

The Tragedy and Triumph of Ukraine

I was returning from the Biophysical Society Meeting in San Francisco, and it was right after landing at the Kansas City Airport on February 24, 2022, that I got a text message from my mother in Kyiv: "It has started." Whatever miniscule hope I had of misinterpreting "it" swiftly vanished after my 12-year-old daughter texted me from Ivano-Frankivsk, "They are bombing our airport." So, "they" have "started it," Russian Armed Forces bombing Ukraine, swiftly escalating from military targets to civil infrastructure, to residential areas, to children in shelters and maternity wards.

In the subsequent days, I've received many messages of support from my colleagues and have been asked about the well-being of my family, for which I am very grateful. In addition to unanimous support of Ukraine, some also conveyed outrage at war crimes committed by Russia, but most expressed their "concern" over the "events in Ukraine" and wished "speedy resolution to the crisis." I had no other answer than to state that the Russian aggression against Ukraine turned every single person of my nearly 50-million-strong nation into my family.

I made a point to explain that the war against Ukraine had started long before 2022. For over three decades of my academic career in the United States, I've been communicating to my colleagues the dangers of following Russian imperial narratives about Ukraine. I don't know how successful I was in conveying that this propaganda is not only threatening the freedom and very existence of Ukraine, but also the freedom and the very existence of the Free World. Here, I will make these arguments once more, supported and/or illustrated by references to publications, lectures, and media presentations.

The overlooked historic contributions of Ukraine to world culture and science

How many of you know that numerous Nobel Prize winners were born in present-day Ukraine? The author of the Jablonsky Diagram was born and educated near Kharkiv. The "father" of the Soviet Space Program, [Sergei Korolev](#), was Ukrainian. The Periodic Table was developed at the Odesa University. The spirit of [Igor Sikorsky](#) and the long tradition of aviation in Ukraine is manifest in the world's largest aircraft, "Mria" ("Dream" in Ukrainian). The only specimen of this marvel of science and engineering was destroyed in February of 2022 by Russian-designed, Russian-built, and Russian-fired missiles.

Dissolution of the Soviet Union and the political invisibility of Ukraine

After the proclamation of Ukrainian independence in 1991, there were numerous signals that Western interests were not focused on Ukraine. For example, President [Bill Clinton](#)

stated that while he was not advocating for new West-East borderlines in Europe, he didn't want the new developments in "Poland, Czechia and Slovakia" to antagonize the interests of "Russia and Ukraine." Here we go, I said to myself upon hearing this. The new border in Europe is set, and Ukraine is given to Russia! This attitude was sealed with the ill-fated Budapest Memorandum of 1993, under which Ukraine surrendered its nuclear arsenal for guarantees of sovereignty and territorial integrity by the United States, the United Kingdom, France, and the Russian Federation. The interpretation by Russia of Ukrainian "territorial integrity" was, apparently, the violent assimilation of Ukraine, piece by piece, into Russia. Since the United States, the United Kingdom, and France failed to produce any meaningful action following the annexation of Crimea, Russia had no reason to doubt its grotesque interpretation of "territorial integrity" was correct.

The invasion of eastern Ukraine, annexation of Crimea, and the indifferent reaction by the Western press and politicians

This ongoing "special operation" by the Russian Federation begun in 2014 resulted in over ten thousand dead and nearly two million displaced Ukrainian citizens by the end of 2021. The bite of the sanctions imposed by Western powers at the time was miniscule. Sadly, many journalists and editors either willingly or unwittingly participated in Vladimir Putin's propaganda, illustrated by the news feature entitled "Out in the cold," in the journal *Science* (*Science* 352:140–141, DOI:10.1126/science.352.6282.140). The editors bewilderingly placed this article under their "Science in Russia" collection. We offered an incisive response in a Letter to the Editor, signed by nearly 150 scientists worldwide, "Crimea report leaves readers in the cold" (*Science* 352:780–781, DOI:10.1126/science.aaf9663), as well as in an eLetter titled "'Out in the cold' and Kremlin's weaponization of culture" published with the original article cited above. We describe there how the piece essentially previewed the main points of Putin's propaganda we now hear, six years later, in "justifying" his invasion of Ukraine.

The role of the scientific community

It is clear that the heroic resistance of the Ukrainian Armed Forces and the unification of the multi-ethnic society of Ukraine has galvanized the civilized world. The scientific community worldwide has answered the call for preserving and rebuilding Ukrainian science. However, it is only after the existential threat to Ukraine is completely eliminated that the implementation of a plan for restoring Ukraine's economy and scientific infrastructure can be successful. Achieving this goal would require first winning the war on the battlefields of Ukraine, the economic destruction of the aggressor's economy, followed by holding war criminals and their enablers accountable in International Criminal Courts. Ukraine's success will be a success of the entire Free World.

Слава Україні!

—[Alexey Ladokhin](#)