to happen. My feelings were confirmed when I received a letter from a colleague in the UK. It turned out that the *Sunday Times* had reported our calculation. Their story included quotes from a researcher at Durham University, who had "estimated" the locations of heaven and hell on the basis of our results, along with comments from a spokesman for the Evangelical Alliance. Over the subsequent few weeks, we received further letters from colleagues who had spotted the story in *Le Soir* (Belgium), *Clarín* (Argentina), *La Gazzeta del Lunedì* (Italy), *HetParool* (Holland), *La Repubblica* (Italy) and *The New Yorker* (USA). There were probably others as well.

But the real highlights were a small mention in *Time* magazine, and a very nice article in the prestigious German magazine *Der Spiegel*, which informed us that in 1587 Galileo Galilei had written a technical report on the structure of Dante's inferno. I was also contacted by a



My fifteen minutes of fame are far from over

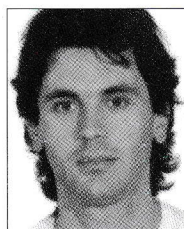
reporter from *ABC Australia* who was working for a TV series called *Quantum*. I received several letters and e-mails from people either asking me if I'd had any type of religious "revelation", or inviting me to correct their pet theories about the origin of the universe.

But once again the best was yet to come.

A year later, a letter of mine was published in *Nature* (1999 **400** 708), in which I used the irony of the heaven and hell calculations to criticize creationism in Kansas. The letter was then commented on in an article in *La Voz de Galicia*, which also included some personal details about me – the fact that I was good at chess; enjoyed sport, dancing and fencing; and was a member of Mensa. This seemed interesting enough for a show broadcast by the Galician regional service of Spanish public television, where I appeared as a star guest in late September 1999.

It was then that my tale took a different turn. During the interview, I was invited to discuss various other topics that had nothing to do with my calculations about heaven and hell. After the broadcast was over, the producer and director suggested that I introduce my own scientific segment on the show. Over the next few months, I made regular appearances. When the series ended I was invited onto a similar show on Galician public radio, where I still appear. I also write the occasional article about science for – you've guessed it – *La Voz de Galicia*. Another TV producer has even contacted me about the possibility of making a serious programme about scientific research at Galician universities. I am not sure whether this new project will go ahead, but my 15 minutes of fame are clearly far from over.

By the way, to calculate the temperatures of heaven and hell, all you need to do is read the books of *Isaiah* and *Revelations* in the Old Testament and use the Stefan-Boltzmann law. You should find that heaven is 505 K and hell is 717 K. Although heaven seems a little more comfortable, I know that I would prefer to stay on Earth.



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