

## PROFESSOR MARIAN KSIĄŻKIEWICZ – EARLY STAGE OF SCIENTIFIC ACTIVITY

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In obituaries and mentions devoted to outstanding scientists, initial years of their activity are usually being treated marginally and what is more, only general or superficial pieces of information are provided. However, in many cases just this stage shapes young adepts of the scholarship and decides about their scientific way and future fate, though it deserves special attention. This applies also to our Professor. His life, scientific achievements, as well as activity in the field of geology and education were being described in several memories with special attention paid to the period, when he was just the professor of Jagiellonian University (Znosko, 1981, 1983, Dżułyński, 1982, 1996, Morycowa & Ślaczka, 2007, Ślaczka & Morycowa, 2007).

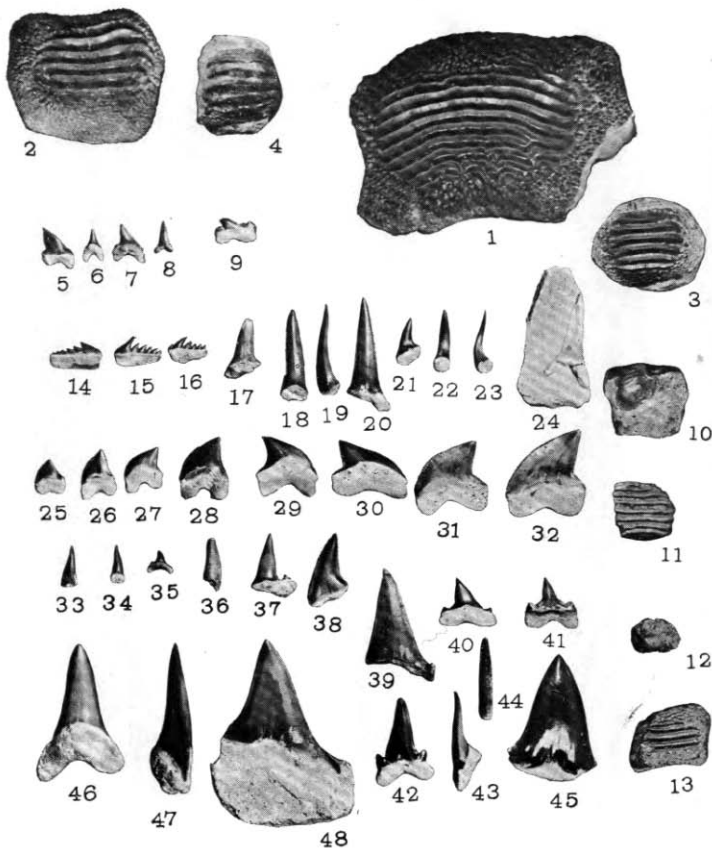
Marian Książkiewicz was born in Kraków on January 22, 1906. As the son of a retired engine-driver he was living in the house at Stefan Batory Str. 20, about two hundred metres away from his school, the Jan Kochanowski National High School (Fig. 1), in which he passed the maturity examination on June 11, 1924 to undertake the study in the Philosophical Faculty of the Jagiellonian University. This last step was for the eighteen-year old fellow the beginning of his vital adventure with geology, determining all the future life, devoted mainly to the research work. He was a student of few famous university professors, such as: W. Szajnocha – geologist, S. Kreutz – mineralogist, L. Sawicki – geographer, J. Smoleński – geomorphologist, J. Nowak – palaeontologist, and others. It was a really outstanding school in the field of earth sciences.

Already as a student of the second university course, since October 1, 1925, M. Książkiewicz had been employed in the Department of Geology, chaired at that time by Prof. W. Szajnocha with the staff: W. Żelechowski – associate professor, J. Premik and K. Konior – assistants (Szajnocha, 1926). He used to be engaged as an auxiliary or supportive assistant (“demonstrator”) every year separately: twice on six-month periods (1925, 1926) and three times on nine-month periods (1927–1929). Several years before E. Passendorfer, J. Smoleński and W. Goetel, later famous university professors, were being his predecessors on this appointment (Alexandrowicz, 2006).

The first research task of the newly engaged adept was connected with the range of his duties enclosing the arrangement and systematization of geological collections deposited in the department. Encouraged by W. Kuźniar, who transferred to him a rich set of fossil teeth of fishes coming mainly from the quarry Bonarka in Kraków and also from several other outcrops of the surrounding region, including additional specimens formerly found by S. Zaręczny, S. Stobiecki, J. Smoleński and E. Panow. Professors W. Szajnocha and J. Nowak as well as older colleagues friendly supported his study comprising the diagnoses of 26 determined taxa and supplemented by several illustrations (Fig. 2). The respective contribution, written in French, appeared in the “International Bulletin of the Academy of Arts and Sciences” (Książkiewicz, 1926). It was the first publication of M. Książkiewicz, concerning the Upper Cretaceous fossils from the big, well-known outcrop, particularly important for geological research and education, which was

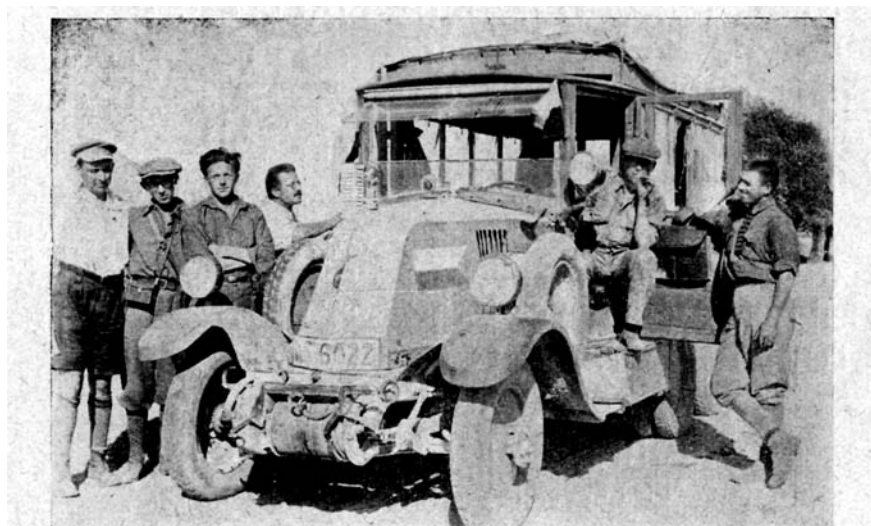
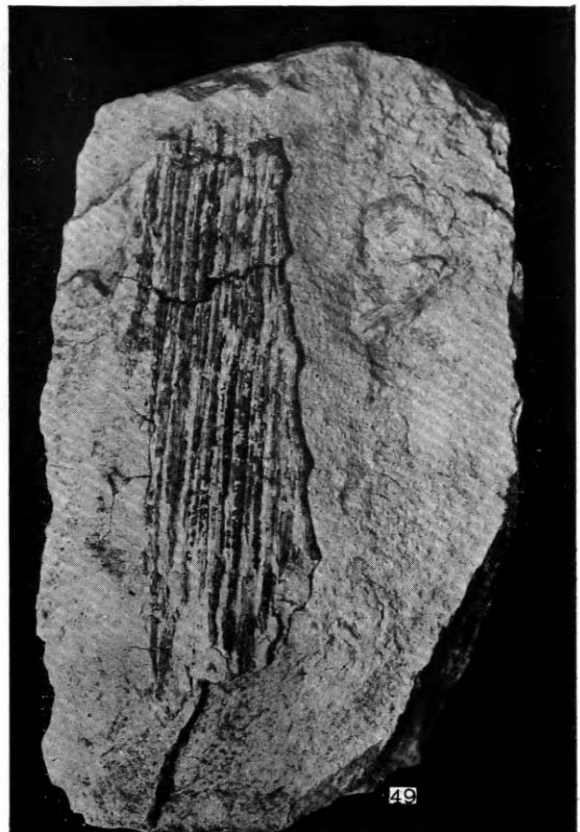


