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Social Acceptance of Geothermal Energy Through Tourism and Balneology

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ABSTRACT

It is well known that Hungary, Australia and Colorado (U.S.) all have excellent geothermal potential. In Hungary, the most important tourist attractions are geothermal spas. Thermal water is widely used not just for well-being, but for medical treatments as well. These thermal waters are highly appreciated by the entire nation. Although Australia certainly has solar collectors and spas, most Australians know little about balneology and the health aspect of thermal waters. In Colorado, by contrast, hot springs are a thriving part of the state's tourism industry, although less important to the average Coloradan. Our article aims to show how geothermal energy usage became part of Hungarians' everyday life and part of their culture. In the process, we would like to show how social acceptance of geothermal is based on its direct use and accessibility. These considerations may also shed some light on how geothermal use could be encouraged in Australia and further developed in Colorado. Whatever each country's state of geothermal development, every country has something to learn from the other two.

1. INTRODUCTION

People have used geothermal water and mineral waters for bathing and their health for many thousands of years. Balneology, the practice of using natural mineral spring water for the treatment and cure of disease, also has a long history. Based on archeological finds in Asia, we can surmise that mineral water has been used for bathing since the Bronze Age, about 5000 years ago. The Greeks, Turks and Romans were famous for their spa development, and created spas from Persia all the way to England.

The word “spa” traces its origin to a town near Liege in southern Belgium near the German border. Here a spring, of iron bearing water, was used by an ironmaster in 1326 to cure his ailments. He founded a health resort at a spring called Espa (meaning fountain in the Walloon language). Espa became so popular that in English the word *spa* became the common designation for similar health resorts around the world (Swanner, 1988).

Nowadays, and especially in Europe, the use of medically supervised spas has long been accepted as a serious form of therapy. Such spas are used both for treatment and as preventive therapy.

2. BALNEOLOGY IN HUNGARY

The utilization of geothermal energy has a long tradition in Hungary, and geothermal surface manifestations have been known since ancient times. Balneology was the earliest use for these thermal waters, and even today balneology along with related therapeutic treatment remains very popular in Hungary.. In Budapest, the thermal springs were used in the Roman Empire and then later during the medieval Hungarian Kingdom. The Romans used hot springs not only to supply baths but also to heat the associated buildings. The remains of these facilities can still be seen in Budapest, in the ‘Roman’ town (Horvath, 1986).

The artificial exploration of thermal waters began with the activities of V. Zsigmondy, the legendary drilling engineer, who in 1877 drilled Europe’s deepest well (971 m) in Budapest. Between the two World Wars, while prospecting for oil, huge thermal water reservoirs were discovered. Some of the country’s most internationally famous spas are to be found in Budapest, Bük, Hajdúszoboszló, Harkány, Hévíz, Sárvár andZalakaros, to mention but a few.

The spas’ outflow temperature typically ranges from 30 to 50 °C. These wells mostly discharge from the Miocene porous sandstone reservoirs, at an average depth of 500 to1500 m. About 45 wells had higher outflow temperature (60-80 °C), many of them discharging from the fractured-karstified basement aquifers. The hottest ones are at Zalakaros (SW-Transdanubia - 99 °C) and at Gyula (SE Hungary at the Romanian border - 91 °C). (Toth et al, 2011).

As of January 1, 2014, Hungary used geothermal water for 61 medicinal baths, 350 public baths and 1,200 swimming pools. The development of additional hot spring resorts and spas to attract tourists is an important objective of Hungary's National Development Plan. Tourism is Hungary's second-largest industry.

2.1 Sport, Health, Recreation and Leisure All in One Place

Depending on the locally available service facilities, you can find a wide range of spas in Hungary. Budapest, Hungary’s capital, has held the title "City of Spas" since 1934, as it has more thermal and medicinal water springs than any other capital city in the world. There are 118 springs in Budapest, providing over 70 million liters of thermal water a day. The temperature of the waters is between 21 and 78 °C. Although Budapest's thermal waters were enjoyed by the Romans as early as the 2nd century, it was only during the Turkish occupation of Hungary in the 16th century that the bath culture really started flourishing. Equipped with a special tourist card, tourists can sometimes get into for free.

