Letters

Chemical and Biological Warfare in South Vietnam

With regard to the scientists' petition to the President on the use of chemicals in South Vietnam (News and Comment, 20 Jan., p. 302), I agree wholeheartedly with their recommendation for a White House study of the overall government policy on the employment of chemical and biological weapons. The study, however, should be objective, and not directed toward a predetermined conclusion. I am convinced that such a study would produce many findings to support change in government policy so as to permit the use of these weapons. This is the type of issue on which it is normally quite easy to persuade a number of people to attach their signatures. War is bad; ergo, weapons are bad; therefore let's object to the introduction of a comparatively new weapon because we might be able to do something about that. It is disappointing that a large number of scientists would follow that sentimental appeal without making a more thorough investigation of the factors involved before drawing their conclusions.

The problem is not that simple. I grant that war is bad, and I would have wholeheartedly concurred in a widespread effort to get the scientists of the world to back the type of efforts the United World Federalists are making to establish a logical workable organization to see that war cannot occur. But in the present faulty world sociological pattern, war is still a fact of life, and we must be prepared to deal with it realistically. On that basis, the next step, "abolish chemical weapons in South Vietnam," is the unsound one. Just because certain weapons are relatively new, and it may appear possible to block their use, does not make the move a necessarily desirable one.

The first point in the petition is that "CB weapons have the potential of inflicting, especially on civilians, enormous devastation and death which may be unpredictable in scope and intensity." But it is necessary to separate chemical weapons from biological weapons as the effects of chemical weapons are predictable within reasonable limits. The effects of the biological weapons are more complex and are more difficult to predict. However, with both agents, it is possible to employ materials which will incapacitate temporarily, and allow subsequent full recovery. Among chemical agents, tear gases are examples with the shortest duration of effects of this type of incapacitant. There are others whose effects are different physiologically and of longer duration. With biological organisms, there are those which cause Q-fever, Venezuelan equine encephalomyelitis and dengue fever, for examples. The mortality from these is perhaps 1 percent or less, with incapacitation lasting up to about a month.

With no other weapons of war is it possible to decide ahead of time that a mission can be accomplished with a minimum of killing and then hold to that level. With all other weapons, once the munition is released, whether it is a bullet, a high explosive shell, a napalm bomb, or a nuclear warhead, the amount of damage done cannot be controlled. Those close enough, whether civilian or military, will be killed. Others will be maimed, some permanently. So when we say that CW weapons "have the potential of inflicting . . . enormous devastation and death," we must also say that these weapons give us the only possibility of which we know for bringing some degree of humanity into warfare. Should we give that up because some similar weapons may also be used for greater devastation?

The amount of damage a nation will execute upon civilians is not determined by its weapons. Rather it is defined by the philosophy of the nation using the weapons. Rotterdam was leveled by high explosive bombs. Tokyo was burned out with incendiary bombs. Lidice was completely eliminated with small arms fire and fire itself. The Viet Cong have killed tens of thousands of civilians with clubs, knives, bullets, and grenades. If the petitioners are really worrying about large-scale damage to civilians, they should ask the government to ban the use of high explosive bombs. Certainly in World War II, these did tremendous damage to civilians on both sides. Furthermore, our refraining from using incapacitating agents will not deter other nations from using them, or more lethal agents. At the start of World War I, all the nations participating had accepted the Hague Peace Conference prohibition on the use of poison gas, but that did not deter them from employing chemical agents widely. Italy and Ethiopia had both signed the Geneva Gas Protocol, but Italy used mustard gas in the Abyssinian campaign. Moreover, colonial powers all over the world have used tear gas against riots in their colonies.

