

An Exceptional Mineral Water Type in the Polish Lowlands Abstract n°2204

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The name Polish Lowlands corresponds to central and NE part of Poland. The part of this province belongs tectonically to the Caledonian platform and is typical for its thick, often folded, Paleozoic and Mesozoic series covered by Tertiary and Quaternary (glacial and interglacial sediments). The occurrence of numerous Upper Permian salt diapirs formed during Mesozoic tectonic movements are of particular importance for the chemical composition of mineral waters occurring often in Mesozoic and Cenozoic sedimentary series. Their mineral content often results from leaching of these salt bodies. Another reason for their salinity may be also the presence of relic seawater possibly present in marine sediments of the Jurassic and the Cretaceous. In any case the main ions present in all mineralized groundwaters found till now the Polish Lowlands are- Cl- and Na+. Their TDS varies between 1 to many thousand ppm depending on the depth of occurrence and other local hydrogeological conditions. In 1922 a bore-hole has been drilled at Wieniec, a village in the center of Poland. The aim of the drilling was to explore the possibility to find brown-coal deposits in Miocene sediments underlying Quaternary sands. Instead, an important aquifer was found at the depth from 110m in Upper Jurassic (Oxfordian) oolitic limestones containing gypsum. The water-bearing horizon was drilled-through only to the depth of 130m. The spontaneous outflow from the well is 27m³ h, water is of SO₄-Cl-Ca-Na type, its TDS is 3500ppm, it contains 1,5 ppm H₂S+HS⁻. Wieniec became an important medicinal spa with large prospects of development. It must be stressed that in the drilling profile thin layers of brown-coal (Miocene) and some black clay layers (Valanginian) were found. Both types of sediments contain organic matter indispensable to bacterial reduction of gypsum and H₂S production. It has been found that the area of gypsum-bearing limestones has the surface of ca 200km². This is the unique area of potentially successful prospection for precious medicinal water.