2.1.1 High-end Spas

The spa at the Hotel Gellért is a public bath. Some of the baths offer special programs. The Gellért Thermal Bath that is associated with the luxury hotel of the same name is known world-wide and highly favored by foreigners. Built in an Art Nouveau style, it opened its gates in 1918, was expanded in 1927 to include the very popular wave-bath. and in 1934 was outfitted with an effervescent bath. As a result of recent modernization, the swimming-complex sitting-pool, the outdoor sitting pool and the children's pool have all been renovated; they are now equipped with state-of-the art water filtering and circulation devices. At present, nearly all healing facilities may be used in the Gellért Thermal Bath. The Bath includes a department offering complex thermal bath facilities (daytime/outpatient hospital), and also has an inhalatorium. Its healthcare services include: a separate thermal bath for men and women; a steam-bath; a sauna**;** mud-treatment (with a medical prescription)**; a** carbon dioxide bath (with a medical prescription)**;** underwater water-jet massage**;** underwater traction-bath (with a medical prescription)**,** electrotherapy**;** refreshing massages**;** medical massages (with a medical prescription)**; a** day-time hospital**;** spa-physician consultation**;** curative gymnastics; and inhalation treatment. Furthermore, the hotel's guests have access to such luxury wellness facilities as hot stone massages, classic Thai massages and full one- or two-week spa therapy.

Figure 1: The world famous Gellért Spa in Budapest

2.1.2 Therapeutic Spas

One of the oldest thermal baths in Hungary is the Lukács Thermal Bath. In the 12th century, knights of the order of Saint John, who were engaged in curing the sick, settled near today's Lukács Bath. They were followed by the knightly orders of Rhodos and Malta, who built their monasteries baths there as well. The bath operated through the time of the Turks, but the energy of the springs was used primarily to produce gunpowder and to grind wheat. After the reoccupation of Buda, the bath became the property of the Treasury. In 1884, Fülöp Palotay purchased the bath from the Treasury, and thereupon initiated a series of transformations. The spa hotel was built, an up-to-date hydrotherapy department was established and the swimming pool was transformed. People wishing to be healed came from all over the world. Following their successful healing cure, they placed marble tablets on the wall of the Bath's courtyard to express their gratitude.

The drinking-cure hall of the Bath was built in 1937. The first department to ensure complex thermal bath facilities (the daytime hospital) was established in 1979 in Budapest, in the Lukács Thermal Bath. In 1999, the open-air pools of the swimming pool section were modernized. In the course of this, the so-called mud-pond, hardly used before, was replaced by a much fancier pool. This was equipped with a whirling corridor, underwater effervescence, a neck shower, a water-beam back massage hidden in the seat banks, a whirlpool, geysers, an effervescent bed and many other facilities hitherto unfamiliar. In the Bath's other courtyard, two swimming pools of varying temperatures were also rebuilt with water-filtering and circulation devices.

2.1.3 Rural and Family Spas

Many thermal spas in Hungary were created as a result of deep drilling for hydrocarbons. Usually these wells were drilled in some rural area. The Hódmezővásárhely baths are a good example. Its thermal water rises to the surface from 2200 m deep, providing

'soft' 76 °C-thermal water, rich in alkaline hydrogen carbonates. The spa-water temperature of water is 26-28C. The price is relatively low and there's a nice family atmosphere. It's become fashionable for people to reserve an indoor pool at the Hódmezővásárhely baths for a certain period, for the enjoyment of families, friends or groups of co-workers.

Figure2: Local bath in Hódmezővásárhely (prize given to anyone who can find the author!)

3. COLORADO'S HOT SPRINGS AS A RECREATIONAL RESOURCE

3.1 An Overview

By some estimates, Colorado has almost ninety natural hot springs. Of these, about sixty have been turned into hot-springs resorts, with the remainder made up of small, undeveloped hot-spring pools on public land. Colorado's hot springs are located at an altitude of 2,000 to 3,000 meters, in the mountainous western half of the state. As elsewhere in the U.S, Colorado's hot springs are mostly used for recreational and therapeutic purposes. Because of the popularity of Colorado's skiing, hiking, climbing, kayaking, river rafting, fly-fishing and horseback riding, the spa itself is not always the spa visitor's main focus. Unlike Hungary and other European countries, there is no tradition of universal health care in the U.S., let alone a tradition of subsidized spa treatments. The Affordable Health Care Act may have made changed attitudes somewhat, but most Coloradans would still burst out laughing at the idea of the state paying a worker to soothe his aching back in a hot springs.

