C. R. Palevol 1 (2002) 629–637
© 2002 Académie des sciences / Éditions scientifiques et médicales Elsevier SAS. Tous droits réservés
S1631068302000702/FLA

History of Sciences / Histoire des sciences

Growing evidence for contacts between Polish and French geologists in the middle of 19th century

Radosław Tarkowski*

Mineral and Energy Economy Research Institute, Polish Academy of Sciences, Wybickiego Str. 7, 30–950 Kraków 65, PO Box 49, Poland

Received 7 November 2002; accepted 8 November 2002

Written on invitation of the Editorial Board

Abstract – The paper presents results of studies on contacts and cooperation of Polish and French geologists in the middle of 19th century. The studies carried out in France (Pierre-et-Marie-Curie University, 'Muséum national d'histoire naturelle', Archives of the French Academy of Sciences, 'Societé géologique de France' in Paris and Claude-Bernard University in Lyons) and Poland have made it possible to gather data casting new light on the scale and intensity of the cooperation. The newly gathered information is mainly related to two outstanding geologists from these times: L. Zejszner, Professor at the Jagellonian University in Krakow; and E. Hébert, Professor at Sorbonne in Paris. It was found that in these times the collections of Sorbonne already comprised very numerous Polish fossils gathered by Beicher, Curet, Hébert, Lambert, Munier-Chalmas, Petitclerc and Zejszner and other researchers and collectors. This paper also presents information on Poles who were members of the Geological Society of France, unknown letters from E. Hébert to Polish geologists, a speech by E. Hébert delivered at the meeting of the Society to commemorate achievements of L. Zejszner, and data on contacts between L. Zejszner and d'Orbigny. ***To cite this article: R. Tarkowski, C. R. Palevol 1 (2002) 629–637.*** © 2002 Académie des sciences / Éditions scientifiques et médicales Elsevier SAS

History of Geology / Sorbonne / Hébert / d'Orbigny / Zejszner

Résumé – Mise en évidence de nouvelles données sur la coopération entre les géologues polonais et français au milieu du XIX^{e} siècle. Cet article présente les résultats de recherches sur la coopération scientifique entre les géologues polonais et français au milieu du XIX^{e} siècle. Les investigations menées en France (université Pierre-et-Marie-Curie, Muséum national d'histoire naturelle, archives de l'Académie des sciences de Paris, Société géologique de France, université Claude-Bernard de Lyon) et en Pologne ont permis de mettre en évidence de nouveaux éléments de cette coopération. Ils se rapportent essentiellement aux travaux de deux éminentes personnalités de cette époque : L. Zejszner, professeur à l'université des Jagellons de Cracovie, et E. Hébert, professeur à la Sorbonne. Ce travail nous a permis de retrouver à la Sorbonne un riche ensemble de fossiles de Pologne rassemblés par Beicher, Curet, Hébert, Lambert, Munier-Chalmas, Petitclerc et Zejszner, ainsi que d'autres collections du XIX^{e} siècle de fossiles provenant de Pologne. Les recherches ont porté également sur les travaux de Polonais, membres de la Société géologique de France, sur les correspondances d'E. Hébert avec les géologues polonais, sur l'allocution présidentielle prononcée par E. Hébert à la session de la Société géologique de France et dédiée à L. Zejszner, ainsi que sur les relations éventuelles de L. Zejszner avec A. d'Orbigny. ***Pour citer cet article : R. Tarkowski, C. R. Palevol 1 (2002) 629–637.*** © 2002 Académie des sciences / Éditions scientifiques et médicales Elsevier SAS

histoire de la géologie / Sorbonne / Hébert / d'Orbigny / Zejszner

*Correspondence and reprints.
E-mail address: radek@min-pan.krakow.pl (R. Tarkowski).

Version abrégée

1. Introduction

Les informations concernant les contacts de géologues/paléontologues polonais avec leurs homologues français au milieu du XIX^{e} siècle sont rares. L'auteur a retrouvé à la Sorbonne une riche collection de fossiles d'Invertébrés, provenant des formations du Jurassique et du Crétacé du Sud de la Pologne. Cette découverte l'a conduit à étudier cette collection, à en rechercher d'autres et à entreprendre des recherches sur les contacts entre géologues polonais et français au milieu du XIX^{e} siècle.

Ces investigations ont été menées en France et en Pologne. Les recherches à Paris (université Pierre-et-Marie-Curie, Muséum national d'histoire naturelle, Société géologique de France) et aux Archives de l'Académie des sciences de Paris ont permis de retrouver une documentation (correspondances, publications scientifiques, documents) qui nous a livré de nouvelles informations sur la coopération entre géologues polonais et français. Les correspondances d'E. Hébert avec les géologues polonais, retrouvées à Cracovie, ont complété nos recherches.

2. Résultats des recherches

Dans la collection du XIX^{e} siècle provenant de la Sorbonne (Collection générale du laboratoire de géologie, Sorbonne, UPMC) a été retrouvé un ensemble d'environ 1000 échantillons de fossiles, provenant de formations géologiques de Pologne. Il regroupe des fossiles de Spongiaires, Coraux, Brachiopodes, Lamellibranches, Gastéropodes, Ammonites, Bélemnites, Serpules, Échinodermes, traces de fossiles (Tableau 1). Les échantillons de fossiles viennent des collections de Beicher, Curet, Hébert, Lambert, Munier-Chalmas, Petitclerc et de Zejszner et proviennent de quelques dizaines de gisements du Jurassique moyen (Bajocien, Bathonien, Callovien) et supérieur (Oxfordien), du Crétacé supérieur (Campanien, Maastrichtien) des régions de Cracovie, Częstochowa et Nowy Targ (Fig. 1). Les noms cités ci-dessus sont ceux de géologues et de collectionneurs de fossiles, d'origine française et polonaise [1, 2, 3, 10, 11, 13].

