Gen. Rothschild:

My opening presentation will be quite short as indicated just in an attempt to establish a common basis for our discussion. I'll first deal with chemical and biological warfare and then talk a little bit about considerations of humanity and morality. Can you hear me alright in back? Toxic warfare is the use of chemical substances or biological materials intentionally disseminated to reduce the military effectiveness of man. It also includes the defense against these things. The materials may be used directly against man or they may be sued indirectly through attacks against animals or crops to reduce man's food supply. Let me elaborate first just a little bit on the anti-food warfare as it's the simplest to explain and get over. It could include the use of agents such as 2,4D 245T both ~~herbices~~ herbicides to destroy crops. These would normally be disseminated from plants. But also include the use of biological material such as stem-rust of wheat or rice ~~plants~~ blast. In the case of the chemicals the material is effective only where the agent lands. With the biologicals it is possible to start or an epitotic plus may start normally through design.to effect areas much larger in area in extent than those initially hit.

An attack on animals which would be through biological agents would not only reduce the food supply but would also result in the reduction ~~in the~~ of available industrial materials such as leather, pharmaceuticals and others. and the reduction of a form of transport which is still very important in many parts of the world.

Now toxic chemical agents may be gas, liquid or solid. "Gas warfare" is still in common usage but it's really a misnomer. Chemical agents may be lethal or they may be incapacitating. Probably the outstanding example of the lethal type is the anticholinesterase series which we call the G-agents.

Thye're also known as the nerve gases. GB is our standard agent, called sarin by the Germans who first discovered it, is a volatile liquid with an LD_{50} of 1 milligram. VX is a nonvolatile anticholinesterase agent and is highly effective through the skin as well as through the lungs. Incapacitating agents are chemicals whose physiological action is reversible or mostly reversible. They may be developed to effect any of the physical capabilities or the mind, and one type which might effect the mind is an LSD-type, this general area. Mustard gas is a chemical agent which does not exactly fit this definition of an incapacitating agent but I so classified it in my book because it causes relatively few deathes and relatively few permanent disabilities. Here too, again the word gas is a misnomer: mustard gas is a liquid at room temperature, slowly volatilizing. Either the liquid or the vapor will cause burns on contact with the skin, severe irritation on contact with the eye, or damage to the lung when inhaled.

Chemical agents may enter the body through the lungs, the eyes, or the skin. Now the eyes aren't a very important portal of entry because they're too easy to protect , speaking militarily of course. It is possible to gain entry through the skin by mechanical mechanical puncturing as with darts or shell fragments or bullets, or through absorption or penetration of the unbroken skin. The penetration may result in systemic effects as when nerve gases are absorbed through the skin or in local effects as come about after contact with mustard gas. Incidentally, a heavy attack with mustard gas w when inhaled can result in systemic effects as well as local burns on the skin.

Biological agents may be viruses, rickettsiae, bacteria or fungi.or their toxic products. An example of a virus might be that which causes Venezualan equine encephalomyelitis, an incapacitating disease with quite low

mortality. Or the virus of dengue, breakbone fever, one of the most disabeling diseases known to man but practically never kills anyone. Examples of rickettsiae might be Cocciella burnettiae which causes Q fever, or Rickettsia rickettsiae causing Rocky Mountain Spotted Fever. Anthrax or tularemia are diseases of possible biological warfare interest caused by bacteria. Fungal diseases are probably not of too great interest from a biological warfare viewpoint but a possibility could be Cryptococcuses. An example of a toxic product which might be used would be botulinum or possibly staphylococcus gastro enterotoxin.

As indicated by the examples above, the biological agents may also be either lethal or incapacitating. As is inherent in the nature of infectivity and the course of disease there's a definite difference in the meaning of lethality between chemical agents and biological agents.

In order for an agent or an organism to be useful as a military agent it must be able to withstand a number of stresses. These include the rigors of artificial growth, concentration of the agent possibly drying, relatively long periods of storage, dissemination from a munition sometimes explosive, and the disruptive effects of the abrupt humidity changes, temperature changes, and of course sunlight. It's possible through mutation to make an organism more resistant to these stresses within limits. It is also possible to develop organisms which are resistant to drugs of course. The most efficient means of infecting man is through the lungs, even with organisms that do not in nature enter the body that way, as with Pasturella tularensis. However, it is possible to attack through the skin. either with agents that normally enter that way or by using vectors such as ticks or mosquitoes. In disseminating biological agents the size of the particles is of extreme importance. A particle of from 1 to 5 microns in diameter is most effective in reaching the alveolar bed of the lungs. Larger particles are removed in the nasal passages in the respiratory tract; smaller

particles tend to be exhaled. Infectious agents reaching the alveoli are just about as effective in causing an infection as they would be if they would be if injected into tissue. O

One of the major areas of differences between chemical and biological agents from the military viewpoint, is the time of onset of symptoms and the duration of affects. At present, chemical agents generally have a relatively short time of onset and a short period of affect, and this is for the incapacitating agents of course, The biological agents with their incubation periods have a longer period for symptoms to appear although for some of them, the toxins are quite short for example, and a longer period of disability. The military use of toxic materials depends on the nature of the particular agent involved. Of course, as a generality, the weight of biological material required to perform a certain mission is much less than the amount of chemical material would be because the organisms propagate. A single attack with biological agents could blanket an area of hundreds of thousands of square miles, whereas when we're talking about such an attack with chemical agents we're talking about tens of square miles.

Selection of an agent for a particlular military task would depend upon the nature of the target and the personnel watched by that target. If a ~~an agent for a partie~~ Commander were attacking an enemy fortification occupied by enemy soldiers only he would want to use a quick acting lethal agent. He would want to kill as many of those soldiers as possible as quickly as possible so that he'd save his own men from any unnecessary casualities. He'd probably use an agent such as a nerve gas GB. If the target were a logistical area such as a rail head or a supply point located in ~~the~~ a city which was manned by mixed enemy soldiers and civilians, possibly even friendly civilians, he would select an incapacitating agent which would knock out the defenders, and the people of course, and immobilize the logistic operation until he could

overrun it. and take control of it. Circumstances would dictate whether a chemical agent with a shorter time of onset and shorter duration of effects would be used or whether he would use a biological agent with it's longer incubation period and period of disability.

I'd like to emphasize one thing at this point. There's no question of the ability to infect men with biological agents which are released miles away from them. The only question which has not been determined by large scale tests is what proportion of the target personnel would be infected. On the defensive side there are adequate ways of protecting an individual or a group of individuals if you know the attack is underway. This is the difficult part, of course. Masks, when worn properly, protect, give excellent protection against both chemical and biological agents. Protective clothing, decontaminating methods, and other measures of protection are available. Methods of treating casualties are known or are being developed. Immunization techniques are available for many of the organisms of which we are talking, or of course, however, you don't have solid protection from most of your immunization techniques.

Going to the discussion of the humanitarian aspects of these weapons it is very difficult for me to see how anyone who has made any study of these weapons compared to what you get from other weapons can feel that the toxic weapons are inhumane--of course no weapons are humane, they were'nt designed to be humane--but when we're talking about comparative humanity it is very difficult for me to see how anyone can say that these weapons are inhumane. We evidently don't flinch too much about blowing off a couple of arms or half of a man's face or leaving a mindless or many of these common damages that you get from other weapons. Whereas we start crying bloody murder when a man is temporarily hurt. Generally this is true. For example, in the last large scale use of chemical agents, which

is WW I where we have a good picture, about 25% of the casualties the American expeditionary force suffered in WW I was from chemical agents. But only about 2% of these died. Now, the casualities from all other weapons (bullets, shells, bonmbs, and so forth) about 25% died. Going a little bit further, of those who became casualties from chemical weapons about 4% were disabeled 6 years after the war, which is an indication of a long term disability, whereas about 25% of those again who were casualties from the other weapons were permanently disabeled. So here on one hand for the chemical weapons we have 2% deaths against 25% deaths for the other weapons, on the other hand we have 4% long term disability against 25% for the other weapons. It is very difficult to see how you can compare these two and say that one of them is humane and one isnot. General Gilchrist, a medical officer in the Army Medical Corps made a quite comprehemsive comparison of casualities from various weapons after WW I, and based on three criteria, the proportion of deaths to those affected, the suffering at the time of injury and during convalescence, and the proportion of permanent disabilities, on these three bases, he made the statement after his study that gas is not only one of the most defective weapons ever applied on the battlefield but it was also the most humane. And just as a item of current interest I saw in this morning's Chronicle an article which started on the front page about the nation's police being urged to consider a wider range of supplementary weapons of which the main one is a chemical weapon which you've probably heard of is Mace, a report by the Instituteof Defensive Analysis advocating that the police go much into the use of these nonlethal agents. And at one point they say "The report says that "the overall reason for considering use of nonlethal weapons is "the law enforcement officer is neitherp permitted nor encouraged to use more force than is necessary to achieve his lawful objectives,"

Now it is very difficult for me to see why the same general humanitarian approach shouldn't be true in war. I don't see why you should have to go out and kill and maime people when you have other means of accomplishing your mission without necessary killing.

As far as morality is concerned, I'd just like to say on the legal side that the United States is not signatory to any treaty prohibiting the use of chemical or biological weapons.

This has been a very once-over-lightly treatment but after Dr. Lederberg is through I'm sure we'll take up all the rest of the points that anybody has in the discussion period.

Dr. Lederberg:

Well I will confess that the first part of my colleagues presentation did appear llike a chamber of horrors and I'm sure none of us can have escaped that reaction. Like him I would also point out that a graphic description of the results of bullets plow into your brain that had sprayed and have been scraped from the machine gun would have an equal impact. I want to say from the outset that I don't disagree with him in the least with respect to attempts to compare the humanity and morality of one method of destroying compared to another. If the justified and politically founded objective of warfare is to destroy the enemy, the more expeditious techniques at the disposal of the force we stand behind, if we do stand behind it, presumably the better. Nevertheless both chemical and biological warfare do arouse a moral revulsion inmost people, and while I believe I share this to a lesser extent than most and have said so, I think we should undersand why life-science professionals will be expecially sensitive about inhumane applications of their own studyes. Most of us did not go into science with the expectation of supporting munitions activities and of course are not consulted about that point, but I think this is a very important base and I think one we ought to face realistically as to why so many biologists are raisng such a furor. They feel that they had not elected to go into a line of work that would contribute to the destruction of other people, whether it is less or more humane than other techniques. that's why most of us are not working on munitions. We should not be too deeply swayed by these irrational considerations, and they are irrational, but on the other hand it would be a great mistake to dismiss their importance to other people because a great part of the political significance of our involvement in chemical and biological warfare is what other people think about it and to the extent that our involvement in these programs arouse a few irrational anxieties on the parts of our friends as well as neutrals as well as potential enemies

I think that we have to consider that as part of the package, as part of the price that is paid by our being involved in these developments. These reactions may be irrational but they're there. One might approach that by attempts at public education but as Gen. Rothschild has indicated in the long run it would be the most humane to use chemical weapons. This might be demonstrated sometime as in for a little effective demonstration of this point in the field.

I mainly don't want to talk about chemical warfare since I feel particularly that lumping it together with biological warfare is a strategic error of very great significance. In fact my interest in this subject was aroused when Dr. Meselson asked me to sign a petition that was being circulated starting about a year ago, a good part of which was discussed in Science for January 20, and I'll just quote one point. "The employment of any one CB weapon weakens the barriers to the use of others. No lasting distinction seems possible between incapacitating and lethal weapons or between chemical and biological warfare. If the restraints on the use of one kind of CB weapon are broken down the use of others will be encouraged." I think ~~that~~ there is just as much truth in that as our willingness to distinguish, or unwillingness to distinguish, these mechanisms of warfare will permit. That is, if we insiston our own propaganda on the question and lumping them together then a policy which validates the use of chemical warfare will weaken the restraints on the use of biological warfare. For reasons I will go into I would like to encourage you to adopt exactly the opposite point of view, to regard biological warfare as a very special kind of hazard to the species and just on those grounds alone ought to be carefully distinguished from use of chemical agents.

