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## Looking into the future: shared values, shared dreams

Name and Surname of Author: Liliia Semyvolos E-mail: semivolilia@gmail.com Mob.tel: +38 066 0404772

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One log doesn't burn in the oven, while two logs catch fire even in the field Ukrainian proverb

Integration is becoming crucial at the current stage of human development, although the entire history of civilization is the path towards global merger for the sake of the world's integrity. Countries, nations and religions were uniting in pursuit of the common goal of development and progress. Being a process of cross-penetration, complementation and mutual development, integration makes each individual country stronger. The European Union was established with this aim, and Ukraine has chosen values of the European Community as the vector for its political, economic, cultural and educational growth.

Traditionally, the third Saturday of May marks Europe Day, when Ukraine celebrates common democratic values and history. The official celebration that takes place in Kyiv's European Town gets together embassy staff of the EU member states, representatives of international organizations, and Ukrainians from all over my motherland. Inside pavilions, each EU member state presents its unique features ranging from its geography and natural resources to its authentic and modern culture; the program also includes "national cuisine corners" and European theme guizzes. This spectacular show is projected onto large LED screens installed in the streets of all Ukrainian cities and towns, so everyone can feel a sense of belonging to a large democratic community. This might be one of those celebrations where the feeling of unity is embraced, and people – speaking different yet so wonderful languages, being proud of their differing but so inherent and diverse cultural and social identity, and separated by mountains, seas and miles - in their very hearts understand and feel each other's aspiration to live happily: without wars and terrorism, economic and environmental crises, or pandemics like COVID-19 that has caused recession and, just like Andersen's Snow Queen, has frozen the global progress for an indefinite period of time. These challenges, however, call states to immediate action and unity to address the crucial issues they are facing. Norwegian adventurer Thor Heyerdahl said, "Borders? I have never seen one. But I have heard they exist in the minds of some people." He was right – as so was Dr Brodsky, a character in Anthony Burgess's novel A Clockwork Orange, who said that delimitation is always difficult, because "the world is one, life is one". Wasn't it the Ukrainian genius Taras Shevchenko who believe that the achievements of every national culture belong to the humankind, opposing the borders and praising the freedom and fraternity of nations?! Remember the prophetic words of his Testament that were translated into over one hundred fifty languages: "... in the mighty family, of all men that are free..."?!

There are multiple examples of everlasting aspiration for a better livelihood through shaping and protecting solid humanitarian values, since every generation is looking at their own pros and cons of global unification, getting closer to or further away from the goal, through ups and downs, and paying tribute to contributions of nations and individuals – or throwing them into oblivion. I know that my land has gone through so much suffering, but is rich in talented and hardworking people, and has contributed to the development of the European civilization.

I am aware of this and I am proud of it.

I remember Yaroslav the Wise whose reforms made Kyiv Rus the most developed state in Europe, because Prince's policy was centered around education, science and solid legislation (*Rus Justice*). "Law first, grace of God after" is a statement attributed to this ruler. Isn't this the foundation of the EU's stability?! This is what Ukraine is striving for.

I remember Pylyp Orlyk, who authored the world's first Constitution in the early 18<sup>th</sup> century that was written in both Latin (as a generally accepted language in Europe of that time) and ancient Ukrainian. The original is now kept in Sweden –the EU member state that has long been among top 10 countries with the best quality of life.

I am proud that my land has given life to so many pioneers, inventors and scientists. The first flat-bottomed boat that was capable of staying under water was invented by Cossacks in the 16<sup>th</sup> - 17<sup>th</sup> century. Oleksandr Zasyadko, a Poltavan of Cossack ancestry, in the time of Moscow's rule, when all displays of Ukrainian identity were denied and prohibited, constructed "wonder pipes" in his own smithy – the first gunpowder rockets that were later supplied to the army and significantly contributed to defeating the Turks during the siege of Varna. At the end of the 19<sup>th</sup> century, Ivan Puliui discovered X-rays and made the first photograph of human skeleton. The use of X-rays in radiology is now common, however, few people know that this is the invention of the Ukrainian scientist and not of the German physicist after whom it is named *Röntgen radiation*. Yosyp Tymchenko, an inventor in mechanical engineering, created a motion picture camera two years before a similar device was presented by the Lumière brothers. Due to Fedir Pirotskyi's technology for transmitting electricity through iron wire, the first tram line was opened in Berlin in the 1890s. From my school history course, I remember that Yurii Drohobych from Lviv Region was a rector at the Bologna University of Medicine and Liberal Arts back in the Renaissance period.