Cette collection, provenant de formations géologiques de Pologne, n'a pas été étudiée à ce jour par les paléontologues polonais. Elle est d'une grande valeur scientifique et historique. Plusieurs de ces fossiles proviennent de gisements aujourd'hui disparus ou qui ne sont connus que grâce à des publications scientifiques. Une attention particulière doit être portée à la collection de coraux, brachiopodes, lamellibranches, gastropodes, ammonites et bélemnites du Jurassique moyen de la formation appelée « oolite de Balin », du gisement de Balin (Bathonien–Callovien), très connu au XIX^{e} siècle [9, 14 (avec bibliographie)].

Deux autres collections du XIX^{e} siècle, comprenant des fossiles provenant de formations géologiques de Pologne ont été retrouvées :

– au Muséum national d'histoire naturelle de Paris (section « Paléontologie et Géologie »), environ 330 échantillons (Invertébrés, flores du Carbonifère, du Trias, du Crétacé et du Tertiaire du Sud de la Pologne) ;

– à l'université Claude-Bernard (Lyon-1), département de géologie, plus de 100 échantillons d'Invertébrés fossiles du Trias et du Jurassique.

En Pologne, des correspondances d'E. Hébert à L. Zejszner et à son assistant J. Friedlein ont été retrouvées (Fig. 2). Un premier courrier, datant du 14 août 1872, a été adressé sans doute à L. Zejszner ; le deuxième fut adressé à son assistant J. Friedlein (Fig. 3). Ce dernier document révèle que Hébert, ayant appris la mort tragique de L. Zejszner, eut l'intention de rédiger une note à sa mémoire.

Un document attestant que Hébert s'est rendu à deux reprises en Pologne – en 1865 et 1868 [4, 6] – existe aux archives de l'Académie des sciences de Paris. C'est grâce à l'aide de Zejszner que Hébert se rendit en 1868 à Cracovie, où il étudia les terrains de la partie occidentale de la Galicie (Fig. 4). Bien qu'ayant écrit plus de 200 publications scientifiques [2], Hébert n'a cependant publié aucune étude sur la géologie de la Pologne.

Sur les listes de membres de la Société géologique de France au XIX^{e} siècle, un seul nom de Polonais figure, celui de Ludwik Zejszner. Il en était membre depuis 1834. Son nom figurait sur la liste de 1868 de la Société géologique, dont il a été, à vrai dire, membre jusqu'à sa mort (1871).

Dans les colonnes du *Bulletin*, a été retrouvée une allocution présidentielle consacrée aux membres décédés de la Société [5]. Cette allocution indique que L. Zejszner avait été l'un des plus anciens membres de l'association à laquelle il communiquât des résultats de ses travaux, qu'il avait séjourné à Paris, où il menait des recherches comparatives sur les fossiles et où la plupart de ses travaux étaient connus.

Zejszner connaissait-il Alcide d'Orbigny ? Nous n'en avons pas de preuves tangibles. Zejszner effectua vraisemblablement des voyages à Paris dès 1834. C'est le discours de Hébert [5] qui nous informe sur ces séjours, pendant lesquels Zejszner mena des recherches comparatives sur les collections paléontologiques, communiqua et publia les résultats de ses travaux. Zejszner avait eu plusieurs fois l'occasion de rencontrer Alcide d'Orbigny, dont la personnalité le fascinait. Du vivant même de ce grand personnage, et pour l'honorer, il lui dédia une nouvelle espèce de gastéropodes : *Tetraptyxis orbignyana* (Zeuschner) [16].

3. Conclusion

Les nouvelles données obtenues sur les contacts entre géologues polonais et français au milieu du XIX^{e} siècle concernent deux éminentes personnalités de cette époque : E. Hébert, professeur à la chaire de géologie de la Sorbonne, et L. Zejszner, professeur de géologie à l'université des Jagellons.

Les documents signalés dans cette étude témoignent d'une coopération très active. Cette coopération porta sur des

travaux communs de terrain, des échanges et consultations de fossiles, des échanges de publications, des présentations de résultats de travaux, des relations personnelles, etc.

Les résultats préliminaires présentés dans cet article feront l'objet d'études ultérieures menées en coopération avec des géologues français.

1. Introduction

1.1. Previous knowledge of contacts between Polish and French geologists

The available information on contacts between Polish and French geologists and palaeontologists in the middle of 19th century is very scarce and mainly represented by occasional short remarks in palaeontological monographies. The exception is here Ignacy Domeyko, an outstanding Polish geologist, whose bicentenary of birth is celebrated this year. His cooperation with the staff of École des Mines in Paris has been well presented in several publications [12, 15].

During his stay as *Professeur associé* at the Pierre-and-Marie-Curie University in Paris (Paris-6), the present author found rich material on fossil invertebrates from the Jurassic and Cretaceous of southern Poland in the Sorbonne collections. The material, hitherto unknown to Polish geologists, comprises very numerous well-preserved fossils with original specification cards still attached. Identification of this material was the reason to extend the search to other classic French collections, as well as to undertake studies on contacts and cooperation of Polish and French geologists in the middle of 19th century. The preliminary results of these studies are presented in this paper.

