

Johnstone

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Mr. L. Craig Johnstone  
Embassy of the United States  
of America  
Paris, France

Dear Craig,

I cannot imagine why Dr. Welch (whom I do not know) can conclude that the U.S. supply of nerve gas weapons would suffice for no more than 1½ days of war. Perhaps he is thinking only of the stockpile in the Federal Republic of Germany, which is merely a small fraction of the total. Conventional wisdom at the Defense Department is that even the supply in Germany would be enough for one or two weeks.

More to the point, here is how I calculate our requirements for nerve gas artillery shells. The objective is to give adversary commanders a strong incentive to order their men into protective gear. If 86 adversary divisions are engaged along a 700 km FEBA there would be something like 3000 company-size targets within artillery range. (Setting back the guns one-third of their range from the FEBA, we get ranges into adversary territory of about 14, 12, and 8 km for 8-inch, 155 millimeter, and 105 millimeter howitzers respectively. On the average, the targets will occupy about 10 hectares each. Also, on the average, a 155 GB shell will give about 30% casualties within one hectare. If 5 such shells were fired each day, at a target, the cost to its commander of not having his troops in protective gear would be a casualty rate around 15% per day. Under prevailing meteorological conditions in central Europe, it might be significantly higher. Now we multiply: 3000 targets X 5 shells per day X 30 days = 450,000 shells needed for a 30-day war. We have a serviceable stockpile of nerve gas artillery shells which is a few times greater than this requirement. There are some caveats. We do not have 105 millimeter howitzers in Europe, but the NATO allies do. Thus, along our 260 km of the FEBA, only 8-inch and 155 millimeter howitzers would be used. Again, however, we have way more than enough nerve gas shells of this caliber

than needed to deliver 5 each day for a month on each of the approximate 1100 targets along our part of the FEBA. I have not taken into account the foggy days when there is no war, or the attrition of adversary targets or the untargetability of some of them due to various causes, including the rules of engagement (gas may cause Russians to locate in towns and villages to a greater extent than they otherwise would). The other NATO allies may refuse to use chemicals, leaving them all to us. A big caveat is that unless NATO policy changes and we can get forward deployment, the real limit on what we can shoot will be imposed by logistical considerations and all the rest will stay uselessly in CONUS.

In the U.S. sectors, the calculated number of chemical rounds would amount to a few per cent of all rounds fired by U.S. forces. We would use gas only against those targets that are doing something at the time which we don't like, either attacking us or defending against us. This is because the objective is to slow adversary tempo by forcing protective posture. When the adversary is doing something we don't care about (like sitting), we don't care about the tempo with which they do it. In other words, we would use gas projectiles only intermingled with regular projectiles.

To use any more gas than needed to put the other side into suits and masks would be counterproductive. This is because every chemical shell we shoot is some other kind of a shell we don't shoot. Thus we can imagine a graph on which combat effectiveness is plotted vertically and the percentage of all artillery shells that is chemical is plotted horizontal. At 0% chemical we already have lots of combat effectiveness, so we start with a point high up. As we add chemicals, effectiveness goes down because adversary tempo goes down. But when we reach the point when most of the adversary is in protective gear, additional chemical expenditures actually reduce combat effectiveness because adversary forces in such gear are more vulnerable to HE than to chemicals.

I realize that some of the assumptions in all of this can be argued back and forth. But I think that the basic analysis is right. Some people prefer terrain fire as opposed to targeted fire. We can make an analysis on that basis by dividing the battlefield up into hectare-size squares and putting chemicals on a percentage of those squares

Such squares would include road junctions and nature defiles, etc. The conclusion stays the same, however: we have enough artillery shells.

After all this, the proposition which I would advance is that those who argue we do not have enough nerve gas artillery shells have certainly not produced a convincing case.

As for other kinds of nerve gas weapons that could be made binary, such as rockets and the big-eye bomb, the point is moot for now in any case. There simply are no binary weapons that have emerged from engineering development except for the 155 binary GB shell and the 8-inch binary VX shell. It will probably be at least a couple of years before we need to decide whether or not to spend money on facilities to manufacture bombs and rockets. We should use this valuable time ~~especially~~ do two things. First, we should run exercises in which a full company (at least) faces an adversary force using chemical and another company faces an adversary force not using chemicals in a regular European war game situation. We have never done this and we need the information it can provide on what chemicals do to combat performance. The second kind of thing we need to do is to conduct proper analysis of different kinds of missions on just how effective chemicals are in competition with alternative weapons and uses of resources. This, too, has never been done. Then, using this information, we should sit down with our NATO allies and see if we can formulate some kind of unified policy. If the Europeans are adamant in not integrating chemicals, that's a very strong argument for us to deal with presumed Soviet threats with plans and responses other than chemical. Almost 10 years from now, the prevalent view may be that chemicals are medieval in comparison with other weapons, including the smart weapons coming along. Mission by mission, there will be weapons of greater effectiveness against an intended target and damage much less threatening beyond the target in terms of civilian casualties. What commander would use chemicals on a PACT air base if he had a smart weapon that could take out the runway? Moreover, what NATO government would permit deployment of chemicals if most of the choices were like that? Indeed, what European government will permit deployment today?

I may come to Cologne March 4th-7th, and/or Geneva April 2nd-4th. I won't be able to stop in Paris because I am teaching next semester and can't spare the time, but it certainly would be good to see you.

Warm regards, as ever,