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## POLISH ROOTS OF PERIGLACIAL RESEARCH

The first stage of Polish studies on periglacial phenomena and periglacial environment should be considered in the circumstances of the lost independence in 18<sup>th</sup> century. Therefore after the publication of the famous STASZIC's monograph 'On the mineral resources of the Carpathians and other mountains and lowlands of Poland' in 1815, the not numerous Polish research of the second half of 19<sup>th</sup> century had contacts with the European Science, mainly in the Austrian part (with universities in Cracow and Lwow). But in the Russian part numerous young researchers were deported to Eastern Siberia after the upraise in 1863–64 against the Carist regime. These people being either supported by Russian Geomorphological Society or in the service of Russian government have started the extensive investigations on the mineral resources, vegetation, permafrost etc. Among them was J. CZERSKI, who made many observations on the permafrost and discovered the remains of former glaciations in the Eastern Siberian mountains (CZERSKI, 1881). L. JACZEWSKI (1889) on the base of various observations of frozen grounds and air ground temperatures compiled the first map of the extend of Siberian permafrost zone.

In the first decade of 20<sup>th</sup> century the interest in the exploration and in the physical processes occurring in the polar regions increased. Two Polish geophysicists H. ARCTOWSKI and A. S. DOBROWOLSKI participated in the expedition of Belgica around the Antarctic. This has matured later in the excellent monograph on the Natural History of Ice (DOBROWOLSKI, 1929), which during the interwar period has been for the Polish researchers a fundamental textbook on glacial and cryogenic processes. In 1909 and later in 1912 W. ŁOZIŃSKI published the results of his observations on the blockfields in the flysch Carpathians, the Holy Mts, the Sudetes and other mountains of Central Europe and the first has introduced the term *Periglacial*. The periglacial facies of course debris was in the conditions of cold dry climate at the foreland of the Scandinavian ice sheet affected by catabatic winds. It was not accidental that this concept was born in the area of highlands closest to the maximum extend

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of the last ice sheet. In the geological atlas of the former Galicia were indicated not only the glacial till and erratic boulders but also the mammoth loam (loess) connected with cold climate (ŁOMNICKI, 1895–1903 *et al.*). Earlier E. ROMER (1899) simultaneously with the concept of the geographical cycle by W. M. DAVIS (1899) published a paper on four morphoclimatic zones of the Earth and distinguished a separate zone connected with permafrost. This paper was published in Polish with short French summary in Lwow and remains unknown to international community.

Before the second world war several young Polish researchers have organized in 1937–38 the expeditions to the polar regions studying glacial and periglacial phenomena. Among them were A. JAHN (Greenland), B. HALICKI, M. KLIMASZEWSKI, S. Z. RÓŻYCKI and L. SAWICKI (Spitsbergen). In 1939 appeared the first paper on the profile of solifluction sediments with Dryas flora in the flysch Carpathians (KLIMASZEWSKI *et al.*, 1939).

After the II-nd world war we observe the exploration of periglacial research. Beside traditional Scandinavian and Russian studies there were developed extensive German, French, American and other investigations both on the present phenomena in polar regions and in areas with continental permafrost as well as on the fossil Quaternary features connected with the broad periglacial zones developed during cold stages. In 1949 at the IGU Congress in Lisbonne it was founded the Periglacial Commission under the chairmanship of H. AHLMANN.

During the first post-war decade (1945–56), due to the political situation, the Polish science was practically cut off from international contacts. The lack of possibility to continue the polar expeditions induced the Polish researchers to start detail investigations over the mountains, uplands and plains of Poland being transformed by periglacial processes during the last and previous cold stages of the Quaternary.

In this period 1946–1950 there were published the first papers and even first monographs on loess (JAHN, 1950), periglacial transformation of slopes and valley floors (KLIMASZEWSKI, 1948), cryogenic structures (JAHN, 1951), as well as the results from the pre-war expeditions to polar regions (JAHN, 1951; KLIMASZEWSKI, 1960).

