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New data on Jean-Étienne Guettard's journey to Poland in the years 1760–1762

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Abstract

This paper presents new information on the journey of the French geologist Jean-Étienne Guettard to Poland in the years 1760–1762. Search in the Archives of the Academy of Sciences in Paris, especially a review of his biographic dossier and collections of documents reports delivered at the meetings of the Academy, made it possible to find rich material (letters, reports, notes from field studies, drafts of lectures and others), a large part of which refers to this journey. This hitherto overlooked material well supplements our knowledge of the journey and casts some new light on the scope and extent and results of geological and meteorological studies carried out by J.-É. Guettard during his stay in Poland. **To cite this article: R. Tarkowski, C. R. Geoscience 336 (2004).**

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Résumé

Nouvelles données sur le voyage de Jean-Étienne Guettard en Pologne (1760–1762). Cet article présente de nouvelles informations sur le voyage du géologue français Jean-Étienne Guettard en Pologne dans les années 1760–1762. Des documents (courrier, rapport, notes de terrain, cours, etc.), dont une partie traite de ce voyage, ont été retrouvés dans les archives de l'Académie des sciences à Paris, dans le dossier biographique de J.-É. Guettard et dans les procès-verbaux de l'Académie. Ces documents, inconnus auparavant, viennent compléter nos connaissances sur le voyage de J.-É. Guettard en Pologne, ses observations météorologiques et les résultats des ses travaux de recherche. **Pour citer cet article : R. Tarkowski, C. R. Geoscience 336 (2004).**

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Version française abrégée

1. Introduction

Le célèbre naturaliste français Jean-Étienne Guettard (1715–1786), cité dans plusieurs bibliographies [11,14], a mené, dans les années 1760–1762, des recherches dans le domaine des sciences naturelles en Pologne. De retour en France, il a présenté quatre communications, dont trois sur la structure géologique de la Pologne et la mine de sel de Wieliczka [6,7,9]; la quatrième traite de ses observations météorologiques [8]. Guettard a été un pionnier de la géologie de la Pologne. Il en a, en effet, analysé les principales structures géologiques et y a mené les premières observations météorologiques. Ses travaux géologiques ont eu un retentissement considérable sur les travaux ultérieurs polonais. La carte «minéralogique», ou plus exactement la carte géologique de la Pologne, de J.-É. Guettard constitue la première de ce genre pour la Pologne [4,13].

Un grand intérêt a été porté dans la littérature polonaise aux travaux de J.-É. Guettard. Dans plus de 70 publications réparties sur la période allant de 1764 à 1975, nous retrouvons des informations sur Guettard et ses travaux [18]. W. Szajnocha [15], T. Wiśniowski [16], T. Grabowski [5] et, dernièrement, R. Fleszarowa [4], A. Rojecki [12] ainsi que Z. Wójcik [17,18] ont largement traité des réalisations du naturaliste français.

2. Documents

Les données présentées sur le voyage de Guettard proviennent du dossier biographique de Guettard aux archives de l'Académie des sciences de Paris et des procès-verbaux de séance. Le dossier biographique comprend un classeur et trois boîtes. Le classeur renferme des lettres et des documents sur les activités de J.-É. Guettard. Les trois boîtes contiennent le courrier et diverses notes de J.-É. Guettard, des carnets de terrain, des notes de lecture. Des informations, très intéressantes, portant sur des événements ayant eu lieu durant le séjour de J.-É. Guettard en Pologne se trouvent dans les procès-verbaux des années 1760–1763 de l'Académie des sciences. Nous y trouvons, entre autres, une copie d'une missive royale signée par le comte de Saint-Florentin, datée du 11 avril 1760 et

adressée de Versailles au secrétaire perpétuel de Fouchy (Fig. 1).

3. Conclusion

Le dossier J.-É. Guettard des archives de l'Académie des sciences de Paris est peu connu. Il représente, cependant, une source indéniable de données pour des études sur les activités de cet éminent naturaliste, et plus particulièrement sur ses activités durant son séjour de 1760 à 1762 en Pologne. Les documents retrouvés sont sous forme de notes et de travaux entamés, dont une partie a été utilisée par J.-É. Guettard dans ses publications sur la structure géologique de la Pologne et sur les conditions météorologiques dans ce pays.

