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## **WATER THERAPY IN THE FORMER SPA OF OJCÓW**

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### **INTRODUCTION**

Ojców is a small village situated 25 km NW of Cracow. The village borders stretch over part of a picturesque karst valley of the Prądnik stream, with numerous deep gorges and limestone rocks, dating back to the Jurassic period. Some naturalists used to name Ojców the Polish Switzerland. There is unique abundance of natural, cultural and landscape elements concentrated in a small area (PARTYKA 2004).

Józef Dietl, a professor of a medical clinic in Cracow, bewitched by the valley wrote: “(...) a great abundance of flora at the banks of the stream, on the meadows and even in the forests strikes here – abundance which appears here in such a variety, with such an amazing magnificence of colour and with such a luxuriance, which is hardly noticed in any other areas of the southern zone (...)” (DIETL 1858). Beautiful landscape, abundance of the nature, clean air and numerous springs made Ojców turn into a popular spa in the 19th century Ojców. In 1858 professor Dietl considered Ojców as one of the main spas in the area of the Kingdom (MIERZYŃSKI 1895).

The aim of this study is to present the ways and methods of water therapy, exploiting physicochemical features of the spring waters, used in the former spa in Ojców.

## HISTORY OF THE SPA OF OJCÓW

In 1855, Lucyan Kowalski, at that time the owner of the village Jakimowice, decided to fund a health resort in Ojców. The resort building consisted of 20 rooms, 4 bathrooms and a dining hall. In 1859, after Ojców had been purchased by count Aleksander Przezdziecki, a Small Spa Bath over the Prądnik was erected and hot baths equipment was mounted in the Pod Łokietkiem Hotel. Besides, a Hydropathical Unit, which had been previously established by L. Kowalski in the Sybilla House, still operated. The health unit in such a state functioned until the January Uprising (1863), when it was burnt down (WOJTASZEK 2001).

At the times of count Ludwik Krasieński the splendour of Ojców as a spa was regained. The description of Ojców of 1895 mentioned 10 houses, 2 hotels, an inn and a lodge – altogether 320 rooms for guests and the patients (WOJTASZEK 2001). The same year a three-storey Hydropathical Unit called the Goplana, with 60 rooms, was built at the foot of Zamkowa Mountain. At first it was called the Balneology, later renamed as the Hydrotherapy Unit (DOBRZYŃSKI 1896, NOWAK 2004) – Photo 1. Professor Domański (a neurologist and head of the Department of Neurology of Jagiellonian University) became the head doctor. He visited the spa once a week, while dr Michalewski was a residing doctor. The man who ran the unit was a pioneer of Polish balneology, dr Stanisław Niedzielski (MITKOWSKA 1995, NOWAK 2004).



Photo. 1. Hydropathic Institute "Goplana" – spa house  
Fot. 1. Zakład Hydropatyczny „Goplana” – dom zdrojowy

Therapeutic seasons lasted from 30<sup>th</sup> of May until 30<sup>th</sup> of September, although the Hydropathical Unit functioned all year long. It served about a hundred of resident patients a year, and the number of all patients was rising every year. The annual number of patients for the three-year period of 1894–1896 reached 1500 (DOBRZYŃSKI 1896), in 1935 it rose to 3750 while in 1936 it equalled 4090 (PRZYWIECZERSKI 1946).

Until World War Two, the spa of Ojców developed vigorously. It was officially recognized as a spa by the Polish government in 1927. As the years went by the recreational function of Ojców started to dominate over the therapeutic one, which caused the spa to fall into decline. In 1937 the Goplana spa house, which then needed a general repair, was demolished. At that time there was a plan to relocate spa buildings to the nearby village of Złota Góra. But after 1945, when the property of the Czartoryski family was nationalised, Ojców lost the status of a spa (PARTYKA 1988).