I am talking proudly, yet feel worried that I might miss someone's name, and this is probably where chronology does not matter, but the achievements and names do: Igor Sikorsky, cargo aircraft designer and inventor of the first aircraft; Sergiy Kovalyov from Zhytomyr, space rockets designer and the father of aeronautics; Oleg Antonov, cargo aircraft designer whose An-124 became the predecessor of An-225 Mriya, the world's record holder in super heavy transportation; the Patons from Kyiv: the father, Yevgen, who invented a quick and super-reliable method of metal joining, now called automatic welding; and the son, Borys, who developed the method of live tissue welding that became invaluable in surgery.

For five years, I have been heavily into horse riding and hippotherapy – a treatment that boosts post-injury recovery – this is why inventions of the Ukrainian doctors that are saving lives across the globe are of particular interest to me. These include production of the first cholera and plague vaccines by Volodymyr Khavkin; first kidney transplantation by Yurii Voronyi in 1930s that gave rise to transplantology. Inventions of Mykola Pyrogov, father of field surgery and topographical anatomy, a Russian who fell in love with Ukraine and settled down in Vinnytsya, where he established a free clinic, performing surgery on everyone who needed it. He was in a very high demandas his fame as a doctor, professor and inventor of anesthesia and plaster casts was spreading very quickly. Everyone knows about Louis Pasteur, Emil von Behring, Robert Koch. But it was Ilya Mechnykov from Kharkiv who developed the Nobel Prize-awarded theory of immunity. Without a mitral valve prosthesis invented by heart surgeon and cybernetics researcher Mykola Amosov, the number of successfully treated patients with cardiological problems would be a lot smaller. Ukrainian medics and engineers continued their research and inventions in the 21<sup>st</sup> century, the era of nanotechnologies. We are now seeing inventions that sound absolutely fantastic: non-invasive blood test using the "Malykhin-Pulavskyi analyzer" that keeps capillaries and vessels intact (incredible, especially for kids!), invented in 2003 and still unmatched; or hydroscalpel that is of particular value for performing surgeries on patients with cancer because it is capable of removing the tumor with a water jet flow without damaging the vessels. This wonder device based on space technology was designed by Ukrainian researchers from the Aerospace Institute and the National Aviation University. Petro Bobonych from Uzhgorod had nothing to do with medicine, but invented a wrist-strap glucose meter that provides ongoing blood sugar level monitoring because his wife had diabetes.

The know-hows that I have been witnessing since my childhood include CDs invented by our computer scientist Vyacheslav Petrov; the Internet, which is vital for my generation and the invention of which was to a significant extent made possible due to the input of Leonard Kleinrock, at that time a student of the Massachusetts Institute of Technology.

I can continue my story about contributions of famous and not so famous Ukrainians by mentioning the names of artists who lived in different times: Ivan Franko and Lesya Ukrayinka, who enriched the European modernism with national theme; Mykola Lysenko, who authored multiple musical miniatures and operas; Solomyia Krushelnytska, "Wagner's primadonna" of the 20<sup>th</sup> century, an opera singer who was extremely successful in Europe and South America; Dzyga Vertov, who was the first to produce a movie without a script, actors and decorations, and was a pioneer of

surrealistic film-making; Sonia Delaunay, who, together with her husband, also an artist, created a new art movement, Orphism, that is based on the unique technique of color combination. When you see ads on moving billboards in the streets, I am certain that you do not even know that the "moving painting" method was invented by Oleksandr Arkhypenko, a Ukrainian-born sculptor who lived in the 20<sup>th</sup> century.

This story-telling might be a bit long, right? A bit too presumptuous, you say? Apologies! Talking about my land, I was very far from understating the achievements of any outstanding figures who come from other countries. This might be coming from our multiple underlying doubts and neglect that produced a complex of excessive humility which restricts my parents in what they do. But not me, not my generation! I was born free, and I have my own opinion, and I openly speak up about both positive and shameful things. Isn't the right to a voice, opinion and arguments, the right to be heard, the right to struggle for positive changes, one of the European Union's values?! There is no autarchy of the Tsars or totalitarian Communist rule anymore, we are free to solve our problems and strive for a better future. And still, common Ukrainian people, trembling from fear and pain, are spending so much time in queues in clinics to get a blood test, get a diagnosis and start treatment, whilst the invention of Ukrainians is already being actively used in Poland, Germany, China and Saudi Arabia... When you were getting a blood test, you certainly saw moms trying to reassure their kids that it would not hurt at all. Probably, just like me until recently, you have not even heard of a Ukrainian device for blood-free diagnosing. I got to know about it – completely by chance – from a doctor I was sharing a train journey with.