**Fig. 1.** Building of the J. Kochanowski National High School which M. Książkiewicz attended and got the certificate of secondary education. During the World War II the German Institute of Geology, Amt für Bodenforschung, was located there



*M. Książkiewicz.*

**Fig. 2.** Teeth of fishes from Upper Cretaceous deposits of the Kraków region described by M. Książkiewicz (1926) in his first publication



**Fig 1.**

Fot. dr T. Wiśniewski

Profesor Ludomir Sawicki (czwarty od lewej strony) wraz z towarzyszami podróży na Bałkan i samochodem ekspedycji „Orbis“, podczas odpoczynku pod Sofją, w r. 1928.

*Der Professor Ludomir Sawicki (vierter von links) mit den Begleitern auf der Balkanreise und dem Auto der Expedition „Orbis“ während einer Rast bei Sofia im Jahre 1928.*

50 years later taken under protection as the nature reserve and proposed also for the list of the European Geosites.

As a student in 1927 and 1928 years, M. Książkiewicz participated in two scientific expeditions to Dobrogea and the Balkans, organized by Prof. L. Sawicki – the director of Geographical Institute of the Jagiellonian University (Fig. 3). The course of the second trip was presented by the young adept on the conference of the Polish Geographical Society in Kraków (November 5, 1928), and a year

**Fig. 3.** Participants of the second Balkan expedition during the rest near Sofia: third from the left – M. Książkiewicz, fourth from the left – Prof. L. Sawicki (Ciętak 1933, Fig. 1)



later described by him in a small book entitled “The last travel of Professor L. Sawicki” (Książkiewicz, 1929). It appeared in the cycle “Cracow Geographical Lectures”, edited by Prof. J. Smoleński and published by the printing house “Orbis”, which belonged to L. Sawicki and later to his wife (Fig. 4). This publication was dedicated to the memory of Prof. L. Sawicki, who during the route in Macedonia contracted malaria and died few months after returning home. The course and geological results of the expedition were presented by M. Książkiewicz at two scientific meetings organized by the Polish Geographical Society (November 5, 1928) and by the Polish Geological Society (November 24, 1929).

Already before the mentioned trips M. Książkiewicz, stimulated by Professor W. Szajnocha, began systematic, long-term research in the Carpathians with the aim to elaborate the geological map of the sheet Wadowice. It was the area for which, exceptionally, such a map was not being performed within the framework of the “Geological Atlas of Galicia” program, realized by the Academy of Arts and Sciences (Physiographical Commission, Geological Section) during the period 1881–1913 (Książkiewicz, 1974). Selected data about outcrops and geological formations of this area were described in volume 11 of this Atlas (Szajnocha, 1902).

Physiographical Commission of the Academy gave M. Książkiewicz the financial support just for 1926 year. It enabled the young student to undertake field work and geological investigations, which were continued for several years, leading finally to the edition of the detailed geological map and the text, not published previously. It was the last part of the “Geological Atlas of Galicia”, crowning the action initiated in 1881 and realized by the Academy up to the beginning of the World War I (Alexandrowicz, 2008b).

In the first stage, investigations carried out by M. Książkiewicz covered an area spreading to the west and south of Wadowice (environs of Andrychów, Inwałd, and Mucharz), with special attention being paid to geological formations and the structure of the Godula and Cieszyn nappes. A report summarizing these studies was published in volumes 61–63 of the “Reports of the Physiographical Commission”, while the description including detailed map (Fig. 5) appeared in the Bulletin International of the Academy (Książkiewicz, 1929, 1930). The Polish version of this last contribution was presented on January 7, 1929, at the Philosophical Faculty of the Jagiellonian University, as M. Książkiewicz’s Ph.D. thesis. Prof. J. Nowak and Prof. S. Kreutz served as opponents of this thesis. Examinations in geology (main subject) and in mineralogy (supplementary subject) took place on February 4, examination in philosophy – on June 1, and finally after the graduation ceremony on June 15, 1929, M. Książkiewicz got the doctor’s degree. From the beginning of the next academic year (October, 1929) he became employed at last as assistant (“junior assistant”) in the Department of Geology, led by Prof. J. Nowak (after the death of Prof. W. Szajnocha). Few months later, the newly appointed doctor was invited by the Physiographical Commission of the Polish Academy of Arts and Sciences (PAAS) to participate in its research activity as an official collaborator.

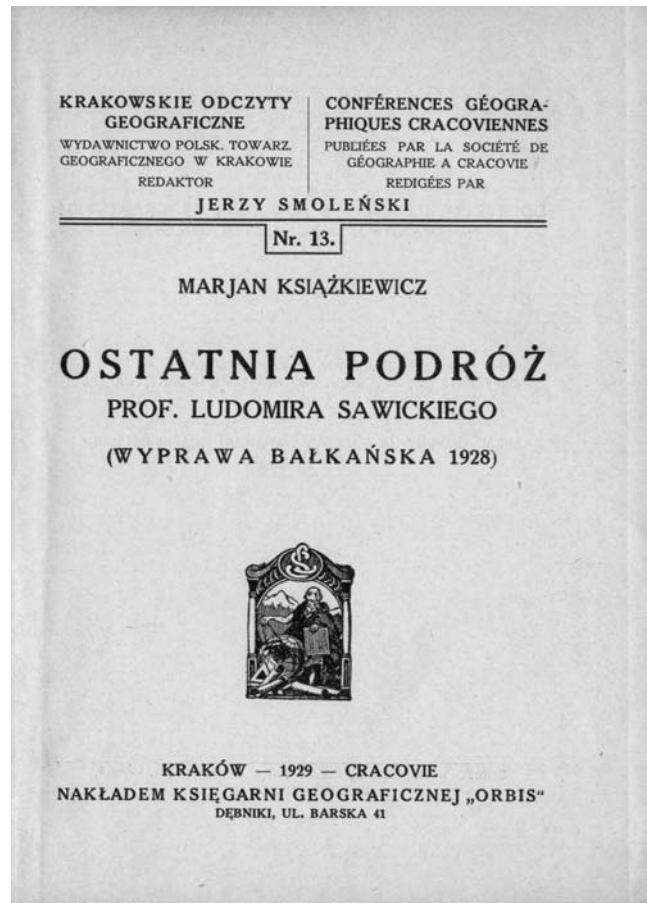


Fig. 4. Title page of a small book with the description of the second Balkan expedition organized by Prof. L. Sawicki (Książkiewicz, 1929a)

