LANDSCAPE ARCHITECTURE
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92 101 : HOT SPOTS, HOT WATER
GEOTHERMAL SPRINGS OFFER
RESPITE IN THE CHILEAN DESERT
AND PATAGONIA

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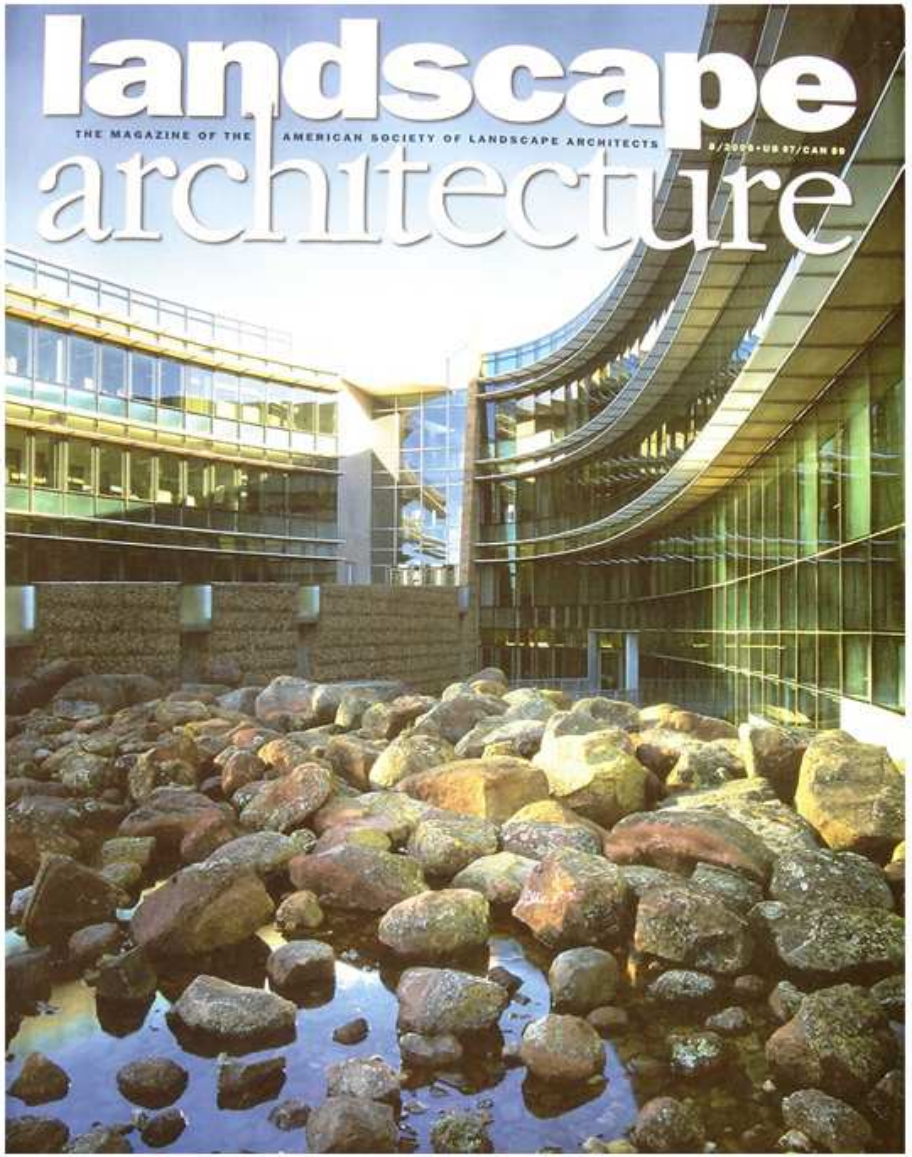

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Geothermal springs offer respite in the Chilean desert and Patagonia.