In 1951 appeared the first paper of J. DYLIK presenting the preliminary observations of periglacial phenomena in the neighbourhood of Łódź. JAN DYLIK (educated as geographer and archeologist) born in 1905, organized the chair of geography at the founded University of Łódź, located less than 100 km from maximal extend of the last Scandinavian ice sheet. He turned his attention to the distinct signs of frost and eolian activity in the former belt of the arctic desert. In 1953 he published a concept of the periglacial transformation of landscape in the zone of the penultimate glaciation in the monograph entitled 'On the periglacial character of the

relief of Central Poland'. JAN DYLIK, full of energy and enthusiasm, supported by his wife ANNA, started the extensive field studies all over the Poland. He introduced several detail methods from archeology and sedimentology to periglacial research. The field observations were more and more interdisciplinary with time. The training of young adepts was combined with organization of annual workshops and symposia. JAN DYLIK was trying to find the international contacts, even the political barriers were still present. In 1954 it was published the first issue of *Biuletyn Peryglacjalny*, in which he, his collaborators and A. JAHN presented the programme of periglacial research.

It should be mentioned that this decade (1950's) in Polish geomorphology and in other Earth sciences was characterized by various initiatives which that time may be taken as competition, but in fact looking from perspective these supported and supplemented each other (*cf.* STARKEL, 1988). In Cracow and Toruń has started the detail geomorphological mapping (M. KLIMASZEWSKI, R. GALON) which registered a very distinct participation in the relief of periglacial forms. In mountain and upland regions was initiated the monitoring of present-day processes, among them those characteristic for the winter season (centers in Cracow, Wrocław, Lublin). The detail sedimentological methods were developing in Poznań (B. KRYGOWSKI) and Lublin.

The stratigraphic skeleton of periglacial environment has been created mainly by Quaternary geologists from Warsaw (E. RÜHLE, S. Z. RÓZYCKI) and paleobotanists from Cracow (W. SZAFER, A. ŚRODOŃ).

In 1956 the products of Polish research were presented at the IGU Congress in Rio de Janeiro and one year later at the V-th INQUA Congress in Spain. Among the presented papers was an original map of periglacial sediments, structures and forms registered on the territory of Poland (DYLIK, 1956). In 1956 JAN DYLIK took over the leadership of the IGU Periglacial Commission and the *Biuletyn Peryglacjalny* started to be an official journal of that Commission.

During the International Geophysical Year in 1957–58 it has been organized the Polish Research Station at Hornsund on Spitsbergen, where Z. CZEPPE (1961) and A. JAHN (1961) started a detail annual monitoring of frost and solifluction processes. In 1958 was organized in Łódź the first international field symposium of the IGU Periglacial Commission. Their participants visited and discussed several tens of localities in Central and South Poland (DYLIK, 1960; STARKEL, 1960; and others). Three years later in 1961 took place the VI-th INQUA Congress in Poland. Preparation of field trips and guide-books gave an impetus to synthesize the Polish knowledge on the Quaternary, among them on periglacial phenomena and loess in the context of Quaternary stratigraphy and palaeogeography (Guide-book, 1961; Proceedings of VI-th INQUA Congress, 1961). Before A.

PISSART in 1972 took over from J. DYLIK the chairmanship of the Periglacial Commission the joint meeting of two Commissions (Periglacial and on Slope Evolution) was organized in 1967 with field trip across the Sudetes, the Carpathians, the Małopolska Upland and the Łódź Region, which presented the diversified picture of the role of periglacial environment in the transformation of relief as well as presented the stratigraphic evidence of change during the last glacial cycle (Guide-book, 1967).

The period of late 60-ties and early 70-ties it was also a time of numerous Polish summaries and syntheses, among them several more general like by JAHN (1975) and DYLIK (1967), or more regional DYLIK and GALON, (*ed.*), (1967), KLIMASZEWSKI and GALON (*ed.*), (1972), KŁATKA (1962), KŁATKOWA (1965), MARUSZCZAK (1980), RÓŻYCKI (1967), MOJSKI (1969), KOZARSKI (1974), ROTNICKI (1966), STARKEL (1969) and others. It was also the time of continuous Polish expeditions to the polar and permafrost areas to Spitsbergen (*cf.* JAHN, 1961), Iceland (GALON, 1973) and since 1974 also to Mongolia (KLIMEK, STARKEL, 1980; STARKEL, KOWALKOWSKI, 1980).

On June 7 1973 Professor JAN DYLIK died.

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