Still in the same year (1929) M. Książkiewicz, supported financially by the Physiographical Commission, continued geological mapping of the sheet Wadowice, namely in the area comprised between Kalwaria and Lanckorona. He was the first to note previously unrecognized geological formations occurring between the Godula and Magura nappes, and covering the first of them. These strata were being interpreted as building a new facies-stratigraphic unit, forming tectonic outliers. The last view, however, was maintained for a very short time only.

The world economic crisis, which began in the 1930s, caused drastic limitations of financial means transferred to the Academy by the Ministry. As a result, the Physiographical Commission stopped the support for M. Książkiewicz’s activity. In spite of these difficulties, in years 1930 and 1931, M. Książkiewicz still continued fieldwork in the northern part of the sheet Wadowice, temporary using the subsidy granted by the Polish Geological Institute in Warsaw, which at that time admitted him, for the first time, as a partner and collaborator. Beside cartographical action he devoted more attention to the complicated zone of Lanckorona and recognized it as the axial part of an elevated structure bearing tectonic windows, although few years before geological formations cropping out within this zone were interpreted by him as tectonic outliers. At that time, he

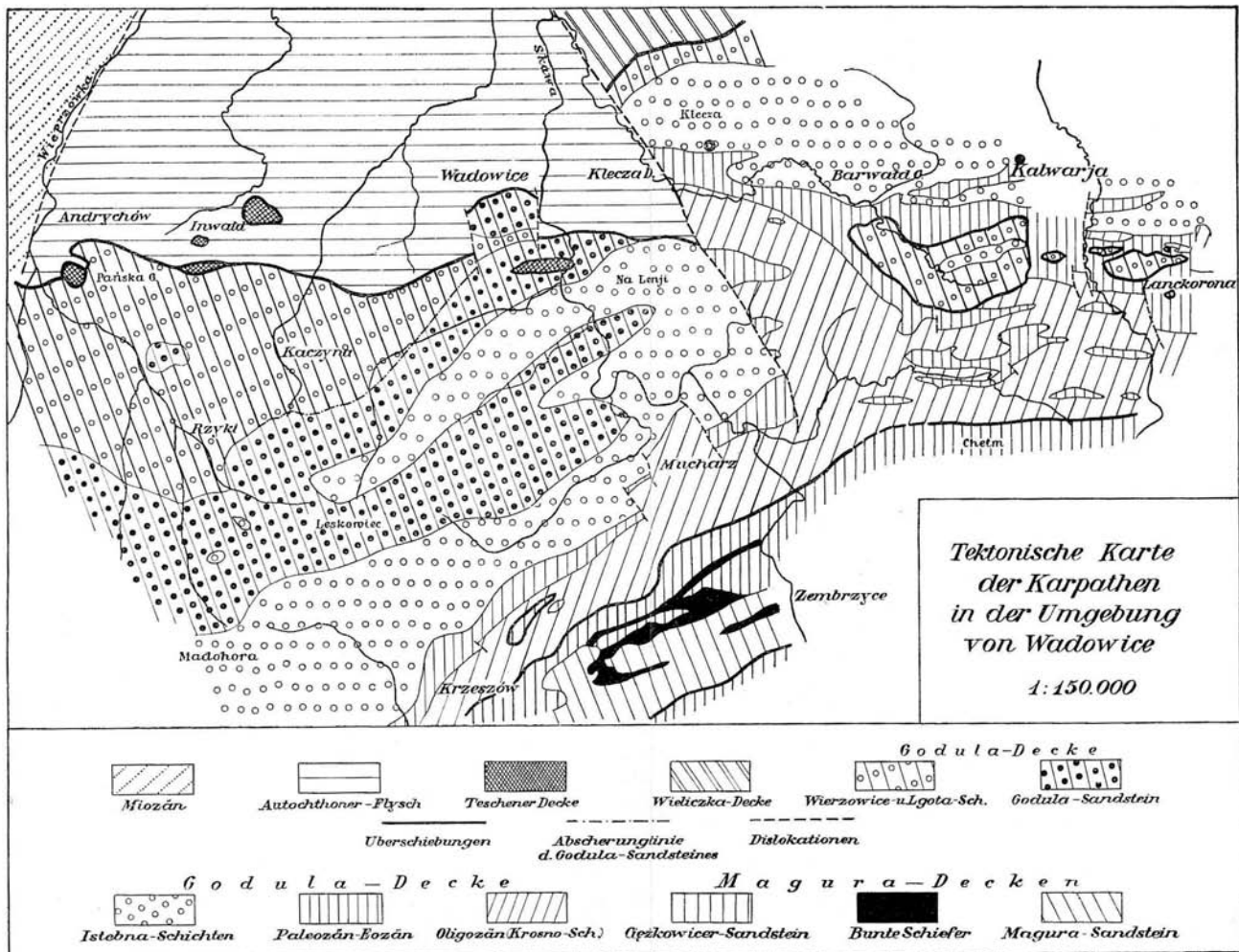


Fig. 5 Geological map of the Carpathians in the Wadowice region (Książkiewicz, 1930)

became interested in exotic blocks of pre-Carpathian rocks found in flysch deposits. Results of these investigations were presented in March 3 and 8, 1932, during scientific meetings of the Polish Geological Institute and the Polish Geological Society, as well as in few contributions. Just after the World War II, M. Książkiewicz devoted much more attention to the distribution and composition of these blocks.

In the year, a valuable publication of M. Książkiewicz (1932a) appeared and was presented on May 25, 1932 at the Council of Philosophical Faculty of the Jagiellonian University, as a Dr.Sc. thesis ("habilitation") (Fig. 6). Professors J. Nowak, W. Friedberg, and J. Smoleński provided three positive opinions. Two consecutive sessions of the Faculty, on December 7 and 9, 1932, with the participation of about 45 professors, were devoted to the colloquium and the lecture of the candidate: "Isostasy and movements of the earth's crust". Both were crowned with the full success and finally, on January 27, 1933, M. Książkiewicz got *veniam legendi*, confirmed on March 2, 1933 by the Senate of the Jagiellonian University and on June 27, 1933 by the Ministry. Still before these formal decisions, on October 1, 1932,

M. Książkiewicz was employed for three years as the "major assistant", and from February 1, 1935 as the associate professor (formally since January 31, 1935).

