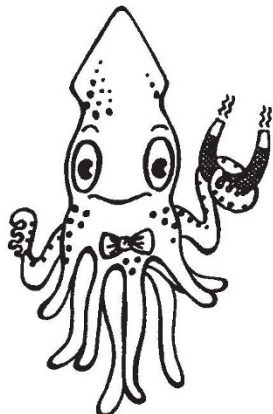


SUPERCONDUCTIVITY

Growing up in public

WHILE the big corporate world seems to be losing interest in superconductivity (see adjacent story), Wall Street is just discovering it. Investors are jumping at their first opportunity to buy a share of some of the small companies that were created in the wake of the discovery of high-temperature superconductors in 1987.

Last December the first of those startup



Mr. SQUID

companies to go public — the Boston-based American Superconductor Corp. — saw its stock price double virtually overnight, from an initial offering price of \$11-\$13 to well over \$20, where it has held since. The sale brought in \$24 million, something that did not go unnoticed in the nascent industry. Later this month Conductus Inc., a five-year-old company based in Sunnyvale, California, will also go public, with an offering of 1.8 million shares at about \$12 each. Later this year, Superconductor Technologies Inc., based in Santa Barbara, California, also intends to start selling stock in itself.

Credit the mini-boom to pent-up investor interest, says Kevin Ott, executive director of the Washington-based Council on Superconductivity for American Competitiveness. "For five years you had investors hearing about superconductivity with nothing to buy," he says.

Even so, it may not be a stock for everyone: none of the young companies is close to going into the black. Most of the superconductor products the startup companies now sell are relatively modest, from sensors and wires to an educational package called "Mr SQUID" on which Conductus is pinning its hopes. "Investors are looking down the road here," believes Gregory Yurek, president of American Superconductor.

Nevertheless, Wall Street's response has been a pleasant surprise to the industry. "Everyone owes American Superconductor a debt of gratitude," says John LaVille, the chief financial officer for Superconductor Technologies.

Christopher Anderson

INDIA/RUSSIA COOPERATION

Joint projects lack money

New Delhi

A 1987 AGREEMENT for wide-ranging cooperation between India and the Soviet Union, predicted to last for 20 years, is on the brink of collapse as a result of the economic and political changes that have dismembered the former Soviet empire.

Next month, a delegation of Indian scientists will travel to Moscow to learn whether their Russian counterparts can afford to maintain a quarter-century of cooperation between the two countries. India has long depended on Soviet scientists for progress in many fields of science and engineering.

In 1987 the then leaders of the two countries, Mikhail Gorbachev and Rajiv Gandhi, agreed to some 85 joint projects in 14 areas, some new and others continuations. Today, not only have both men been removed from office — one by an assassin, the other by a revolution — but their successors have repudiated many of their policies.

The Russian Republic, which has taken on responsibility for roughly three-quarters of the projects covered by the agreement, is unlikely to support more than a small number of them, according to a spokesman for the republic. Anything not considered to be a "priority project", he says, could well be terminated after next month's meeting. "Other republics are free to participate if they also share the financial burden", he adds.

Indian officials say the future of the agreement "is difficult to predict". One-quarter of the institutions involved are located in the other independent republics, with financial difficulties equal to those facing the Russian Republic, and Indian scientists doubt that those governments will uphold the commitments made by their former rulers.

Their conclusions are based on the impact of political changes in the former

Soviet Union over the past few years. A powder metallurgy centre in Hyderabad has been delayed indefinitely as workers wait for the shipment of critical equipment. The Indian government is seeking a new source of the raw material for a facility in Uttar Pradesh that will produce a polio vaccine, having all but given up on its Russian suppliers. The Department of Atomic Energy has decided to complete a synchrotron radiation facility on its own after Soviet scientists failed to provide designs and some components that had been promised.

Other projects have been affected by an end to the movement of scientists between the two countries. What was once an annual flow of 1,000 scientists from Moscow has all but dried up. One culprit is the air fare — a one-way ticket from Moscow to Delhi costs 80,000 rubles and is unaffordable for the average Russian scientist. Especially affected are projects involving special lasers, high-temperature superconductors and engineering materials.

The 1987 agreement is not the only casualty of the current shift in the political landscape. Atomic energy officials have been waiting for months to learn whether the new rulers in Moscow will uphold a promise in 1989 to build two 1,000 MW nuclear reactors. The same is also true for five thermal and hydroelectric power projects. Gorbachev put his personal stamp on a joint project to build a hypersonic airplane, but work on the project has slowed to a crawl.

Russian officials say that the purpose of the meeting next month is to decide which projects are the most important. Indian officials, who are keen to continue with as many projects as possible, hope that the breakdown in bilateral scientific cooperation is temporary.

K.S. Jayaraman

Russians look to India for jobs

At the same time the Russian government is pulling back from its scientific collaboration with India, individual scientists are eager to improve those ties.

Four scientists from the former Soviet Union have applied for jobs in Indian laboratories. Their applications were sent to the Council of Scientific and Industrial Research and forwarded to the Department of Science and Technology.

Rama Rao, secretary of the department, says that he welcomes the enquiries as an opportunity for his country to acquire knowledge that could readily translate into scientific progress. "I hope that they do not have to leave", says Rao, "because their country needs them. But if they want to come to India, we will surely welcome them."

The Indian government has not acted on the requests because it has no policy on hiring foreigners to work in Indian laboratories. But Rao says that India is a natural choice for such emigrants because of their long-standing ties to the Indian research community.

K.S.J.