Among other points on the issue of political strategy I point out that the President of the United States is already committed to the use of chemical agents in warfare because in fact we are useing them in the form of tear gas and so on, and it would be very much more difficult to achieve a policy reversal with respect to a set of actions which the country ~~who~~ through the President has already committed than it would be to excerise some restraints with respect to the proliferation of other kinds of weapons. Here again our reasons to try to create whatever distinctions are possible between these classes of weapons.

Actually the main complaint that I would make about our present posture in this area is not so much what we are doing in our research and development programs in chemical ~~war and~~ or in biological warfare in the present world climate, the present political climate, I can see the sensitivity to the argument that it is very difficult to do otherwise. My complaint is what we're not doing. My complaint is that we're not aggresively pursuing the means for international control of those kinds of weapons which represent most significant threats to the species. I think no microbiologist need use his imagination for very long to see why I regard biological warfare in that category. If in the present arena and atmosphere of complete lack of restraint it is necessary for this nation to pursue BW development, that fact in itself makes it necessary for others and we have all the groundwork for a continuous process of escalation. There's just no way that can be stopped in the present atmosphere and every increase in our expenditure, in our defensive actions with respect to biological warfare in this country, and the conditions of secrecy which operate where it is not possible to disclose exactly what we're doing where the general magnitude of our effort is obvious can have no other consequence but to provoke similar defensive escalation on the part of other nations. I think we can take it for granted this is exactly

what has happened. I don't know the figures for the research budget in biological warfare of the Soviet Union or of Communist China.

The essential point that I'd like to bring to your criticism is that the calculated growth of the capacity for biological warfare is inherently a suicidal activity on the part of human beings. Exactly in opposition to what so much of our scientific and technical human effort has been for the control of pestilence, to try to bring to bring about ways to be systematically disseminated . I'm going to say something about secrecy and I'm going to take a rather paradoxical position. There's a sense in which if were possible for the defense department to explore the research and development of biological agents and in fact maintain utter and complete security with respect to its development I would not feel terribly uncomfortable. I would not feel that the possession simply in the hands of this country of this kind of power is the worst thing that I can imagine happening in the world. What I am concerned is that no security system is perfect, not intended to be perfect, if for no other reason than to achieve budgetary support in Congress there will be constant dissemination of information about what biological warfare programs are up to and any escalation on their own developmental and research efforts is going to provide some of the necessary material for other countries to do exactly the same. The effort that we put into any large scale development of techniques for the development of more potent biological agents for their dissemination whether it's in one year or ten or twenty, is gradually going to become part of the art of the whole world. This is exactly in nuclear energy and it's bound to be the same if there is a large scale expansion of what we're doing in biological warfare. It is not our possession of dangerous information of dangerous technical insights but it is the dissemination throughout the world that represents a very obvious threat. The larger

industrial powers do not have to rely on biological warfare to achieve ~~its~~ their major strategic objectives. They are very well possessed of a wide variety of other kihnds of weapons and even for defensive purposes while it is important that we have some notion of what kind of biological attack might be posed against us, it is not at all obvious why the strategic deterrent against biological warfare has to be another biological weapon, and we have plenty of strategic deterrent weapons. My concern is that biological warfare is a technique of extermination which is available to nations with much smaller industrial potential than our own, which would be politically much less responsible, which would be a much more situation of temptation to take desperate measures in order to achieve very parochial political aims. I do not think we can expect the same level of responsibility for the future of the rest of the planet on the part of the Egyptian Department of Defense than we do from our own.

These are the essential concerns, behind them there are also that the security system prevents the details of development and dissemination of microbial weapons from being accessible to the professional and medical scientific criticism of the rest of the community. I can easily visualize a very eager and very enthusiastic investigator in the chemical corps deciding on a rather limited initiative and subject to a rather limited degree of scrutiny and control because of the security system of performing experiments which would be hazardous to the entire country, and in fact to the world. The degree of review, control and criticism in a secure system cannot possibly compare to that which operates in a system of open science. I am really very much concerned that someone willtake in his head to decide that some ~~loose~~ new strain of anthrax ought to be tried out in the field without having the kind of control that the public consequences of such dissemination are going to be. I think this is one of the inevitable hazards of a system of

very tight or attempted tight security in military services. In fact you might make the same argument about the whole complexion of the program. That the military objectives are going to be paramount, that the human objectives of the development of weapons of this kind will never achieve the kind of review that they deserve in relation to the potential gravity of such developments for us as a species.

Without at this moment wishing to impair the existing defensive and developmental activities of the Defense Department in Biological warfare, I would submit that a problem of much higher priority is how to develop the kind of controls that will keep such activities both in this nation and in other nations under some kind of rational limitations. The one direction that I can see to this is a demand for the removal of secrecy by whatever expedients we can devise in such work. I think there are good grounds for continuing various kinds of efforts that are related to biological warfare because there are also very much the same things that related to public health. But I can see very little reason even from a military standpoint why these must be blanketed in the kind of secrecy that now enclose them. Biological warfare is not a major strategic weapon in the United States. I don't believe anyone would sustain the proposition that the national security of this country really depends crucially on the secrecy of our activities in biological warfare. They might be politically embarassing, but I don't know enough about what would be released by such information to have a clear insight into this point but it is obvious that the most tender aspect of biological warfare is just the fact that it is being done and the kind of anxieties that are aroused in the minds of people. I've seen very little to suggest really cogent reasons for maintaining any important degree of secrecy with respect to these operations. In fact, the kind of proposal I might be prepared tomake

is that we enlarge our program in this area but we make it public. And we have it large enough that it can cover all the bases that we might otherwise think we might have missed. In this way biological warfare research will in fact be nothing else than public health research. We are faced by constant attack by microbial invaders of all kinds. We need to know about them by the natural dissemination how to protect ourselves against them much the same thing as involved in their artificial dissemination. The basis of my proposal of the abolition of secrecy is that it is a step towards the control of weapons that the race cannot afford to have developed in secret without some kind of rational control for what its ultimate objectives are. Unlike other weapons we can afford to take some risks with respect to what the other side may be doing in biological warfare. We have other deterrents that could discourage unexpected attacks. We're not in the same position in trying to open up BW as we would be in nuclear warfare. This could be the first area in which we could attempt to negotiate for the international control of weapons precisely because they are ~~of~~ weapons ~~of~~ ~~international~~ whose deployment has not been established and whose critical nature for our national security is already open to doubt. When biological warfare is developed as a utilitarian military tool tothe extent that technologically less advanced countries can make full advantage of it we will have lost that advantage and may have indeed suffered a very important military disadvantage by being subject to attack on a much broader level from a much wider variety of countries than is now the case.

One particular approach that I think we might consider, although I realize how unrealistic it may sound , but I think if we could get ~~enough~~ our colleagues in ehough countries started on this point some beginning might be made, would be a demand that no microbiological research could be classified. That this be part of the internal law of every country which is a participant in this kind of arrangement. One might argue that the

Soviet Union although a party to such a law could still afford to maintain clandestine research in microbiology. This would be exactly the texture of the concern about how you inspect a treaty of this kind. That is a hazard. I'm not sure there would be enough merit in the Soviet Union continuing to do such research with the risk of discovery that it was violating one of its own treaties embodied in its own internal law to warrant its doing so. I think to the extent that we can maintain communication with our scientific colleagues through the abolition of classification controls in other countries we've also reached an avenue of communication that goes far beyond the immediacy of the situation. I'll be glad to develop this thesis a little further, perhaps in some further discussion. But the particular proposal I have in mind is that even for a relatively closedsociety such as the Soviet Union it would be very difficult for it to maintain a public posture that makes it a matter of public policy of its own published law that work of this kind is not to be classified.and for this to remain secret. It is very easy to keep things secret when there's a law that says they must be secret when there's a law that says they must not, there are very severe administrative difficulties to say the least that would involve maintaining really a very close enclosure of entire populations in order to maintain that kind of security. This sort of approach has never been tried as far as I know except in a sense in the United States because we have such an aggressive newspaper industry that it achieves many of the same purposes as an explicit law for the publication of a wide a variety of subjects as possible. that keeps us an open society. I haven't expressed these notions as clear as I might like, but I've done the best that I can with my voice and the limitations of time.

Gen. Rothchild:

I might comment on a couple of points that Professor Lederberg has brought out. These are sort of scattered as I wrote them down as they came.

One is that Dr. Lederberg mentioned that there is no demonstration of the use of CW weapons as humanitarian weapons in the field. This isn't quite right. CS, which is an incapacitating agent, chemical agent, it is an irritant agent, a type of tear gas, has been used very extensively in South Vietnam and one of the basic reasons it was started and one of the things it has been used for is to repel attacks when the Viet Cong have used women and children as shields. In fact I think there is an item in the paper just a couple of days ago where this was another attack launched but this has been quite general and rather than just having to shoot to protect yourselves you can break up on attack with this tear gas.

Another point he mentioned which is a camel nose under the tent kind o of thing, in other words this was not Dr. Lederberg's approach. This was the approach of the petition he mentioned. I sort of get into an ambivalent situation when I start talking about this because on the side of nuclear weapons I'm very much in favor of it. Let's not get the thing started at all then you can't ever build up to a WW III where you are having an all out nuclear war. But we have weapons, conventional weapons now, that can destroy huge numbers of people over large areas. We've had demonstrations in WW II we had Coventry, for example, we had Rotterdam. Both completely leveled with high explosive bombs and Tokyo which was completely leveled with incendiaries. So what we call conventional weapons now can destroy practically any numbers of people you want to destroy. I think the thing that is involved here is the philosophy of the nation that is using the weapons. They don't need the biological weapons, for example, to destroy large numbers of people or the chemical weapons. They have the weapons now. So I'm not sure this camel's

nose under the tent has too much validity when you have a weapon that also gives you the possibility of a much more humane approach than you've had in the past. There are many other aspects of this that I won't take up particularly with regard to biological weapons but I wanted to get the general point.

When we talk about scientists working in the field of munitions, as long as we have wars and we haven't stopped the wars you must be prepared to fight wars. There's just no two ways of getting around this. I think it is the duty of scientists as well as any other citizens to help their country be prepared to protect themselves and where their talents dictate, this is the field they work in. If we ever get restraints on war this would be fine. Then we could stop this. We don't have restraints at the present time.

I would question the possibility of experiments in biological weapons being dangerous to the country and to the world as being very likely. There is a great deal of review over most of the approaches to our small-scale, large-scale experiments, there are an extreme degree of restrictions on using human volunteers. It's very difficult when you are using human volunteers your efforts of what you are going to do must be very carefully spelled out and it is reviewed by a great many people right up to the Secretary of Defense, it's his personal responsibility. We also have got a great deal of review by our civilian advisors. This includes the Committee from the American Society for Microbiology. Any type of experiment such as this is approached with great care. When you come right down to it, the secrecy in the field of biological weapons is relatively minor. About every month or two I get a stack of reprints from Detrick. They publish about so thick in practically every area in which they work. All basic information is public.

