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for Inquisitive People

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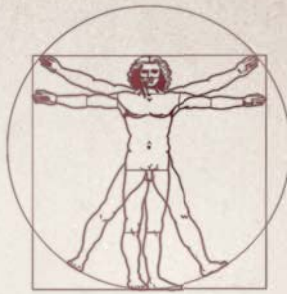
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*“The natural desire
of good men is knowledge”*

Leonardo da Vinci

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Dear Readers,

In this issue, we talk about research findings obtained largely through the application of modern molecular genetic methods.

First, we present an overview of today's technology for creating new varieties of cultivated plants. Most of these approaches are associated with introducing changes directly into the DNA structure, i.e., with the creation of GMOs, or genetically modified organisms. Many people tend to be scared of this acronym. However, the pervasive GMO fears are largely due to the overall genetic illiteracy. Few people know that the arsenal of classical plant breeding contains approaches that are no less risky.

The rapid development of molecular biology and genome editing techniques has spawned many other phobias and conspiracy theories. The current COVID-19 pandemic has become another proof of that. In this context, it would be really interesting to explore the conspiracies around the outbreaks of so-called tick-borne infections that have been observed since the 1930s. Journalist investigations focused on the “epidemic” of Lyme disease (tick-borne borreliosis) during the Cold War, deriving evidence from real programs of development of biological warfare.

One of the most dangerous infections transmitted by ixodid ticks is tick-borne viral encephalitis. Its causative agent was discovered in 1937 in the Soviet Far East. The most severe, even lethal, forms of this disease are recorded in Russia, especially in the Asian part of this country. Scientists have discovered a high genetic diversity in this virus; in recent years, they have revealed new highly pathogenic genetic variants, which may escape the detection by modern diagnostic test systems.

Paleogenetic methods allowed Siberian researchers to reconstruct the racial composition of the ancient society of the Pazyryk culture, which became widely known after the finds of mummies in the famous frozen tombs of the Altai Mountains. In a harsh highland environment, this ancient culture created a surprisingly modern-like multinational society, where the position of a person was determined but their personal qualities rather than race. Today, modern methods of physical anthropology and anthropological reconstruction allow us to actually see how they looked like, the Pazyryk people of the past, who lived on the Ukok Plateau in the Altai Mountains more than two millennia ago.

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