Nous apprenons par ces documents que Guettard s'est rendu en Pologne sur ordre du roi, en tant que membre de l'Académie royale des sciences. Il y a séjourné en Pologne comme médecin d'Antoine-René d'Argenson, marquis de Paulmy (1722–1787), ambassadeur de France près le royaume de Pologne. Durant son séjour de deux ans en Pologne, le délégué du roi a effectué des mesures, mené des observations et des études géologiques et météorologiques; il s'est intéressé à la vie politique polonaise (comptes rendus des séances de la diète polonaise), à la gastronomie (notes des recettes de cuisine) et à bien d'autres aspects de la vie. Étant donné le large spectre de travaux menés par J.-É. Guettard en Pologne, il n'est pas impossible que nous retrouvions d'autres documents relatant de son séjour dans ce pays.

Les nombreuses citations des travaux de Guettard dans la littérature spécialisée polonaise ainsi que les matériaux retrouvés en France aideront à compléter et ordonner les informations sur son séjour en Pologne. Cela aidera également en Pologne à présenter Guettard comme l'infatigable observateur des phénomènes naturels et sociaux.

1. Introduction

The well-known French naturalist Jean-Étienne Guettard (1715–1786), often referred to in bibliographies [11,14], carried out studies in Poland in the years 1760–1762. He came to this country as a personal physician accompanying Antoine-René d'Argenson,

Marquis of Paulmy (1722–1787), French Ambassador to the King of Poland [3] and used this opportunity to carry out extensive studies about geology, mining, meteorology and climate of the country. After his return to France, Guettard presented the results of his studies in a series of papers [6–9] published in Paris in the *Histoires et Mémoires de l'Académie royale des sciences* in 1764 (cf. [1]).

Three of these papers [6,7,9] deal with major features of the geological structure of Poland and with the world-famous salt mine at Wieliczka, and the fourth with results of his studies of climate and meteorological conditions in Poland [8]. As a result of his geological studies, J.-É. Guettard published in a paper divided into two parts [6,7], presenting an original geological subdivision of Poland based on his own field studies and analysis of literature, a geological map of this country and six drawings of fossils. Guettard marked mineralogical (geological zones) – *bande sablonneuse, marneuse, saline et schisteuse ou métallique* – on the map of Poland, which included rivers and lakes, towns, voivodships. The paper about the Wieliczka salt mine comprises a detailed description of this mine along with a cross-section and information relative to the identified types of salts. Based on research in the mine and on fieldworks, Guettard gave a modern description of salt deposit, he introduced and proves its sea genesis, he pointed out zones in which salt prospecting would be least risky.

The paper on meteorology [8] presents an isolated series of meteorological observations made in Warsaw in the years 1760–1762. When Guettard returned to France in the year 1762, the observations have been continued till 31 March 1763 by Father Delsuc, Secretary of the French Legation to the Polish King [12]. All these results have been published together in Paris in the year 1768 [10].

Geological papers of Guettard represented a pioneer attempt to analyse major features of the geological structure of Poland, whereas his meteorological observations have been among the first ever made in this region. It should be emphasized that his geological studies had a profound impact on subsequent ones and his mineralogical (in fact, geological) map of Poland has been the first one of this country [4,13].

References to works of Guettard appear very common in Polish literature and may be found in over 70 publications from 1764 to 1975 (see [18]). This re-

flects the remarkable attention paid to him and to the results of his studies. Scientific achievements of Guettard were especially appreciated in Poland during the Age of Enlightenment to become the subject of intense studies of historians of geology from the turn of 19th and 20th centuries onwards. The achievements were widely popularised by W. Szajnocha [15], T. Wiśniowski [16], T. Grabowski [5] and more recently Z. Wójcik [17,18], and the bicentenary of the publication of his geological map of the area of Poland was commemorated in a special paper by R. Fleszarowa [4], also recalling and analysing the significance of his geological studies. In turn, J.-É. Guettard's achievements in the field of meteorology of the area of Poland were summarized by A. Rojecki [12]. Much attention was also paid to contacts of J. Jaśkiewicz (1749–1809), Professor of the Jagiellonian University, and S. Staszic (1755–1826), the Father of the Polish geology, with this outstanding French researcher (see [18]).