The areas ~~that~~ in which secrecy is maintained comes down mostly to an agent which is considered a candidate agent and one which is developed to the stock piles and what is in our stockpiles. This is where secrecy exists. But most of the other work we do is published. We publish a great deal of ~~xxxx~~ material as I say on all basic ~~abstracts~~ aspects and in the protected areas both in laboratory protection, protection of laboratory personnel and in the protection of ~~the~~ personnel in the field. So there is relatively little secrecy in this area. It is minor except for the points that I have mentioned. ~~xxxxxxxx~~

Biological weapons are not only a deterrent though. There is again the possibility of these weapons being very effective militarily particularly in the field of incapacitating agents which is ~~xxxx~~ most suited to biological agents where you can find incapacitating agents, and to a reasonable degree control the damage you are goin to do. The damage of course is mostly to people. It is not to material things. The same is true in the chemical field. I think you must consider whether you want to give up a weapon voluntarily, unilaterally which might be of great value to you again from the humanitarian aspect.

There are problems with respect to biological warfare which are not true in the case of chemical warfare. In chemical warfare as I say you can only cover small areas, you can control your results to a closer degree. However you can do the same thing in the biological weapons field too. For example, the hardiness of the organism is going to have a great deal to do with how far that organism is going to travel. As you all know most organisms are killed when they are in the air in a few minutes in sunlight. They're just not going to exist long. So if you want to cover a very large area, you will probably disseminate the organism at dusk ~~as such~~ and get the whole ~~night~~ night which it can travel. tend to live longer.

However, if you want to cover a small area or a limited area you can put munitions down right on the area which disperse generally their small rotating bomblettes, about so big dropped from a height so that they randomly distribute themselves when they hit the ground pressure will put out a small amount of biological material. You can put this down right on the area which you are specifically trying to affect and do it in the daytime. Those organisms are going to come out and they're going to be dead in an extremely short period of time. There is more control here. This isn't an uncontrolled proposition.

One of the things that I'm disturbed about is that there hasn't been more discussion in the field of biological weapons, agents, as to the possibility of establishing new hosts which haven't been exposed as other species and, therefore, possibly have a continuing spread of this over a longer period of time. I'm not sure this a serious problem. I don't know enough about it. But there's been no discussion of this out in the public and I think it is an area that should be discussed and discussed thoroughly. We know, for example, that the normal host for plague is the rat. Plague happens to be one of your lethal agents. Whether you would use it or not I don't know but if you did would you establish new hosts in new species which would do damage to human people.

When we switch to an incapacitating agent, let's say the virus of Venezualean equine encephalomeilitis. Is this a danger or is this an unreal danger? This isn't a very dangerous agent in the first place. But then again going through these hosts is there a danger of increased toxicity, lethality. These are questions I think that deserve a lot more discussion and they are just getting silenced. This is not because of military secrecy. This is because of apathy more than anything else.

Dr. Lederberg:

I think it is exactly your last point that I'd like to respond to since I don't think we are in very great disagreement on most of the other issues and I'm not sure in disagreement on this one except for the kind of response we ought to take. My kind of concern is that a skilled researcher in biological warfare will develop a strain of dengue virus that he tests out on ten volunteers and says "Oh, this is perfect." It will give a 36 hour incapacitation, they all recover beautifully. We'll produce a very large stockpile on it. On the basis of what will necessarily be extremely inadequate evidence for the safety of its application may then sometime be used in a very large scale. As long as such work is developed within the framework of military security I don't see how it can come out any other way. It will be rather as if Fort Detrick had had the responsibility for the development of the Sabin vaccine. And the question of the safety of the vaccine was itself a subject of military security. It was an agent disseminated on a very large scale for a humanitarian purpose. But we wouldn't dream of doing that because we know that in order to get a workable result we have to subject our efforts in an area that is subject to as much confusion and uncertainty as virology to the widest possible range of scientific criticism. And that criticism hasn't died down yet. I don't know any really important reason why candidate agents for military purposes can't be publicized along with the other 99% of the research that you are talking about and let the question of their safety and their humanity and all the rest of this be subject to a general scientific scrutiny before we commit ourselves as a nation to the use of these kinds of agents. One of the main reasons I say that is in the long run, the operation of military security is going to keep the scientists of this country from knowing about it and being able to apply their judgment. And it isn't going to be kept

a secret from the Soviet Union and Communist China. Their military intelligence is going to get at it as they have gotten every other really important major development that has come along. Meantime we will not be able to apply our criteria of scientific judgment on a sufficiently broad basis.

Gen. Rothschild?

I might just mention a couple of points on that. I don't think we're quite working on as small a scale as you mention, Dr. Lederberg, on the candidate agents. When you mention 10 people, I think we go larger than that. But don't forget we do have our civilian scientists who advise us on this. And we have a fiar number. We certainly try to select well qualified ones. I admit that with no organic material (are you) you're not going to know what you're going to do until you put in an awful lot of people. But in wartime you don't quite have this choice. If we, for example, had selected (well say) three agents that we are going to stockpile and told everyone in the world what they were, normally you'll pick an agent which is not endemic to the area in which you might use it, the chances are that your opponent could definitely develop protective measures against and it would'not be useful as an agent.

Dr. Lederberg:

You might have gotten the greatest cost effectiveness out of doing exactly that, you know, and a few plants with respect to the kinds of agents you pretend to stockpile can (in terms of) to the economic cost of the enemy make it justify the whole program. I'd be (you know I'd like to know) more content to know whether there (is) an extra (external and that almost has to mean) civilians review committee, for example the Public Health Serviec, that has the authority to inquire about the safety aspects of the

dissemination of agents and their development and it could really assure itself with regard to the point that you make. When you say there is a most careful review by an advisory group, an advisory group is usually told what the people who want the advice want it to be told. That isn't the exactly the kind of level of criticism that I'm thinking of.

Gen. Rothschild:

I think that the quality of people that we have...

Dr. Lederberg:

] It isn't a question of the quality of the people, it is a question of what they are told.

Gen. Rothschild:

They get complete disclosure of everything we have. You mention the Public Hdalth Service, we always have someone from the Public Health Service on our Advisory Committe, Dr. Alex Muir was on it for a long time and may still be, I don't know, I haven't been in close contact with the people. We have people, many of whom you know. I think we get adequate advisors and it seems to me that this is a place in which the ASM is very interested in seeing that we get good advice. So its committee should be stocked with the best possible people you have and the most conservative and insure that the approach is proper.

Dr. Lederberg:

I have the greatest admiration for Dr. Baldwin and I've known him for a very long time and I know that in the context of a professor at the University of Wisconsin he is a very competent advisor indeed because he can consult with a great many other people on questions where his own expertise will be limited. You are dealing with a very broad range of questions and inevitably there will be. I think that to talk about the competence of an advisor in the context of his own information

when he is precluded from making further inquiry in getting further advice himself is really cake quite differently. As a matter of fact I'd like to press you on this point. Are these civilian advisors in fact informed with respect to every detail of the program in the areas we are talking about? Do they really have the whole picture available to them?

Gen. Rothschild:

Yes, the answer is yes. There is nothing they don't have available to them.

Question: Dr. Clark

Are they themselves sworn to secrecy.

Dr. Lederberg and Gen. Rothschild:

Yes, of course.

Gen. Rothschild:

But you see again the secrecy only applies to the area in which are kept secret, which are relatively minor areas.

Dr. Lederberg:

Well I believe might make a start on the policy that I've indicated. I think it is going to take a while to get a treaty that says we keep no secrets. But I think a formal statement and a committment with respect to what activities are fully published and what activities are kept secret might itself be a good idea. I don't know what the guidelines are to the classification officers in this respect, and I imagine there would be a few documents about which there might be some marginal discomfort about whether to open it or not. That is just the point though, you see. I think if there were a policy that the area of biological warfare is so touchy that this must receive special consideration. Maybe the burden of proof ought to be on the other side.

Question last - Dr. Clark's question about the two kinds of policies on secrecy.

Gen. Rothschild:

This was a matter of government policy, and this is one thing I have protested against ever since I got out and I can do it quite publicly. I can talk about our policy which says that we won't talk about chemical weapons, we won't talk about biological weapons freely. We don't even talk about them enough in the government to determine on a sound basis whether we should use them or not. I think that this is wrong and I say so now. So the two policies of restriction, military secrecy for example, still binds me if I know any secrets which I don't really...I've been out too long. But the restrictions through government policy don't affect me at all once I retired. These are the two areas that I was speaking about. There is no doubt that these hamper people in the service but in the biological field we have less restrictions, for example, than we have inthe chemical field. The reason is because it is new. The chemical weapon field went through this from WW I. They got beat down so often on trying to put information out that they finally just gave up. They don't publish hardly anything. In the biological field, however, starting much more recently they have kept fighting to publish and they do publish quite freely. As I say I get an awful lot of papers, a constatn outflow of papers from Detrick published in all the normal journals.

Dr. Lederberg:

That statement is often made but it doesn't really answer the point. It is the papers that don't get published that we're concerned about and which represent what is being classified and presumably the most sensitive aspect of the program. Again a statement with respect to the proportion of work is published is also pretty meaningless too. From this point of view. It is very hard to form judgments of policy based on what has been published when you know that the most sensitive areas aren't.

Ge. Rothschild:

By putting your top people on your committee advising Detrick you can insure that the best possible approach is made to the subject.

Dr. Lederberg:

I feel myself that that's better than no ventilation at all. With respect to the issues immediately on the table, my only question is whether it is worth the fuss to have the Society as an official body involved in this. You can get at those same top people just as well, and since their judgments are kept top secret it is impossible for the rest of the Society to know whether it has any particular role in endorsing or not endorsing what they have to say. That capsules my own general reaction to whether there should be an official advisory committee of the ASM. I think the Services sould be applauded for their efforts to get that kind of civilian advisory support. I guess I only feel it ought to be greatly enlarged, in fact ought to include everybody.and as close to everybody as you can manage to have.

Ge. Rothschild:

I think you bring in a great aspect of safety from the standpoint of the country.when you will have a society such as the ASM designate who is going to advise Detrick rather than let them select their own advisors. Because there is a danger in this, of their selecting advisors that they work with and who they feel are going to tell them what they want to hear.

Dr. -Lederberg:

I think the much more important restraint is to publish the list of your civilian advisors and let the country judge whether they are a reputable group or not, you'll hear enough about it if they are not. You don't need the Society to do this and there is no mechanism of selection

within the Society that assures that they meet the qualifications that you have in mind. Those people will get on the advisory committee who are interested in biological warfare for other reasons and who are regarded as safe and clearable. That is about the only criterion they satisfy. If the Service feels that it has achieved a great service from the Society in validating the most appropriate experts by the fact of their membership on this advisory committee, I think they are under a great delusion. They just don't think they know how a society operates when that is the case.

Gen. Rothschild:

Of course there is always an agreement on this if the Society proposes somebody, Detrick in this case or the Research and Development Command demand that higher agency approve them.

Dr. Lederberg:

Of course. But the Society doesn't propose anybody in a case of this sort. An officer of the Society does and using the Society to identify who some prominent microbiologists are. Rather than involve the membership of the Society in an issue about which they can't know very much why not just go after these people. You can get the list of officers of the ASM and if that's the criterion of excellence in microbiology and sometimes it is and sometimes it isn't, but that information is public too. Nobody is keeping it a secret from the Army.

Question from the audience:

Page 8b Dr. Moulder

Q; I wonder if I could ask Professor Lederberg had you thought specifically what sort of biological catastrophe might result from uncontrolled research on biological warfare?

