

2/58/2018

Focus on

4 TOMASZ MROZEK

Astrophysics

Searching for Sunspots

10 MARIA GOŁĘBIEWSKA

Philosophy

Silence is a Sign

14 KRZYSZTOF FIC

Energy

Botox for Batteries

18 KATARZYNA BIERNACKA

Cardiology

When The Heart Refuses To Run

22 MARCIN ZGLIŃSKI

Art History

The Art of Influenceology

26 STANISŁAW KNUTELSKI, RENATA JACH.

ALFRED UCHMAN,

MAREK DOHNALIK,

HELENA HERCMAN

Nature

In the Beetle's Black Home

31 MONIKA KACZMAREK

Nutrition

A Diet For Generations

Research in Progress

36 PIOTR ACHINGER

ERC 2018

Strictly Mysterious

42 KATARZYNA KĄDZIOŁKA

Geology

Solutions to Slag

46 JAN PURSKI

Mineralogy

More Than Blue Almonds

Briefly Speaking

48 JOANNA AND PIOTR SUŁKOWSCY Always Seeking Understanding

Insight

56 KRZYSZTOF SPALIK

Environmental Protection

Let the Wild Forest Regrow Wild

60 ANDREAS BÖHN

PIASt

A Hunger for Habits

In the Lens

64 The Deep Blue

Short circuit

74 WŁODZIMIERZ ZAWADZKI Unorthodox Ideas



Focus on Nutrition

Diet for Generations Prof. Monika Kaczmarek from the PAS Institute of Animal Reproduction and Food Research talks about what we should eat so as not to harm our children. **31**



Insight Environment

Let the Forest Grow Wild Prof. Krzysztof Spalik from the PAS Committee for Environmental and Evolutionary Biology talks about the problems of reforestation. **56**



Briefly Speaking

Always Seeking Understanding

Asst. Prof. Joanna Sułkowska and Prof. Piotr Sułkowski, from the Warsaw University's Centre of New Technologies and Faculty of Physics, talk about their work and lives together. **48**

COVER PHOTO AND PAGE 2: JAKUB OSTAŁOWSKI



FROM THE EDITORS

ORIGINALITY AND INFLUENCE



"Tanagra", Mieczysław Welter (born 1928)
He studied at the Academy of Fine Arts in Poznań, where he studied

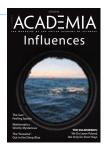
sculpture. He has created many monuments, including the Monument to Martyrdom in Soboror, to Nicolaus Copernicus in Frombork and in Mexico, to Jan Kochanowski in Czarnolas, and also portrait sculptures. The latter, made of terracotta, bronze, plaster, or artificial stone, invoke antique traditions.

here is only one Picasso – people used to say long ago, observing deformed cubist figures on canvasses by imitators of the Spanish painter. But at the same time, Poles also eagerly bought *pikasy* – ceramics and fabrics decorated with geometric patterns, very different from the traditional patterns that had long since ceased to captivate them. The pleasant objects helped them make their surroundings a bit more colorful and more interesting.

In art, in painting, in music, originality is easy to appreciate. That does not change the fact that works whose creators can be easily demonstrated to have been under the influence of a well-known master can still be recognized as intriguing, interesting, and innovative in their own way (as discussed by Dr. Marcin Zgliński).

What about in science? Theoreticians are continually lying in wait for a cue from experimenters, who painstakingly repeat their studies until they manage to report some unusual result. The reverse situation, when theoreticians stick to their guns irrespective of the fact that experimental confirmation is impossible or hard to obtain without massive (and expensive) apparatus, is rare. But sometimes it, too, yields surprising results. A clear example is Prof. Andrzej Trautman, who stubbornly insisted on the existence of gravitational waves on the basis of theory alone. And many years later it turned out that he was right - numerous teams, working together, ultimately demonstrated their existence experimentally. The French concept – of awarding grants for research that initially do not look very promising, but ultimately win a Nobel Prize, as Prof. Włodzimierz Zawadzki writes – certainly looks intriguing.

"There is clearly a link between solar activity and average temperatures on Earth, although we are only just beginning to understand it," writes Dr. Tomasz Mrozek, reminding us that the behavior of our star in the past most likely sometimes caused the Thames River and Gulf of Finland to freeze up, and on the other hand sometimes made it possible for grape vines to grow in Poland. Learning about how one phenomenon influences another is very often the fundamental sense of research work. It yields that most important commodity: knowledge. And without it, the human species could not exist.



THE MAGAZINE OF THE POLISH ACADEMY OF SCIENCES

No. 2/58/2018 Quarterly ISSN 17338662 900 copies printed

© Polska Akademia Nauk 2018

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

EDITORIAL STAFF

Jan Strelau Honorary

Editor-in-Chief **Anna Zawadzka** Editor-in-Chief

& Humanities Katarzyna Czarnecka

Deputy Editor & Managing Editor **Agnieszka Kloch** Biomedical Sciences

Agnieszka Pollo Mathematics, Physics, Chemistry, Technology

Jolanta Iwańczuk Earth Sciences Daniel Sax

Editor, English-Language Version

Andrzej Figatowski Graphic Designer

SCIENTIFIC COUNCIL

Jerzy Duszyński President of the Polish Academy of Sciences (Chairman)

Edward Nęcka Grażyna Borkowska Leszek Kaczmarek Roman Micnas Lucjan Pawłowski Witold Rużyłło Henryk Szymczak

Translation by Sax Translations

Printed by Agencja Wydawniczo--Poligraficzna Gimpo