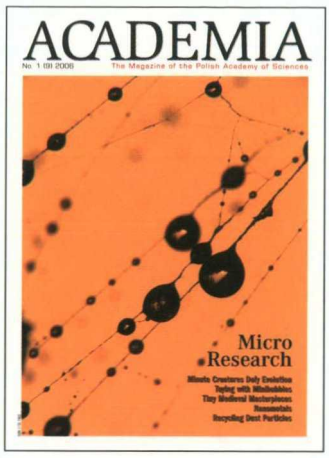

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Edited by:
Polish Academy of Sciences

Editor Address:
Polish Academy of Sciences:
Office of Analyses, Scientific
Information and Publications
PKiN, Pl. Defilad 1, 00-901 Warsaw, Poland
e-mail: academia@pan.pl
www.pan.pl/academia

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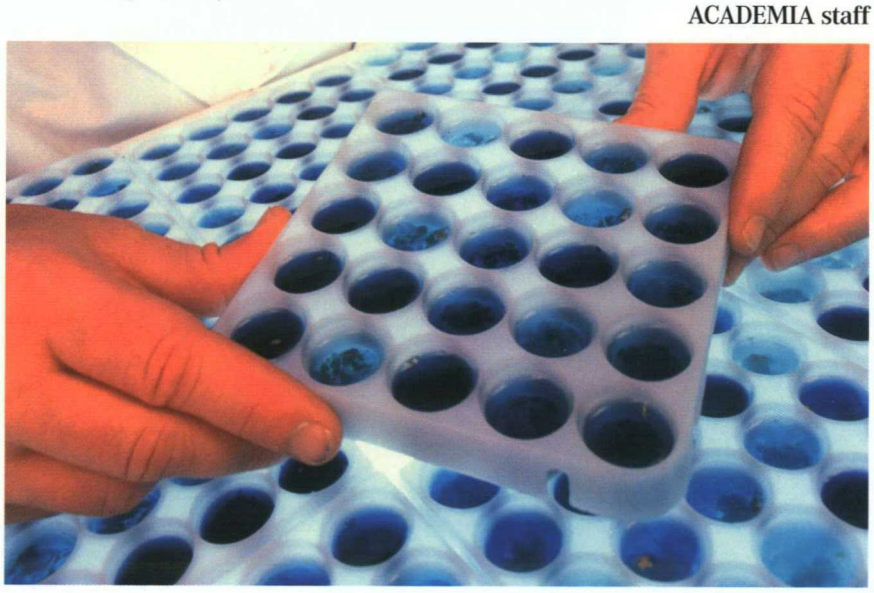
Peering into the Microcosm

How many amazing phenomena do we fail to notice in the world around us simply because they unfold on the microscale? Yet such marvels are indeed noticed by nanotechnology specialists, sociologists studying local communities, and microbiologists, such as the legendary ***Władysław Kunicki-Goldfinger****, profiled on page 46. Biologists bent over their microscopes have dicovered other fascinating tiny creatures that nearly manage to cheat evolution, defying the constraints it imposes – so maybe they deserve to be called* ***"Darwinian demons"*** *(p. 8)? The microscale world is also becoming increasingly important to modern medicine. The molecular mechanisms of blood vessel generation are outlined in the article* ***Vessels Under Control*** *on p. 20.*

Of course, it is not just the living world that is worth scrutinizing close up. Certain ***properties of amber****, for example, can only be discovered under the electron microscope (p. 29). And the entire field of nanotechnology, considered one of the most important fields of the 21st century, harnesses the properties of substances when analyzed on the atomic level. Such* ***microscale research on certain metals****, described on p. 32, is helping invent more efficient catalytic converters. Efforts at playing with* ***tiny bubbles and drops****, on the other hand, could have a large-scale impact on the control of chemical processes (p. 23) Sound abstract? Still, high-tech research does often find everyday applications in places you might least expect: the tiny* ***zeolite crystals*** *produced from the ash given off by power plants (p. 38), for instance, could actually end up inside your washing machine, as an important component of washing powders.*

But setting aside technology and the natural sciences for a moment, let's note that humanists also have a lot to say about the world when scrutinized in tiny segments. For example, the land of Bukovina (on the Ukrainian-Romanian border) hosts a cluster of coexisting cultures and religions that comprise a unique, local microcosm, representing a paradise for sociologists and cultural researchers. The region can safely be dubbed ***"Europe in Miniature"*** *(p. 4). Extraordinary microscopic worlds can also be found in* ***miniature medieval paintings*** *(p. 26). The old masters could fill decorative initial letters, some as small as a few square centimeters, with astoundingly rich scenes and meanings. This last article demonstrates that research can not only glean knowledge, but also help satisfy the human quest for beauty. That fact is further confirmed by the "molecular stained glass" shown in this issue's* ***Gallery*** *shot on p. 51.*

ACADEMIA staff



Keith Weller/USDA

The entire world locked in tiny laboratory dishes – plant research on the molecular scale