

## **THE HEALING EFFECTS OF HÉVÍZ LAKE**

### Natural features

#### Flow:

- the flushing thermal water spreads in streamline in the semi-conical basin, the water cooling down on the surface gets under the fresh and warmer water with cylindrical flow,
- the giant water mass of 127.000 m<sup>3</sup> swirls to the right in the basin (on the basis of geo-physical principles),
- all these ensure balanced temperature and balanced spread of the substances solved in the water, consequence: buoyancy is greater than in the case of an actual still water: floating is easier and staying in the water means less physical load
- the Lake is a sludge-dispersion bath: the continuously swirling sludge grains bring about higher friction resistance, higher buoyancy and higher hydrostatic pressure, as a result the possibility of bathing in a vertical posture is beneficial for the blood circulation.

#### **Microclimate:**

- the 4.5 ha water surface results in great evaporation so the whole Lake is a big inhaling area,
- the protecting forest takes up most of the wind,
- the effects of the sun (from which the ultra violet effect is enhanced by the water surface reflection) should be taken into consideration

#### **The gas content of the thermal water:**

- Radon and sulphur-hydrogen better absorbs via the lungs than via the skin,
- we were taught by the old balneologists that in water with radon the patient should tap the water around himself/herself in order to enhance the radon evaporation from the water,
- the gas bubbles seceding on the body surface mean a specific retuning stimulus.

Water composition:

- the thermal karst water containing Ca, Mg,  $\text{CO}_3$ ,  $\text{HCO}_3$  from the Triassic-dolomite is stored in the New Age (upper) Pannonian sedimentary rock and it dissolves all substances from it (trace elements); this 13,000-year-old thermal karst water and the 2,800-year-old cold karst water mix in the spring-head cave and at a steady temperature of 39°C it enters the lake basin originating in the ice age (Riss — Würm interglacial), covered with turf bog on the bottom,
- the turf and the thermal water take over dissolved substances from each other: the medicinal sludge generated from the turf is thickened with the substance of the thermal water and the thermal water is supplemented with the substances of the turf (sterane-frame compounds, terpenes and humine acids) and both medicinal substances become a complex unique in the world.

### The medicinal effect of the Hévíz Lake

Microbiology:

- In the basin of the Lake the turf is decomposed by actinomycetes (*Streptomyces fimicarius*) and among them there are a lot of *Streptomyces* parent stocks producing antibiotics (The only parent stock of Hungary producing Streptomycin was found here by the ELTE microbiologists).

This explains the 200-year-old experience that the medicinal water is of anti-Coccus effect, no wound sepsis has ever occurred here and 100 years ago hundreds of people bleeding from cupped wounds were standing in the water of the drain (more blood flew here than in the Napoleon wars) but no sepsis occurred.

Main agents:

- the most important is SULPHUR: the basic component of the joint cartilage is sulphur and in all deterioration and inflammation diagnosis the cartilage suffers from lack of sulphur. In the Lake there is *Thiobacillus* genus, which, in relation to their own metabolism, transform the biologically inactive sulphate into active sulphide, which very easily absorbs and not only integrates in the cartilage but also deposits in the liver, skin and fat or becomes a component in these enzymes. This sulphur also excellently eases diabetic skin itch,
- Ca: anti-inflammatory
- Mg: indirect painkiller
- Carbonates: ensure cosmetic effect: the skin becomes silky and velvet-like during the cure

- Radon: the radon content of the medicinal water shows a lunisolar fluctuation. We have never seen any adverse effect of this. It is soluble in fat: primarily it is connected to the hypophysis, due to the excessive ACTH-production the patient solves the problems of the disease without side effect with the help of the anti-inflammatory hormones of his/her own adrenal glands. According to some figures it also enhances calcitonin production and this explains the express painkilling effect with our osteoporotic patients.

Cure management:

- the medicinal results of balneology can be demonstrated if thermal bathing happens in cure-like way,
- the effective and ideal application of the features of a certain medicinal place can be prescribed only by a physician working there for years, who is more than a rheumatologist or a physiotherapist – someone who is a cure-orthologist and knows all partial features well.

Medicine is not only a science but also arts. We, people in Hévíz are lucky to be able to apply medicine as a science and besides, medicine as healing art during our daily work.

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Dr. József Gyarmati, Chief Physician, Szent András Hospital Hévíz