Dr. Lederberg:

Dr. Lederberg:

I ~~said~~ thought that was an extrapolation from the example I gave on dengue. They are mostly in that line, namely that agents will be widely disseminated for offensive purposes on the basis of what will necessarily be a very inadequate level of testing on security grounds and that even 10 or 100 or even 1000 people subjected to dengue virus undr one set of conditions may be a very inappropriate basis to predict what will happen whenmush more massive populations are exposed under differemt conditions. One thing I should have stressed more clearly because it is in the back of my mind in all of this is that we don't know when the species is going to be subjected to another risk of decimation analogous to the black plague, analogous to the influenza pandemics and do on. There is not anyone who has~~n't a~~ the prophetic foresight to know when by the natural processes of the evolution of pahtogenic microbes agents of this sort are going to come along. One reason that I had some sympathy for the certain activities in the field of biological warfare is that if public health can't justify the funds maybe the military security can to go after the methods ~~the~~ of detection and ~~th~~ even the methods of large scale defense against the threat which in this case will have been from natural rather than artificial ~~forces~~ sources. That is also a reason I would like to see that made more public so that it could be made more apt for this purpose. It seems to me that the surest way in which to bring about the development of a deciminating pandemic is the selection of agents that have a marginal degree of incapacitation but are highly infective and highly durable in the atmosphere in order to meet the other requirements of military security. ~~The~~ there will be an enormous difference between trying it out ~~and~~ in an experimental basis on the few tens or a few thousands of individuals and leaving it out in nature subject to recombination and mutation on a very large scale on an offensive basis. That is The hazard that I am concerned about.

Question: Dr. Moulder

I was thinking about Gen. Rothschild's ?.

What do we know about what happens even when a known infectious agent spread to a given locality. can we really start a pandemic with a known agent by spreading it over a known small locality.

Dr. Lederberg:

You've got starting a huge focus is what you're saying.

Question: Dr. Moulder

Yes. And can we reproduce the flu virus picture in the lab That is can we take an agent and tailor a model agent that we can put at one point source and spread all over the world. That is what the pandemic flu virus does each time it ? and will we be able to make a new agent Once we put it out in any one place we no longer have it under control. I don't think we can answer that on any conceivable experminetal basis.

Dr. Rothschild:

I might mention one thing that you probably all familiar with. An epidemic is, of course, the result of a very complex set of circumstances that I don't think any one can plan on reproducing. So none of our military thinking in this field would ever plan on starting an epidemic. I would venture to say that the secondary effects, infections, froma primary biological attack are militarily unimportant. In other words a material put on dust that is picked up that people inhaled that is moved or is transmitted from person to person are militarily inimportant. Yousee, in this case, you must remember that no military agent including these are just used indiscriminately. We speak about small countries, for example, having the capability of using biological agents. Now to launch a sophisticated biological attack takes one whale of a lot of research and development .

Dr. Lederberg:

Which we will regret have done over the next ten years and over the next 20 years

given over.

Dr. Rothschild:

Yes, except for details of actual munitions and so on. What ~~the~~ a small country could through relatively inefficient ways grow sufficient material and disseminate it through fairly curde techniques practically modify commercial techniques for putting out various materials now in use, could launch an attack which could have a fair amount of effectiveness even though it isn't a very efficient one. So they could do this. But they certainly would never do this against a large country because there would be no mission, no purpose, no objective to the accomplishment. They have got to have one or they are not going to expose themselves to the possiblity of being found out and destroyed. Dr. Lederberg mentioned Egypt in this respect. I don't know if I would put it beyond Egypt to ~~sue~~ use such an attack against Israel and take the ~~illiness~~ onus after it is over. You know nothing succeeds like success. Once you have wan then ~~most~~ let people talk about it. This is a possibility. As far as our own country is concerned it is difficult to visualize something like this. For example, it would be ~~the~~ very simple for a nation to disseminate the stem rust of wheat down in the Gulf of Mexico. We periodically have attacks of stem rust of wheat that start down in Mexico or in the Gulf area there and then on the winds move north. Some of them do a great deal of damage. It would not be difficult to initiate an epidemic of this sort. But with the dangers of being found out and the dangers of what the results would be when we did find out, no small country would do this. There must be a realistic military objective to be accomplished. This has got me digressed from another point I was going to make but I'll quit here.

Dr. Lederberg:

Well, let me pursue just that point because ——— .

Dr. Rothschild:

May I go into it further. We wouldn't be starting an epidemic.

What I would like to ask in your secondary effects, your public health measures can control them even though that alot of people can get sick depending on the agents you are using. It may be an incapacitating agent where the damage isn't severe. But your public health measures can normally control this. As you know a normal epidemic as you say starts from a small focus, spreads out slowly, the flu epidemic of 1918 I think took two years to get across the country. A military attack is quite different. If I wanted to attack a particular area I would hit that whole area with organisms airbound that people would inhale and they would all became ill, all those who were going to become ill who were going to become infected and contract the disease, at the same time. Now you can see why this is an effective military meapon. This means over the area I'm talking about your doctors become ill in the same proportion as other people, your nurses, your normal public health facilities, your transportation system poeple, all of them. So it is not like an epidemic that slowly develops and people drop out and somebody elde comes in and takes their job. This area is pretty well knocked out. You can, for example, hit something like 10, 15 or 20% casulaities, casualties don't mean net deaths, of course, it means people who are in this case ill. So you really have knock out an area. So I would like to ask the question, Dr. Lederberg brought up the pandemic idea, is there a danger of this sort of thing whith our present public health measures in the world, of a pandemic do you think?

Dr. Lederberg:

Of course thereis. There is a danger that this will happen tommorrow with another influenza and ~~I don't think~~ our existing public health measures won't be able to do anything about it.

Dr. rothschild:

If it way something like smallpox, we smash it right away because we can't treat smallpox. ~~All~~ but we can ~~do is~~ immunize people against it.

Question: Dr. Moulder
We have
Spreading a pandemic may ~~have power~~ now of asiatic cholera Its Spreading slowly right along the old historic routes of spread and its probably In Turkey and maybe Greeee now. Modern Public health measures apparently from the cholera expert have ~~does~~ not changed the inexorable pattern of spread of cholera.

Dr. Rrothschild:

Is there enough effort beging made?

Question: Dr. Moulder
There's a whole lot of effort being made. It's the big thing in World health right now.

Dr. Lederberg:

Well it plainly inn't enough, it isn't all that is possible to do from a technical standpoint. If we could develop that technical expertee to control infectious disease, I might regard it as even worth paying the cost of a biological warfare program at the same time. It is that lack of balance that we don't have that kind of world public health at a time when we are still playing with fire in these other directions. This is why I argue not for stopping this kind of research and development but for publicising it. Because I think it will be ~~x~~ the very impact of the more general realization of exactly what is going on, exactly what techniques are available that will provoke more effort in these lines.

Dr. Douderoff:

I hear that we are attempting to develop more infectious and lethal agents both against animals or humans and plants. This is where there is a real anger.having arunaway pandemic of some sort. I also read in the paper the other day about several Germans I think who handeled a monkey and died and I don't know what happened but that was couldn't if we start a thing like that, If indeed we are starting developmeng by mutation and selection strains of microorganisms that might give us a runaway like that. I don't know if we are doing this or not but I am generally aware ? .I can't see that this is a

public health measure when we try to develop a more lethal agent.

Dr. Lederberg:

I would like to make a remark about it Mike because I do not have priveleged information in this area. It is my belief that based on what I've seen and has been published that no very sophisticated efforts are now entrained in this direction but some efforts are. Obviously efforts to produce more pathogenic agents are in the works and you occasionally hear reports on the genetics of virulence out of these laboratories and so on. I am personally not deeply alarmed about the level of effort now going on in this direction. I am concerned what will happen if there is a 100 fold escalation of effort in biological warfare. And this I'm afraid is inevitably in the cards if we keep going as we have been. Each of the nations that might be involved in it is provoking the other, and it is that level of activity when as I say a 100 fold increase in the effort to produce more aggressive agents that might produce anyone of a large variety of calculated effects is when I think we really are in the soup. It is the anticipation of this vast expansion of this kind of suicidal effort that I would like us to stop right now. Because I don't think we will be able to stop it once we are committed that deeply to it.

Question: Leon Levintow

I gather that the BW platform now is practical as you say and that with respect to ? you believe that it is more humanitarian, it ranks higher than some conventional weapons It is cheaper probably too than certain nuclear weapons. If we can do it why aren't what are the constraints that have prevented us from employing these weapons.

Dr. Rothschild:

It is very difficult to answer you question because it is a very involved thing. As I say we can't get enough discussion in our government at least we couldn't when I was there and I'm sure we haven't now from what I've read everything I find out

of these areas to arive at a rational decision as to whether we should use them or not. It is all irrational. Now do you ask how does this come about. I think it comes about throughthe propaganda of WW I. In WW I the Germans launched the first large scale gas attack. They were not the first ones to use gas, the French were. But they launched the first large scale gas attack using chlorine at Ypres which they released from cyllinders and they hit an area of 5000 meters wide and maybe they did a lot of damage to particularly Canadian troops. And if their Generals had had any faith in the new weapons which generals usually don't they would have had sufficient reserves behind that attack and they could have gone right through to the Chanel. But they didn't have any more faith than the allied generals. The reason I say that is because the allied generals wer etold by intelligence repeatedly that this attack was going to be launched. But they didn't believe a new weapon could be used either so they were not prepared to defend themselves. So here we were hit by a new type of warfare, and at that time they had no defense against it except propaganda so they started the propaganda machines going. They talked about this horrible new weapon and this inhumane gas using Hun .this was a pretty good deal. It whipped up alot of war spirit. It was very effective. So by the time we had protective measures, pretty crude but they worked, and by the time the allies were using gas very effectively and widely, we had found out that this propaganda was wonderful to whip up War spirit. So it kept on and we we inculcated certainly a whole generation of people with how bad chemical warfare was in spite of the statistics I just gave you. This has carried over. Now a lot of these same people are still in position to influence government policy and another thing is that from the military viewpoint war is pretty conplicated as it is these days. And you just have one devil of a time training the normal soldier you get in all the

aspects of protection and offensive methods he has to use to fight a war. Therefore the generals also don't want to see a new method introduced generally because it is going to upset their applecart. They are going to have to think of something new. There is a different method of using this. To show you how ~~progress~~ this goes I was chemical officer of the Far East Command at the time of the Korean War. I kept fighting for a long time to get permission to use chemical agents in ~~the~~ our POW camps in North Korea. The reason being that the N. Korean ~~that~~ who was captured didn't stop fighting the war, he kept fighting the war. He had leaders in there, they organized riots. We had to shoot them constantly, machine guns and rifles, And this is wonderful propaganda for the enemy. And they kept fighting, of course the leaders were always in the back where they wern't going to get shot. Well I finally got permission, of course I had to go throughthe War Dept. at the time, to use tear gas and vomiting gas in the POW camps. We stopped those riots quickly and there was no more propaganda. But I was present at one of the POW camps when a riot started. And I watched them. NOw these soldiers had had a lot of training in this. we sent over ~~a lot~~ of special people to train them. So the rioters were right here. Now with a tear gas grenade which burns from anything from 30 seconds to 2 minutes depending what you are using, what you do is throw it up wind and let the vapor go down over the people. They didn't do that. They threw it right at the people. So this half didn't get any because the windxxxxxxxxxxxxxxxxwas blowing this way. These people could throw it thxxxxxx back and could get out of it. Here is a very simple approach that requires ~~no~~ new thinking. Our police are exactly the same way in this country. We should beat up... This was tried in Buffalo I think it was. We had all the riots this last summer and they were expersive in life and property. In Buffalo somebody decided theywere going to try and do something about this and they trained a number of squads who were ready to go out immediately to use tear gas.