Colorado hot springs range in size from the multi-pool facilities of Glenwood Springs to isolated one- or two-square meter pools only accessible after a long hike through the mountains. At the smaller springs on public land, overnight stays are either forbidden, or only allowed in a campsite or an unfurnished cabin. The middle-range spas usually offer some form of basic indoor lodging and sometimes massages. The larger spas, as in Glenwood Springs or Manitou Springs, offer a greater variety of classic spa services together with pools of different sizes or temperatures. The luxury spas may have very small hot spring pools, but cater to guests who stay a longer time in more beautiful surroundings, so as to engage in a wider range of recreational, therapeutic and even educational activities.

The state's original inhabitants were members of the Ute, Arapahoe, and Cheyenne tribes, who enjoyed but did not much develop the state's geothermal resources. They may have enclosed small upflows to create larger thermal ponds, but even this is speculation. Since Colorado's Native Americans had no written language, all we know about their use of hot springs is what we have from their oral histories and the accounts of American or European visitors. The first Europeans to make larger-scale settlements in Colorado were the Mexican and Spanish ranchers who moved into the San Luis valley, in the early 19th century. Although this South-central part of Colorado does have geothermal resources, those relatively few early settlers had neither the interest nor the wherewithal to develop a hot-springs culture.

Colorado's hot springs got their first boost in the 1850s, as ever more Americans began flooding into the region from the eastern U.S. These were mainly people looking for gold and silver. Miners who stumbled across geothermal springs in the mountains were sometimes glad for the chance to bathe, but hygiene and balneology weren't their first concerns. Some nonetheless remembered the hot springs they had found and began to exploit their commercial possibilities. There is some dispute over which was the first hot-springs resort in Colorado, but Hot Sulphur Springs near Steamboat Springs would be a leading candidate. It was first publicized by

William Byers in 1840, who later became the state's first newspaper publisher and one of the richest men in Colorado. Byers bought the spa in 1863, but was unable to achieve his aim of making it the "Switzerland of America," partly because of its distance from the railway (Jessen, 1985).

After attaining statehood in 1876, Colorado rapidly developed a more stable, 'citified' culture, which provided customers for the state's hot-spring developers. It also helped that Colorado's high altitude and clean air made it a popular place to establish sanatoria for people with TB and other respiratory disorders. By the 20th century, the most commercially promising hot springs were in private ownership. Well before this time, Colorado real-estate developers and local government (often synonymous) recognized the sales value of placing the word "springs" in the town's name -- hence Glenwood Springs, Eldorado Springs, Idaho Springs, Manitou Springs and Colorado Springs. Manitou Springs and Colorado Springs were once the same town, but after Manitou Springs and its twelve thermal pools seceded, Colorado Springs lost the hot springs which helped make it a tourist attraction. Anyone going to Colorado Springs in search of the spa experience is in for a disappointment. Still, there is no law requiring a town with 'springs' in its name to actually have hot springs.

Colorado hot-spring resorts reached peak popularity from the 1870s through the 1920s, as a growing rail network provided better access to the larger resorts. American upper and upper-middle class families, many of whom had visited luxury spas like Germany's Baden Baden, saw that such facilities were available at a much lower cost closer to home. This was the era of the "destination vacation," when families spent weeks at a time in summer camps or resorts. In these areas, the hot springs were usually only one of many attractions.

American and Colorado hot-spring resorts were dealt a severe blow by the Crash of 1893 and the even bigger one in 1929. These resorts only partly regained their popularity after the country returned to prosperity in the 1950s. By that time vacation trends had changed. The freedom to travel in family cars across newly-established interstate highways meant that even those who stopped at a hot-springs resort often stayed a comparatively brief time. Quite apart from that, hot springs no longer seemed very attractive to young people who had grown up with movies, TV, dancing, and rock-and-roll. By comparison, lolling about in a hot pool seemed like a laughably sedate activity. The medical or therapeutic justification for spas had also fallen somewhat out of favor, as more effective or at least newer, cheaper, more convenient treatments became available.