As a member and collaborator of the Physiographical Commission, M. Książkiewicz continued during six years (1932–1937) his geological studies of the sheet Wadowice, although not being sponsored by the Polish Academy of Arts and Sciences. Only in the summer season of 1933, did he get a limited support for the field work from the tourist organization – Polish Tatra Society, of which it was a member of the Inspecting Section. In these years, his geological activity was being concentrated on few problems of stratigraphy and tectonics including particularly the structure of the marginal zone of the Magura Nappe in the south-eastern part of the studied area, also within the adjacent sheet Maków. In this last area he collaborated with M. Klimaszewski (who later became a famous Polish geomorphologist), and results of these common observations were presented on November 26, 1933 at a scientific meeting of the Polish Geological Society in Kraków (Alexandrowicz, 2006, 2008a). Two years later, the results of his detailed investigations about stratigraphy of flysch deposits and the



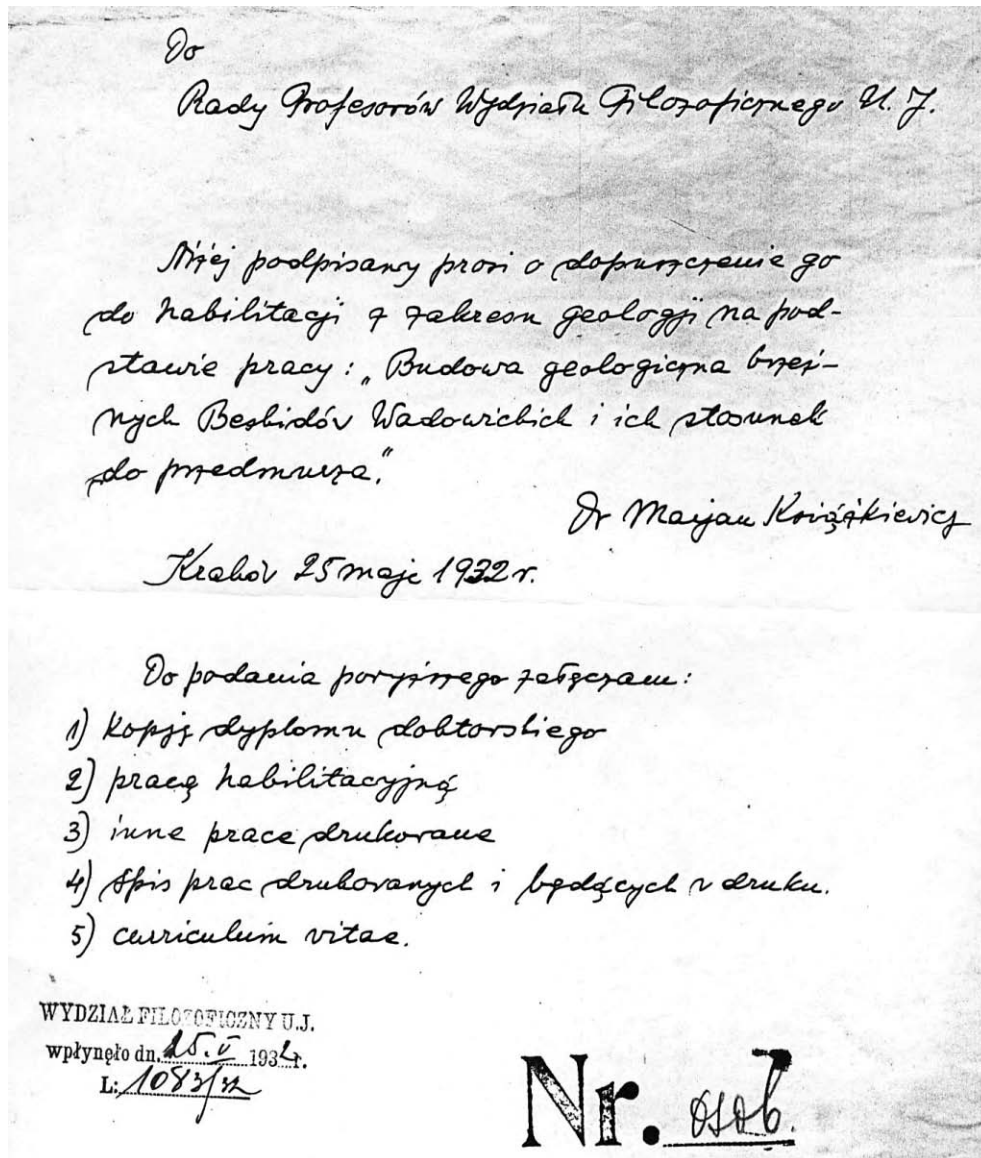


Fig. 6. The M. Książkiewicz application to the Philosophical Faculty of the Jagiellonian University with the request for admitting to habilitation (Dr. Sc. degree)

geological structure of the northern margin of the Magura Nappe within the sheet Wadowice were published (Książkiewicz, 1935a).

Like in previous years, M. Książkiewicz devoted special attention to the zone comprised between Kalwaria and Lanckorona, namely to the development and differentiation of the Middle Cretaceous flysch, the occurrence of green, red and variegated shales, as well as to its tectonic structure characterized by the uplifted anticline with steeply-dipping or even overturned strata (Książkiewicz, 1933a, 1936). In cooperation with J. Burtan and A. Gawel, he also described radiolarites intercalating red shales, as well as volcanic rocks: porfirites and tuffites. Worth noting is also the recognition of the Woźniki Unit, a specific succession of the Lower and Upper Cretaceous deposits, outcropping in the vicinity of Lanckorona within tectonic windows (Gawel & Książkiewicz, 1936). This succession of flysch formations was later distinguished and described by him as the Sub-

Silesian Unit (Nappe), an important element of the geological structure of the Outer Carpathians.

The “External Klippen Belt” was the next matter of geological research. On the geological map of the Andrychów area, M. Książkiewicz (1935b) marked six klippes occurring at Inwałd, Pańska Góra, Targanice, and Roczyny (Fig. 7A). These klippes are composed of crystalline gneiss-like rocks, mylonites, Upper Jurassic limestones of the Štramberg facies, platy limestones with hornstones, conglomerates, limestones and marls of the Late Cretaceous age, as well as Eocene organodetrritical limestones (Fig. 7B). The so-called “Andrychów Klippen” became interpreted as tectonically detached blocks, which occur in the foreland of the Silesian Nappe. The author regarded them as remnants of a “cordillera” situated to the south of the ancient basin of the Sub-Silesian Unit. After the World War II, two localities of these klippes (Inwałd and Targanice) got the status of Nature Monuments.