1.2. Studied material

The studies have been carried out in France and Poland. As stated above, a rich assembly of fossils from Poland was identified in the 19th century collections of the Pierre-et-Marie-Curie University. Subsequently, further material was found in coeval collections of the 'Muséum' in Paris and the Department of Geology of the Claude-Bernard University in Lyons. The search carried out in major geological libraries in Paris (Pierre-et-Marie-Curie University, 'Muséum' and Geological Society of France) and the Archives of French Academy of Sciences made it possible to find rich material (letters, scientific papers and official documents) casting new light on the scale of cooperation between Polish and French geologists. The discovery of unknown letters of E. Hébert in collections of a private independent Laboratory of History of Polish Geology in Krakow, well supplemented the picture above mentioned.

2. Results of studies

2.1. Polish fossils in collections of Sorbonne

In 19th century collections of fossils of Laboratory of Geology of Sorbonne ('Collection génerale du laboratoire de géologie', Sorbonne of the Pierre-et-Marie-Curie University), the present author identified about 1000 fossils coming from Poland. The material comprises representatives of the following groups of invertebrates: sponges, corals, brachiopods, bivalves, gastropods, ammonites, belemnites, serpulids and echinoids as well as traces of feeding (Table 1). The specimens come from the collections of Beicher, Curet, Hébert, Lambert, Munier-Chalmas, Petitclerc, and Zejszner and were found in outcrops of Middle and Upper Jurassic (Bajocian, Bathonian, Callovian and Oxfordian) and of Upper Cretaceous (Campanian and Maastrichtian) rocks in the vicinities of Krakow, Częstochowa, and Nowy Targ (Fig. 1). The material was obtained by the Laboratory at the time when it was headed by Hébert and his successors, by purchases and exchange, as well as during field studies of the staff, and as donations.

The names above cited are those of French and Polish geologists and fossil collectors. Little is known about Beicher, whereas the others are very easy to identify thanks to their outstanding position in scientific world or on the basis of obituary notices [2], lists of members of the 'Société géologique de France' (SGF) and a study by Czarniecki [1] and other publications [1–3, 7, 10, 11, 13] (Fig. 2).

Albin Curet: President Judge of the Tribunal Civil in Toulon, subsequently President of the 'Cour d'appel' in Chambéry (Savoy), member of the 'Société géologique de France' from 1891.

Edmond Hébert (1812–1890): Professor of geology at the Sorbonne (1857–1890), Honorary Dean of the 'Faculté des sciences' in Paris, President of the 'Société géologique de France' (three times), Member of the French Academy of Sciences, Chairman of the First International Geological Congress in Paris in 1878, honorary member of several scientific societies, author of over 200 scientific publications, mainly on the Jurassic and Cretaceous.

Jules Lambert (1848–1940): Doctor of Law, honorary President of 'Tribunal civil', French echinoidologist, member of the 'Société géologique de France', President of the 'Société académique de l'Aube, section des sciences'.

Table 1. Characteristics of collections of Polish fossils kept at the Sorbonne.
Tableau 1. Caractéristiques de la collection de fossiles polonais de la Sorbonne.

No. of drawer	Age	Name of collection	Number of specimens	Fossil groups	Locality	**Origin of collection**
6296	Upper Cretaceous	Fauna of Upper Cretaceous of Poland (corals, bivalves, echinoids)	62	Sponges, corals, bivalves, ammonites, echinoids	Bibice, Garlica Murowana, Kobylany,	Unknown
6305	Upper Cretaceous	Fauna of Upper Cretaceous of Europe	11	Ammonites, belemnites, traces of feeding	Bibice, Garlica Murowana	Unknown, various materials
7436	Upper Jurassic	Poland	42	Sponges, brachiopods, anmonites	Bzów, Częstochowa, Krzeszowice, Pstrągarnia, Szklary, Trzebinia	Unknown
7450	Middle and Upper Jurassic	Fauna of Middle Oxfordian of Poland (sponges, bivalves, gastropods, ammonites, belemnites)	103	Sponges, brachiopods, bivalves, gastropods, ammonites, crinoids	Balin, Bzów, Czatkowice, Częstochowa, Dubie, Krzeszowice, Podgórze, Pomorzany, Pstrągarnia, Tenczynek, Witkowice	Hébert
7678	Upper and Middle Jurassic	Callovian, Poland	29	Brachiopods, bivalves, ammonites, belemnites	Balin, Bzów, Ciągowice, Czatkowice, Pierchno, Pomorzany, Zajączki	Zejszner, Lambert
7686	Middle Jurassic	Callovian, Poland (bivalves)	51	Bivalves, serpulids	Balin, Konopiska, Pomorzany, Sanka, Zajączki	Hébert
7687	Middle Jurassic	Callovian, Poland (brachiopods, bivalves)	78	Sponges, corals, brachiopods, bivalves, gastropods, serpulids	Balin, Hutka, Pomorzany, Sanka	Petitclerc
7688	Middle Jurassic	Callovian, Poland	131	Gastropods, ammonites, belemnites	Balin, Blanowice, Chorun, Hutka, Jawornik, Pierchno, Pomorzany, Rudniki, Sanka, Szklary, Wysoka Lelowska, Zajączki	Curet (ammonites, belemnites)
7754	Middle Jurassic	Bathonian (brachiopods, echinoids)	199	Brachiopods, ammonites	Baczyn, Balin, Blanowice, Brodła, Bzów, Kostrzyna, Ostrowiec, Pierchno, Pomorzany, Sanka, Włodowice, Zawiercie	Petitclerc (?)
7755	Middle Jurassic	Bathonian of Poland (brachiopods, bivalves, ammonites, belemnites)	195	Brachiopods, bivalves, ammonites, serpulids, trace of feeding	Baczyn, Balin, Brodła, Konopiska, Ostrowiec, Pierzchno, Pomorzany, Rudniki, Sanka, Szklary, Włodowice, Zajączki	Munier-Chalmas, Petitclerc
7756	Middle Jurassic	Bathonian, Poland (bivalves, ammonites)	29	Bivalves, ammonites	Balin, Konopiska, Kostrzyna, Krzyworzeki, Przystajń, Wysoka Lelowiecka, Zajączki	Zejszner
7757	Middle Jurassic	Bathonian, Poland	27	Bivalves, gastropods, belemnites	Balin, Konopiska, Sanka, Zajączki	Unknown
7829	Middle Jurassic	Poland	5	Brachiopods, ammonites	Balin, Konopiska	Petitclerc, Munier-Chalmas
8121	Middle Jurassic	Poland (bivalves, gastropods)	33	Bivalves, gastropods	Blanowice, Hutka, Konopiska, Kostrzyna, Szaflary, Włodowice, Wysoka Lelowska, Zajączki	Beicher