In the late 1960s and 1970s, hot springs made a slight comeback – without becoming much more profitable – as the counter-culture recognized the benefit of a slower, more meditative, more "natural" lifestyle. This often involved soaking in a mountain hot spring under the influence of various substances meant to enhance, intensify or completely blot out the geothermal experience. Even after a new generation of Americans rejected the "tune in, turn on, drop out" mantra, the back-to-nature element of their predecessors was reflected in such trends as the increased popularity of bottled spring water. One example is the popularity of Eldorado Springs bottled water, which has been sold since 1982. Eldorado Springs' fairly low-temperature pool will probably never be as popular as it was when President Eisenhower and his family stayed there, but the associated water sales have remained steady in affluent Boulder County and environs.

In the U.S., the non-profit foundation has become a popular means of restoring historical sites or preserving wilderness lands, after local government and commercial interests have proven ineffective at maintaining hot-spring resources. Valley View Hot Springs in the San Luis valley is an example of such enlightened private/public management, supported by donations to a non-profit land trust. These springs are owned and maintained by the Orient Land Trust, whose stated goal is "Safe, Family-Friendly, Clothing-Optional Naturism."

Most Colorado spas have their own web sites, but even those that do not are linked to tourist and traveler websites which provide fairly complete information about the smaller hot springs. Online information is also available from such sources as the USGS, Colorado State University and a variety of hot-springs enthusiast websites. The following section is intended as a representative cross-section of the Colorado hot-spring experience.

3.2 Colorado's Hot Springs Resorts and Public Pools

3.2.1 The Biggest and Best-Known: Glenwood Springs Hot Springs

In continuous operation since 1884, Glenwood Springs claims to have the world's largest mineral springs pool. In terms of size and economic importance, the spa's pools are the closest Colorado can come to the Gellert or Szechenyi spas of Budapest. Despite a range of luxury offerings narrower than that of the premier Budapest spas, the Glenwood Springs Hot Springs has long remained the most popular, most well-established spa in Colorado. It doesn't hurt that the town lies on I-70, the major east-west highway. After two or three hours on the road from Denver, taking a walk through town and soaking in the sulphurous waters can seem like a nice break from driving. This spa is relatively close to many popular ski areas, and is also one of the few Colorado hot springs accessible by Amtrak, the country's main passenger railway.

The spas two main pools are kept at a comfortable 34 °C and 40 °C. For a hotter, less refined and arguably more interesting experience, visitors can also visit the nearby Yampa vapor caves -- historic underground steam baths which consist of three adjoining underground rock chambers. Cave temperatures average 43-44 °C.

Figure3: The Glenwood Wood Springs Hot Springs and Lodge

3.2.1 The Middle of the Pack: Manitou Springs, Steamboat Springs, Idaho Springs, Ouray Hot Springs and Pagosa Springs

Manitou Springs comes a little closer to Glenwood Springs as regards the variety and style of what it offers. The city boasts of twelve different hot-spring pools, and since 1987 a non-profit foundation has been struggling to restore the old spa buildings which had fallen into disrepair. Because the vast majority of Colorado's buildings were only built within the last 150 years, Manitou Springs' elegant brick and stone bathhouses from the late 19th and early 20th centuries are now considered part of the state's architectural heritage. Their value is more apparent when one considers the example of Trimble Springs near Durango, in Southwest Colorado, where spa buildings were built in 1882, 1896 and 1931 -- only to burn down in the respective economic downturns of 1892, 1931 and 1959. To explain this anomaly, the resort dutifully mentions The Old Indian Curse.

Steamboat Springs is one of Colorado's more popular hot-spring resort destinations, considering that its position near Colorado's northern border makes it hard to reach for most travelers. One of the largest commercial spas here is Strawberry Park Springs, which has pretty basic accommodations and only slightly modernized facilities. Some prefer to use the downtown spring-fed pool, owned by the city of Steamboat Springs and run like a public swimming pool. In any case, the nearby Steamboat Springs ski area is usually the main draw.