Hot Spots, Hot Water

BY JIMENA MARTIGNONI

TWO SUCCESSFUL landscape architecture projects are located on opposite ends of Chile: the Puritama Hot Springs (*Termas de Puritama*) and the Geometrical Hot Springs (*Termas Geométricas*). The sites of the two springs reflect the landscape diversity of Chile: from the world's driest desert, the Atacama Desert in the north, to the exuberant woods and blue lakes of Patagonia in the south, along the country's approximately 2,700-mile length. However, there is a dominant physical feature that extends that entire length, from the Bolivian plateau to Tierra del Fuego, visually and geologically connecting many Chilean landscapes: the Andes. As part of this mountain system, hot springs are dispersed throughout the country.

The two hot springs projects are the work of

Puritama Thermal Springs

What a contrast between two springs! In Patagonia, above, the central boardwalk enters the steep canyon where the Termas Geométricas were designed. To the left are the grass-roofed dressing rooms where people can change and leave their personal items. In the northern desert, opposite, one of the pools in Puritama is thickly framed by Andean pampas grass, a native ornamental plant that grew moderately at the site and now, after the irrigation plan was implemented, grows exuberantly.

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92 degrees Fahrenheit. The name *Puritama* actually comes from *puri*, which means water, and *tama*, which means hot.

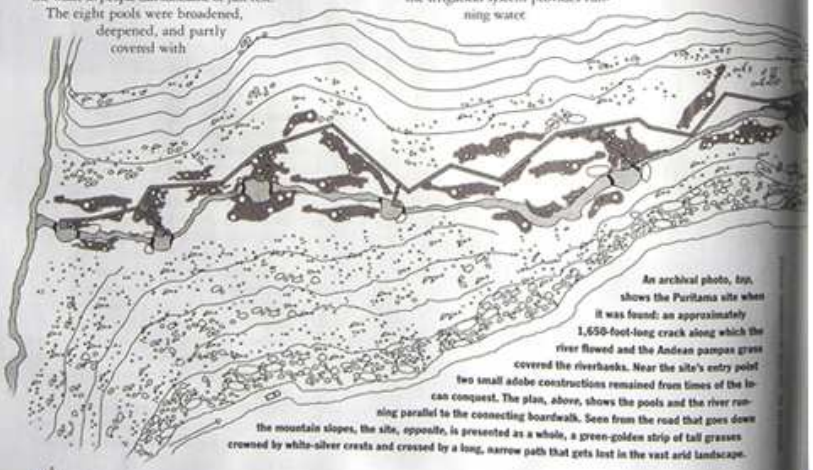
When del Sol visited the site for the first time, it was basically a 1,650-foot-long crack along which the river flowed and where the riverbanks were covered with Andean pampas grass or *cola de zorro* (*Cortaderia atacamensis*), an ornamental native plant. Along this linear natural system, some pools of hot water carved out by local people in ancient times remain, along with two adobe buildings (*kayankas*) near the site's entry point that were constructed by the Incas when they conquered northern Chile.

This scene is what del Sol worked with after the land was bought by the Atacama's Explora Hotel. He proposed the Pueblo Atacameño Council as the managing organization for running and taking care of the site. Archaeologist Carlos Aldunate del Solar, director of the Pre-Columbian Museum in Santiago, was the specialized consultant at the site who worked hand in hand with del Sol.

