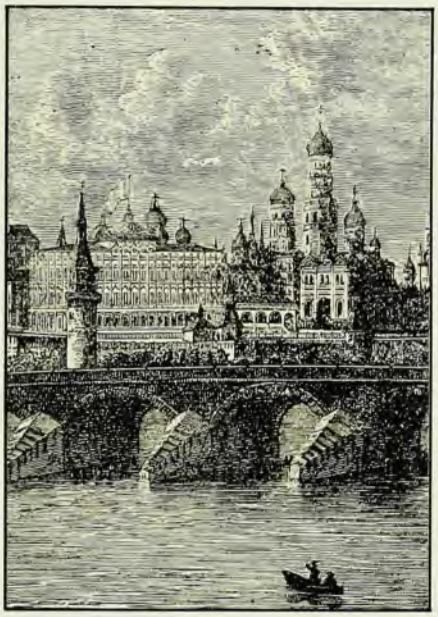
Scientific contact between the US and the USSR

The purpose of this letter is to argue the case for a more conscious approach to scientific relations between the US and the USSR. At the moment the mentality that governs this relationship is a holdover from the Cold War Era. With the revolution in world relationships in the move toward detente between the two superpowers it is incumbent upon the scientific community to review the basic assumptions behind its present policy, to modify it if necessary, but not to accept it simply through inertia.

At present the scientific relationships between the US and the USSR can be characterized by the cold-war mentality. During the cold-war era one of the few bonds linking East and West was scientific exchange, and it was important to world peace that the bond be strong. Thus, top priority was placed on maintaining as much contact as possible at essentially all cost. Rightfully so, such an approach had essentially the unanimous support of the scientific community at the time.

A measure of the changed conditions from the cold-war era is that now the Soviet Union is anxious to maintain and expand the scientific contacts between the US and the USSR, and the US scientific community is divided in its enthusiasm for the manner in which this expansion is proceeding. It should be made perfectly clear that the issue is not whether to expand and encourage scientific contact between the US and the USSR but how best to do so.

The Soviet Union is technologically far behind the US and, because of its overwhelming bureaucracy, its economy is about one half as efficient as that of the US and stagnating. As a result, the quality of Western goods, both consumer and military, is significantly superior to that of the Soviet Union, an intolerable situation for a country that aspires to be a superpower at least equal to the US. The Soviet Union is in dire need of Western technology, science, trade, investments and management skills, and it is this need that explains the Soviet interest in detente. This gives a leverage to the scientific community which is not being fully exploited. No longer is scientific exchange necessary to nurture contact between the US and the USSR, and now this exchange can be considered in light of the needs and



responsibilities of the scientific community to itself for the best fulfillment of its potential to help mankind.

The cold-war mentality argues that the most important issue is to increase the scientific bonds between the US and the USSR. This will automatically have beneficial ramifications within the Soviet Union improving the status of our Soviet colleagues, giving them more freedom to travel for scholarly purposes and to pursue their science without political interference.

The new approach argues that the need for US technology means that the Soviets are very desirous of increased scientific contacts with us, and this leverage should be used to condition scientific contact on the Soviets correcting their most obvious abuses against science. The abuses against Jewish scientists who wish to emigrate to Israel have received some exposure. We are also familiar with abuses perpetrated by Soviet authorities in regard to international scientific meetings that they host—harrassment and refusals to give visas to Israelis and nationals of other countries not in their favor. We are also aware that when Soviet scientists are invited to speak at conferences abroad, the Soviet Union frequently sends substitute speakers, often persons of lesser stature or unknown Communist Party functionaries. What may not be as well known is the political interference that intimidates our Soviet colleagues, both Jewish and non-Jewish.

To illustrate this I cite the case of Professor Yuri Orlov, a non-Jewish Soviet scientist and corresponding member of the Armenian Academy of Science. Orlov is presently deprived by the Soviet authorities of the opportunity to pursue his scientific career. He was forced out of his scientific position after courageously coming to the defense of Academician Andrei Sakharov at the time when Sakharov was under intense attack by the controlled Soviet press during September 1973. The message to our Soviet colleagues is quite clear. Many other more brutal persecutions can be cited such as the imprisonment of the Soviet psychiatrist Semyon Gluzman, whose professional integrity would not permit him to accept passively the perversion of psychiatry in incarcerating Soviet dissidents in mental institutions. He courageously documented the collusion of Soviet psychiatrists with the authorities to commit General Peter Grigorenko, unjustly, to an insane asylum, and is now serving a severe prison term.

Enough time has passed since the beginning of detente to observe whether there is evidence of a consequent improvement in the situation of our scientific colleagues. In spite of increased scientific contact between US and USSR scientists, the evidence, on balance, is an increase of the abuses of Soviet authorities against our Soviet colleagues. In instances where relief has been obtained for our Soviet colleagues (such as the emigration of scientists previously refused and the cessation of attacks against Sakharov), they can be directly attributed to the use of the leverage attendant with detente.