Ernest Munier-Chalmas (1843–1903), Professor of geology at the Sorbonne (1891–1903), Member of the French Academy of Sciences, President of the 'Société géologique de France', author of over 150 scientific publications and geological maps, specialising in studies on palaeontology, stratigraphy and petrography.

Paul Petitclerc: inhabitant of Vesoul (Haute-Saône), member of the 'Société géologique de France' from 1878 (mentioned for the last time in membership lists for the year 1934).

Józef Siemiradzki (1858–1933), geologist, palaeontologist, Professor of geology at the Lwow University (1901–1932); author of monographic publications on Jurassic ammonites and sponges, Palaeozoic fauna of Podolia region, Liassic fossils of the Tatra Mts, traveller and student of Europe and South America.

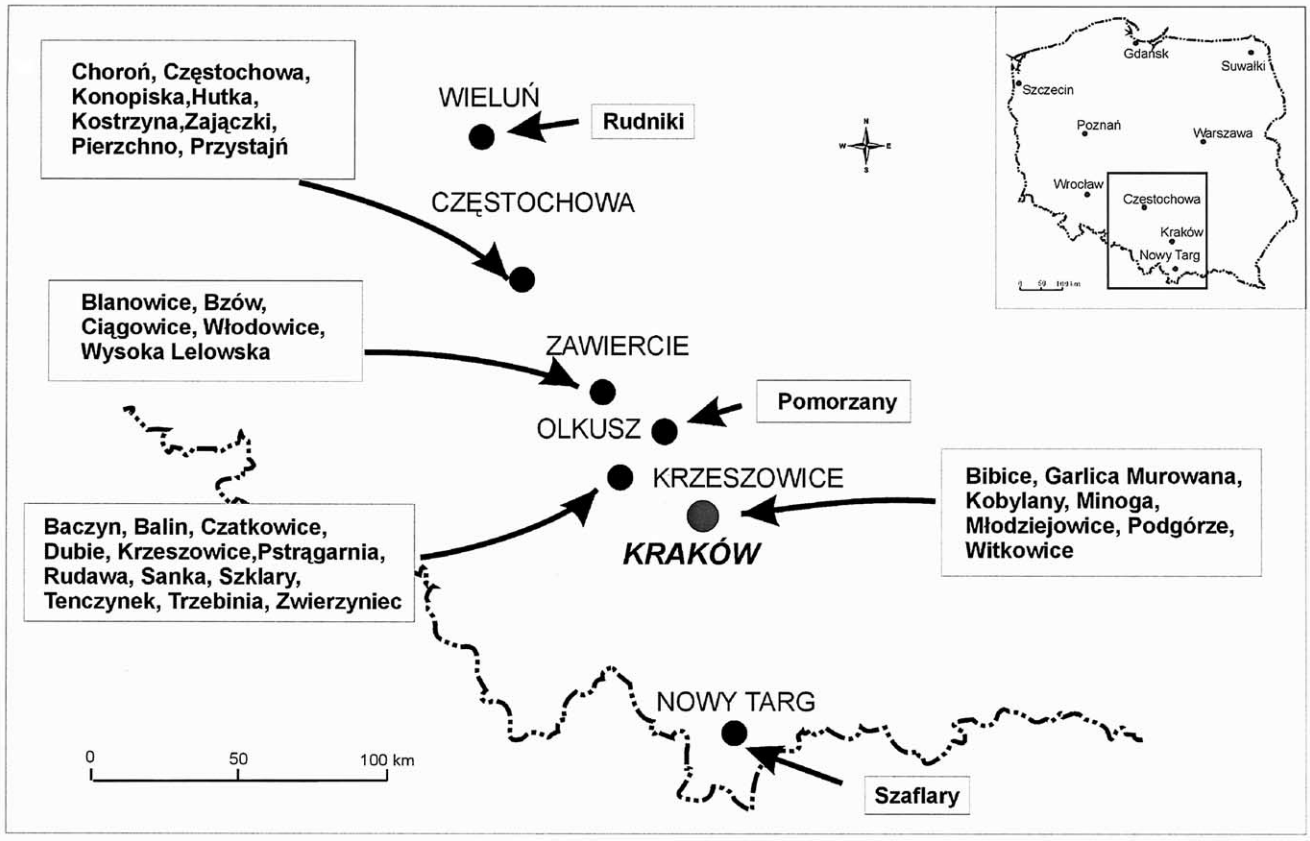

Fig. 1. Map of fossil-bearing localities mentioned in the text.