## RESEARCH OF CHARACTERISTICS OF OJCÓW WATERS

We can distinguish the following water sites in Ojców: springs, streams, mill races (running waters) and fish ponds (artificial), small periodical water reservoirs and wetlands (stagnant waters). There are relatively many springs and they are represented by all ecological types: rheocrens, limnocrens and helocrens as well as mixed types. However the rheocrenic type dominates there. The Prądnik and the Sąspowka streams, represent a karst type of streams, with a stable flow and minor fluctuation of the water level during the year. The temperature of waters is low 5.8–11.1°C; in the streams it oscillates around 8°C (SZCZĘSNY, DUMNICKA 1997).

One of the first studies on the characteristics of the Ojców waters was carried out by dr ALEKSANDER MARJAN WEINBERG (1887). In his work „*Clinics of Ojców I. New-found ferruginous water*”, he rated Ojców waters from the Czajowice farm as highly mineralised, comparing to other well known spas (Table 1, Figure 1).

Table 1  
Tabela1

Comparison of iron and mineralization of waters in Ojców with famous spa resorts,  
by A.M. WEINBERG (1887) [mg · dm<sup>-3</sup>]  
Porównanie zawartości żelaza i mineralizacji wód w Ojcowie z wodami innych uzdrowisk,  
wg A. M. WEINBERGA (1887) [mg · dm<sup>-3</sup>]

Spa – Uzdrowisko	Constance components (mineral) Składniki (mineralne)	Metallic iron Żelazo metaliczne
Ojców (grange Czajowice) – folwark Czajowice	625	50
Żegestów	257.9	16
Königswarth	114.9	data unavailable – brak danych
Schwalbach-Wainbrunnen	155.8	data unavailable – brak danych
Schwalbach-Stahbrunnen	60.5	data unavailable – brak danych
Schwalbach	data unavailable – brak danych	23
Spa-Pouhon	49.3	59
Pyrmont	data unavailable – brak danych	18
Krynica	data unavailable – brak danych	10
Sławinek	data unavailable – brak danych	10

According to him, the streams of the Sąpowska Valley should have been recognised as the cleanest mountain waters, perfectly suitable for the purpose of therapies.

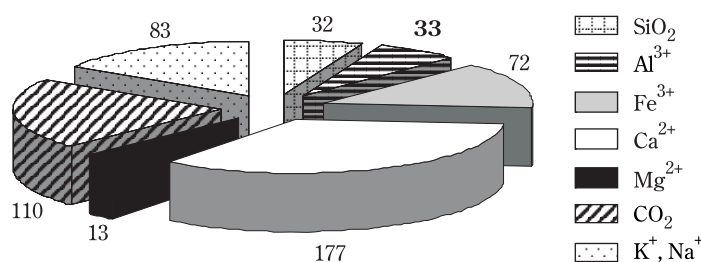


Fig. 1. Particular chemical composition of spring water in grange Czajowice (mg·dm<sup>-3</sup>) (by WEINBERG 1887)

Rys. 1. Skład chemiczny wody źródlanej z folwarku Czajowice (mg·dm<sup>-3</sup>) (wg WEINBERGA 1887)

Real mineral waters do not occur in Ojców, but there are many springs there. According to MIERZYŃSKI (1895), the drinking water there was the cleanest. The scientific proof of that cleanness consisted of fair oxidation with influence of potassium permanganate on the organic material, which was assayed by Kubel and Tiemann's method of water testing, insignificant amount of nitric acid, with complete lack of ammonium and nitrous acid as well as lack or vestigial amounts of bacteria (Table 2). Mierzyński wrote that Ojców was somehow an example discrediting Koch's theory, which stated that a thypoid infection resulted from water drinking.. In some Ojców springs Mierzyński found small amount of iron (6.1–10.2 mg·l<sup>-1</sup>) as Fe(HCO<sub>3</sub>)<sub>2</sub>. However, these quantities of iron were insufficient to call the waters ferruginous mineral waters (MIERZYŃSKI 1895).