As with Glenwood Springs, the Indian Hot Springs in Idaho Springs benefits from being right next to 1-70. Only an hour from Denver by car, it's an easy day-trip destination. The pools are fairly small and undeveloped, however, and the hotels are fairly low-end, so these baths are not much of a draw for the luxury crowd. The baths were once called the Radium Hot Springs, but post-nuclear age concerns mandated a name change. In a nod to these and more purely balneological concerns, the Indian Hot Springs spa carefully lists the exact chemical and mineral composition of its 51 °C waters – as do several other resorts, for that matter.

Like other large, family-style hot springs pools, Ouray Hot Springs offers a cooler (and chlorinated) pool for lap swimming, a warm pool (31 °C) and an even warmer pool (41 °C). As in so many other Colorado hot spring pools, the mountain views from the pool are a great draw. Ouray lies along a large geological lift at the head of the Uncompahgre Valley in SW Colorado, a situation which apparently resulted in unusually clean and odorless hot springs. Besides the Ouray Hot Springs, there are the vapor caves of the Wiesbaden Hot Springs, the naturally landscaped pools of the Orvis Hot Springs, the Twin Peaks Lodge and Hot Spring, and the Box Canyon Lodge and Hot Springs.

Not too far from Ouray, Pagosa Springs is another hot-springs 'hot-spot' in Colorado, with several hot-springs lodges downtown and several more not far from town. The largest and most luxurious downtown spa is the Springs Resort, which features 23 therapeutic hot springs mineral pools, a 79-room hotel and a full-service day spa along the banks of the San Juan River. Pagosa Springs takes its geothermal resources very seriously: it is one of the few hot-springs cities with a separate geothermal department, and one of the few such Colorado cities to try using its geothermal resource for power generation and other non-tourist related applications. Pagosa Springs also claims to have the world's deepest hot springs, a claim which could not be independently verified.

Figure4: Pagosa Springs

3.2.3 The Exceptions: Penny Springs and Piedra Springs, Free and Publicly-Owned

Located near Carbondale and not too far from the international luxury ski resort of Aspen, Penny Springs has a few small pools about 1-2 meters by 5-7 meters wide, and less than ½ meter deep. Penny Springs is a very welcome reward for the area's weary hikers and campers. It is stretching things to call Penny Springs a spa, but at least it has an interesting history. After the hot springs lodge was abandoned in the 50s, Penny Springs was re-discovered by 'hippies' and became a nude-bathing spot. This infuriated some of the more conservative ranching families nearby, who tried to block the pools at by dumping in large boulders and even pouring in asphalt. The more progressive government of Pitkin County finally took over, demarcating the pools somewhat more carefully and keeping them open to the public at no cost to the visitor.

Farther southwest, near the Pagosa Springs hot spot, tiny, undeveloped Piedra Springs is also free - and only accessible after a 5 km hike through public lands.

Figure5: Penny Springs, on the Crystal River near Carbondale

3.2.4 The High-End Resorts: Dunton Springs and Mount Princeton Hot Springs

Both of these resorts are far off the beaten path, in areas of great natural beauty. That makes it possible to attract a wealthier clientele. Located in SW Colorado near Telluride – a rival to Aspen because of its skiing, its summer Bluegrass festival and its internationally renowned film festival -- Dunton Springs is probably Colorado's most expensive hot springs resort. The least expensive luxury-cabin rental requires a minimum 2-night stay at $1300/night/person. The current owners bought the entire town (pop. 250) in 1994, after which they turned this former mining settlement (Wolle, 1949) and dude ranch into an exclusive resort. Besides the several warm springs, Dunton Springs can boast of what may be Colorado's only geyser, a tiny affair which bubbles up every 45 minutes or so. Along with the usual outdoors activities and massages, guests can take photography and fine-art classes to get as much as possible out of the spectacular scenery.

