

Dear colleagues,

The 8th GLACKIPR Symposium celebrated in Silesia, Poland, in March of 2007 was a special symposium. Besides its scientific significance, it was both intimate and sad, because it also represented a tribute to one of the managers of our International Commission, who has left us forever.

I am talking about Marian Pulina, by whose side I have had the privilege to work for more than thirty years. Our professional relation began with the creation of the Work Group of Physical-Chemistry of Karst in Olomouc in 1973, which later became the International Commission of Physical-chemistry and Hydrogeology of Karst of the International Union of Speleology (UIS). Thanks to Marian Pulina's management capacity – he organized several meetings in the mountains of Silesia – some work groups within the International Commission “Glaciers, Caves and Karst in Polar Regions” bore fruit until 1981. Then, I had to leave the Commission to take charge of the Presidency of the UIS.

In 1985 when the Spaniards were preparing the assembly of the first Spanish Antarctic station, the logistic aid secured by Marian was vitally important for our country. That year Marian facilitated my first polar expedition. It was in the Polish Polar Station in Hornsund (Svalbard). There we began our investigations on karst in ice, applying the Principle of Form Convergence.

After the assembly of our Antarctic Base Juan Carlos I, Marian suggested to me that we write a book where we would develop criokarst, showing Arctic and Antarctic examples. It was published by McGraw-Hill in two editions: 1994 and 2001.

Meanwhile, in 1989, during the Congress of the UIS, Jacques Schroeder, Marian and the one that subscribes started up the GLACKIPR (Glaciers, Caves and Karst in Polar Regions) International Commission, whose eighth symposium is the one that appears in this publication.

Being Marian a polyglot, an expert on at least one language of the Slavic, Romance or Germanic families, his work as inter-communicator, his disposition to facilitate logistics to campaigns in polar regions and to collaborate with research projects was always vital and full of a great generosity. His absence leaves an empty space very difficult for us to fill.

May this symposium be a tribute to our lost friend.

The furtherance of our research, which is the road he would have liked us to follow, is the light that guides our steps, an aim whose search is necessary to continue.

Farewell, Marian!

GLACKIPR Commission has already celebrated the following: symposiums:

- Creation of the International Commission in Budapest (Hungary), August 1989
- 1st in Madrid (Spain), October 1990
- 2nd in Silesia (Poland), February 1992
- 3rd in Chamonix (France), November 1994
- 4th in Rudolfschütte (the Austrian Alps), September 1996
- 5th in Courmayeur (the Italian Alps), September 2000
- 6th in Ny-Aalesund (Svalbard), September 2003
- 7th in Kabardino-Balkarija (the Caucasus, Russia), September 2005
- 8th in Sosnowiec-Wrocław (Poland), March 2007

In loving memory of our colleague, Prof. Dr. Marian Pulina.

Adolfo Eraso
President of GLACKIPR

Foreword

“*Karst and Cryokarst*”, dedicated to the memory of Teresa Wiszniowska and Marian Pulina, contains works covering the subjects of their broad scientific interests. Both Professors started their scientific and teaching career at the Faculty of Natural Sciences of the University of Wrocław, as well as caving and speleological activity in Sudetes. After discovery of the Jaskinia Niedźwiedzia (Bear Cave) in Kletno (Western Sudetes), they were performing multidisciplinary studies of the cave environment for many years. These studies resulted in a set of monographic works on Jaskinia Niedźwiedzia and Sudetes with participation of Teresa Wiszniowska (authority on research of large fossil mammals, cave bear especially) and Marian Pulina (authority on speleology and geomorphology), as well as an effective protection of this the most spectacular cave in Poland, partly opened as a show cave. They resulted also in creation of multidisciplinary and international Speleological School, which has been organized in the winter since 1975. At the beginning, the University of Wrocław was the main organizer of the School. Later, when Marian Pulina moved to the University of Silesia, it was a meeting of both universities. The 25th edition of Speleological School in March 2007 was dedicated to the memory of its scientific manager and supervisor – Marian Pulina and its good spirit and former secretary – Teresa Wiszniowska.

Why *cryokarst*? Some readers can be confused about this term used in the title and will search in this book works connected with karst-like landscape induced by freezing and thawing of ground-ice or permafrost. This is a traditional meaning of *cryokarst*, very often used as a synonym of *thermokarst*. For the phenomena of caves and pits occurrence in glaciers, as well as for the specific karst-like morphology of glacier surface presented on the pages of this book, traditionally terms *glacier* or *ice pseudokarst* are used (see J. Gunn (ed.) - *Encyclopedia of Caves and Karst Sciences*. Fitzroy Dearborn, 2004; D.C. Ford, P.W. Williams - *Karst hydrogeology and geomorphology*. J. Wiley and Sons Ltd., 2007). Descriptions of karst-like phenomena in and on glaciers of Spitsbergen, made in 70s and early 80s of 20th century by Marian Pulina (i.e. M. Pulina - *Notes on ice-snow pseudokarst in South Spitsbergen. Results of investigations of the Polish Scientific Spitsbergen Expeditions, vol. IV. Acta Universitatis Wratislaviensis, 525, 1982*), were consistent with such a meaning of these terms. It was the time of his first expeditions to Svalbard and of introduction of speleological methodology to the glaciological researches. The following studies and increasing interest of speleologists to explore glacier caves resulted in establishment of Commission (originally Working Group) of Glacier Caves and Karst in Polar Regions (GLACKIPR) in frame of UIS on the Speleological Congress in Budapest (1989). The period of the Commission activity, lasting almost 20 years, was probably too short to establish the proper, independent terminology for the whole specific phenomena related to origin of glacier caves and glacier topography. Moreover, it was not long enough to decide how to call these phenomena at all. Discussions in the frame of the Commission, performed also during the 8th GLACKIPR Symposium held in March 2007 in Poland, resulted in the evolution of terms. Terms *glacier* or *glacial karst* proposed for the whole forms and processes in and on glaciers induced by ice melting instead of limestone dissolution in karst are just two of many examples (i.e. B. Mavlyudov – *Glacial Karst, why it important to research. Acta Carsologica, 35/1: 55-67, 2006* and his work in this

book). Works of the Commission extended also the traditional meaning of the term *cryokarst* to the broadly understood distinctive surface morphology of glaciers (i.e. with closed depressions), not only covered by debris (see A. Eraso, M. Pulina - *Cuevas en hielo y rios bajo los glaciares*. New York, 1994, Madrid, 2001 and M. Pulina, L. Kolondra 1997; L. Kolondra, M. Pulina, 1998; M. Pulina, L. Kolondra, J. Rehak 1999; M. Pulina, J. Pereyma, J. Piasecki 1999 - list of M. Pulina's publications in this book). It resulted in the evolution of the Commission name to the "Glacier Caves and Cryokarst in Polar and High Mountain Regions", too.

Cryokarst was an important subject of the last decade of scientific studies of Marian Pulina. Symbolically, the last lecture in his life, presented in Postojna (Slovenia), has been devoted to *cryokarst* (*Cryokarstic relief of the polythermal glaciers of Spitsbergen. 13th International Karstological School „Classical Karst”: Karst in various rocks, Postojna, 27-30 June, 2005*).

Andrzej Tyc