Chemical composition of the springs was also investigated between 1962–1963 and 1986–87 (DUMNICKA et al.1990). The waters were at that time qualified as hydrogencarbonate – sulphate – calcium, with high contents of Ca<sup>2+</sup>, exceeding 120 mg·dm<sup>-3</sup>. They were well oxygenated, and, simultaneously, high contents of CO<sub>2</sub> caused lowering of pH from 7.4 to 6.9. On the basis of those findings, we could assume that the waters were the subjects to quite strong man-made pressure. A high concentration of nitrates and phosphates, frequently above the limit of the first class of water purity, proves it. In the Prądnik and the Sąpówka, those concentrations are the highest in the upper course of streams and highly located springs.

According to the latest investigations, the spring waters of the Prądnik stream should be recognised as highly mineralised, with a large contents of HCO<sub>3</sub><sup>-</sup> and Ca<sup>2+</sup> (SWEK 2004). The average value of the physicochemical features of this water is illustrated in the Figure 2.

Table 2  
Tabela 2

Results of research into the main springs in Ojców made by Z. Mierzyński at the end of 19th century (1895) in L. Nencki lab  
(mg·dm<sup>-3</sup>)

Wyniki badań Z. Mierzyńskiego pod koniec XIX w. (1895) nad właściwościami głównych  
źródeł w Ojcowie w lab. L. Nenckiego (mg·dm<sup>-3</sup>)

Name of spring Nazwa źródła	Chemical study of quantity Badania ilości związków chemicznych								Microscopic study Badania mikroskopowe			
	CaO	MgO	Fe(HCO <sub>3</sub> ) <sub>2</sub>	H <sub>2</sub> CO <sub>3</sub>	Cl <sup>-</sup>	H <sub>2</sub> SO <sub>3</sub>	N <sub>2</sub> O <sub>5</sub>	N <sub>2</sub> O <sub>3</sub> i (and) NH <sub>4</sub>	oxygenity in mg perman- gane utlenienie w mg nadmanga- nianu	amount of colony grown in 1 cm <sup>3</sup> of water liczebność kolonii hodowanych w 1 cm <sup>3</sup> wody	amount of colony dissolving gelatine liczebność kolonii rozpuszcza- jących żelatynę	amount of moulds liczebność pleśni
Urok	126	41	trace	162	2.6	22	-	-	3.2	16	-	-
Batory	136	32	trace	141	2.7	16	3,2	-	3.4	25	-	-
Ludwik	112	20	10,2	254	5.6	17	2,8	acid trace	4.6	*	*	*
Jamnik	90	24	9,6	154	5.4	19	4,6	acid trace	4.3	128	-	5
Styr	95	35	trace	226	5.3	21	ślady trace	-	2.8	16	-	-
Wanda	132	37	6,1	291	8.9	18	-	-	3.2	23	-	-
Krakus	123	24	trace	263	5.4	22	-	-	2.2	-	-	-
Magdalena	146	37	trace	238	5.6	17	-	-	3.3	17	-	1
Jan	132	36	trace	249	5.9	18	-	-	2.1	-	-	-

\* - vessel broken during research - naczynie stłuczone w trakcie badań

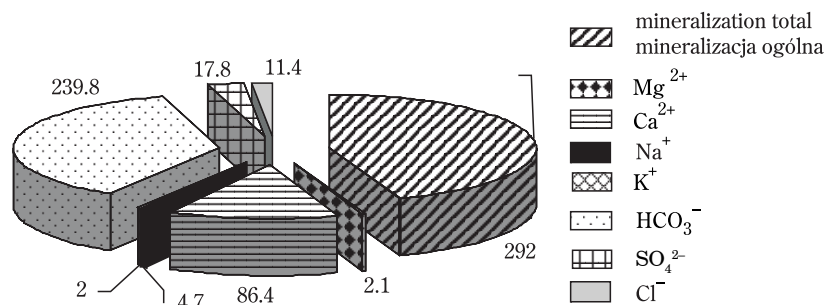


Fig. 2. Average values of physico-chemical features of spring water in Prądnik stream (mg·dm<sup>-3</sup>) (SIWEK 2004)