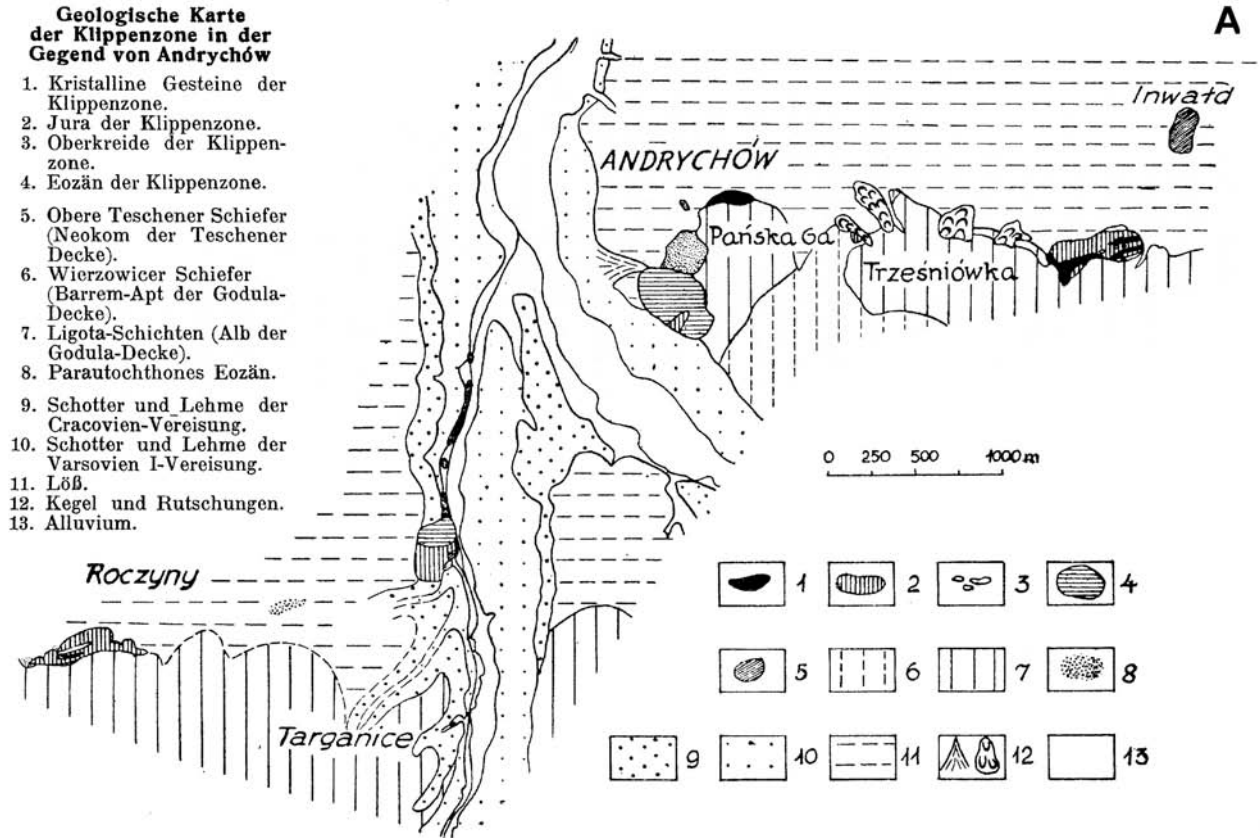


Fig. 1.

Note

de M. M. KSIĄŻKIEWICZ,

présentée le 1 Avril 1935, par M. J. Nowak m. t.

**Stratigraphie der Klippenzone.**

Keine der Inwalder Klippen enthält eine ununterbrochene Folge der in einzelnen Klippen auftretenden geologischen Horizonte. Die Formationen sind hier folgendermaßen verteilt:

|                       | Inwałd   | Pańska Góra  | Targanice  | Roczyny   |
|-----------------------|--|--|--|---|
| Mittel- u. Ober-Eozän | —  | Dunkle, sandige Kalke mit <i>Bryozoa</i> u. <i>Lithothamnina</i> , <i>Nummulina</i> , <i>Orthophragmina</i> und Schiefer | Dunkle Mergel und Schiefer mit Einlagerungen d. Kalksteine mit <i>Bryozoa</i> , <i>Lithothamnina</i> und <i>Orthophragmina</i> | —   |
|                       |  | Dunkle pelitische Kalke  | Helle Mergel   |   |
| Oberkreide            | Mergel und Mergelschiefer Konglomerate mit »kryptotopen« Blöcken | —  | Mergel   | Mergelkalke u. Mergelschiefer Konglomerate mit »kryptotopen« Blöcken          |
| Tithon                | Massive und bankige Kalksteine                                   | Dünnbankige Hornsteinkalke   | Dünnbankige Hornsteinkalke<br>Dickbankige Hornsteinkalke   | Dünnbankige Hornsteinkalke<br>Dickbankige Hornsteinkalke u. Echinodermenkalke |
| Dogger                |  |  |  | Krinoidenkalke  |
|                       | »Mylonite«, Chloritschiefer                                      | Granitgneise   |  | »Mylonite«  |