So what happened? As soon as they got to a focal point of trouble, they didn't wait till this grew to a riot, they broke up the crowd immediately with tear gas. This continued for four nights because they were trying to get started. But there ~~was~~ is relatively little damage done, there ~~was~~ is nobody killed, there is nobody injured. But it was effective. But here again the police have to think of new methods and they don't want to. We have this new chemical Mace which you have probably heard about which ~~which~~ is this little spray can which the police can use and it will shoot for 15 or 20 feet. If it hits a man near the face it is going to knock him out pretty well. It contains some sort of a solvent that seems to expose nerve ends and just a tiny bit of teargas. It not only gives them the effects of tear gas but it really knocks them out. He is disoriented for 10 or 15 minutes. Very effective. You read not too long ago in the last few weeks about this man who lost his girl and he shot the guy she was going to marry I think. Took her into a second story building of a house and the police couldn't get at him. They pleaded with him and it didn't do any good. Finally he shot the girl and I think killed himself. The girl is very seriously wounded. All they had to do was to take an e explosive type tear gas bomb which puts out just a puff of tear gas, not too much so that in the small space it won't kill anybody, throw that through the window and that man would have been completely incapacitated just like that. He couldn't have done a thing. but you see here again it is different type of thinking and people don't like a new type of thinking. This seems to be the main thing that holds us down. Then of course you run into the emotional standpoint resulting from the propaganda and resulting from peoples dislike of war. Of course disliking war is a very logical answer. And I'm all with them. That is why I'm a member of the National Advisory Board of the United World Rederalists which is trying to stop war, that's what this for,

Fighting war and trying to eliminate specific weapons of war are two different things. I don't think you can eliminate specific weapons of war and make it stick. When a nation gets in a hole, a bad enough hole, they are going to use them, if they think it is to their advantage. I think you can organizationally eliminate war if you can get nations to agree to it. I think it can be done with safety to all nations. Eliminating weapons of war is different, and this has gone on all through the history. You know they tried to stop the long bow because it was inhumane. Up to that time knights with armour were practically safe. It was only the people on the ground who got killed. And this was a brutal type of warfare, a longbow would go through a knight. The same thing was true when they tried to eliminate the submarine, for example. And the air craft at the Hague Peace convention in 1898. They also tried to eliminate gas then. Well the submarine didn't work because the French thought that it might be useful to them. The gas worked with a certain munber of nations, all of which participated in WW I at the start and they used gas. So it didn't hold. I don't think you can eliminate weapons of war. I think you can possibly eliminate war but not the pieces of war. So there is no logic to why were not using it but we are not.

Question: Livintow

You don't think that the concern that Dr Lederberg has expressed has entered, of Unleashing Pandora's box.
Lederberg: At levels of public policy, I'm sure not
Leon

Dr. Rothschild:

Its classed as the same thinking as chemical warfare and there is no pandemic and you can start with chemical warfare or even epidemic

so I don't think that has had a great particluar bearing.

Question:

I'd like to ask if you see any other way of getting rationality into the decision-making processes other than the plan proposed by Dr. Lederberg; that is, complete public disclosure, making this in a sense a legitimate area of scientific inquiry involving the scientific community. That is why are you not enthusiastically behind this proposal?

Dr. Rothschild;

I think that in the state of the world as it is political today it just isn't possible. Unless you want to do it unilaterally, of course. I don't think you'll get agreement on this. Inthe area of testing nuclear weapons underground you remember we have been unable to get any agreement at all on it. On the Soviet side they won't take any inspection, and our side we say there's a faint chance of their getting away with something. The chances are pretty small. We have methods that would detect perhaps most of your bursts underground. But we don't have a complete ban on weapons yet. Because there is a faint possibility that some of these could go undisclosed. We have a good enough system so it would be practically impossible to get away with it but nobody will accept it. So when we talk about the other unless we are willing to do it unilaterally and I know I personally would not be we are stuck. Because there are things of value here in weapons, in munitions, and in agents that you don't just want to turn over to an enemy. who might use them against you.

Dr. Lederberg:

I think there is alot to be gained by not doing this unilaterally. But I think we lose a great deal by not taking the initiative towards negotiations in this area This country is simply not doing that. I would be much more sympathetic to the line you took if we had made proposals in the UN or otherwise suggested a conference for the control of biological weapons

and for mutual disclosure, tried to work out exactly what level of such disclosure is possible and so on. We have taken absolutely no position on this point.

Dr. Rothschild:

It is not quite that bad. We have not made approaches on the system you have taken on complete disclosure. However there have been efforts made at Geneva to ban the use of biological warfare.

Dr. Lederberg:

I would like to know what they are, what American participation has been in this.

Dr. Rothschild:

We had three proposals very definitely to this effect, so have the Russians. But the trouble is these are a lot for propaganda purposes. But then when we get down to saying how will we inspect to see that people are complying, you can't get agreement. How are you going to know that you are getting complete disclosure , that they're going to bring up the ~~complete~~ inspection thing again. So I don't object to the method but I just don't think that it has a chance of getting anyplace.

Dr. Lederberg:

I'm not informed about any initiatives that this country has taken in this area. On the contrary a number have been brought up I agree entirely for propaganda purposes. For exapmle by Hungary in the UN and they have been left tabled. And there has been no repponse on the part of the US at all to them.

Dr. Rothschild:

No, we've made approaches, We have ~~always~~ had investigations by the arms control agency on methods of detection of violations of manufacture and testing of BW agents and ~~I should~~ as you say nothing has gotten anyplace. Whether our proposals are made in good faith I don't know. I think they are actually.

Dr. Lederberg:

I don't think any of our proposals have been pushed to the point that they have any degree of public visibility either to the American public or the Soviets and I think this is a difficult thing.

Dr. Rothschild:

Oh no, the Soviet is not ~~responsible~~ responding to these either.

~~Question:~~ Dr. Phillip Wyatt

I would like to get back to the main reason for holding this meeting and that is to discuss the Advisory ~~state~~. Committee

Dr. Clark:

q That comes in the second part of the meeting. We have the Chairman of the Advisory Committee here , we have a member of the Advisory Committee here.

Question: ?

to get the distinguished American Society to volunteer

What is the purpose of associating this Society with those ?

How do you get scientific opinion pushed deeply into the military? And how do you, I mean this is a political pressure type activity that has to be done by someone this Society has the means and the ability to do this. I think this should be discussed

Dr. Lederberg:

I would like to make a partial response to the remark you made because I think that there is a very important distinction. We are necessarily extremely sensitive down to the last iota on questions of security, disclosure, and inspection when it comes to nuclear weapons. There is just no doubt whatsoever that ~~our~~ to the extent that military security is security at all that ~~but~~ our life does depend on that. The argument that I would like to make is that we can afford to take a higher level of risk with respect to the same issues of inspection and certainty of compliance on the other side in

biological weaponrythan we can in atomic weaponry. Precisely for the reasnons that our survival as a nation does not depend on this. These are not valid weapons sufficiently proved out that they're going to be widely used anyhow in advance of some large scale premonition that they have in fact been tested. They are not in the same stage of development that anybody can push a button and go ahead and do anything with them. I'm trying to say that just because we are at a stage long before the large scale development and deployment of these agents we can afford to explore levels of confidence with one another in the world about biological agents that we couldn't tolerate with respect to nuclear ones. And that is why I think they are very good candidates for efforts at reaching some degree of mutual agreement at a level of confidence that wouldn't be sufficient to apply to nuclear weaponry.

Dr. Rothschild:

I'm not sure I agree with you on the nuclear weapons, Dr. Lederberg. It depends on the area you are talking about. If you are talking about refinements of offensive techniques in nuclear weapons, it is hard for me to see how this is very important. As long as you have the power to destroy the other nation the refinements to me no longer seem to be very important. If you had a break through in defensive measures, which we haven't had, this is a different proposition. But the offensive power is so great and the ability to stop it at the present time is so limited that I'm not sure that you should exclude nuclear weapons from this sort of thing any more than you would biological ones. weapons.

Dr/ Lederberg:

Well, I'd be glad to carry it one step further but I guess I guess I was jumping one step ahead to the region of arms control. And assertions that we have infact eliminated our stodkpile of nuclear weapons is not something that we are about do without very intensive inspection of machinery.

I submit we can afford to enter into a treaty with respect to the disposition of stockpiles of biological weapns at a level of confidence that falls far short of what we need in the nuclear area, and that is essentially what I was driving at.

Question: Joe Neilands

Gen. Rothschild, you mentioned questions about humanity and morality in chemical and biological warfare but you didn't say much about the legality although you did say that the US is not a party to an agreement prohibiting the use of these agents. Now is it not a fact that the US has signed the Geneva protocol of 1925 although it has not been although it may not be gatified is it not a fact tht it has been accepted by the decent opinion of manking and by most civilized nations. Would you advocate that the US appear before the court in session on the international war crimes tribunal and defend the use of CS gas in Vietnam.

Dr. Rothschild:

In answering your first question, our delegates did sign the Geneva gas protocol in 1925, it was not ratified so we're not signatory to it. When it comes to the decent opinion of manking it depends on what it is based upon. Whether it is based on knowledge or feelings. And my feelings and knowledge lead me to believe that there is much more defense for the use of chemical warfare if you have to fight a war than there is argument against it. I suppose when you talk about decent feelings it reminds me of a sign I saw on a window over on Sutter street the other day. It says I love humanity, it is people I hate. I don't know how much respect I have for the general opinion of people unless they are informed people. So when you talk about defending the US for using C S gas in Vietnam I don't think a defense is necessary. I think that we took humanitarian measures there which are much to our credit. It was our handling of the situation that was wrong. When this was first used, it happened to be by the South Vietnamese even though we supplied it in the beginning of 1965,

very stupidly, instead of the US saying we are going to use these things so that we can avoid shooting when women and children who are out in fromt of the Viet Cong as hostages, and this will allow us to break up the attack without shooting them, they kept quiet about the thing until it leaked out through the reporters with an outcry all over the world. Then our adminsitration was forced actually forced by the outcry into making a defense. The defnese is very weak. They didn't have any position prepared and the defense they gave was about the weakest that you could possibly imagine. I heard Dean Rusk give it and I read some of the others. But the outcry died down immediately. Around this country the editorial content of the papers was very favorable which it hadn't been before because there was an explanation. This was done with good cause, it was done for humanitarian reason. So I don't think we need any defnnse further of using CS . I think it is a perfectly proper use. I think we could go further and use other agents also that would be to ourcredit.

Question: Dr. Joe Neiland's

How many nation that sighed the 1925 protocol?

Dr. Rothschild:

Oh, there are a fair number. It is possibly up, I'm just guessing now because I haven't looked recently. Say on the order of 50 or 60. But of course don't forget that both Ethiopia and Italy sighed the protocol but Italy still used gas against Ethiopia in the Abssynian campaign in 1936.

Dr. Lederberg:

Well let's not make that part of any defense of american policy.

Dr. Rothschild:

Again I'm making the point that these agreements mean well and I think our position is a sound one.

Quite sound.

Mark Achtman:

I'd like to bring up a couple of examples from things Igrie said that I think are very illustrative of many dangers involved in biological warfare and chemical warfare as well.

You've been talking about a chemical called Mace which some of the people in this area have had quite intimate contact with having been sprayed with it in Oakland. One thing that became very obvious was that nobody really knew what the chemical was doing to the people. Nobody really knew what the lasting effects of this were. The people which were being used as test cases are quite unsure what permanent effects it will have on them. But the police were very happy to have this incapacitating agent which they were quite happy to use on a crowd which wasn't really all that dangerous but was interfering. The other illustration is that you seem uncertain about the possibilities of a pandemic being started once you have had a huge focus of biological attack. This uncertainty or any lack of knowledge about something as complicated as this must negate any thought of using biological war because we just don't know what can happen, The danger is much too great and the advantage is too little to justify it.

Dr. Rothschild:

Well, you always have to remember you are comparing something against something else. When you talk about the use of Mace for example I know that if a policeman lays an 18 inch billy across a man's head it is going to do damage.

Mark Achtman

To one man. That same policeman can nowspray...

Dr. Rothschild:

The mace chemical affects no one but the man that is hit and he even has to be hit somewhere near the face before it is goin to affect him. It isn't going to affect anyone else in the area.

