learn promptly of work by others that bears closely upon his own problems is increasingly insistent. The IEG's have provided such a means of rapid exchange of information among certain groups of workers with closely related interests; they also provided a forum for controversy and discussion, without the inhibiting influences that would attend formal publication. Scientists moving into new fields of research could make their activities known to others at an early stage, long before publication. All these purposes, and others, can be served by the IEG's, and by similar groups that may arise in the future.

By well-established practice many scientists circulate advance copies of manuscripts that have been accepted for publication to a limited group of colleagues who share their interests. This practice obviously serves the advancement of science, and no journal regards it as a violation of copyright if the number of copies so circulated is fairly small. Such manuscript copies may fail to reach other workers whose research might profit greatly if copies were available to them. Circulation of very brief notices of current research among members of an IEG or some similar group might serve to establish communication in cases of this sort.

As editors we recognize the responsibilities of the scientific journals for speeding the process of publication and the distribution of journals after publication. We wish to maintain high standards of careful but prompt reviewing before a paper is accepted; but the interval from acceptance to publication should be as short as possible. Some journals have reduced this interval to 2 months, sometimes even less, while maintaining high standards of publication; this of course requires the cooperation of authors in careful preparation of manuscripts and prompt return of proofs. We recognize the responsibility of the journals to make every effort to shorten publication time.

Distribution of published journals by air can make scientific findings available all over the world within a few days of publication, whereas journals sent by surface mail may take 2 months or more to reach Asia or Australia from Europe or America. The obstacles to circulation of journals by air are not technical but financial. IEG memoranda, as a result of being sent by air mail, reached investigators throughout the world almost simultaneously; this was one of the great merits of the IEG experiment. The overseas copies of some journals are already distributed by air; the editors of others are eager to follow their example, if they can solve the financial problems involved. We believe that the rather moderate costs of such rapid distribution will be far more than repaid by the resulting stimulus to the progress of science, and the strengthening of communication among the members of the worldwide scientific community. We believe that the International Scientific Unions should play an active part in promoting such rapid communication.

In summary: (i) We recognize the value of the IEG's and of similar groups that may be expected to arise in future among scientists with related interests, in promoting rapid communication of material not intended for publication. If the scientists themselves wish to form more such experimental groups, and to find ways of meeting the costs of operating them, such groups may well become more numerous and more varied in the future. (ii) The journals listed below will not consider manuscripts for publication if preprints, of essentially identical content, are to be distributed, in substantial numbers, by an agency independent of the author or of the publisher of the journal. (iii) We recognize that editors and publishers of scientific journals must make every effort to accelerate publication and distribution of accepted papers.

The following journals have subscribed to this general statement of policy: *Archives of Biochemistry and Biophysics, Biochemistry, Biochemical Journal, Biochimica et Biophysica Acta, Carbohydrate Research, Clinica Chimica Acta, European Journal of Clinical Investigation, Journal of Lipid Research, Journal of Molecular Biology, Journal of Nutrition,* and *Molecular Pharmacology.*

The following members of the Commission were present at the meeting in Vienna and voted to approve these policies: J. T. Edsall (*J. Biol. Chem.*), J. C. Kendrew (*J. Mol. Biol.*), H. Neurath (*Biochem.*), E. C. Slater (*Biochim. Biophys. Acta*), W. V. Thorpe (*Biochem. J.*).

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Chemical and Biological Warfare: Is Propriety the Issue?

What is the issue concerning University of Pennsylvania research on Army and Air Force Chemical and Biological Warfare projects? (News and Comments, 13 Jan., p. 174). The issue is muddy in my mind. The more I ponder it, the muddier it becomes. Is the research illegal? Is it immoral? Is it unsportsmanlike? From time to time, the issue of the propriety of certain research at universities does arise, and although I find CBW and spy-related work personally distasteful, my personal tastes don't determine right or wrong. Other factors have to be considered.

In any country, the scholars and scientists (they may not be mutually exclusive) depend on the wealth of that country for support. Actually, the emergence of an urban population superstructure (innovators, scholars, scientists, military, merchants, financiers,

government) is related to the ability of the farmers and the production workers to provide a surplus and, conversely, the ability of the farmers and production workers to provide surpluses is related to the ability of the urban population superstructure to provide innovation, new developments, order, and protection.

At times, a country's military defends the country from aggression. Other times, it may aggress. But the action taken by the military may not reflect the actual intent. If we were a nation of pacifists, the entire issue would be quite clear. But then again, if we were pacifists, we very likely wouldn't be here now. Occam's razor doesn't seem to apply here. Why the protests? Do the protesters object to war; to the war in Vietnam; only to the University working on war-related projects; or to others receiving the research contracts? How do we rationalize the fact that comparable scientists were mobilized very effectively on equally repugnant projects, such as the atom bomb, during World War II? Even Archimedes consulted for the military.

Somewhere in the issue at Pennsylvania, and perhaps at Michigan State too, is a broader issue that could stand some airing. We are not pacifists. We need a military. But the introduction of weapons-related projects into the University seems to be distaseful. Why?

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As a practicing forester, I use herbicides routinely in my work. They are an excellent aid in the conversion of low-quality hardwood stands to higher valued and more productive pine stands. . . . I am still in the age group which could be recalled to active duty in case this limited war gets worse. With this in mind, I oppose the petition signed by some of our leading scientists whose motives were humanitarian. As an ex-troop commander, I would not want to be deprived of what I know to be an excellent weapon for reducing the dangers of ambush and guerrilla warfare. Perhaps, when I am older and cannot be sent to a battle area, I will have a different opinion concerning the use of herbicides in warfare. I have not yet reached that philosophical age. Therefore I urge the continued use of herbicides as defoliants or even against crops to reduce the food supply, as this will help to get our troops out of a

rather unfavorable situation in a difficult area of the world.

By using herbicides we ruin a very rich biological area and very definitely change the ecology. But isn't the sacrifice of this biological area preferable to the increased sacrifice of American lives, whose loss may be traced to the withholding of an effective weapon of war?

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Langer implied that scientists engaged in defense research have betrayed humanity and science. I feel that we who are engaged in such research either directly, as consultants, or under grants and contracts have no cause for guilt. It is unfortunate that in all the years of human existence we have not yet learned how to synthesize plowshares from swords. Since we have not, defense research remains a legitimate and honorable career. The facts of life are as they are. No one can rationally believe that we alone are engaged in such studies. Nor if we abandon such studies, is it likely that others will follow. Whether BW or CW is ever used in warfare is really immaterial. The very possibility of their use requires any sane people to learn of their potential and of defense against them.

I wonder why BW and CW are singled out as particularly heinous. All types of weapons are horrible be they fists, stones, bullets, or nuclear bombs. Why is it more horrible to be ill (even acutely ill for a period of time) than to be mangled or dead for all time? Why is it more horrible to expose the enemy's routes of travel by defoliants than by bombing? Certainly both effectively alter the ecology of the area. Does not the destruction by bombs exceed that of defoliants? BW and CW are not alone weapons of so-called mass casualties. No war has ever been limited to the confines of the battlefield; all have been as devastating for civilians as for the warriors.

If my colleagues are a fair sample, there is probably no one in defense research who would not be happier if the wealth of nations and the efforts of its scientists were spent on Great Societies both at home and abroad. But as long as the world is as it is what nation will abandon its defense research?

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