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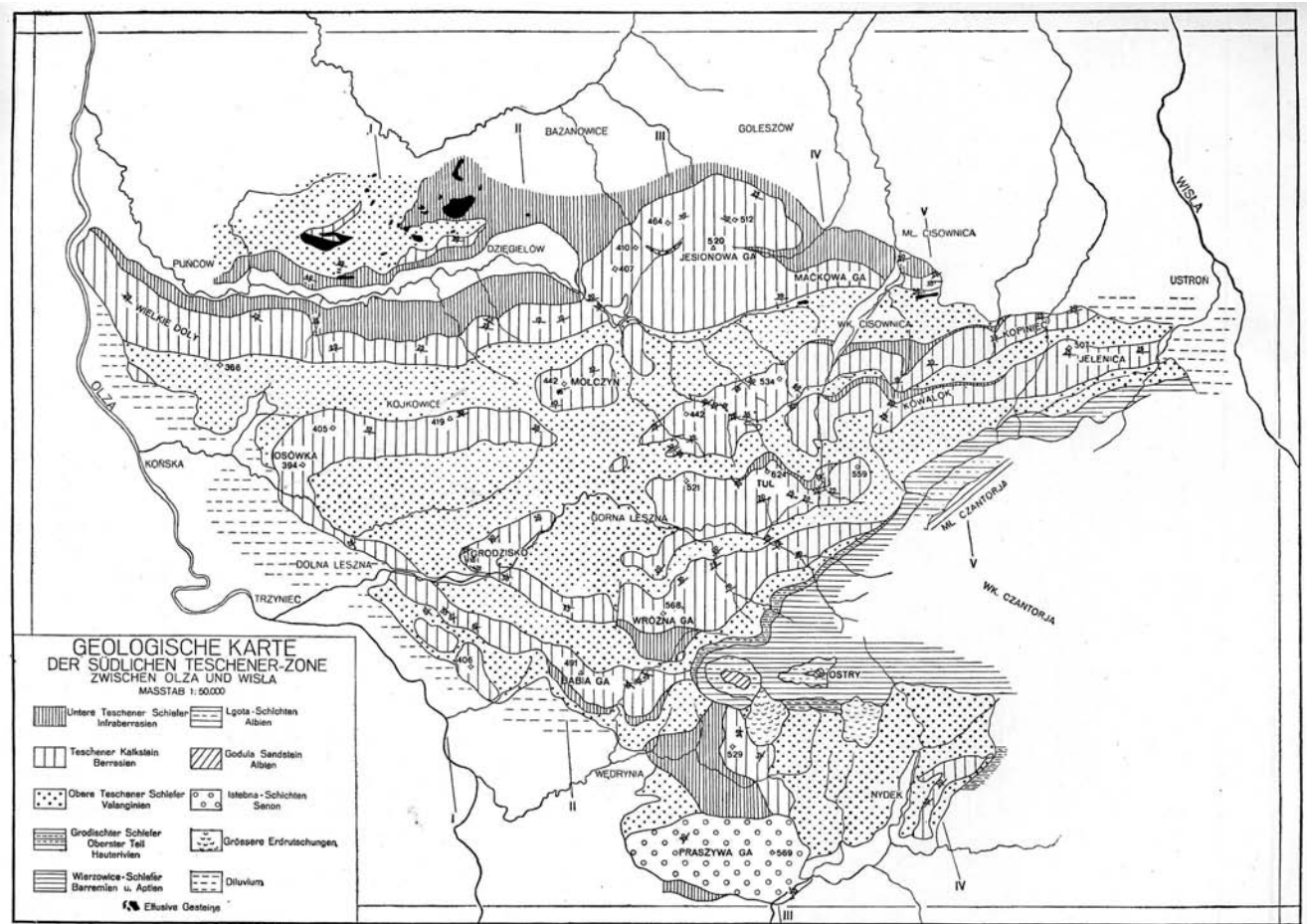
Fig. 7 A. The geological map of the "External Klippen Belt" (Andrychów Klippes) (Książkiewicz, 1935b); B. Stratigraphy of geological formations of the Andrychów Klippes (Książkiewicz, 1935b

Simultaneously, with the beginning of the 1930s (1930–1931), following the initiative of Prof. J. Nowak, M. Książkiewicz undertook geological research in the southern part of the Cieszyn Foothills, taking advantage of the grant allocated by the Physiographical Commission of the PAAS. The first results of these investigations were presented during a scientific meeting of the Polish Geological Society on February 5, 1933, and published in the International Bulletin (Fig. 8). In 1932, the Polish Academy of Arts and Sciences established the Commission of Silesian Publishers. Thanks to its financial support, three assistants of the Department of Geology of the Jagiellonian University: M. Książkiewicz, and J. Burtan and K. Konior as co-authors, during few years prepared and finally published the detailed geological map 1:50,000 of the Beskid Śląski Mts. and their foothills. The map was edited together with geological cross-sections and the descriptive text (Burtanówna *et al.*, 1937).

Geological field work in the Czywczyn Mts., between White and Black Czeremosz river valleys (Eastern Carpathians) was for M. Książkiewicz another episode of research activity. Together with S. Sokołowski they prepared geological map of the manganese ore deposit discovered by Prof. J. Tokarski, who was the initiator of this project (Książkiewicz & Sokołowski, 1934).

M. Książkiewicz took also part in a study of the youngest sediments spread over the Carpathian Foothills within the sheet Wadowice, and particularly in the vicinity of Cieszyn (Książkiewicz, 1935c). A special geological map of Quaternary deposits covering the foothills of the Beskid





M. Książkiewicz.

Fig. 8 Geological map of the Cieszyn Foothills between the Olza and Vistula rivers (Książkiewicz, 1932b)

Śląski Mts. was prepared and published (Fig. 9). It was one of the first maps presenting in detail Pleistocene sediments of the Carpathians. The results of these studies were presented during a special conference organized on December 18, 1934 by the Polish Geological Society. In the course of this conference, a delegation of the Society to the third Congress of Quaternary Association, organized in the next year in Vienna, was elected. The official minutes of this conference were compiled by M. Klimaszewski (Alexandrowicz, 2008a). M. Książkiewicz, together with M. Klimaszewski and seven other geologists (geomorphologists), were nominated as delegates. The International Congress in Vienna took place in September 1-25, 1936. It was an important meeting, which finally established and accepted the name of the worldwide scientific organization dealing with the youngest geological period, the International Quaternary Association – INQUA. Moreover, during their visit to Austria, M. Książkiewicz and K. Skoczylas-Ciszewska had the opportunity to examine several outcrops in the vicinity of Vienna to made together observations and to compare flysch deposits and structural elements of the Vienna Forest Hills and the Polish Western Carpathians (Książkiewicz & Skoczylas-Ciszewska, 1937).

The last contribution of M. Książkiewicz published just before the World War II deals with the relatively rich fossil

fauna of cephalopods from Lanckorona (Książkiewicz, 1939). It was being collected during two years by himself and with the assistance of E. Panow. The whole set comprises 10 species of ammonites and 4 species of belemnites, as well as numerous undeterminable fragments of lamellibranches, brachiopods, and other fossils. The determined taxa indicated the Early Cretaceous age (Barremian–Aptian) of the Grodziszcz Sandstones, and particularly of its local facies distinguished as the Ostrea Sandstones (Fig. 10). It is one of a rare finds of macrofossils documenting the age of flysch deposits in the Outer Carpathians.

The 1:50,000 geological map of the sheet Wadowice and the explanatory text, including a detailed description of geological outcrops, formations and structures of this area, were ready just in 1938 and became transferred to the Polish Geological Institute in Warsaw to be published soon. Admittedly, in the following year the first proofs were to be available, but editorial work took so much time that before the break of the World War II neither the map nor the text had appeared. However, lithographic plates of the map had been just made and stored in the Głównyński private printing office.