Mark: And the policeman is going like this

And now he has struck twenty-five people in that one easy stroke.

Dr. Rothschild;

Possibly, but the fact still remains, as I say you are comparing one weaponagainst another, whether it is in the hands of the police or in the hands of the service. An epidemic is very unlikely to be started and I ask the question here speaking generally of any pandemic in the world these days. I wasn't only speaking of one from a BW. It seems to me that the public health measures would tend to stop it. Of course when you go from epidemic to pandemic it depends on what volume you are talkigg about and we do have the cholera which is spreading. I have a feeling, and I'm not sure,that a sufficient world effort would stop the cholera epidemic from spreading. But we don't get the effort through various things. We don't get it through the desire of the world to do enough, or the countries to do enough. Now these countries are all of the backward countries again. And they don't put up the effort in these things and they don't get it from the world and the UN as a tool doesn't have that much effort at its disposal. I don't think that there is any reason that a pandemic can't be stopped in the world. But Dr. Lederberg would know alot more about this than I do.

Dr. Lederberg:

No, I don't know anything about it, and I don't think that anybody else does either and I feel we are living in a fools paradise with respect to our security against world wide disease.

Question:

I've seen a Viet Cong publication on how our uses of gas are used in Southeast Asia and I spoke to (Dr. Rothschild: You mean South Vietnam.) yeas I suppose the truth lies somewhere between what we say we are doing and what they say we are doing. But they mention things like somehow poison accidentally getting into food in concentration camps,

somehow the proper concentration of ~~lethal~~ defoliant being used and people were dying from too high a concentrationbeing sprayed on the people instead of being tear gas it amounted to a very lethal chemical and another report of poisoned candy

Dr. Lederberg:

That was in Tihuana.

No that wasn't entirely facetious if I can anticipate your remarks. That is clumsiness in dealing with very potent agents and it souldn't be condoned. That clumsiness ~~It~~ can occur in the service, it can occur in the police department and it oughtn't to be condoned ~~without the~~ There ought to be skilled use of any of these agents. It has nothing to do with the philosophical wories about whether they're to be used at all.

Dr. Rothschild:

I think I can go a little bit further in answering this. Yes, their approach has been very advantageous to us. The agents that we have used as I say have been 24D, 2,4, 5T and cacodilic? acid. The toxicity to humans is exceedingly low. The NLF and the Viet Cong put out this propaganda for the propaganda value and it has proven to be of great value to us. Because once we have used this material on an area the Viet Cong will never enter that area again and they won't eat any of the food that is in that area. The food that is lying out there, the drying fish and so on, ~~is~~ are perfectly edible. They won't touch ~~it~~ them. I've seen pictures for exapple, air photos, of the river leading up to I think it was Saigon, a beautiful curving river, there ~~is~~ was fire coming on our planes from this area on one side. They were warned as they always are by leaflets before we launch any attack whether it is with CS or anything else, with anticrop agents, they were warned to stop the fire ~~in~~ or the area ~~or~~ would be attacked. And they didn't. The area was laid waste with the anticrop agents. They won't go back in those areas which is very advantageous to us. They won't eat the food that they have ~~satred~~ stored there which is foolish. It is very difficult to substantiate their claim of forcing starvation on them because here in this picture on the other side of the river you see all these beautiful

fields still in bloom and on both sides of this particular field that they are having the trouble with the fields were still growing their crops. I don't think there is any truth to the propaganda at all. This is nothing but that propaganda. Incidentally on CS every time we hit an area, I gave you one example in operation Light Wing one of the large operations we have there, in this village there was fire coming on our helicopters and planes. We drop leaflets saying that you stop the fire or we are going to attack. Well the fire didn't stop so again they dropped leaflets and said that we are going to attack this area with gas. Get out. Some of the villagers did and some didn't, I'm not sure they all had a choice. They then did hit that village with CS, with the tear gas, followed up immediately with troops. they captured a number of Viet Cong and of course took over the village and there wasn't anybody killed. There were no shots fired at all. This is another example of the use of a humanitarian agent properly applied. They have always dropped pamphlets before they attack any of these areas with anticrop agents. They tell the people where they can go and get food too.

Question: Dr Allen G. Marr
I have a question that is related to one raised by Professor Neilands. There's an implication that there's some legal or moral restraint on our participation in _____? _____? scientists should be working on _____? _____? _____. The implication of our not being officially satisfied as a signer of the treaty perhaps is not an issue. I'd want to say. Suppose out of the question of international law in relation to the precedents of the Nuremberg trials, what would a scientist do when Dr. Rothschild: is fulfilling their citizen's duty by participating in some aspect of, I don't think this aspect came up in the [illegible] Biological work?

You have got me in an area where I am a little bit shakey Cause I haven't looked at these things for a long time. It seems to me your applications there were when the measures that the doctors for example were taking were against individuals, patients. This is what they considered as crimes. I don't think this other comes under any restrictions that

were considered there. I'm not quite sure of my grounds.

Question: Dr. Heal- Boyer : Some of the last few questions have skirted the issue. Are biological weapons really more humanitarian that convential weapons then the case can be made that they are even less humanitarian than convential weapons. I think that some of your exapmles are very good as used in the concentration camps to quell rioting that is fine. I don't think the first interest of the Pentagon and the humane interest to military security as it is to developing mor e weapons. They are interested in for example in very effective weapons. Nevertheless the research is conducted under such conditions where you are maximizing the safety for the inhegality of your position whereas like we probably in the event great used of biological weapons ? carried out as supplementary to convential weapons. Under these conditions I believe that it would be even more disastrous for the ? to not be able to control ? providing proper medical care for the large civilian population be necessary

Dr. Rothschild:

I don't think necessarily the toxic weapons are supplementary to the conventianal I think they are complemdntary more than that. They are used in their own area where they can do the most good. But as I say I think you have more control. You don't to kill. You see you drop an HE bomb or a shell, within the certain area you are going to kill everybody that is there and you are going to knock down what is there. In another area you are going to maime the people that are there unless they happen to be protected and in other area people aren't going to be hurt probably. But you have no control once you have launched that thing. Your control is completely gone. You take a biological weapon which you are specifically referring to which you are interested in here, you do have a level of control. You know the damage you are going to do. For

expmple, if you are using an incapacitating agent, you know that the people are going to die ~~ax~~ are going to within some range, some predeterminable ragge. In the case of an incapacitating agent it will be a low range. Furthermore certainly with agents that we are talking about for our country you will not have long term residual effects which you do have with lethal [ah] the conventional weapons. To me anyone who has ever seen anyone hurt through trauma weapons can be under no allusions of the suffering they undergo and we are used to encountering diseaseall the time. We don't like it. Some of them you recover from without treatment, others you need treatment for and you suffer when you are going through them. but if you can recover from this and not have residual effects and you can control it, to me this is a lot more humane that the use of your normal HE weapons which are trauma weapons. Napalm, flaming gasoline for exapmle, or fine particles of metal and so on.

Dr. Lederberg:

I think your reamrks are strong arguments for more research on chemical warfare weapons to make sure they are developmdn to the point of efficacy where they can relied upon. ~~Secondly~~ separately from the combined use of many? others. I think as you pointed out pragmatically many commanders do not have this degree of confidence in new weapons and how important it will be in such cases where there will be civilian hostages and so on is a question of the humane quality of a weapon going to be through a commander under the condition of stress in a military situation. It is going to use every combination of his resources that he has ~~xx~~ at his disposal and the net result may be no different than will be whether he had chemical weapons or not. If they could be developed to the point of absolute reliability we may reach the ideal state that you are talking about. You can win a war without hurting anybody but I think it will impossible to get there. we call a halt before we

Dr. Rothschild:

You mention chemical weapons specifically. If the chemix chemical weapons were used in war it wouldn't be more than a very short time before you officers and your men would be well qualified in the field. In the first place they are not well trained in defense now and the first gas attack against us would be disastrous. I assume any enemy would use it on a very large scale and our men would not protect themselves because you can't force them to protect themselves against something that the country says is not a humane weapon and we shouldn't use it and noone else should use it either. But go ahead and learn how to protect yourselves anyway. they don't learn. I think that your officers would learn how to use it offensively very quickly too. I think that you are denegating your Americans very seriously when you say that they would not want to use these more humane weapons. I think they definitely would. You have examples in Vietnam. The Marine Corps Colonel who wouldn't call for fire on the village when flying over the village because there were civilians there and he got killed by fire from that village. This has been repeated time after time where we have lost lives of our people unnecessarily because we are not going to shoot at these villages where there are women and childred. This comes up repeatedly. So you give them a weapon whereby they don't have to kill the people there and they would be very happy to use it there I think.

Dr. Moulder: Let me say first its a pleasure to be here and visit with this Northern California Branch.

I have two purposes in coming, the first is the purpose for which I was asked, that is to answer questions about the advisory committee. And the second is to ask the questions of my own that I have about the Committee, the ASM and its attitudes toward biological warfare. Some of these questions I'd like to give you some tentative answers I have. Others I have no answer at all. And in the discussion I truly would like to get your answers and your thinking onthese questions to use them in my own further thinking on the problem. I'd like to start out with a fairly light hearted account of my recent experiences at Chicago.

WE have a student newspaper called the Chicago Maroon. It is very much like all the college newspapers. In the second edition of the Maroon this year I was identified by our local SDS branch as "chief advisor to Fort Detrick." This has a lesson to us, to be more serious. And that is to persons outside the Society the Committee appears to be an important and influential one. You may be sure that I contacted the Paper and attempted to assure them that I was not the chief advisor to Fort Detrick if indeed there was such a person. And I found in talking with the Maroon reporter who is a very intelligent and perceptive young man that it is very hard to explain the purposes and the objectives of the Committee to someone outside the Society. I think that is a lesson we should take.that the purposes and the objectives of the Committee are not easily defined as it is presently constituted.

I think the present function of the Committee is easy. i.e. What it is doing now is, and I think that Dr. Romig will agree with me, it is a panel of once-a-year hopefully expert consultants who are consulted on basic scientific programs at Fort Detrick and professional problems related to microbiologists at Fort Detrick. To my knowledge, they have not been consulted on general policy and the Committee has not been consulted on.

the development of specific biological weapons. As to whether their advice is helpful, as to whether the Committee is having any influence unfortunately this is a question you'll have to ask me a couple of years from now about the time my tenure on the Committee is over because I simply don't know now. Again perhaps Dr. Romig who has been on the Committee longer can answer that.

Starting out to make up some notes for this meeting I tried to start at the beginning and examine the general question of the relation of the individual and the Society to biological warfare and I came up with some very simple questions. They may seem simpleminded but I don't think the answers to them are at all simple. We could start out from the very beginning and what is the involvement of the individual microbiologist in biological warfare. Involvement is a very popular word now. I wonder if ~~we're~~ I was using it correctly so I looked it up in the dictionary. I think I am because the definition of to involve" is "to draw in as a participant." I think this is what we're talking about. Well ~~Where~~ we have general involvements as human beings its because we are microbiologists and scientists and we can't forget that we're still human beings. We have special professional involvements as microbiologists. Because by virtue of his professional training, microbiologists should be better able than most to evaluate the pros and cons of biological warfare. I wonder how seriously we take this responsibility. For example how much homework have we done? How many of you here have read Gen. Rothschild"s book? How many of you have read Helen's review in the Annual Review of Microbiology? This is a horrible thing to tell to an author, but I had not read your book until a few weeks ago. I got it out of the University Library and I could tell by the charge card that I'm the only person that had taken it out of the library. I don't think this is an indictment of Gen. Rothschild's book I think it is an indictment of the scholarly

community at the University of Chicago that takes no more interest in the subject than to try to get at some of the basic facts. All right I'll leave that one

The second thing is he has a special involvement because it is the application of his research and the research of his colleagues both present and past that makes biological warfare possible. I think few of us are in any position to disavow this, to say but my research has nothing to do with biological warfare. I think almost all microbiological research has something to do with biological warfare because unfortunately all the problems of biological warfare are intertwined in a very complex way with the problems of understanding and controlling infectious disease. The most fundamental answers in microbiological are likely to be the ones with the most unsettling consequences. It has always been a pet thesis of mine that the great recent advances in biology and microbiology are not in any way being applied to understand any? infectious disease. That is, for example, if we really wanted to make a major effort we should be able to come up with the genetic basis of virulence. And the possibilities of what would happen if we did make this sort of effort are the sort of things that Dr. Lederberg was talking about earlier this afternoon.