2. Materials

The above-mentioned data and documents and papers concerning Guettard's journey to Poland are kept in the Archives of the Academy of Sciences in Paris, mainly in his biographic dossier and additional information may be found in reports (*procès-verbaux*) of the Academy. Attention should be also paid to J.-É. Guettard's travel diary containing botanical observations, found in the MNHN (National Museum of Natural History in Paris) (see Daszkiewicz [2]). Further quest in the Library of the Geological Society of France in Paris and of other French scientific institutions as well as Polish ones (such as the Jagiellonian Library and the Archives of the Czartoryski Museum in Cracow) failed to give any more important results.

2.1. Biographic dossier of J.-É. Guettard

The dossier of Guettard is held in a portfolio and three cardboard boxes. The content of the portfolio comprises letters and documents related to professional activities of J.-É. Guettard, including:

- a letter from Versailles to de Fouchy, Permanent Secretary (*secrétaire perpétuel*) of the Academy,

dated 11 April 1760 and signed by the Count of Saint-Florentin, Minister of the Royal House, and registered by the Academy on 19 April 1760, stating that:

Le Roy ayans, Monsieur, permis à M. Guettard d'accompagner en Pologne M. le Marquis de Paulmy, le Roy désire que son absence momentanée et relative au service de Sa Majesté ne puisse lui être préjudiciable, dans sa qualité d'académicien. Je vous prie de vouloir bien rendre compte à l'académie des intentions de Sa Majesté à cet égard. On ne peut vous être, Monsieur, plus parfaitement dévoué que je le suis. Signed: Florentin.

- a letter that Guettard wrote in the year 1763 to the authorities of the Academy, with request for reimbursement of his costs of travel to Poland; the letter is written with black ink and signed by the author, with the breakdown of his travel costs (800 – travel expenses + 200 – drawings/1000 ‘livres’)
- with red ink in upper corner.

The above-mentioned three cardboard boxes contain numerous letters written by Guettard or addressed to him, various notes, note books with notes from fieldworks, notes from lectures and other material. Those manuscripts come from various periods of his scientific activity. The material related to his journey to Poland is relatively rich and a special attention should be paid to:

- notes on *Definitio Status Regni Polonia*;
- 13 pages of notes on the state of preservation of an ancient silver and lead mine at Olkusz, entitled: *Mémoires sur les mines d'Olkusz*;
- undated notes from travels to Łowicz, Otwock, Puławy, Poznań and Lwów, usually with lists of names of towns (in Polish transcription) he was passing by during these travels;
- notebooks with notes from fieldworks;
- a report dated June 1763, entitled *Decouverte d'eaux minérales appellées aujourd'hui Capucines, faite dans la Starostie de Zips, près du village Druzbach, par le Père Ambroise de Capucines, Vicaire actuel du convent de Varsovie*, presenting

a description of the effects of the use of mineral water and an example of a miraculous cure;

- a notebook with records of meteorological observations made in Warsaw in the years 1760 and 1761;
- a letter with meteorological records, sent from Warsaw on 29 October 1762;
- a description (14 pages) of the opening ceremony of the parliamentary proceedings on 4 October 1762 and an extensive description of the parliament proceedings from May (year not given), entitled: *Description d'une Diète de Pologne*;
- a description of how food is prepared in Poland: *Manière de préparer certains mets polonnais*; the text starts with the following sentence: *Pour préparer les pâtes mêlées, nommées vulgairement Kluski mieszane* (mixed dumplings), *il faut prendre 3 œufs et de la farine...* (and further on) *...Les petits pains (cuits au lait) appellés Bułki gotowane* (boiled breadrolls).