Rys. 2. Średnie wartości cech fizykochemicznych wody źródlanej z Prądnika (mg·dm<sup>-3</sup>) (SIWEK 2004)

## METHODS OF WATER THERAPY APPLIED IN THE OJCÓW SPA

The first person who decided to use the water from Ojców springs for the purposes of therapy was Lucyan Kowalski. Professor Józef DIETL (1895) called him an empiricist, who practiced original therapy methods. Kowalski himself, not being a doctor of medicine, applied modified methods of Priesnitz from the University of Warsaw. According to his method, a patient was placed in a round steam (inhalation) chest with the head sticking out above the cover of the chest (the patient could sit or stand comfortably). Pipes connected the chests with copper boilers used to produce steam. The pipe running from the boiler split just before the chests. One part was directed into the chest, passing through a can filled with herbs, and the other part had a tube with a funnel-shaped ending and a linen bag tied, which the patient put on his head, inhaling the steam with the volatile oils. Separate pipes supplied spring water from a container situated at the ceiling, to each of the chests and to a shower room. The patient was in a steam bath at 56°C for half an hour, and the steam was saturated with volatile oils of St John's wort (*Hypericum perforatum*), which used to grow there abundantly. Next a rainy bath was applied, and after being previously cooled with a radial shower, the patient was wrapped up in dry blankets and given hot infusion of healing herbs to drink. After profuse sweating, cold showers were applied. Additionally, patients were advised to drink large amounts of spring water, before as well as after the baths (DIETL 1858). The therapies were carried out daily until the symptoms of a sickness receded. That original way of healing was applied between 1855–1863. In spite of the fact that the therapies were applied without the presence of a doctor, they brought positive results in curing arthritis, hemiplegia bilateralis, rheumatism, inflammation of joints, metabolism sicknesses, which was later confirmed by professor Dietl (MIERZYŃSKI 1985).

The methods of water therapy started in Ojców by Kowalski were developed and refined at the times when the Goplana Hydropathical Unit operated. In the basements of the Goplana there was a boiler, used to heat spring water, and a circulation system, preventing the installation from explosion. Water was supplied through galvanised pipes, which protected it from contamination with iron compounds. There was also an additional sediment container, in which reserves of water were stocked, in case of its stirring when water level was rising. A mechanical suction and force pump supplied the water to the level of the third floor. In the shower room there was an equipment for horizontal, parallel, general and partial showers, with a regulation of temperature and stream force. There was also a Winternitz device, the so-called cathedral, used for immediate change of temperature of the applied water (MIERZYŃSKI 1895).

The main area of therapeutic activities of the Hydropathical Unit embraced treatments which relied on natural qualities of spring waters. They were based on gaseous, saline, saline – gaseous, bran, lye, herbal, sludge, peat, needles of a conifer, mineral with  $H_2CO_3$  and other baths. (KORCZYŃSKI 1934). The materials needed to such baths were available in a local pharmacy, at prices established by the Institute of Mineral Waters of United Pharmacists in Warsaw. Spring water at the temperature of 6-7°C was taken for the baths and heated in the circulation boilers up to 60°C. Baths in the Prądnik were not advised, because of its very low temperature equal 8–12°C (PIOTROWSKI 1931).

Wavy baths were available in specially prepared baths set up in a pond, through which the Prądnik flowed. The strength of a water stream was regulated, from a gentle one to so called 'sturzbud'. It could have also been directed to any part of the body (MIERZYŃSKI 1895). Moreover, special dietetic cuisine based on milk, whey, buttermilk, kefir, and even kumiss were applied in the therapies. In addition, drinking of spring water and much rest were advised (WOJTASZEK 2001). Additionally, all mineral waters, both Polish and foreign ones, were available in the unit (PIOTROWSKI 1931).

