

GENERAL SCIENCE

Good Research, Good Climate

Russia has both good research and good climate for scientific progress. This may be the most dangerous icicle in the Cold War.

By HOWARD SIMONS

➤ A VERY QUIET debate was being carried on between an American newspaper editor and the score of Western scientists who have visited the Soviet Union. The editor said that he was puzzled. Western scientists, he explained, were returning from Russia and warmly, if not wildly, applauding the scientific research being carried on behind the Iron Curtain.

He said that he had always understood that scientific research was dependent on a free climate, an environment in which the scientist was unrestricted in his research and way of life. If Russia was a police state, heavy with fetters and generating a poor climate, why was their research advancing along far enough to bring rave notices in the West?

I had the opportunity of putting this question to Dr. D. Yu Panov, director of the All-Union Institute of Scientific and Technological Information of the Soviet Academy of Science, when I was in Moscow. After my careful and somewhat lengthy explanation, Dr. Panov smiled knowingly, and said, "Wherever there is good research, there is good climate."

To be sure, where the scientist in Russia

is concerned today, there is both "good research" and "good climate."

Much has been written of Russian science and technology of late. For the most part it has been written by Western scientists who have visited the Soviet Union by invitation. But, some general summing up is needed.

There are some vital questions that both Western scientists and Western governments have to face. Perhaps the most crucial of these is the fact that the rapid progress of Red science, both in basic and applied research, presents the West with a spine-chilling Cold War icicle whose drip could be deadly.

Science, the Trump Card

What is so frightening about Russian advances, and an aspect that has received little vocal attention, is that the West has no means for effectively "containing" Russia's scientific progress.

The West cannot threaten Soviet science with policies of "massive retaliation." What can the West do?

Can the West embargo the Red educational program?

Can the West send geniuses circling the globe in a show of strength?

Can the West beam anti-science over the airwaves?

Can the West build bigger and better human minds any faster than the Russians?

Can the West pick a parallel in scientific progress and warn the Russians that by crossing it, we will act?

This, I think, is a problem that presents the West with a far greater potential danger than economic, political, military or philosophical warfare.

The present Russian political leadership has either been convinced (most probably by this country's excellent example) or has done the convincing that scientific and technological leadership is the trump card in the game of world domination. To insure this conviction, they have gone almost the limit permitted in a totalitarian state—they have created scientists in their own image. They have granted their scientists unbelievable rights and privileges. A new class has emerged, equal in social and economic riches to the once sacrosanct military and political classes. The president of the Soviet Academy of Science, for example, is the highest paid scientist in the world.

The relative avalanche of recent information on Russian science should not, however, be misinterpreted to mean that prior to a few years ago Russian scientific work was all but dormant.

What has happened is that the Russians themselves have made available more information about their own work since the death of Stalin than at any time since the 1930's. Russian science news hit the streets here only a few years ago. Western scientists were invited to Russia and then Russian scientists were invited to the West.

Alexander Topchiev, secretary of the Soviet Academy of Science, describes the "revival" of interchange in this way, "Unfortunately, during the period after the war, mutual prejudice and lack of confidence hampered traditional scientific contact. Even during this period we hoped that contact would be re-established and extended." Unfortunately, Academician Topchiev's pat explanation for the lack of communication between Russian and Western scientists slides too easily over thin ice.

He neglects, for example, to point out that under Stalin the Russian scientist was compelled to be a do-it-yourself researcher.

Need Scientific Interchange

There is strong evidence to indicate that Russia is now moving from this do-it-yourself direction to a learn-it-from-the-West attitude. I think it was best expressed by Prof. Olga Akhmanova of the University of Moscow, who was an exchange don at Oxford University.

She summed up her British experience with the new line, "I came to England 'to notice' the good things, to see how I can profit by what people there have achieved and what they may be proud of. The main



RED SCIENCE HEADQUARTERS—This is the headquarters for Russia's current mass attack on science all along the line from atomic bombs to zoology. It is the central building of the Soviet Academy of Science. From this drab structure come the plans and projects that may mean the balance of power in the world.

task at present is to find ways and means for personal peaceful collaboration and for this it is of paramount importance that people should not only be clever and enterprising, but also pleasant and easy to get along with."