Perhaps even more disturbing is a side effect of the increased scientific contacts with the Soviets. Instead of this increased contact imbuing the Soviets with our ideas of scientific freedom by osmosis, the opposite is occurring. The hold that Soviet officials have over their society that permits them to intimidate their citizens becomes extended to the American scientists who become involved in scientific exchange programs with the USSR. Most of these scientists are now afraid to protest against clear-cut violations of

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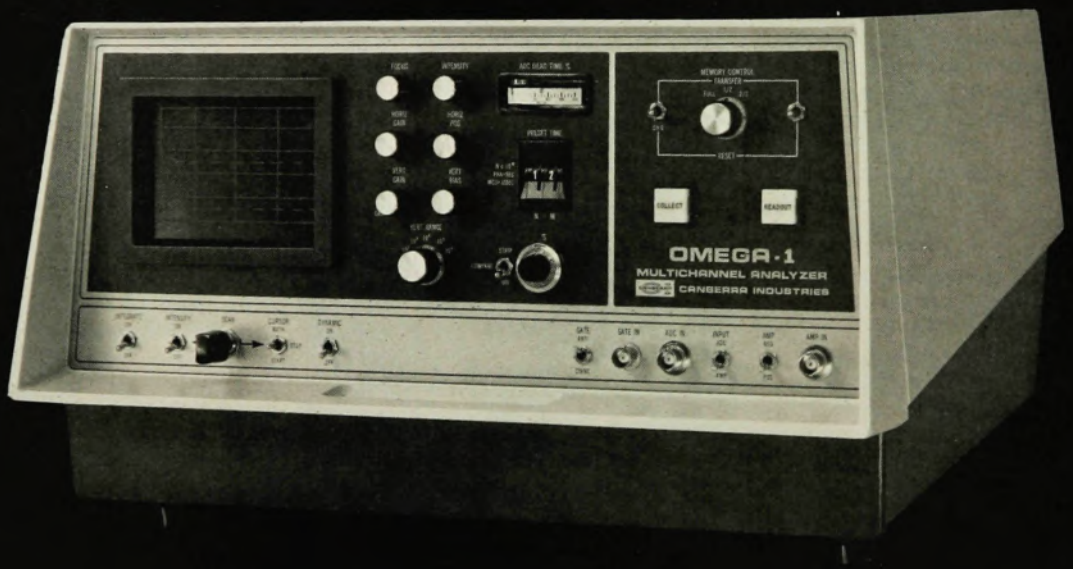

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scientific rights of our Soviet colleagues for fear of endangering their vested interests with the Soviet Union! They are now forced to compromise and subject their principles to the standards of the Soviet authorities.

The evidence is clear that increasing scientific contact unconditionally has not helped the plight of our Soviet colleagues. In fact the increased opportunities and expectations accompanying this increased scientific contact have caused the Soviet authorities to compensate with increased repressions to maintain as much as possible their absolute control over their society.

Any further scientific contact with the Soviet Union should be *conditioned* on their observance of scientific rights. If Soviet scientists are invited to scientific meetings but the Soviet Union sends others less qualified in their place, these substitutes should not be admitted if their scientific qualifications are not adequate, and, in all cases, they should not be financially supported. When scientific exchanges are agreed upon, explicit conditions should be included permitting free access to all unclassified sources of scientific information. This means free travel for scholarly purposes within and without the country, including eliminating both the US and the USSR restrictions against travel for foreign scientists within their respective countries; unhindered access to pertinent scientific institutes and scientists; and treatment of their scientists by the authorities in a manner consistent with the international cooperative nature of science implicity recognized by scientific exchange. The fruits of science should legitimately be used for the benefit of all mankind and not for the self-interest of one country at the expense of others. It follows from this that scientists should not be prevented from pursuing their scientific careers because of political reasons, and if they are not allowed to do so or if they desire to pursue their careers elsewhere they should be allowed to leave to function as scientists in another country.

It must be made quite clear that failure to observe the conditions of any exchange program would lead to suspension of that program. To take away the weapon of intimidation from the Soviet authorities, the making and enforcement of such conditions must be an official act of an institution representing the scientific community such as the National Academy of Sciences and not that of an individual who can be singled out for sanctions.

The US scientific community has an opportunity to further the cause of scientific freedom significantly. If it fails to take advantage of this opportunity, then it is as culpable for the repressions and violations that may be perpetrated as are the government authorities—if not more so.

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More papers on weapons

This is a response to G. C. Pomraning's letter (July, page 15).

The *American Journal of Physics* has published two of my papers (October 1973 and August 1974) that have contained calculations on such military related topics as: superhardening missile sites, MIRV, ABM, separation of isotopes with tunable dye lasers, Pu^{239} from the reactors of the world, the Pu^{239} "mine" at Hanford, Washington, the ECCS rise time of reactors, and so on. The editor published these "Science and Society, back-of-the-envelope" calculations without any complaint or revision. However, I would like to point out a couple of difficulties that one can encounter when trying to publish scientific calculations on these politically sensitive areas:

▸ The problem of governmental classification. The reviewer of the first paper had this to say:

> "Answer 9: The matter is really uncertain. Submarines launch from shorter range, which has the effect of decreasing CEP. How it balances out over all is both classified and unknown.
>
> Answer 5: The historical comments in this answer are misleading or wrong, or both, as is frequently the case when people who don't know about how H-Bombs are made comment on them. Further clarification by me is prohibited. The only correct and unclassified answer would be, 'LiD is important as a fuel for H-Bombs'."

What the reviewer appears to be saying is the following: "Since you do not have access to what I do at DOD or the Pentagon, your answers are not perfectly correct and you should refrain from trying to speculate at the truth." What am I to do? All I can say is that I did the best I could with the tools of our physics trade.

▸ Where to publish? It may be true that the article "Early Time Air Fireball Model for Near Surface Energy Release" was too specialized for the *Journal of Applied Physics*, but we in the physics profession may have paid a price for this specialization. Most physicists did rather poorly on "Science and Society, Test for Physicists: The Arms Race" (*Am. J. Phys.* **41**, 1191 1973). I believe the very capable physicists who took the test did poorly because they have never taken the time to think about such grubby applied prob-