

Commentary

An Important Science Base at Risk.... An Opportunity for International Goodwill

A Visit to the Former Soviet Union Countries

In October I concluded a 12-day trip to (1) Minsk, Belarus, (2) Moscow, Russia, and (3) Kiev, Ukraine. On my trip I was able to visit researchers in many important former Soviet institutions, including:

- The P/M Association of Belarus, Minsk
- The Academy of Sciences of Belarus, Minsk
- Moscow Institute of Aviation Technology (MIAT), Moscow
- Russian Ministry of Education, Moscow
- The E.O. Paton Welding Institute, Kiev

The technical and social situations I observed left a strong impression of the problems and the promise facing the new C.I.S. republics. Beyond the superficial appearance of a set of countries striving to enter the "market" economies of the West, I saw an urgent humanitarian need. This need, however, brings with it a rare opportunity for us to show leadership by organizing professional-to-professional or business-to-business efforts to assist the scientific institutions and the people in these and other former Soviet Union countries. I am seeking *JTST* readers to join with me for what I see as an important opportunity to contribute to the peaceful transition of the republics of the former Soviet Union. The people I met were very interested in making contact with people from the West, and eager to exchange technical experiences, and to offer the benefits of their experiences. The former Soviet Union has a strong tradition in thermal spray and plasma processing technologies and has been employing those technologies in innovative ways to solve both military and industrial surface protection problems. Their scientific and technical accomplishments have long led the field and, together with several Eastern European countries, have long been the originators of many Western innovations. Much of the plasma spray technologies science base originated in several organizations throughout the former Soviet Union states (Russia, Belarus, and Ukraine). The E.O. Paton Electric Welding Institute, with its tradition in welding, has developed high expertise in thermal spray technologies and in many cases led much of the technical development across the former Soviet Union. With the break-up of the Soviet Union and the major shift in military funding, the thermal spray researchers of the E.O. Paton Electric Welding Institute, the P/M Association, Minsk, and the Baikov Institute of the Russian Academy of Sciences are looking to commercialize research results and to work jointly in R&D projects with researchers in the West.

The institutions I visited have a strong tradition in thermal spray along with a very strong science base. They have published, internally but extensively, on many thermal spray technologies. Due to their particular systems problems, i.e., the limited availability of gases such as argon, helium, and even oxygen, they have developed some very unique approaches to thermal spray processing. There is, obviously, a strong desire to sell their ideas and technology in the hope of establishing continuing technical ties to the West, but more importantly there is a stronger desire for finding technical colleagues and friends. My hosts were very friendly and gracious, providing even in their difficult times, the best that they could offer, sacrificing many of their own comforts.

During this trip and my visits with the various people and institutions I observed that the scientific, technical, and social infrastructure of the former Soviet Union is crumbling and a tremendous human loss is evidenced. If the West doesn't lend assistance it will be impossible to predict the outcome of the devastating on-going crisis. I encourage *JTST* readers to commit to assist by initiating scholarship programs and facilitating people-to-people contact. I feel such assistance is necessary to enable the former Soviet countries and their scientific communities to survive their crisis. During my visit I found there is no reliable supply of electricity, heat, food, gasoline, and many other basic human needs. The ex-Soviet people are extremely friendly and resilient, but an undercurrent of pessimism and frustration that no near-term solution is in sight is pervasive. I personally believe the scientific community, individually or through organizations such as ASM International®, can offer at least some islands of hope. Young scientists and students need opportunities to study abroad while the situations in their various countries stabilize. If not, they recognize that there will likely be no future generation of scientists and/or teachers. Many scientists and academicians admitted that their students, and even some of their junior staff,—now without hope—were turning to the streets where fast money and hard currency can

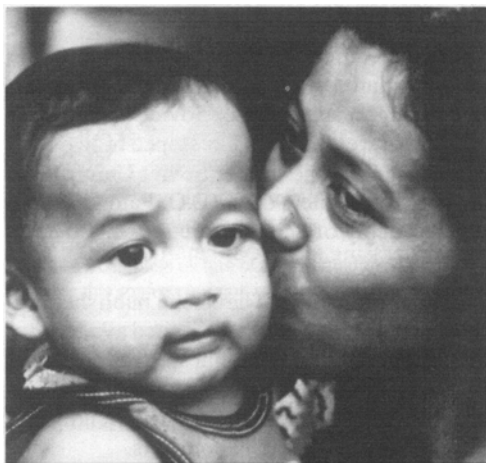
be earned. The average salary of a graduate student is less than \$20/month and the best academicians earn only \$50-60/month. By comparison, a postcard vendor on the streets of Moscow can make that much in a day.

I would like to propose a scholarship program by which universities would sponsor students and visiting researchers to attend those institutions and to exchange experiences. Bringing C.I.S. scientists and students West will ameliorate some of their immediate problems and offer them hope and an opportunity to continue their studies of work. The humanitarian aspects aside, the exchange of scientists and students fulfills the need of creating a C.I.S./US scientists shared vision which will grow future business opportunities. Exchange programs will also enable ongoing dialogue and communication on a personal basis which is the best form of diplomacy. Active and ongoing exchange programs need to be encouraged and, more importantly, funded. I noticed that the students and scientists I met also need recent technical books, technical information access, computer connections to the West, and even computers to aid in these links. Materials and instrumentation to support basic research are also needed.

A proactive approach to this problem is needed. I am personally committed to helping in this process since I have been so impressed by the gravity of the situation. Please join me in organizing aide efforts to start the drive for the personal, professional, and industrial funding from which scholarships, contributions of material, equipment, or technical information can be made. Government support programs will be forthcoming, but the situation cannot wait and our chances for obtaining Federal funds will be enhanced by demonstrating our personal and institutional commitments. Time is short and the situation in the FSU will only get worse. By helping our professional colleagues in their time of need, we'll *all* reap benefits. If you are interested in helping these institutions or others in the C.I.S. republics, contact me. I am accumulating a list of researchers and students with whom exchanges could be made. I am also now compiling a list of "aide" organizations. Anyone with further information on such organizations can help by providing me with names and addresses. I am sure we can make a difference.

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