Waters containing significant amounts of  $CaCO_3$  and insignificant amounts of  $MgCO_3$ , dissolved due to large quantity of  $H_2CO_3$ , were applied in treating rickets, osteomalatia, enteritis and gastritis. On the other hand, water with increased amounts of Fe was advised in curing of anaemia. Some springs (for example the Jan), because of their chemical composition, were qualified as oxalate calcium radioactive mineral waters. Their radioactivity was expressed in the quantity of 3.9 Mach units [ME] in a litre of water (1 ME=0,364nCi·dm<sup>-3</sup> JD). Because of the significant amount of calcium ions such water was applied to cure problems with the skeletal system resulting from deficiency of calcium in the organism, such as rickets, osteomalatia, and also in enteritis, diarrhea and in case of excessive acid production (PIOTROWSKI 1931). Apart from the above illnesses, also neurosis of cardiovascular system and alimentary canal, sicknesses related to metabolism, women's ailments, Basedow's disease, exhaustion and convalescence after sicknesses were cured in Ojców (PRZYWIECZERSKI 1946).

## CONCLUSIONS

Many of the methods of water therapy presented above, once applied in the Ojców spa, today have only historical meaning. This is true especially about the therapeutic methods propagated by Lucyan Kowalski. Already at his times, professor Dietl warned against treating people with heart diseases, atherosclerosis and tuberculosis with Kowalski's methods, insisting on permanent presence of a doctor, who, as we know from historical sources, used to be absent in that unit (MIERZYŃSKI 1985). However, therapeutic baths of different kinds, propagated in Ojców and similar spas in the past, currently belong to a group of approved and commonly applied therapeutic treatments. Of course, they can be helpful only in a particular group of illnesses, as well as spa waters, which in fact have never occurred in Ojców. That fact could have been one of the many reasons for the ultimate decline of the Ojców spa.

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Key words: Hydrotherapeutic Institute, therapeutic bath, spring waters, Ojców spa.

#### Abstract

The Ojców spa functioned from 1855 until World War Two. The research conducted in the area of chemical properties of the spring water in Ojców showed that they were highly mineralized and contained large amounts of  $\text{Ca}^{+2}$  and  $\text{H}_2\text{CO}_3$ . The spring water properties were used in treatments in the former Hydrotherapeutic Institute. Treatments include: vapour bath, salt bath, vapour-salt bath, bran bath, basic bath, herbal bath, mud bath, peat bath, needle bath, mineral bath with  $\text{H}_2\text{CO}_3$  etc. Furthermore, patients received dietetic food and were recommended to drink spring water and have much rest.

### **TERAPIA WODNA W DAWNYM UZDROWISKU W OJCOWIE**

Słowa kluczowe: Instytut Hydroterapii, kąpiel terapeutyczna, wody źródlane, uzdrowisko w Ojcowie.

#### Abstrakt

Uzdrowisko w Ojcowie działało od 1855 r. do drugiej wojny światowej. Badania nad właściwościami chemicznymi wód źródłanych w Ojcowie wykazały, że są to wody wysoce mineralizowane, o dużej zawartości  $\text{Ca}^{+2}$  i  $\text{H}_2\text{CO}_3$ . Właściwości tych wód wykorzystywano w działającym w Ojcowie Instytucie Hydroterapii. Wśród stosowanych zabiegów były kąpiele parowe, kąpiele solne, kąpiele parowo-solne, kąpiele otrębowe, kąpiele podstawowe, ziołowe, błotne, torfowe, igłowe, mineralne z  $\text{H}_2\text{CO}_3$ , itp. Ponadto, pacjenci otrzymywali specjalną dietę, a także zalecano im picie wody źródlanej i dużo odpoczynku.