The second thing that we really ought to examine is as microbiologists what is the real range of our attitudes towards biologicalweapons. Heden in his review points out that there is what he calls a distribution of attitudes towards the weapons. He contrasts the two sides: those who feel biological weapons are the most humane of all and those are filled with the moral indignation and repugnance at their very mention. Of course inbetween there is a middle ground of opinion that depends on all sorts of judgments. To name only one, how much research and development is needed for preparedness against biological warfare. One could go on and on. I suspect we have a rather disjointed spectrum of opinions about biological warfare and about different questions in biological warfare. I'll come back to the

importance of this in a minute. Then we have to ask ourselves the question as individuals what can we do about it as individuals. We could ignore it. I find that hard to do with an easy conscience. I assume simply by your presence here this afternoon you are of the same opinion. You wouldn't be here otherwise. But I feel a great many people who shouldn't be ignoring the question are ignoring it. The second thing he could try to do something about it. But we all know that it is fruitless and frustrating to have views and opinions on something if we can't make these views and opinions known in some effective way. Unless a microbiologist is a particularly eminent person which few of us are he is very unlikely to have any influence at all on policies governing preparation for biological warfare.

That brings us inevitably to the real question. That is what is the society's involvement ~~is involved~~. As the only broadly based micro biological society in this country its involvement in a sense is the collective involvement of all its members. It can't ignore biological warfare and all the problems and issues that come with it any more than its individual members can. But it has equally difficult and somewhat different problems in doing something about it. Then we come to what can the ASM do about biological warfare. What are the problems in the Society taking action? The question of whether any free Society? society whether it be a scientific society or a University or so forth should take a collective position on any issue. That is should the Society's stand on any issue be determined by majority vote? This Question was brought up last spring at our general business meeting. as you remember Can this be done without violating the rights of the dissenting minorities. At The University of Chicago we have had a long and continuing discussion of this. Can a University take a stand on an issue or not? There is no answer to it. Then one could ask is any unanimous collective position on biological warfare policy is possible? Let us say suppose a collective position is possible. I don't know, we'll just have to find out.

no

Can the ASM ask the Society still influence biological [warfare] policy, how? I think one clear way is to foster and stimulate open discussion such as this. Beyond that I don't know. One would then ask is the presently constituted Advisory Committee the proper instrument for this Society to influence policy. Then we come to such questions, and I know this will influence alot of your minds, is the existence of the present committee to be interpreted as a collective action endorsing the present biological warfare policy or is it a collective action acknowledging the existence of biological warfare potentiality and the inevitable involvement of any microbiological society with these problems.

There's one good quotation from Gen. Rothschild's book from a recent issue of the Harvard Crimson in which the question is brought up "Does contemplation of a catastrophe necessarily mean ~~education~~ advocation of it?" I think this is part of the question.

Finally, what are the alternatives? What can the Society do? First it can retain the Committee at its present level of function, but I would suspect this would mean no real policy role for the ASM. Give me two years and I'll give my real opinion on it; this is a prediction. I don't see how as presently constituted with all due respects to present and past members how it is likely to influence policy very much if for no other reason than it has no place to feed in any opinions it might have. We could discharge the Committee and take no other action. I think this would not hurt the biological warfare effort at all because I believe there is no doubt that they could independently of society get the same once a year expert opinion even from the same people that they did before. If no other is taken then the society is ignoring all the questions and the problems relating to biological warfare. Mr. Galbraith would say we will have lost contact. It is necessary for the Society to decide whether it wants to lose contact. We could expand the present Committee function to include policy, but how? We could set up some other instrument or ASM action against what instrument and how would it work?

I want to end with what you could call an exhortation. Let's look at the situation in the broadest possible context. The Advisory Committee of the ASM is not the problem. It is merely the instrument that is served to remind us of our own personal involvement as scientists, microbiologists, as persons, the involvement of the Society in all the problems arising from the clear posibility of infectious agents being used as weapons. The real problem is what to do about this involvement. This involvement is going to stay with us whetheryou keep the Committee, whether we change it, or whether we do away with it entirely.

Dr. Romig:

In the main I would agree with what he said. I think it was overstated just a little bit that our Committee members do not have any feed in at all. I'd say that we don't have the amount of feedin that one would like to have. For instance, the Committee writes a report to formerly it was a commanding General of Edgewood Arsenal and now it is to the scientific director of Fort Detrick since some type of administrative reorganization went on. I had explained to me in great detail at one meeting of about 40 different organization lines that I have forgotten. The report is submitted and is read because occasionally some of the very specific types of recommendations are acted upon. But the type that I'm referring to how are more proceedural types of recommnedations. At least the report is read but whether broader aspects that have been written upon are acted upon I don't know.

Panel discussion:

Dr. Marr:

A question Dr. Romig: with in the bounds of security is it possible to provide us with some examples of the sorts of magnums on which the matters

Committee gives its advice now to the civisian director of the Army Biological Laboratories?

DR. Romig:

As Dr. Moulder pointed out, the major part of the advice that is given are specific questions from laboratory scientists. There is a group that works on B. subtilus and the phages of the B. subtilus and I happen to be qquainted with some of those problems. And the major part of my time at Fort Detrick is discussing the day-to-day problems xhxx talking over the research that they have done. I'm sure that is xhx so of the other members of the panel.that go back there to give help to the people at Fort Detrick depending on your area of interest and presumed experte.. that you are shunted off to one or another lab in which you would be i interested in talking about. But now additionally to that there are almost always is a presentation by one of the branchchiefs on the work, the literal overall work that is bing done at that partaicular branch, and occasionally that would be security type material in the sense that before the talk starts you are specifically told that this comes under security The other types of talks we have they let you know that there is no security involved at all. But there are certain very firmly distinct areas xh in which you are told that this is a security area. Of ocurse that either does, or potentially would have something to do with the weaponry of biological warfare.

Dr. Marr:

Does the annual report to the civilian director concern itself primarily with the kind of questions you put in the first category, scientific advise not subject to security or does it concern itself primarily with the second category, those aspect of policy or items which are for one reason or another in the category of security?

Dr. Romig:

Dr. Romig:

I'd say it is fairly well mixed. Some of the committees before I was appointed to this particular committee, for instance, pointed out that they felt that the level of intensity of effort there was much below what it should be. Whether or not they thought what they were being hired to do they were doing well. ~~xWhetherxxxxxxxxxxxxxxxxxxxxx~~ Other reports would consider whether a particular area is represented in depth as one thinks it should it. For instance certain physiological areas were considered weak and that they should be strengthened. Now those would be more policytype of decisions. Other things that are carried into the report is the fact that there ~~is~~ was not an electron microscope available in a particular area in which its use certainly was indicated and it was specifically requested that for this type of research ~~they have a need for~~ to have any meaning an electron microscope would be useful. I would like to sum it up by saying the report contains any kind of inofrmation that the Committee thinks would be useful to the commanding General or to the scientific director and which if acted upon would make the scientific effort more useful there at Fort Detrick.

~~Question:~~ Dr. Allen G. Marr

Do you feel that the existence of this Committee implies approbation by the national organization of ASM on the activities carried out by the Army Biological Laboratory? Do you think there is implicit in the Committee approbation by the National ASM?

Dr. Romig: You want just my personal opinion? Dr. Marr: {well through your experience on the Comm. or from your own personal views concerning the Society}

Through my experience on the Committee I didn't notice ~~xx~~ any data ~~to~~ relating to that. I have gotten an impression that the existence of the Committee through the ASM does have an official sanction for Fort Detrick, somewhat similar to what Dr. Moulder said, and some of my colleagues at UCLA, that the two were somewhat ~~xxx~~ linked together. but I didn't get that thing necessarily from the work I've done on the Committee

~~Dr. Rothschild:~~

Gen
~~Dr.~~ Rothschild:

I would just like to make one comment so my credibility doesn't seem to be too badly damaged. Dr. Moulder mentioned that they met once a year with the Chemical Corps. When I was speaking of our civilian scientific advising committees, I was not only referring to the Advisory Committee of the ASM. We have other civilian advisory committees which meet much more often than that.

Question: Dr. A.J. Clark

How are those constituted and how do those committees stack up in importance to the research and development effort vis a vis the ASM Committee?

Dr. Rothschild:

I believe those committees are selected in conjunction with consultation probably through with well-known scientists and institutions outside. But I think they are designated by the approach and then after acceptance designated by the Chemical Corps at Detrick.

Some of these committees meet alot more often. But it is not only the committee meeting. For instance one of our major committees, I forget what the title now is, met about every other month. But they would get the members of the committee in to consult with our workers in their field of particular qualification. So they saw them more often than the regular meetings of the committee. They would come in for general briefings at least these every-other-month meetings. I think,

Question: Dr. A.J. Clark

Would you consider that their activities were crucial for the functioning of the research and development?

Dr. Rothschild:

Very definitely.

Question: Dr. A.J. Clark

To Dr. Moulder and Dr. Romig: do you consider that the function of the

Advisory Committee are equally crucial to the research and development efforts of the Army?in chemical and biological warfare?

Dr. Moulder:

I would say that if it is to function as an expert advisory committee and do it efficiently, it would have to have more contact ~~with~~ than it does. I have had some experience consulting with the Chemical Corps, and with industrial firms. If you are going to be an effective consultant you ~~are going to have~~ have to concern yourself with a fairly small area and get to know the people involved and the program. I think what the ASM committee is getting is a sort of a general overall view. I don't believe that more than that can be gotten in a once-a-year visit. I repeat this a statement of a Chairman who is yet to meet with his Committee.

Question: Gen Rothschild?

Is this a function of the desires of the ASM committee or Detrick?

Dr. Moulder:

I don't know. Probably more of the Committee.

Dr. Romig:

Going back there once a year isn't an ~~xxxxxxxx~~ onerous task. They have all kinds of trouble as Dr. Moulder probably knows ~~xxxxxxxxxx~~ assigning one date a year and I don't know what you would do if you had to do that every month. If it were going to be done effectively, I have been back now a total of five days in three years and I don't probably know anything more about biological warfare than Dr. Moulder does since he has read the book. Detrick has several hundred Ph.D.'s. I did read ~~an annual~~ the review in the Annual Reviews. And it is a very large operation and you just can't learn that operation in a day and a half ~~xxx~~ a year. Since I'm not terrifically interested in biological warfare, I mean that is not why I'm on the Committee. I wasn't selected because I was interested in it or knew anything about it--I didn't and I still don't know very much. But in a day and a half a year you just can't learn too much about it. ~~Exactly~~ Actually at the other end of the microscope we spend two-

thirds of the time at least working with one group--the genetics group in my case and that in itself tends to limit your overall view of what's going on. Although they do make an effort to have a briefing of the entire committee at least once a year on one segmant but I haven't been on it long enough to get the entire picture yet and I forget from one year to the next the details of what was given. So I would say it is of limited usefulness since you can't do that kind of a job you do for an industrial firm unless you meet very often.

