THE GRAY AREA

Edited by WILLIAM TAYLOR

East-West Trade – in Both Directions

William C. Norris, founder and chairman emeritus of Control Data Corporation, is a veteran advocate of economic cooperation with the Soviet Union. His company sold the Russians their first U.S. mainframe in 1968. Since 1974, Control Data has manufactured disc drives and other computer peripherals in Romania – the first joint venture in the computer field between a U.S. corporation and a Soviet bloc government.

Norris's interest in East-West trade goes beyond selling products. He has concluded that the Soviets' vast scientific establishment holds a rich store of research ripe for commercialization.

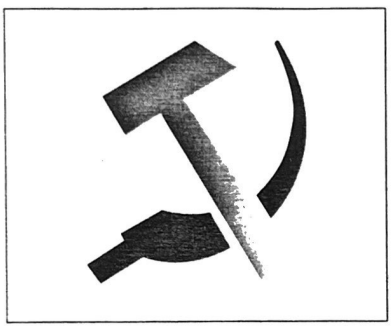
So Norris is setting up a program to link small companies in the United States with scientific cooperatives in the Soviet Union. American executives would visit Soviet laboratories, identify promising research results, work with the scientists until these technologies reach the commercialization stage, and then set up joint ventures in the United States and the Soviet Union to build new products. Norris visited Moscow twice last year to enlist support for his proposal, and he plans to return this summer.

HBR spoke with the Control Data founder, who now heads the Minneapolis-based William C. Norris Institute, to probe his views on U.S.-Soviet trade and technology transfer.

Soviet science

I think we have more common interests with the Soviet Union than we do with Japan. The United States is not self-sufficient in technology. Other countries are ahead of us in a number of areas. I believe that over the long term we can fill our technology gap better by working with the Russians than with the Japanese. The Soviets *need* us. All Japan really wants is continued access to our markets. You may find that a startling point of view, but I believe it.

There are more than 5,000 research institutes in the Soviet Union. It is in the forefront, or among the world leaders, in a number of important science and technology areas. Space technology is a good example; I don't think anyone would argue with that. They have done excellent work in metallurgy and medical instrumentation. Also, cold climate research. They've developed rugged pavement and crops that can survive extreme weather conditions.



The biggest problem with science in the Soviet Union is that it is not market oriented. They don't know how to apply their research results – how to develop and commercialize new products. So important research languishes in the laboratory. That's the great opportunity for partnerships with the United States. The last time I was in Moscow, I met with the director of a major Soviet research institute. He was worried that our small business guys would go over there and steal his technology. Once I assured him that our program would guard against that, he showed serious interest. The Soviets know they have a very real problem. They just don't get much benefit from their research.

Soviet technology in America – the past

There are plenty of American products and industrial processes that already incorporate Soviet research. 3M has licensed Soviet technology for use in medical instruments. Just about every steel plant in America is operating under some sort of Soviet license. The Soviets pioneered continuous casting of steel and welding methods to build pipelines. One of their processes for electromagnetic casting has been licensed to just about every aluminum company.

During the 1970s, we worked with the Soviets on a technology to harden drill bits and industrial tools and increase their performance. One of their laboratories had developed a coating process that used titanium nitrite – a process that was far superior to anything here. But it needed further development before it could be marketed. So we bought the license for $400,000 and set up a company in Minnesota, Multi-Arc Vacuum Systems, to exploit the technology. It was a very, very successful venture. A couple of years ago, when Control Data was having cash problems, we sold our interest for a profit of $8 million. Today Multi-Arc is a worldwide company.

Soviet technology in America – the future

The Soviets are damn good at computer programming. They're not ahead of us, but because they're so good in mathematics, they have excellent programmers. And they approach programming differently from us. They don't have that many high-powered computers, so they have to be very creative and efficient when they write code. They also teach programming differently. Since they don't have a lot of small computers around, they have developed ways to teach the basics of programming without using computers. Now

that takes some creativity. Their core textbook on programming and computer science, which they call "informatics," is truly unique.

We recently signed a three-way agreement between the Norris Institute, the Educational Testing Service (ETS), and a Russian cooperative to develop a programming and computer science course based on this informatics text. The cooperative, called Zodiac, is a spin-off from the USSR Academy of Science. We'll work with Zodiac and ETS to translate the textbook and deliver it in the form of computer-based education. We think the course will be so comprehensive that high school students will receive college credits for it.

We're also very interested in lupin, which is a nitrogen-fixing plant like the soybean and alfalfa. It's been in cultivation for 2,000 years or more, but it's always been regarded as something of a curiosity here. Lupin develops a grain, and through the years the Soviets have bred the plant to the point where you can feed it directly, without processing, to livestock or even human beings. They have made a very large investment in this. It is resistant to disease and it requires a lot less processing than many crops. Another big advantage is that you can plant it in wild forests or on mountain slopes and it will grow. And because it is nitrogen-fixing, it enriches the soil, accelerates the growth of trees, and cuts down on erosion.

The Soviets are in the process of setting up a special institute devoted to lupin research. My institute, along with the University of Minnesota and the University of South Dakota, is hoping to work with the Soviets. This is a big priority because lupin fits the needs of the upper Midwest. Some varieties are very resistant to drought and cold, to the point where they will grow at 32° Fahrenheit. In fact, a Minneapolis company is already selling pasta made from lupin.

DRAWING BY GARISON WEILAND