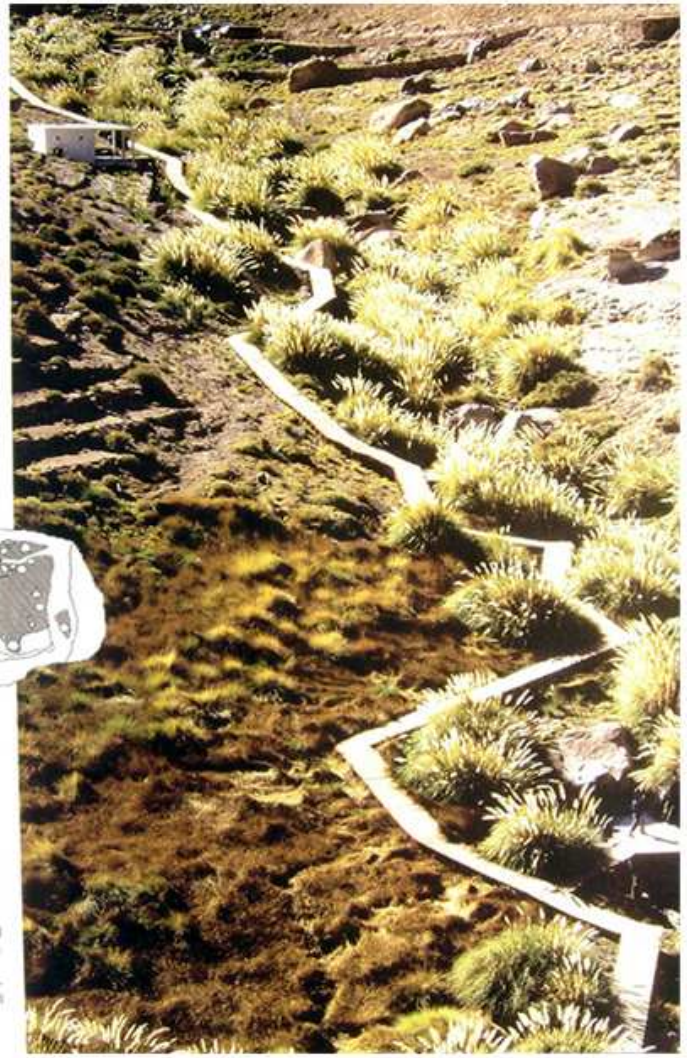
The Puritama Thermal Springs make reference to the atacameños culture with white-painted dressing rooms that echo the emblematic white architecture of the town of San Pedro de Atacama. A wooden boardwalk crosses the site about one foot above river level, allowing the grass underneath to grow and giving visitors access to the different pools and resting spots. When the boardwalk reaches the pools, it widens and creates small terraces that face the water so people can sunbathe or just rest.

The eight pools were broadened, deepened, and partly covered with stone walls. As a consequence of the drip irrigation system that was added by the designer, the Andean pampas grasses now grow exuberantly in thick masses that hide the stone structures, while their silver crests attract light and create a mystical effect during certain times of the day.

Two minimalist-looking white box-shaped buildings stand close to the main access, each of them offering a bathroom, a dressing room, and a sauna. The same small collecting pool that feeds the irrigation system provides running water



An archival photo, top, shows the Puritama site when it was found: an approximately 1,650-foot-long crack along which the river flowed and the Andean pampas grass covered the riverbanks. Near the site's entry point two small adobe constructions remained from times of the Incan conquest. The plan, above, shows the pools and the river running parallel to the connecting boardwalk. Seen from the road that goes down the mountain slopes, the site, opposite, is presented as a whole, a green-golden strip of tall grasses crowned by white-silver crests and crossed by a long, narrow path that gets lost in the vast arid landscape.



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amenities for the day. However, the atacameños people, who had historically "owned" the springs, have free admission to these thermal baths.

The construction of Puritama took no more than three months, but the installation of the drip irrigation system and the restoration of the Incan shelters, which were done in phases, delayed the finish. The site was opened to the public in 2000.

Both the design and construction were a 100 percent in situ process in which del Sol, together with other people from his office, worked at the site marking the boardwalk's exact placement with ropes and then translating the design onto paper.

In San Pedro de Atacama, farming areas take turns being watered; common cisterns that are part of a system of channels fed by local rivers provide water on a very rigid schedule that everyone respects. The urban area has running water only during the day. In contrast, the Andean woods of Patagonia or "area of the lakes," as it's called in Chile, benefits from a great deal of water—as much from an ecological perspective as from a visual one.

In Puritama there are two minimalist-looking white box-shaped buildings, each of which offers a bathroom, a dressing room, and a sauna. The running water is provided by the same small collecting pool that feeds the irrigation system.