The need and interest in the knowledge of the world, different countries or regions and their geological problems, stimulated with the participation in two expeditions organ-

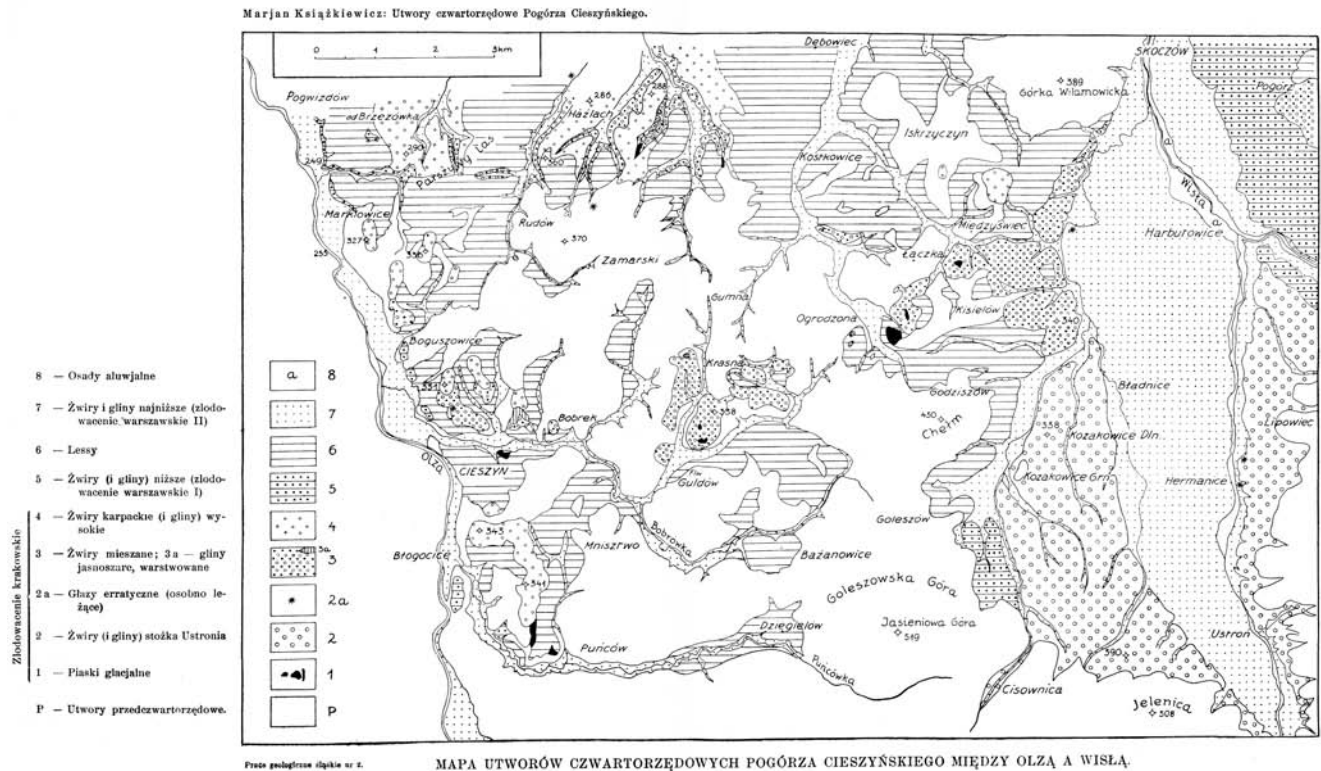


Fig. 9. Geological map of Quaternary deposits of the Cieszyn Foothills between the Olza and Vistula rivers (Książkiewicz, 1935c)



ized few years before by Prof. L. Sawicki, provoked M. Książkiewicz not only to take part in the following international conferences, but also to undertake his own expeditions with well determined scientific program. Unfortunately, the trip to the Soviet Union planned for 1937 had to be cancelled. Nevertheless, in the following year he went to an excursion to Germany, Switzerland and Italy, which gave him an excellent chance to study the geological structure of the Alps, both from tectonic point of view and regarding the development of particular geological formations and successions. He also stayed in Vienna to check the correctness of his own determinations of the just mentioned fossil fauna from Lanckorona, by studying palaeontological collections of the University of Vienna and the Natural-Historical Museum.

In the next year, M. Książkiewicz was delegated by the Foreign Office to Portuguese Eastern Africa (Mozambique) with the aim of conducting geological research into natural resources and to estimate the possibility and advisability of exploitation, which was interesting for the Polish government. This trip was planned for the period of May 1 – December 30, 1939, so that the outbreak of the World War II made him impossible to come back to Poland. In December 1939 he arrived in France, and a year later became evacuated to Great Britain, where in years 1940–1942 he served

Fig. 10. Ammonites from the Upper Neocomian found in outcrops of the Ostrea Beds in Lanckorona (Książkiewicz, 1939)



in the Polish army as a soldier specialized in cartography. Since May 15, 1943 he was employed in London in institutions belonging to the Polish government: Foundation of Culture and Ministry of Science and Education. In addition, he also had lectures for Polish students in Birmingham.

Just after the war (July 7, 1945) M. Książkiewicz sent a letter to Professor T. Lehr-Splawiński, Rector of the Jagiellonian University, and expressed his willingness for return from England to take again scientific and educational job in Krakow. The short and explicit Rector's answer come nearly immediately: "I call you Doctor to come back to official duties in the University as soon as possible". As a result, since December 1, 1945 M. Książkiewicz became appointed as an Assistant Professor in the Department of Geology, which after the death of Prof. J. Nowak was chaired at that time temporarily by Prof. J. Tokarski. Already a month later, the Philosophical Faculty had initiated the procedure for promotion of M. Książkiewicz to the rank of professor, and appointed one of the most celebrated Polish geologist as the main reviewer. It was Prof. K. Bohdanowicz – the director of the Polish Geological Institute, who was living just after the war in Kraków, and since January 27, 1945 occupied temporarily a flat in the Jan Kochanowski Street 5 (Graniczny *et al.*, 2008). It was the house of the J. Kochanowski High School, used during the occupation by the German Geological Institute (Fig. 1). The review has a characteristic signature "KBohdanowicz 11. I. 46. Kraków Kochanower 5". It is a detailed and comprehensive, affirmative opinion (12 pages), accessible in the Archive of the Jagiellonian University. As a conclusion it contains an unequivocal support for the suggested promotion. In consequence, the decree appointing M. Książkiewicz a full professor of geology was resolved by the Faculty and of the University Senate, and finally became undersigned on June 1, 1946 by the President of the National Council of Poland.

