

CHRONICLE

In memoriam Andrei Velichko (1931–2015)

Professor Andrei Alekseevich VELICHKO, Doctor of Sciences in Geography, head of the Laboratory of Evolutionary Geography of the Institute of Geography Russian Academy of Sciences (RAS, Moscow), passed away on November 11, 2015. Andrei Alekseevich received a degree in geography at the Moscow (Lomonosov) State University in 1953 and belonged to the school of K.K. MARKOV. Soon his interest turned to the complex problems of paleogeography of the late Cenozoic ranging from the stratigraphy of glacial and periglacial zones to the reconstruction of paleoclimatic events as they are reflected by the evolution of landscapes. His life work was closely associated with studies on the interaction of primitive humans with the natural environment and his first contribution was a study on the geological age of the upper Paleolithic in the central part of the Russian Plain (1961). VELICHKO's book entitled *Natural process during Pleistocene* (1973) has become a manual for generations of geographers.

During the sixty years of his professional career the impact of environmental change was increasingly observed at a global scale under an ever intensifying anthropogenic pressure. It was recognised as early as the 1960's, but it had taken time until a bilateral Soviet–American scientific program was launched under the aegis of environmental protection. As part of this collaboration national monographs were presented: on late Quaternary environments of the Soviet Union edited by A. VELICHKO was published in the USA (Minnesota, 1984) whereas another one on late Quaternary environments of the United States edited by S.C. Porter came out in Russian (Leningrad, 1986). These volumes had vital significance as they presented both research methodology and the findings of investigations.

Since its foundation (1928) the International Union for Quaternary Research (INQUA) has emphasized the research of the evolution of natural components (inland and mountain glaciology, loess, permafrost, geomorphic processes, soil cover, vegetation and fauna) in an interdisciplinary manner as of an utmost importance. The union has put an aim of encouraging joint research, discussion and publication on the problems of Quaternary. Accordingly, A. VELICHKO formed



a team of researchers at home, where he became the head of Laboratory of Paleogeography of the Institute of Geography, proceeding as Laboratory of Evolutionary Geography from the 1990's.

At the INQUA congress in 1977 he was elected as president of a newly formed Commission on the Paleogeographic Atlas of the Quaternary. Supported by the conveners of the Commission Márton PÉCSI (then president of the Commission on Loess) and Burkhardt FRENZEL (RPG on Terrestrial Paleoclimatology, FRG) a project of an atlas-monograph was launched in the mid-1980's, edited by the three professors and involving a broad circle of international experts. Eventually, it was completed by 1991 and published as *Paleoclimates and Paleoenvironments of the Northern Hemisphere (Late Pleistocene–Holocene)*. Thirty years ago a 1 °C rise in global annual mean temperature was predicted by 2100 (the scenario at Holocene climatic optimum) and 2 °C increase by 2030 (situation at the last Interglacial climatic optimum). The atlas contains various (sometimes conflicting) scenarios to reconstruct the last climatic macrocycle of the recent geological past (last Interglacial/Glacial/Holocene).

The chronostratigraphical correlation at a global scale has been a challenge to the geosciences. Considerable efforts were made to reconcile various Quaternary time scales that suggest or reflect cyclic climatic and environmental change (radiation changes by MILANKOVIĆ, ^{18/16}O ratio in deep-sea deposits, changes of magnetic susceptibility in sequences, fluctuations of CO₂ pressure in polar ice, pollen spectrum changes etc.).

Works on the atlas prompted a close cooperation between the Department of Geomorphology, Geographical Research Institute Hungarian Academy of Sciences (GRI HAS) headed by M. PÉCSI and

VELICHKO's Department of Paleogeography. It started in autumn 1986, when a scientific session was held at the HAS (Budapest) and field excursions were organized featuring key sections in Hungary (Paks, Basaharc) with the participation of German, Hungarian, Polish, Soviet (Russian, Georgian) specialists. Two years later comparative studies were performed at Basaharc (Hungary, Visegrád Gorge) and Bogolyubovo (Russia, Vladimir Oblast'). As the study of Quaternary deposits, primarily of loess-paleosol sequences provides information on the amplitude, character and speed of past climate changes, the two key localities were investigated by experts from both, Hungarian and Russian workshops by sampling for a subsequent laboratory analysis.

VELICHKO was a prolific writer producing more than one hundred scientific contributions, and edited numerous books. Volumes of studies published in Hungary contain several articles written by him.

The International Geosphere-Biosphere Programme was initiated by ICSU in 1986 to coordinate international research on global- and regional-scale interrelationship between Earth's biological, chemical and physical processes and their interactions with human systems. Later its core project Past Global Change (PAGES) emerged with a special reference to investigations into paleoclimatic cycles in the geological past. Professor VELICHKO was very active participant in this project and his last visit to Budapest was associated with a session here in 2008.

In 2014 a project was launched under Professor VELICHKO's professional guidance. Commemorating

the 120th anniversary of the expedition led by Vladimir OBRUCHEV, Russian and Chinese Quaternary researchers carried out large-scale sampling of loess deposits from key exposures of Eurasia to deepen knowledge on the terrestrial paleoclimates and past landscapes of this huge area of the Earth.

In April 2014 A. VELICHKO was decorated with the Grand Gold Medal of the Russian Geographical Society (RGS) awarded for scientific proceedings. The preamble reads: 'For the development of geography, for creation of atlases and monographs on the landscapes and climate and for active participation in the International Geographical Union and Russian Geographical Society'. A recent volume of studies under his editorship deals with the initial human settlement in the Arctic under conditions of pervasive environmental change.

Fine arts were very familiar to him. VELICHKO had a gift in drawing, and illustrations such as geological profiles drawn by him have already been incorporated in geomorphological contributions. He belonged to *Geografiya-Geozhivopis* (Geo-graphics-Geo-painting), a civil society founded under the aegis of RGS in 2005 that organised exhibitions and published albums over the past decade.

At least three generations of geographers keep the memory of Andrei Alekseevich VELICHKO, a prominent scholar of international renown, close friend of Hungarian colleagues, a global citizen with amiable personality.

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