Fig. 1. Localisation des gisements de fossiles, mentionnés dans le texte.

Ludwik Zejszner (1805–1871), geologist, palaeontologist and ethnographer, Professor at the Jagellonian University in Krakow (1830–1833 and 1848–1857), Mining Director of Krakow Republic (1833–1847), one of the pioneers of nature protection movement in Poland, author of over 140 publications mainly dealing with geological structure of the Carpathians, Krakow region and Holy Cross Mts.

The 19th-century collections of Polish fossils gathered at Sorbonne have still not been studied by Polish palaeontologists. The collections are very well kept and described and their value for earth sciences and history cannot be overestimated. They comprise about 1000 well-preserved specimens, in large part coming from sites no longer accessible and known only from literature. Special attention should be paid to collections of Middle and Upper Jurassic belemnites from Bzów, sponges, corals, brachiopods, bivalves, gastropods, ammonites, and belemnites from the so-called Balin Oolite (Middle Jurassic), and sponges, brachiopods, bivalves, gastropods, ammonites and belemnites from the Middle Jurassic from Zajączki and Pomorzany.

The collection of belemnites from Bzów comprises several dozen specimens coming from no longer existing exposure of the Middle Jurassic. From that locality, Zejszner [16] described a new belemnite species, *Rhopaloteuthis bzowiensis* (Zejszner), the type specimen of which has been lost.

Special attention should be also paid to numerous fossils coming from an exposure of the Balin Oolite (Bathonian–Callovian) at Balin [14], famous in the 19th century. This is the section from which Laube, Neumayr, Szajnocha, Siemiradzki, and Teisseyre described hundreds of species of invertebrates, including numerous new ones. Revision of some species of fossil invertebrates from Balin has been recently carried out by Mangold et al. [9 (cum lit. cit.)].

2.2. Other 19th-century collections of fossils from Poland

Putting aside younger, 20th-century collections of fossils kept in scientific institutions in both countries, Polish fossils were found in two other French collections from the 19th century. These are:

– (1) collections of the Palaeontology (Geology Section of Muséum in Paris, comprising about 330 specimens of fossil invertebrates as well as plants from Carboniferous, Triassic, Jurassic, Cretaceous and Ter-

