

The Magazine of the Polish Academy of Sciences

No. 4 (16) 2007

Quarterly

ISSN 1731-7401

Edited by:

Polish Academy of Sciences

© Polska Akademia Nauk 2007

Editor Address:

Polish Academy of Sciences  
Office for Popularizing and Promoting Science  
PKiN, pl. Defilad 1, 00-901 Warsaw, Poland  
e-mail: academia@pan.pl  
www.pan.pl/academia

**Subscription:**

academia.prenumerata@pan.pl

**Editorial Staff:**

Jan Strelau

Editor-in-Chief

Marta Fikus-Kryńska

Deputy Editor  
Biomedical Sciences

Iwona Pijanowska

Managing Editor

Anna Zawadzka

Humanities

Weronika Śliwa, Agnieszka Polło

Mathematics, Physics,  
Chemistry, Technology

Andrzej Pieńkowski

Earth Sciences

Daniel Sax

English Language Editor & Translator

Paweł Adamów

Art Director

**Scientific Council:**

Chairman:

Michał Kleiber

President of the Polish Academy  
of Sciences

Andrzej Wiatrak

Wiesław Bogdanowicz

Jerzy Zabczyk

Andrzej Styczek

Zygmunt Reklewski

Jacek Zaremba

Jan Andrzej Ciołkosz

Publication costs partly covered by  
the Ministry of Science and Higher Education

DTP by Edit Sp. z o.o.

DTP Operator: Magdalena Giera

## More Space!

*In this issue of Academia we allow our minds to stretch far and wide, into the expanses around us. The spaces inhabited by humans – both individuals and larger groups – are a fundamental factor underlying our identity and sense of community. The traditional space inhabited by Siberia's nomadic Yukaghir people played a unique role in their system of beliefs, but has since been disrupted by political changes. We take a deeper look at what remains of their culture in **Spirits of the Land** on p. 12.*

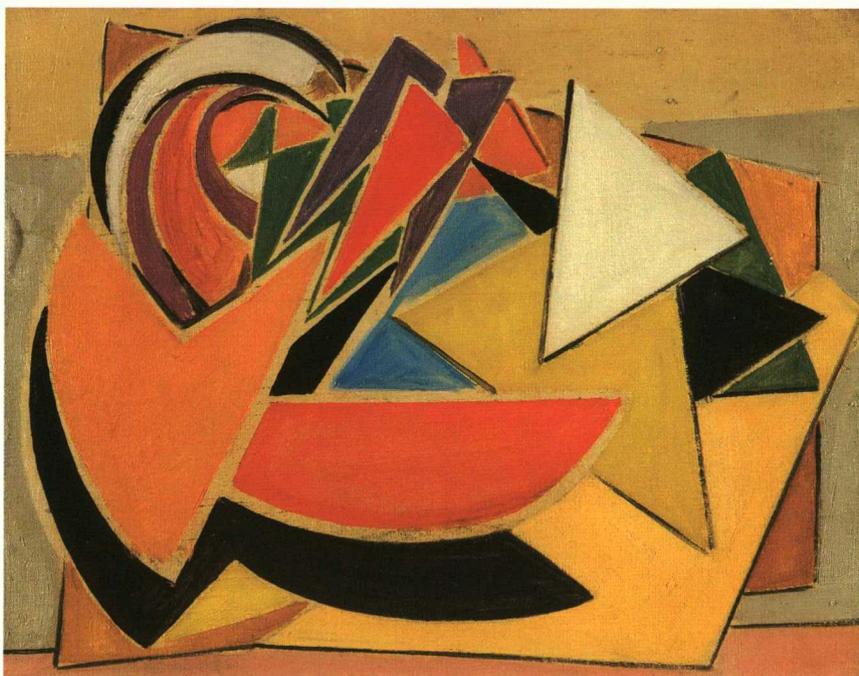
*Humans are certainly not alone in their drive to spread to new territories. Interspecies competition for ecosystem niches can lead to the emergence of new species, or whole families adapted to unfriendly habitats. The extraordinary success of **All-Pervasive Grasses** are a case in point (p. 4).*

*The wider "home space" of all species, however, is the Earth itself, so we devote quite a bit of attention to our mother planet in this issue. The UN has declared 2008 the **Year of Planet Earth**, bringing an excellent opportunity to popularize the achievements and significance of the Earth sciences – find out more on p. 24. Respect for our planet's spatial order and balance reminds us that **We Must Build Wisely** (p. 38) – the Presidium of the Polish Academy of Sciences has appealed to Poland's public authorities to pursue spatial planning policies promoting sustainable development, based on scientific research and in coordination with the EU.*

*Note that many spatially-oriented processes also occur on the micro scale: foraminifers, a kind of protozoan, produce shells linked together in a fascinatingly complex way, while special proteins inside some bacteria ensure that dozens of genome copies end up correctly arranged, one by one, inside new spores. Research into the spatial "orchestration" of these biological processes is described in the articles **Nature's Algorithm** (p. 34) and **Even Spacing** (p. 16).*

*All in all, these fascinating spaces are sure to give readers many new perspectives!*

ACADEMIA staff



Paweł Suchanek/National Museum in Kielce

**The perception of space that is evident in art evolves over successive epochs. The work of Jonasz Stern, one of the pioneers of geometric abstractions in Poland, was influenced by cubism and abstract art. Here, his "Geometric Composition" from 1954**