



## **The first known piezometric map in the world was published in 1856 in Belgium**

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### **Abstract**

To our current knowledge, the first piezometric map ever published in the world is the map of Gustave Dumont in February 1856. Gustave Dumont (1821-1891) was a cousin of the well-known geologist André Dumont (1809-1857). This oldest known piezometric map is showing piezometric levels (heads) in the chalk Hesbaye aquifer of the Geer basin near the city of Liège in Belgium. The map is included in a comprehensive report ordered by the city in 1855 to increase drinking water production with a large extension of drainage galleries in this aquifer. A long tradition of underground coal mining activities in Southern Belgium did lead in the 19<sup>th</sup> century to new advances in practical hydrogeology. For example, drainage techniques linked to mining activities were developed actively as the mines were going deeper and deeper. This period corresponds also to a first complementary collaboration between engineers and geologists, leading to the early steps of geological engineering. André Dumont was Professor at the University of Liège in Geology and Mineralogy and was the most famous Belgian geologist of that period. He is known for his many detailed and rigorous geological maps. In 1851, he published a note about the application of the geological regional knowledge for groundwater exploration in Hesbaye. Gustave Dumont was a mining engineer with experience in hydraulic problems. A water commission of the city of Liège provided Gustave Dumont in 1855 with the task to study the feasibility and impact of an optimized network of drainage galleries in this chalk aquifer. The official report is delivered and published in February 1856 (Dumont 1856) including the first piezometric map entitled: ‘Carte hydrographique de la Hesbaye aux environs de Liège’ (in French). This map shows the piezometric contours every meter from 57 m until 106 m. These contours were described as ‘the intersection between the underground water surface with horizontal planes’ (literal translation from French). This study was particularly innovative, as it was not only driven by

the required feasibility and efficiency of the project but also by an estimation of the potential impacts of groundwater levels on private wells of farmers.

Dumont G., 1856. Rapport fait à l'administration communale relatif aux divers projets qui lui ont été présentés pour procurer à la Ville des eaux alimentaires (in French). *Bulletin administratif de la Ville de Liège*, Liège, N. Redouté (imprimeur), 109 p.