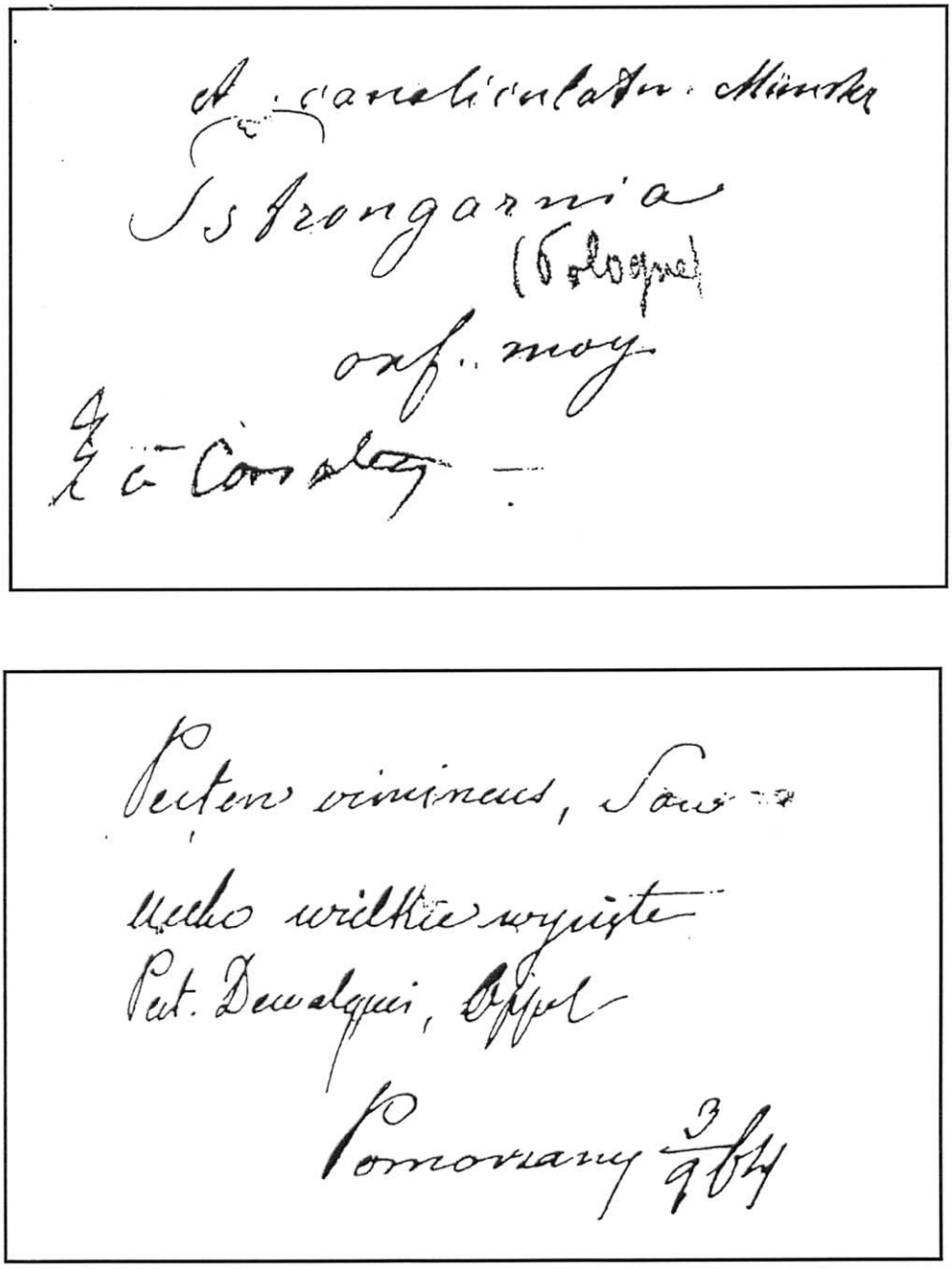

Fig. 2. Examples of specification cards of Polish fossils from the Sorbonne collections.

Fig. 2. Étiquettes de fossiles de la collection de la Sorbonne, provenant de formations géologiques de Pologne.

tiary localities in the vicinities of Krakow, Jaworzno, Szaflary and Korytnica);
– (2) collections of the Department of Geology of the Claude-Bernard University (Lyon-1), over 100 specimens of fossil invertebrates of the Triassic and Jurassic age.

In summing up it may be stated that the largest and best preserved and most interesting of the 19th century French collections of fossils from Poland are those of Sorbonne at the Pierre-et-Marie-Curie University (Paris-6).

2.3. Unknown letters from Hébert to Zejszner and Friedlein

Two unknown letters from E. Hébert to L. Zejszner and his assistant, J. Friedlein, were recently found in archives of the Laboratory of History of Polish Geology in Krakow (Fig. 3). The letters confirm that Hébert personally knew both of them and visited Krakow. The first letter from 14 August 1868 was most probably to Zejszner. The second was written to Friedlein on 23 November 1872, that is, after death of Zejszner. In this letter, Hébert informs him that he already learnt about

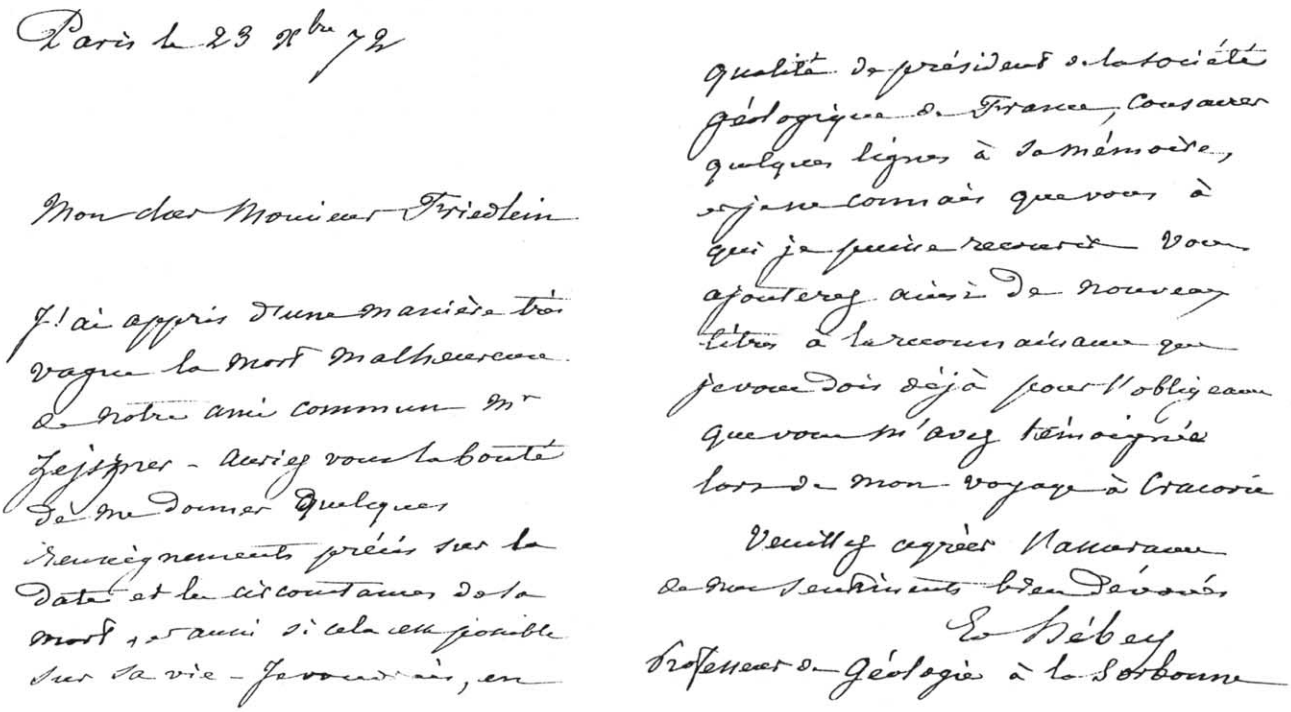

Fig. 3. Letter from E. Hébert to J. Friedlein (from the Laboratory of History of Polish Geology, Krakow).