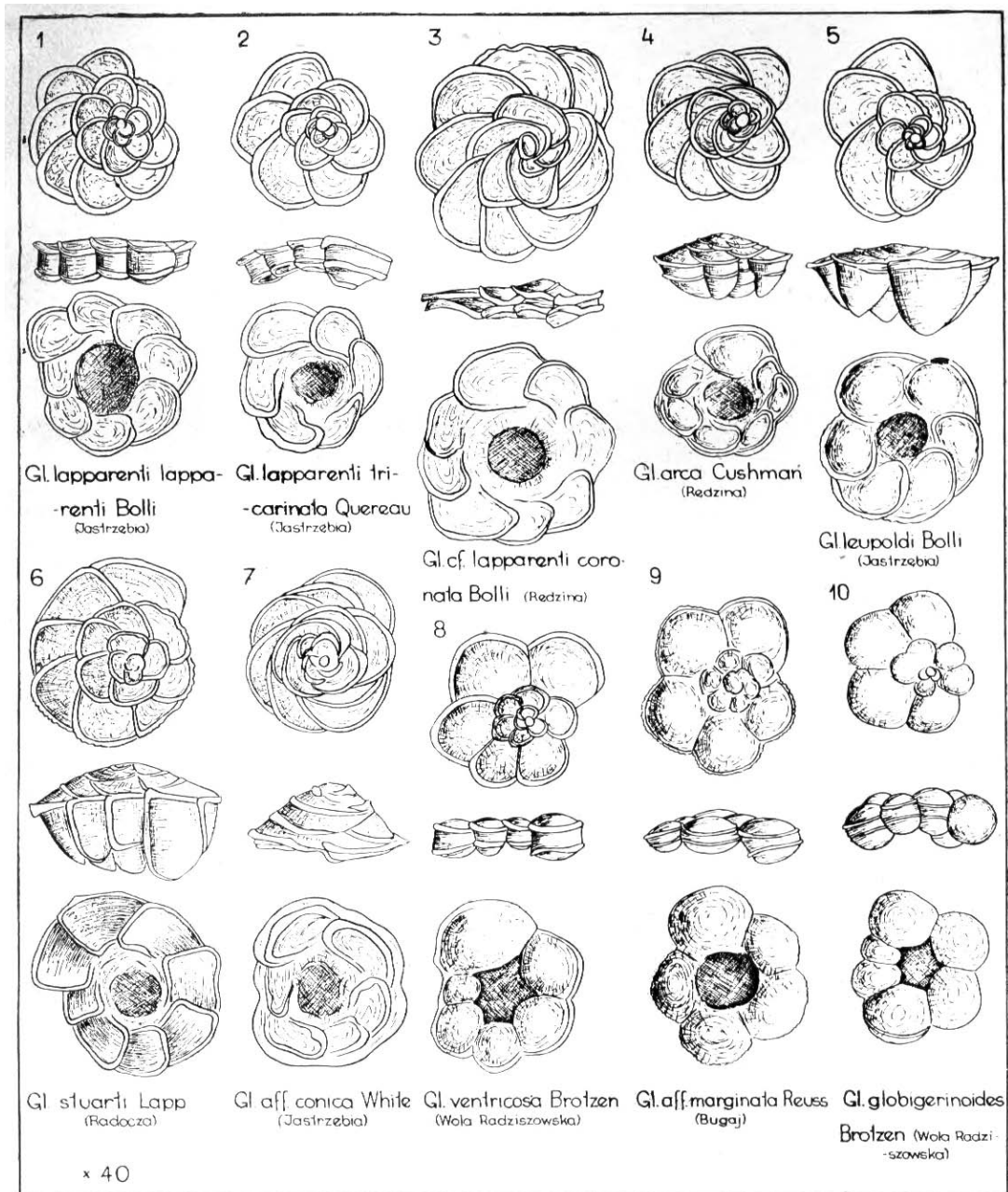
During the war, the Polish Geological Institute was closed by German authorities, transferred from Warsaw to Kraków, and re-organized as Amt für Bodenforschung. It was localized in the building of the then closed Jan Kochanowski National High School (Fig. 1). Prof. R. Brinkmann, the director of this institute, found in Warsaw lithographic plates of the sheet Wadowice geological map, ordered to translate explanations of symbols and printed the map without making author's correction. In this way, it was published in 1941 without knowledge of the author, as "Geologische Karte des Generalgouvernement – Blatt 49/29" at the scale of 1:50,000, with symbols written in German. The genuine text of "Explanations", provided by Amt für Bodenforschung to Krakow in order to translate it into German language, was saved just before the liberation of the town in January, 1945. There was only a problem with finding the tectonic map, few table boards and drawings. Just after the liberation, all these materials were taken over by the reconstructed Polish Geological Institute, which decided to take the edition.

Before the last-ditch proof-reading of both the map and the text of the sheet Wadowice, M. Książkiewicz resolved to make amendments and supplements, requiring the additional field work. For three years (1946–1948) he obtained financial support from the Polish Geological Institute and took investigations to complete and update the description of particular outcrops and structures, and mainly to constrain the age of selected formations, using micropalaeontological arguments. In marls of the Sub-Silesian and Silesian units, indicative assemblages of foraminifers were found, which enabled to distinguish and document their Late Cretaceous or Eocene age (Książkiewicz, 1950). The identification of index species of the genus *Globotruncana* was particularly important (Fig. 11).

The Polish edition of the mentioned map together with explanations appeared ten years later. It was the final supplementing of the set of maps with descriptions edited before the World War I (1881–1913) by the Academy of Arts and Sciences in Kraków, as the Geological Atlas of Galicia (Alexandrowicz, 2008). The text was published as a book entitled "Explanations to the Sheet Wadowice", already prepared before the World War II and supplemented just after, comprises 283 pages with 12 tables of photographs, and 18 tables of drawings. At that time it was one of the most important monographs, dealing not only with the described region but also with geology of the entire Western Outer Carpathians (Książkiewicz, 1951). Unfortunately, according to regulations introduced by communist authorities, it was included to classified publications accessible only to a limited number of geologists bearing a special permission. Only after the decline of the former political system in Poland in 1989, the book became open to all.

The early stage of scientific activity of Prof. M. Książkiewicz falls into the period preceding the World War II. It was closed with the achievements of 20 scientific treatises and contributions published mainly in the International Bulletin of the Polish Academy of Arts and Sciences and in Annals of the Polish Geological Society (Rocznik Polskiego Towarzystwa Geologicznego), with 18 announcements and reporting notes, 7 popularizing articles and a dozen papers related to meetings organized by the Physiographical Commission, Polish Geological Society, and Polish Geological Institute<sup>1</sup>. The described stage can be treated as an entrance gate to great scientific carrier of Professor Książkiewicz, a result of strenuous and fruitful work during the following 35 years. In this time, he created his own scientific school, composed not only from assistants employed in the Department of Geology of the Jagiellonian University and the Chair of Physical Geology of the Academy of Mining and Metallurgy, led by himself, but also from young geologists from the Kraków Branch of the Polish Geological Institute, Geological Laboratory of the Polish Academy of Sciences, and other institutions. In unprecedented degree Prof. M. Książkiewicz advanced geological investigations of the Outer Carpathians, with attention paid to several problems.

1 Unpublished data quoted in the text come from materials stored in the Archive of the Jagiellonian University (S II 619, WMP 44), Archive of Science of the Polish Academy of Arts and Sciences and the Polish Academy of Sciences in Kraków (K I-11 j.a. 7, 15), Archive of the Polish Geological Institute in Warsaw, and from private archive of the author.



**Fig. 11.** Index species of Foraminifera (*Globotruncana*) from green, red and variegated marls of the sheet Wadowice (Książkiewicz, 1950)

The most important of these are: sedimentology of flysch deposits, crowned by a synthesis of palaeogeography, as well as studies on trace fossils and life conditions in the Carpathian “geosyncline”. These achievements became broadly recognized and universally valued, so that they founded the opinion on the exceptional scientific personality of Prof. M. Książkiewicz as one of the most outstanding geologists of the century.

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