Geometrical Thermal Springs

These thermal baths are located 62 miles from Pucón, one of the most beautiful Patagonian cities in Chile, situated by the still-active Volcano Villarrica. From Pucón two different roads can be taken, one of them only possible with a four-wheel-drive vehicle, both going up to 6,500 feet, where the springs flow.

Del Sol discovered the site after a 15-year search following Spaniards' chronicles that described mystical sites with geothermal waters.

The site is a 1,800-foot-long stony canyon. He hardly noticed the river waters that run through this linear canyon when he first surveyed the site, because the length of it was covered with dirt, stones, and logs. The land belonged to a private logging hacienda, one of the few remaining inside the 156,000-acre Villarrica National Park.

In 2002, del Sol rented the place with a 30-year lease and began clearing it out, a process that took a whole year and filled more than

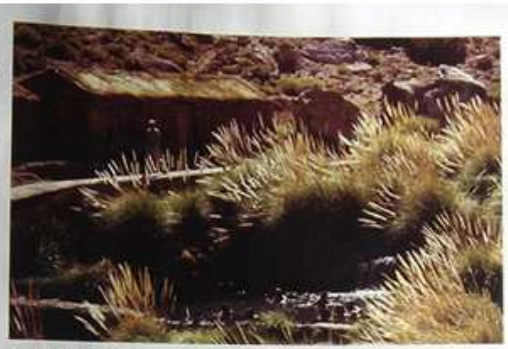
The geothermal river flows along a 1,650-foot-deep crack in the desert mountains.

...cles with trash and dirt. As a result, the ...started flowing faster and moving an av... of five gallons of water per second, when ...ously it moved fewer than one.

...accomplish a sound environmental ex..., del Sol worked with a team of mine ...ers, hydrologists, and geologists. To ... the exact location of the springs they ... thermometers that indicated the spots ... the land was hotter. Digging careful... those locations, they marked 60 hot wa...ools where the temperature is approxi...ely 185 degrees Fahrenheit.

The Geometrical Thermal Springs owe ...name to the geometrical configuration ...e site, which is set against the luxuri... organic lines of the wilderness setting. ...anted to tame nature, but at the same ...e emphasize it," says del Sol. "This is a ... framed by a wild environment that I ...ded to make livable, but I also meant ...ious disparity."

One of the biggest differences from



One of the first pools visitors encounter when walking into the Puritama site, *above*, is next to the kayankas, or small Incan shelters, that were restored and rehabilitated as administration offices. The connecting boardwalk meanders, *below*, echoing the original flowing river. When visitors are not in the pool or sunbathing, they can take a relaxing walk along this path.

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Puritama was that when the conceptual layout started taking form, no pools existed, and del Sol knew he had to design them from scratch. Referring to the intentional contrast of the new design with traditional natural forms, he says, "Designing them as if they had been naturally shaped made no sense, so that's when I decided to apply geometry and lay them out as geometrical pools, surrounded by geometrical shapes."

To take better advantage of the strong natural setting, the geometrical pools are placed on both sides of the central boardwalk, facing the canyon's walls. Concavities in the canyon walls outline the pools' inner sides.

Del Sol intended to create a self-contained space accessed by a "round-trip" circuit, with just one entrance through which people enter and leave the site. The space is therefore physically contained not only by the canyon's stony walls, which are impossible to climb, but also by the man-made

The geometrical pools are placed on both sides of the central boardwalk, facing the canyon's walls.

At Geometrical Thermal Springs, a light steam is constantly rising into the air, top, and the central boardwalk is kept warm even on cold days because the thermal water is collected from 60 springs by polypropylene tubes that feed to a main wooden open channel that runs underneath the boardwalk. Compare this scene with the photo, opposite left, of the "before" condition of the canyon. The Geometrical Thermal Springs shows in the plan, above, own their name to the geometrical configuration of the site, which is set against the luxuriant organic lines of the wilderness setting. Today, as a consequence of the humidity generated by the water and steam, the canyon walls, opposite right, are covered with lush green vegetation native to the area.

structure of the boardwalk.