Fig. 3. Correspondance d'E. Hébert à J. Friedlein (du Laboratoire d'histoire de la géologie polonaise à Cracovie).

this tragic death and asks him as for help in drafting an appropriate obituary note.

2.4. Data from the Archives of the French Academy of Sciences

The personal records of Hébert, held in the Archives of the French Academy of Sciences, contain the information that he visited the area of the present–day Poland twice, in the years 1865 and 1868. In his paper from 1869, Hébert [4] mentions a long geological trip, which also included the area of Poland. More information may be found in his subsequent paper [6], in which he provides some more details. It follows that in 1865 he visited Germany to study the Cretaceous sections of Rugen and Wolin. His trip in the year 1868 made it possible to study Jurassic rocks from southern Germany eastwards to the boundary of Galicia and Russia and northern slopes of the Carpathians (Inwałd and Stramberg localities). Soon afterwards, he published results of studies on limestones from Stramberg, whereas his work on the Inwald section was also mentioned by Fallot [2].

The analysis of other publications of Hébert did not provide any more specific information on results of these trips. Although he published over 200 scientific papers [2], none of them deals directly with the geology of Poland. Moreover, a review of the personal records of E. Munier-Chalmas, his successor in the post of head of the Faculty of Geology at the Sorbonne [3] and at the same time close associate and also a Member of the French Academy of Sciences, failed to show any clear evidence for contacts with Polish geologists.

2.5. Polish members of the Geological Society of France in 19th century

The visit in the Library of the 'Société géologique de France' (SGF) made it possible to find numerous reprints of publications of L. Zejszner. Additional information that greatly facilitated further studies was found in a monographic study on history of geology by W.A.S. Sarjeant [13]. If we leave aside G. Pusch, who is regarded by French students of history of geology as a Polonised Saxon, the lists of members of the Geological Society of France in XIX century comprise only one Polish name, that is that of L. Zejszner. He was the member of the Society from 1834. His name may be still found on the list for the year 1868, but it appears that he retained his membership to his death in 1871.

2.6. Commemoration of Zejszner in the Presidential Address of Hebert

Already in 19th century, it became a tradition among members of the Société géologique de France to write

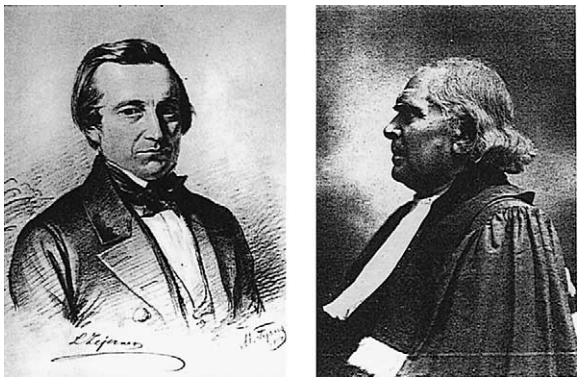

Fig. 4. Portraits of L. Zejszner (from S. Czarniecki's collections, left) and E. Hébert (after [8], right).

Fig. 4. Portrait de L. Zejszner, à gauche (collection de S. Czarniecki) et portrait d'E. Hébert ([8] à droite).

obituary notes (*notices nécrologiques*) to commemorate outstanding geologists, members of the Society, and to publish such notes in the *Bulletin de la Société géologique de France*. The letter from E. Hébert to J. Friedlein, recently discovered in archives of the Laboratory of History of Polish Geology in Krakow showed that he was deeply moved by the news of the tragic death of L. Zejszner, and, in connection with his decision to write an obituary note, he was asking J. Friedlein, his best contact in Krakow and assistant and friend of the deceased, for help in the gathering relevant information.

The volume of *Bulletin de la Société géologique de France* for the year 1873 presents the Presidential Address (*Allocution présidentielle*) of E. Hébert, delivered at the meeting of the Society on 17 April 1872 to commemorate the deceased members. Among 16 members mentioned in the address [5], there were two foreign members of the Society: L. Zejszner and U. Schloenbach. The speech was rather brief; nevertheless, it cast some additional light on the cooperation of L. Zejszner with his French colleagues. E. Hébert clearly emphasised that L. Zejszner had had one of the longest records of membership, he was steadily informing the Society about the results of his studies, he often visited Paris to carry out comparative studies in palaeontology, and most of his works were well known to other members of the Society. Moreover, thanks to his help, E. Hébert could come to Krakow in 1868 to study this part of Galicia (Fig. 4).

Hébert ended his address as the President of Geological Society of France by characterising the person of L. Zejszner in very warm and fine words:

« J'ai eu le temps, pendant les trois semaines qu'il m'a consacrées, de voir à tout instant combien il était rempli de bonté, de délicatesse, et de me féliciter d'avoir eu l'occasion de connaître une nature aussi généreuse.