Mount Princeton Hot Springs is farther to the northeast, near the Collegiate mountain range which gave the resort its name. With a minimum price of $114/night/person, it is not as expensive as Dunton, but still more expensive than most of the competition. Guests can enjoy the several hot-springs pools, and also (depending on the season) sit in springs-heated Chalk Creek. This creekside bathing is a common characteristic of Colorado's more rustic hot springs. Princeton Springs offers its guests a lengthy assortment of outdoor activities -- golf, fishing, whitewater rafting, mountain biking, zipline rides, and in winter even snowmobile or dog-sled tours.

4. AUSTRALIA'S HOT SPRINGS AS A RECREATIONAL RESOURCE

4.1 A Historical Overview

Australia has over 50 currently identified natural hot springs, with a history of hot-springs bathing that stretches back thousands of years. In this pre-European period, Australia's hot springs were frequented by Aboriginal tribes, the country's original inhabitants.

In Australia, hot springs can be found in every State and in the Northern Territory: from the north of Australia in Queensland's Innot Hot Springs, to the Hastings Caves and Thermal Springs of Tasmania; from Peninsular Hot Springs in the Southeast, through Boomi, Moree and Lightning Ridge, and all the way to El Questro and Monkey Mia of Perth, in the far west of the country.

Victoria's hot springs got their first boost in the 1890s, as more and more immigrants began pouring into the region from Europe. The first bathhouse was Hepburn Bathhouse and Spa, founded around 1895. This Spa is still active and draws its waters from the surrounding mineral spring reserve. As elsewhere in the World, this hot spring is mostly used for recreational purposes.

The second wave of spa development again took place in Victoria, when Peninsula Hot Springs was founded in 1997. The inspiration for this project was one of the owner's visits to several Japanese hot springs, while living there in 1992. This sparked several years of touring and studies of hot springs around the world. After learning that hot geothermal water had been discovered on the Mornington Peninsula in 1979, work began on the task of finding an appropriate site. After drilling to 630 meters unleashed 54 degree C° natural hot mineral waters, the spa was able to open for business in 2005.

Currently, Australia's most commercially promising hot springs are in private ownership. The country's hot-spring spas reached peak popularity around 2005, and continue to be popular. Hot spring spa areas are usually found outside the metropolitan areas, but still within range of a day trip. In these areas, the hot springs are usually just one of many attractions. Nowadays, the vacation-spa trend has changed towards that of weekend escapes and two- or three-day family retreats. This trend favors the expensive luxurious spa packages.

4.2 The Current State of Australia's Hot Springs

Luxurious packages, accommodation, massage therapies and fine dining are built into the typical Australian hot spring experience. High quality standards in the spa facilities and strict hygiene also factor into it. Balneology and hot springs therapy is very much a part of routine medical care in Europe, but in Australia the therapeutic benefits of naturally occurring mineral waters is not a big topic for scientific study – therapeutic balneology is little known and seldom practiced. And although Australia's spas are clearly profit-oriented, they are not widely advertised to the mass population. They are not part of everyday recreation, as in Europe, but are rather regarded as something special – a holiday escape, or a weekend destination. As is often the case when it comes to luxury, kids are not always welcomed.

4.2.1 SWOT analysis, Australia

SWOT analysis of Australia's current spa situation, as regards its typical spa culture and the accessibility of the spas.

Strengths	Weaknesses
- exclusive spa quality	- some hot springs are far from metropolitan areas
- high hygiene standards	- too expensive for everyday use
- complete retreat packages	- poor public information
Opportunities	Threats
- health treatment usage with medical cover	- excessive concern about health factors
- emphasising wellbeing factors	- overbooked spas
- higher media involvement	- Current general lack of interest in spas and/or fear of high prices could prevent nation' s spas from ever really taking hold

4.3. The four most popular hot-spring spas are the following:

4.3.1 Peninsula Hot Springs, Mornington Peninsula, Victoria

Australia's best known bath complex is located on the Mornington Peninsula, a 90-minute drive from Melbourne. It offers a variety of different spa experiences, including a cave pool, a gully pool, outdoor pools, a Turkish steam room, a sauna, and a reflexology walk. There are both public and more exclusive private bathing packages. Kids and family groups are allowed in some parts of the public section. Moonlight and sunset bathing is also available and very popular, as well as a wide range of spa and massage treatments.