Here I think Western scientists who have had contact with Russian scientists will agree that their Communist counterparts have been "clever and enterprising," as well as "pleasant and easy to get along with."

There is still another important factor in the warming up of relationships in the scientific fields. Russian science was hurting from a lack of direct contact with Western scientists. To be sure, the Russian scientists have been kept very well informed about Western scientific research all along.

One Way Communication

It is not surprising, for example, for a Russian researcher to know all the research work his Western counterpart has been doing, although the Russian has never met nor communicated with the Western scientist. This is easily accomplished in the Soviet Union today, where scientific information is centralized and where Dr. Panov is in charge of an army that literally translates all the world's scientific information for use by Russian scientists. But even for the Russians there is no substitute for personal contact between thinking men.

As pointed out earlier, there have been some glowing reports made by Western scientists on returning from Russia. Some have been over-enthusiastic and others mollifying, but there is a unanimity in the fact that Western observers have been impressed. Perhaps this is because Western scientists were kept in the dark too long by the Russians. Or perhaps, too, the Russians have only shown and reported those aspects of their research that would impress their Western colleagues.

Secrecy and Revelation

There are still many areas of Russian science under Red wraps.

The Russians are currently safeguarding information about their work on electronic computers with the vigilance of a Manhattan Project security chief. Why? Possibly, the Russians are farther along than we are, but more plausibly, they might be behind our efforts and will make their work known for the world to oh! and ah! over when it is on a par with our work or better. This has its distinct propaganda value. The more the Russians show off their best to the West and receive favorable comment in return, the more we can expect "fringe" nations, and especially the so-called underdeveloped countries, to be impressed.

What I have been saying is not intended to show the overwhelming brilliance of Russian scientists, or even to say that the Russians excel in all fields. They do not. It is generally agreed that where Soviet scientific research is good, it is very good. But there are areas where it can be graded as only passing or downright poor.

Either/or, this does not negate the nerv-

ous feeling on the part of some observers here that Russia is pushing and will continue to push its scientific research all across the scientific board.

To do so, the Russians employ a number of techniques that the West has employed only miserly. One technique is crash programming and another is the mass attack. Of course, it is much easier for a totalitarian state to employ these methods than a democracy where debate, hearings and interests all have their say.

The crash program in Russia today is by no means restricted to applied research. It has its field day in theoretical research as well, and has paid off handsomely. It has paid off in the launching of an earth satellite. It has paid off in the announcements about Red breakthroughs in thermonuclear research made by Dr. I. V. Kurchatov at Harwell, England. It has paid off, too, in applied research with the development of the world's best jet passenger plane currently flying a regular schedule, the TU-104, and in a revolutionary oil drill Western industrial men are bargaining for with the Russians.

One observer here has described these achievements as "anachronisms," and this might be true.

In aircraft, for example, one has a choice when flying from Prague to Moscow of taking the TU-104 jet or a two-engine

propeller-driven plane that looks and rides as if it is going to fall apart at any moment. The Reds had nothing in between, and this was uneconomical.

Hand in hand with crash programming is the technique of the mass attack. Surprisingly, the Russian scientist's use of mass attack on a problem is no different than that employed by the Red military in World War II or the Korean conflict.

All-out for Science

It seems to work this way. The Academicians convince the political leadership that the Russians need the world's largest synchrocyclotron—as they have done. The O.K., or "da," is given and a target date set. The buttons are pushed and all the men, material and money necessary to get the job finished on time is provided from a cup that seems always full, at least for the present. There is little haggling.

Where this scientific path will lead the Russians, the West or the world, I cannot say.

I think it is safe to predict that there will not be a slackening of the Russian scientific effort in the foreseeable future. Any change in this situation would have to come from within Russia itself and take the form of a general chaotic upheaval.

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