The humidity generated by the water and steam has led to the walls being covered with lush green vegetation native to the area. Large ferns, mosses, and philodendron species wrap the stone, crowned by the typical coihue forest (*Nothofagus dombeyii* or southern beech) of Patagonia.

Del Sol uses old Mapuche (Patagonian aboriginal groups) techniques to regulate temperature and to channel the water using gravity. "Routing the water all through the site with a typical sealed piping system would not match the site's concept and, even worse, would turn into a problem for cleaning, maintenance, and heat loss," says del Sol. "What is inherent to hot springs is that they keep the heat while openly flowing."

The thermal water is collected from every one of the 60 springs by polypropylene tubes that feed to a main wooden open channel that runs right underneath the central boardwalk, and along the site. This keeps the boardwalk warm

even during cold days, and a light steam is constantly rising into the air.

The flowing water in the main central channel, with [illegible] degrees Fahrenheit, is circulated to five [illegible] wooden flood distributors. Once the temperature is approximately 102 degrees, it's [illegible] channels to 12 bathing pools.

[illegible] every three days to maintain them and [illegible]. They are emptied at four in the morning [illegible] afternoon, when the temperature is appropriate, the cleaning schedule is rotated to keep [illegible] are being cleaned.

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People spend the day at the thermal baths, especially during the summer. In February the number of visitors can reach up to 280 per day.

The central boardwalk runs along the entire site following the natural topography, making some angular turns that make the walk and the scene more dramatic. As in Puritama, the boardwalk is painted red, but here the grass-roofed dressing rooms are also painted in that color. To one side of the boardwalk, the cold river water flows constantly without mixing with the water of the hot springs. After bathing in the pools, visitors have the option of going into the river.

At the Termas Geométricas, the experience of the site is one of adventure, mystery, and literal fogginess. Just getting to the site involves a long drive. Once there, visitors leave their cars and walk five minutes to the entrance, where they are provided with towels and keys to lockers located inside the dressing rooms. People walking up and down the boardwalk, bathing, or chatting; the steam filling up the environment; the green fully covering the canyon walls and contrasting with the red of the central boardwalk; and the super hot water of the pools all create a fantastic experience for the senses.

> The steam filling up the environment, the green fully covering the canyon walls and contrasting with the red of the central boardwalk, and the super hot water of the pools all create a fantastic experience for the senses.

Even though the long ride through the Patagonian woods and towns is well worth the experience, one could argue that accessibility to both sites is limited to those who have a car or can afford a ride up there, but generally speaking, people gather in groups and find ways to make the trip less expensive. In February, during the Chilean summer break, the number of visitors to the Geometrical Thermal Springs can reach up to 280 persons per day; the rest of the year the number goes down to an average of 50.

After the long ride it takes to get to these sites, visitors perceive them almost as "hidden treasures." But they shouldn't be, for water is, literally, a precious source

...ssue that arises here is to what extent these sites should ...ssible and how local governments could become more ...this kind of development in Latin America. LAR

...ayout is an independent landscape architect and researcher ... Argentina.

...ma Thermal Springs have received several awards, in... honorable mention at the 12th Biennial of Architec... Ecuador, in November ... medal in 2001 at the Inter... Architecture Biennial of Mia... 2001 Arup World Architec... for Best Project in Central/ ... Geometrical Thermal Springs ... place in the 11th Architecture ... Santiago, Chile, in November ... took the Grand Prix of the ... An Interior Look from Horse ... and competition held at Dom ... in Moscow in October 2005.

People walk up and down the boardwalk, *right*, bathe alone, or chat in groups, *below*, in some of the 12 bathing pools at Termas Geométricas. The flowing river, the super hot water of the pools, the steam, and the green surrounding landscape create an overwhelming experience for the senses.