Who knows that my compatriot, Ivan Seleznyov from Luhansk, with whom I might have been travelling in the same tram many times, invented an ultrasonic glove for spatial orientation of people with poor eyesight? Is it now available to people with this kind of special needs? Who would now dare to call them inferior?! As far as I am aware, Europe is doing a lot for social integration of people with special needs.

I am sure that I do not know about and did not mention everyone. But I think these arguments are enough to understand that the floor is now given to my generation. The new reality is already here. We, the young people of the 21<sup>st</sup> century, are ready for global integration, and see it as a real opportunity for progress. Yes, we are Europeans! And we need to unite. The global community is facing a lot of challenges that we can solve together by listening to each other, because one log doesn't burn in the oven, while two logs catch fire even in the field, as the popular saying goes. The overarching challenges we have to overcome jointly include economic and environmental issues, national security, and development of nanotechnologies that would significantly improve the standard of life.

How is the European integration currently going in Ukraine? What are Ukrainian young people expecting it to bring? What are they ready to contribute to the European space? These questions might look complicated at first. But not for my generation. I know that a lot of my peers share this opinion. War and Russian aggression brought drastic changes in my life as I had to move out from my home city of Luhansk. Has anything ever cut the ground from under your feet? God forbid! But the absurdity of all those events opened up new opportunities for me in a different city, and made me rethink a lot of things. Too early, you might say? Perhaps. But my great-grandparents went through quite a lot, too. Back in June 1941, did those young people think that the war would completely change their lives? Every generation has to face its own challenge. I am sure we will stay strong. We can strengthen the European community with the country's natural, human, athletic and scientific resources, and add value to its cultural diversity.

The European integration is ongoing. Ukrainians started to actively identify themselves as Europeans in late 1990s, after the country's independence was proclaimed. This process is now occurring in politics, economy, defense, culture and education. All of these areas are equally important. The European impact has caused some major positive changes in the society: the Free Trade Agreement opened access to the global services and employment market; visa-free regime encouraged us to travel and see how the democratic principles work in other countries, and this motivated us to build the grassroots democracy; joining the Energy Community Treaty enhanced our energy security; joining the Bologna Process expanded our opportunities in education and science; following the EU environmental policy brought up better environmental protection.

Being a student of Luhansk Taras Shevchenko National University, I welcome the integration shifts in education, as it is becoming more open and is not limited by borders of a specific country. This also gives an opportunity to get education according to the European standards and get involved in joint cultural, scientific and educational incentives. It's thrilling! I know it for a fact, because I have participated in several international projects, such as *Intellectual economics, management and education* (Lithuania), *Actual aspects of development in the context of globalization* (Italy), and *Modern system of education and upbringing: experience of the past and looking into the future* (Ukraine). Such events contribute to a better quality of education and to integration into the Europewide intellectual and educational space. If Volodymyr Vernadskyi did not make a deep dive into publications of German geographer Humboldt and did not share his knowledge in his Sorbonne lectures, the world might not have the founder of biosphere concept, geochemistry and biogeochemistry, whose research heavily contributed to the discovery of nuclear power. Dmytro Chyzhevskyi from Kirovograd (now Kropyvnytskyi) Region, a scholar of Slavic literature and culture, linguist and philosopher, went outside the country's scientific borders to study in Europe; he studied philosophy in Germany's prestigious Heidelberg University and Freiberg University, then taught in Prague, and spent the rest of his life in Heidelberg as a professor of Slavic studies.

This is how my vision of Ukraine's prospect to join the European Union looks like. I am certain that Ukraine's European choice will make my country an integral part of the European culture. For us, young people, this is a responsible and confident choice! This is a prominent desire to "remove the walls", "build bridges", and send Christmas greetings to the whole world with Mykola Leontovych's *Schedryk*, wishing everyone happiness, peace and joy.