2.2. Reports (Procès-verbaux) of the Academy

A very interesting information that may further precise some facts connected with the stay of J.-É. Guettard in Poland may be found in reports (*Procès-verbaux*) of the Academy of Sciences from the years 1760–1763. Among documents from these years, were found:

- (19 April 1760) a copy of the King's letter from Versailles to de Fouchy, dated 11 April 1760 and signed by the Count of Saint-Florentin (Fig. 1);
- (7 August 1762) confirmation that J.-É. Guettard presented the first part of his paper entitled *Mémoire sur la nature du terrain de la Pologne et des minéraux qu'il renferme*;
- (22 December 1762) confirmation that J.-É. Guettard presented three papers dealing with the geology of Poland, including the second half of the above-mentioned *Mémoire sur la nature du terrain de la Pologne et des minéraux qu'il renferme* with the mineralogical map of Poland:

...M. Guettard m'a déposé pour retenir dans trois mémoires, le premier sur la nature du terrain de la Pologne et de minéraux qu'il renferme, le second sur la mine de sel de

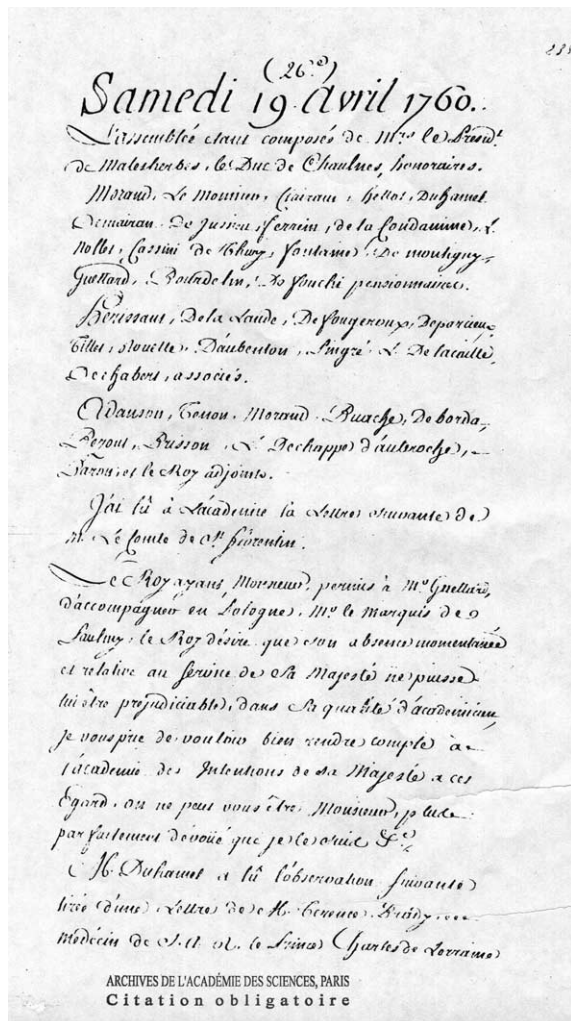


Fig. 1. A page of the reports (*procès-verbaux*) of the French Academy of Sciences dated 19 April 1760, with copy of King's letter to de Fouchy, signed on 11 April 1760 in Versailles by the Count of Saint-Florentin, Minister of the Royal House (Archives of the French Academy of Sciences, Paris).

Fig. 1. Page du procès-verbal du 19 avril 1760 de l'Académie des sciences : copie d'une lettre du roi signée par le comte de Saint-Florentin, ministre de la Maison du roi, datée du 11 avril 1760 et adressée de Versailles à de Fouchy (archives de l'Académie des sciences).

Viliska en Pologne, et le troisième sur les observations météorologiques faites à Varsovie en 1760, 1761 et 1762 ;

– (16 March 1763) confirmation that J.-É. Guettard presented a paper entitled *Observations météoro-*

logiques, faites à Varsovie pendant les années 1760, 1761 et 1762.

3. Conclusions

The still poorly known Guettard's biographic dossier from the Archives of the French Academy of Sciences in Paris represents a very interesting material for further studies on the activity of this outstanding naturalist, especially during his stay in Poland in the years 1760–1762. The identified documents comprise notes and results of preliminary analyses of the collected data partly used in his subsequent publications on the geological structure and climate of Poland.