« C'est donc un savant dont les travaux méritent toute notre estime, et un homme excellent à tous égards, que nous avons perdu en Zejszner. »

2.7. Zejszner and his possible contacts with Alcide d'Orbigny

It is still an open question whether or not Zejszner personally knew Alcide d'Orbigny. It is well known that he visited Paris several times after 1834. His visits have been further confirmed in the Presidential Address mentioned above of Hébert [5], according to whom they were connected with the comparative studies of palaeontological collections, presentation of progress reports from his studies, and consultations of scientific papers before publication. It may be concluded that from 1834, when d'Orbigny returned from South America, L. Zejszner could have several opportunities to meet with this outstanding researcher.

It has to be stated that Zejszner was clearly fascinated by d'Orbigny. Before the death of the d'Orbigny, Zejszner honoured his achievements by giving his name to a new species of gastropods of the family Phaneroptyxisidae, *Tetraptyxis orbignyana* (Zeuschner). The species was described by him [16] from Tithonian (Upper Jurassic) strata exposed at Inwałd and Roczyny in the Polish Carpathians. The type species has been lost, but the species is fairly well known from strata of the uppermost Jurassic in Poland (Carpathians), Italy, Russia, and Ukraine (Crimea).

3. Conclusion

The data presented above on contacts between Polish and French geologists in the middle of 19th century are mainly related to two outstanding personalities from these times: E. Hébert, Professor of geology at Sorbonne; and L. Zejszner, Professor of geology at the Jagellonian University. The information mainly comes from:

– 19th-century collections of Polish fossils in French scientific institutions, especially a collection of about 1000 specimens at Sorbonne;

– information on Poles who were members of the Société géologique de France;

– newly discovered letters from E. Hébert to Polish geologists;

– presidential address of E. Hébert, delivered at the meeting of the 'Société géologique de France' on 17 April 1872 to commemorate deceased colleagues, including Zejszner;

– assumed contacts of Zejszner with d'Orbigny.

The above data indicate that in the middle of 19th century, cooperation between Polish and French geologists not only existed, but also was quite intense. It was connected with joint field studies, exchange of scientific specimens and consultations about the identification of fossils, exchange of publications, presentation of results of studies and, what becomes increasingly evident, personal contacts. Therefore, the questions raised in this paper are the subject of further studies, carried out in close cooperation with French geologists and palaeontologists.

Acknowledgements. Warm thanks are due to Prof. J. Małecki, Dr W. Brochwicz–Lewiński, Dr S. Czarniecki, and Dr J. Gaudant, Dr J.-P. Bellier for fruitful discussions and comments and advice.

References

[1] S. Czarniecki, Ludwik Zejszner (1805–1871), Wszechświat 4 (1958) 93–96.

[2] E. Fallot, Notice nécrologique sur M. Hébert, Procès–verbaux de la Société linnéenne de Bordeaux, Séance du 16 avril 1890 (1890) I–XXII.

[3] J. Gaudant, La géologie à la Sorbonne, in: J. Lorenz, P. Benoît, D. Obert (Eds.), Pierres & Carrières, Géologie–Archéologie–Histoire, Assoc. Géol. Bassin de Paris et AEDEH, Paris, 1997, pp. 35–47.

[4] E. Hébert, Notice des travaux scientifiques de M.E. Hébert, Paris, Gauthier-Villars (1869) 1–24.

[5] E. Hébert, Allocution présidentielle. Séance du 17 avril 1872, Bull. Soc. géol. France III sér. I (1873) 293–298.

[6] E. Hébert, Notice sur les travaux scientifiques de M. E. Hébert, Gauthier-Villars, Paris (1877) 1–52.

[7] A. Lacroix, Edmond Hébert, Figures des Savants, Gauthier-Villars et Cie, Paris, tome I, 1932, pp. 59–68.

[8] Livre Jubilaire 1830–1930, Centenaire de la Société géologique de France, T. I Soc. géol. France, Paris (1930).

[9] C. Mangold, D. Marchand, J. Thierry, R. Tarkowski, Les Ammonites de l'Oolithe de Balin (Pologne); nouvelles données et réinterpretations stratigraphiques, Rev. Paléobiologie 15 (1) (1996) 55–77.

[10] D. Pajaud, J. Roman, M. Collignon, La longue vie de Jules Lambert (1848–1940), Bull. Soc. géol. France (7) XVIII 3 (1976) 661–674.

[11] R. Poullain, Chaires et Maîtrises de conférences de la faculté des sciences de Paris, Bureau d'information et atelier d'imprimerie de l'université Paris-6, 1972, pp. 84.

[12] Z.J. Ryn, Ignacy Domeyko – obywatel świata. 2002. Praca zbiorowa pod red., Z.J. Ryna, Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków, 2002 (in Polish).

[13] W.A.S. Sarjeant, 1978–1980 Geologists and the History of Geology: an International Bibliography from the Origins to 1978, Vols. I–V, Krieger Publishing Co., Inc. Melbourne, Australia.

[14] R. Tarkowski, J. Thierry, D. Marchand, C. Mangold, H.-J. Delance, J.-P. Garcia, B. Laurin, L'« Oolithe de Balin » (Pologne méridionale), Nouvelles observations et interprétations stratigraphiques, Géobios, M.S. 17 (1996) 461–467.

[15] Z. Wójcik, Ignacy Domeyko. Litwa. Francja, Chile. Polskie Towarzystwo Ludoznawcze. Warszawa, 1995 (in Polish).

[16] L. Zeuschner, Geognostische Beschreibung des Nerineen–Kalkes von Inwałd und Roczyny, Naturwiss. Abh. 3. Wien (1849) 3–29.