The plea for discontinuing the use of defoliating chemicals seems the most illogical. In every war, depriving the enemy of food and supplies has been an essential part of the action. Blockades have been used and widely accepted for the purpose. The scorched earth policy has been normal. Our troops in South Vietnam will destroy rice caches of the enemy wherever they find them. Any available rice will serve to support the enemy; when the enemy needs food, it will not give preference to the needs of the old people or the young and helpless. Preceding our attacks on crops, warning has been given the local inhabitants by leaflets. They have been told where they could go to get food. Where possible, we have moved food into the areas afterwards to feed the people. The chemicals used have a very low lethality for mammals, and are no direct threat to humans.

There is no nice way to fight a war. The petitioners must face the fact that every restriction they place on our military commanders is costing the lives of American soldiers, and of those of our allies. Restrictions on the military for the purpose of insuring that the war does not become more widespread by bringing in China or the Soviet Union are logical, even though the guidelines are often blurred. Restrictions on the use of tear gas and defoliants do not serve this purpose. If the U.S. is involved in a war initiated by aggression, we should not forego the advantage of the use of weapons based on our advanced technology. In any

event, the present government policy of doing everything possible to restrict free discussion of chemical and biological weapons should be modified so as to permit full public examination of the question, limited only by the dictates of necessary military security. Hopefully, the petition might assist in advancing this aim.

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Incaparina Gains Acceptance

In Carter's article, "World food supply: problems and prospects" (News and Comment, 6 Jan., p. 56), he referred to Incaparina, the low-cost protein-rich food supplement developed by the Institute for Nutrition for Central America and Panama (INCAP) as one example of the use of oil seed protein in a product designed to meet the needs of the developing countries. However, I believe that some clarification with respect to the commercial application of Incaparina is in order. While it is true that Incaparina is in various stages of product development in several Latin American countries, it is currently in full-scale commercial distribution in only Colombia and Guatemala. We do not believe that the current commercial sales of the product in either of these countries should be classified as "not particularly encouraging."

Carter did note, of course, that the Guatemalan experience is a notable exception. The 1966 sales in the two countries exceeded 4.6 million pounds (2.1 million kilograms) for a 40 percent increase over the previous year. This performance has been achieved without either large-scale governmental purchases of the product or any other form of subsidy. In Guatemala Incaparina has been sufficiently well accepted by consumers to have been in a paying position for the producer for over 2½ years. Sales volumes in Colombia are now reaching the "break-even" point and full commercial success is anticipated there. It is too early to forecast the results of consumer acceptability and market tests now underway in El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Brazil, and Venezuela.

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Microbial Ecology

I strongly disagree with Pramer's review (3 Feb., p. 551) of Brock's *Principles of Microbial Ecology*. When I read the book in manuscript, I was delighted to note that it was *not* a compendium, but rather "a book of principles," to use the author's own words. The finished volume reaffirms this opinion. Brock has managed to wield the scissors with discrimination, and the result is a very readable, thought-provoking book which does bring forth many of the problems and principles of microbial ecology.

Contrary to Pramer's comments, the author clearly defines his intended audience in the preface, and the very elementary chapter on the microbial environment is a good starting point for many potential readers who may have had their training in the usual soils curriculum. I do not find an inconsistency between the statements that "the interior of an experimental animal is usually sterile" and that "microorganisms are frequently present in huge quantities, especially on the skin and in the intestinal tract," for the interior of an animal is usually considered to exclude the skin and the gastrointestinal tract. In short, I believe that Brock is to be commended for writing an informative, often profound, first volume in a new field in such a manner that the charm of the author's expression has not been deadened by dreary details of superfluous, uncritically chosen examples from the literature.

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. . . I found, in contrast with Pramer, that Brock's book was thoughtfully assembled, provocative, and, in those areas which I was able to judge, reasonably accurate. . . . The reviewer writes that "There is little new information that the book can impart to a college student who has completed courses in introductory chemistry and microbiology. . . ." Whether or not this is so is moot. But what is important is not just "new information" but the incorporation of that information into the warp and woof of the total fabric of science. Not to realize this is to miss the whole point of the book.

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