The documents show that J.-É. Guettard went to Poland at King's instructions as a Member of the Royal Academy of Sciences. He came as personal physician of the Marquis of Paulmy, the then French Ambassador to the King of Poland. During his two years of stay, he carried out measurements and observations, geological and meteorological studies and was also paying remarkable attention to the political life (as shown by his descriptions of proceedings of the Parliament) as well as to local kitchen (as shown by culinary recipes collected by him) and other aspects of everyday life in this country. Taking into account so wide scope and extent of his works and interests, it may be expected that we will soon find further material gathered during his stay in Poland.

Numerous references to J.-É. Guettard in Polish literature and material gathered in France cast additional light on his journey and facilitate the reconstruction of his activities on place. This should make it possible to show him as an indefatigable researcher of natural and social phenomena also in Poland.

References

- [1] E. Brian, Histoire et mémoire de l'Académie des sciences. Guides des recherches, Technique et Documentation, Lavoisier, Paris, 1996.
- [2] P. Daszkiewicz, Jean-Étienne Guettard's travel journal in Poland and northern Europe (1760–1762), Arch. Nat. Hist. 25 (2) (1998) 281–282.
- [3] F. Ellenberger, Histoire de la géologie, tome 2, Technique et Documentation, Lavoisier, Paris, 1994.
- [4] R. Fleszarowa, The oldest geological map and description of geology of Poland, Studia i materiały z dziejów nauki polskiej C 5 (1962) 79–85 (in Polish).

- [5] T. Grabowski, Stanisław Staszic (1755–1826). An attempt of synthesis, in: Z. Kukulski (Ed.), Stanisław Staszic MDCCLV–MDCCCXXVI, Lublin, Poland, 1928, pp. 19–70 (in Polish).
- [6] J.-É. Guettard, Mémoire sur la nature du terrain de la Pologne et des minéraux qu'il renferme, *Mém. Acad. R. Sci.* 64 (1764) 234–257.
- [7] J.-É. Guettard, Mémoire sur la nature du terrain de la Pologne et des minéraux qu'il renferme. Seconde partie, *Mém. Acad. R. Sci.* 64 (1764) 293–336.
- [8] J.-É. Guettard, Observations météorologiques, faites à Varsovie pendant les années 1760, 1761 et 1762, *Mém. Acad. R. Sci.* 64 (1764) 402–430.
- [9] J.-É. Guettard, Mémoire sur les mines de sel de Wieliczka en Pologne, *Mém. Acad. R. Sci.* 64 (1764) 493–516.
- [10] J.-É. Guettard, Mémoires sur différentes parties des sciences et arts. Tome premier, huitième mémoire, qui renferme des observations météorologiques faites en Pologne, Laurent Prault, Paris, 1768, pp. 273–346.
- [11] J.C. Poggeendorf, *Biographisch-literarisches Handwörterbuch zur Geschichte der exacten Wissenschaften*, Amsterdam, 1970.
- [12] A. Rojecki, Meteorological observations made in Warsaw in 17th–19th c, *Przegl. Geofiz.* 13 (1) (1968) 13–41 (in Polish).
- [13] H. Samsonowicz, History of geology in Poland, in: *History of Polish Science in Monographies*, VI, Cracow, Poland, 1948, pp. 1–43 (in Polish).
- [14] W.A.S. Sarjeant, *Geologists and the History of Geology. An International Bibliography from the Origins to 1978*, I–V, Krieger Publishing Company, Inc., Melbourne, Australia, 1978–1980.
- [15] W. Szajnocha, Stanisław Staszic as a geologist, *Przewodnik Naukowy i Literacki* 17 (1889) 493–516 (in Polish).
- [16] T. Wiśniowski, In centenary of first Polish geology, On Staszic as a geologist, *Kosmos* 40 (1915) 1–45 (in Polish).
- [17] Z. Wójcik, The effects of the Commission for National Education on the development in Poland of the geological sciences during the later half of the 18th century, *Prace Muz. Ziemi* 23 (1975) 1–139 (in Polish).
- [18] Z. Wójcik, The origin of rock salt and the methods of its exploration as viewed by Jean-Étienne Guettard, *Prace Muz. Ziemi* 27 (1977) 1–25 (in Polish).