From an underground aquifer, the thermal water flows directly into the pools. The temperature of the hot pools can reach 43 degrees C°. Future developments for the site include accommodation, along with a wellbeing centre.

4.3.2 Hepburn Bathhouse & Spa, Hepburn Springs, Victoria

Considered Australia's oldest mineral spring bathhouse, near Daylesford in Victoria, 115 kilometers NW of Melbourne, Hepburn Bathhouse and Spa (circa 1895) draws its waters from the surrounding Hepburn Mineral Springs Reserve. Guests can relax and rejuvenate in three different pools, and may also enjoy the Aroma Steam Room. The spa also offers accommodation and refreshments, as well as massage and beauty therapes.

4.3.3 Blue Mountains Sparadise - Japanese Bathhouse, Blue Mountains, NSW

Overlooking Lake Lyall, Sparadise (aka the Japanese Bathhouse) is in South Bowenfels, near Lithgow, about a two-hour drive from Sydney. It is the most popular solely Japanese Onsen in the Blue Mountain. This luxurious spa offers a range of indoor and outdoor pools, an herbal steam room, and a small Japanese-style garden. Special teas and light Japanese meals are available onsite. Accommodation is also an option for visitors who wish to spend a weekend in the region.

4.3.4 Mataranka Hot Springs, Northern Territory

For a natural bathing experience surrounded by a palm forest, you could do worse than a visit to Elsey National Park in the Northern Territory, about 420 kilometers SE of Darwin. The park contains numerous thermal pools and springs, which are a major attraction for visitors. The thermal water rises up in abundance from an underground aquifer, allowing visitors a choice of three hot springs with temperature of 34 degrees C°: Mataranka Thermal Pools, Rainbow Springs and Bitter Springs. During the wet season some park facilities may have restricted access. Mataranka is most probably the nearest town with about 250 inhabitants, but commercial camping and lodging facilities are available locally.

5. CONCLUSIONS

Hungary, Australia and Colorado have numerous hot-spring resorts, with abundant hot-spring bathing opportunities for those who make the effort to find them. The main difference is cultural: Hungary has a continuous spa tradition dating back over a thousand years, and it is accepted practice to treat a wide variety of medical problems balneologically, i.e., through the therapeutic use of hot baths and related activities. This practice was to some extent strengthened after World War 2, after the communist government subsidized occasional spa treatments for ordinary people. By contrast, Colorado and Australia have more elite spa cultures – with some local exceptions, going to the spa is not something the ordinary person does very often.

Although both were only sparsely inhabited until the 19th Century, Colorado and Australia both have spa cultures old enough to have generated some elegant turn-of-the-century architecture. This by-product of early spa construction, apart from enhancing the spa experience itself, makes spa cities more attractive and therefore more economically valuable. In Colorado, cities which refurbish their old spa buildings can thereby revive both their spas and the real-estate which surrounds them. This is at least theoretically possible in Hungary and Australia as well.

Starting in the 1980s, Colorado's hot-spring resorts have undergone a revival, following a long decline which began in the 1930s. This revival is partly due to a cultural shift in the baby-boom generation. It's also a function of more imaginative spa marketing: instead of merely offering the spa's baths, pools or steam caves -- which would be sufficient in the absence of anything else very interesting -- many Colorado spas emphasize the beautiful mountain scenery and the many outdoor activities available to people who wish to enjoy those spectacular landscapes. Skiing, hiking, climbing, rafting, horseback riding and other kinds of strenuous exercise are made more bearable when they are bookended by a hot-springs soak. And it's always fun to float on our back in a spring-fed pool while you watch an alpinist scale a cliff (one of the major attractions of the Eldorado Springs pool).

In Australia and Hungary the topography is not always as dramatic as in Colorado, but a spa's connection to other traditions can still be fruitful. In Australia, for example, at least one resourceful spa owner has done well by recreating a version of the classical Japanese hot-spring spa. In Hungary, even undeveloped local spas with tepid water are popular as a low-stress place to meet, talk and maybe play a game of chess. In all three countries, spending time in a hot springs is a relaxing, meditative, and usually not too expensive way to relieve the stresses of modern life.

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