Question: Dr. Allen G. Marr. This might be a delicate matter and I don't mean to be indelicate at all. The method of selection of the membership of the Committee, I mean in a formal sense, not how specific individuals were chosen as a member of the committee as opposed to six other people. But what is the policy of selection of membership of the Committee Advisory to the Army Biological Laboratory within our Society?

Dr. Moulder:

It is the same as all committees. The president-elect of the Society Dennis Watson asked me asks the chairman of the committe for nominations for the committee. I understand that in the past that these nominees have been selected by the chairman of the committee in consultation with the scientific director at Fort Detrick. These names are then sent to the president-elect who appoints all the committees and from this list he gets new members of the committee just as in other committees done by regular Society action. Most committees are essentailly self-perpetuating.

Question: Dr. Allen G. Marr.

May I ask if you get any experience, the degree to which the director of the Army Biological Laboratory participates in the selection of Committe members?

Dr. Moulder: You would have to ask Dr. Romig that. I have not yet had that experience.

Dr. Romig: I could tell you that after the 25th of November.

One year he was fairly well involved, since he was also president of the Society. But my recollection is that during that year he did not make any

appointments because of the fact that he didn't xxxx the propriety involved.

Dr. Moulder:

It is my guess he would leave this up to the Society knowing Dr. as a person I can't conceive of ~~him~~ his trying to influence the Committee.

Dr. Romig:

No, it is pretty much up to the Committee.

Question from the floor:

The question has been raised on the constitution of the committee, and it seems to me obvious from what has been said that One characxr teristic of the members of the committee ~~don't~~ must share that xxxxdistinguish them from all other committees of the Society, however those other committees ? this committee is composed of microbiologists who have a security clearance This leaves out the portion of microbiologists in the country who for whatever reason xx can't get a security clearance. This reason alone is a xxfixixxx sufficient one to urge the disengagement of the Society from this kind of activity.

Dr. Moulder?

Would you urge complete disengagement or would you urge a different xx sort of Society Committee?

Questioner:

Given the ways ~~haw~~ a scientific society ~~are~~ is constructive & in this country, that is viewing the ASM as the kind of organization that ? the business of propagating microbiology, running an annula meeting, publishing a journal, and recognizing how xxx in effective xxxx it is in most basic discussion of political issues I would recommend complete xixmixxxxixxxxdisengagement of the Society from thisbusiness.

Dr. Moulder:

I ~~would bring~~ was bringing up another point. I wouldn't look to the Academy of Microbiology for stepping into the vacuum. It would be particularly ineffective in doing it. I think if microbiologists are going to in any way influence public policy through xxx a society its going to have to be the ASM

because it is the really only effective broadly representative microbiological society.

Dr. Clark:

I think there is a disagreement here, and I think that the disagreement stems on whether the Society should be responsible to the Army in this kind of relationship whether it has an advisory committee or a committee by some other name or whether its responsibility ought to be directed elsewhere. Perhaps to the scientific community as a whole or perhaps to the public or to some other agency ~~rather~~ than the US Army.

Dr. Moulder:

I've raised the question of other types of involvement completely broadly without any restrictions.

Dr. Clark:

May I take the Chair's perogative to point out at this point that there is I think one other difference between this committee and other committees of the ASM. It is connected with the security clearance aspect. That is I believe that there is no other committee of the ASM which does not report its conclusions of its deliberations to the Society. This committee as I understand it reports to the technical director of Fort Detrick and does not report its conclusions to the Society and I would point this out as being one major difference.

Dr. Moulder:

A report is written about the committee's activities that goes into the Newsletter.

Dr. Clark:

Yes but the conclusions of its deliberations are not publicised to the Soceity.

Dr. Moulder:

Yes, this is true. Let me phrase another question. This has been

suggested to me, it is not original. Suppose a committee could be constituted in which the question of security clearance did not arise. Suppose it could be constituted in such a way that the committee did not have to have a security clearance and the committee could make a full report of what it did. Dr. Clark Advisory to the army. Dr. Moulder: I don't claim any originality for that. What is your reaction to that? You would have to spell out the details of how this was done

Questioner: My reaction to it would be highly desirable and in a sense practical ~~but~~ impossible. I would assume thata committee like this simply would simply not have access in the first instance to anything of any interest to Fort Detrick. You're talking about a hypothetical situation which is so hypothetical as to be disinteresting.

Dr. Clark:

To rephrase, what I think you're driving at would such a committee be acceptable to Fort Detrick? Have you any information on that?

Dr. Moulder:

I ~~brought~~ merely bring it up without any strings attached. I wanted to see ~~how~~ what people ~~react to~~ think about this.

Questioner:

Are there any other committees of the ASM which are in ~~fact~~ effect vetoed as to their composition by an outside agency?

Dr. Moulder:

No. I'm pretty sure this is the only one.

Question?

The important thing is not whether or not the Committee has any substantive ~~attacked to~~ effect(?) on the operation of Fort Detrick but what the editor of the Chicago Maroon thinks it does because that is the image and it seems to me that by admitting there is no way to cmmmunicate the fact that is a very unsatisfactory state of affairs. Is there any reason for the membership of the Society to transmit their own view to the committee so that any formal means for doing this or impossibility of setting it up so that the committee will be ~~xxxxxxxxxx~~ responsive to the membership of the Society as a fixpeline.

Dr. Moulder:

I presume the proper way to act is as this branch did last spring. I mean instruct its counselor to the council to bring up any matter it desires to do so. This is the appropriate way of action. I think bringing up anything individually or on the floor of a general business meeting i s likely not to get anywhere. The power structure of this society is through the Council. So I think if you are really going to do anything you have to work through the council. Where you start is at local meetings like this. That's why I'm here because although may not agree with all of you I think that this is the constructive way to go about finding out what we really want to do about it. I don't think it has ever been discussed before.

Question:
it is not our opinion that Fort Detrick wants. it is just basic information I think the committee if it is being honest with itself, I mean we could give all our opinions to the Committee but Fort Detrick has no interest in us. What they want is what ?

Dr. Nave: It seems to me from one of the comments made by Dr. Moulder about the responsibility of the Scoeity and involvement. The concern of ≥ and of SDS and of us on matters of public policy with respect to BW it doesn't fit at all with the committee whose functions are those we heard described by the Chairman and the members of the committee. It seems to me that the existence of this committee does indeed convey a sense of approbation by the Society on these activities and that the committee structured as it is and reporting to the persons to whom it reports offers no real possibilities even if we were to communicate with our committee of alternate public policy. It is the wrong level in my opinion.

Dr. Clark:

Could you suggest a level upon which the Society might work to alter public policy?

~~Questioner~~: Dr. Marr

It seems to me that we are suggesting that the Society should have impact at the level of an ~~intact relation with~~ the National Security-Council. By some means. But the trickle-up philosophy of making public policy is a very unworkable one. in my opinion

Dr. Moulder:

This is what I was talking about when I said we didn't have any feed in here. Anyone familiar with the military hierarchy, there are as many layers as there are peels on an onion. You can get completely frustrated in trying to work your way up. I think one thing ~~ix~~ might be possible and I did bring that up. Is any statement on policy possible by the Society? Can anyone come up with a statement that the Society is willing to back? This has never been explored before.

Dr. Clark:

Dr. Lederberg raised an issue which I will use my perogative to bring up at this point and that is the question of whether the Society can take a policy stand is not particularly appropriate. The point is can it take an initiative to insure control and to insure the publication ~~afx~~ or information access by the scientific community to the activities of the research and development on biological warfare. I don't believe that any such initiative through the aiding of private groups such as the Pugwahh conference or through the medium of the publicity such as the Annual Reviews of Microbiology that I don't believe that such activities by the Committee would constitute a policy position.

Questioner: ? at ? Councilor I think it is least conceivable that we could urge upon our ~~Council~~ to be presented at the national meeting the essence of the policy that Dr. Lederberg is urging, ~~mainly~~ namely thatwhy should the Society use use the proper exercise of scientific activity as resulting only in the publication of the information that is learned. And that we would therefore give no sanction to

activities that require secrecy and security clearances and this would involve the abolition of this particular committee. And we would urge that the matter of public policy of biological warfare in the area in which this Society has some expertise using this area of professionla competence that this be subject to changes in the legal structure that would permit complete publication of all the _____ of Fort Detrick. I don't think that this as a policy matter is something that the organization couldn't grapple with. I'm pessimistic about what the outcome would be. I think it is a reasonable thing to urge upon our councillor to defend at the business meeting.

Dr. Wyatt:

I would like to suggest that maybe the Society would perhaps be amenable to a diametrically opposed point of view as regards the Committee than you have but which might also serve the purposes that you proposes and Dr. lederberg mentioned much better. It seems at this time through some strange set of circumstances that this Society is uniques in having such a committee. This committee is potentially a very powerful means for the membership expressing their feelings. Now we nominate senators and representatives to Congress. They all have security clearances. I don't think it bothers us that they have to have security clearances. They get them even if they're not really clearable but they usually are and they are very carefully watched in this regard. All of our representatibes in very high offices in this country have security clearances. The main problems of security I think in biological warfare are really misinterpreted. The main problems are those of intelligence, weapon deployment, and things that are not of immediate interest to microbiologists. For microbiologists, for me at least, are what the impacts on civilization of this type of thinking. How can we influence it? Why not instruct a Committee made up of hawks and doves namely people who feel that this is a terrible type of a thing to have but nevertheless

they are going to be on that Advisory Committee--that word "advisory" is kind of bad, call it a directive type of committee. On this committee, everyone has their security clearance, but there are people who are opposed to biological warfare very strongly on it, those who are in favor on it, and this Committee is available to the Army for advice and also consent perhaps. If the Army does not wish to accept the recommendations of the committee or include them in their confidence I think the Society is big enough and powerful enough to put pressure on the Army to listen to this committee. I think the Army has a Trojan horse. If the Committee is given a little more power by the membership of the ASM this Committee may well

serve everybody's purposes. I can say that 90% of the deliberations of the Army could easily be published. The little small fraction of highly classified information that is kept from the Committee is of really I think no interest. But the Committee can be a very powerful tool and I think before the Society it abandons it they ought to think of using it to promote their point of view. The Army has made a commitment. Now the Society has a chance to really put forward its points of view. If we abandon this committee or vote its abolishment we will never get another such opportunity. I think we can use the Committee it in a great number of ways if the membership were more actively involved. I would like to hear some remarks for the members of Committee

Dr. Romig:

In a way I agree with your point of view because as I say the report of the Committee is read , I don't know who reads it, it may be a private somewhere but it is read , and if the Committee were instructed to pursue a certain policy and that policy was were transmitted it might well have whatever effect the Society wanted to ? .

But it is one way that the Society's viewpoint thex can be transmitted directly to people who form or at least partly form policy and do read the report.

Questioner:

I think that there is one point about which that I could be assured in relation to this question that the ASM committee could have some effect on policy carried out. I think it might it be proof that it had ? however it seems to me that everything that you have been telling us about what you do x the constitution of the Committee its mandate its the specific relationship to the Fort precludes this under the current circumstances it would have to entail a complete reworking of the agreement and the charge of the Committee. To achieve this I think, axxex very large question posed to the membership exfax of the ASM and indeed this would entail a question of whether or not there should Could be a concensus reached by the ASM and whether the ASM should participate in axxex an attempt to influence policy. ? ?

Dr. Moulder:

What you are saying is very true. But before we do something we must decide ~~xx~~ what we want to do and I don't think we really know waht we want to do.as a Society.

Dr. Rothschild:

I have a comment to make. This is of course is not a field of my immeidate interest but it seems to me that you should divide your problem up into two areas. One is direct technical contributions to an effort to which the country is involved. this among other things would assist in insurihg that some of the things that Dr. Lederberg is worrying about don't happen. Practically all scientific societies, certainly the two I belong to the ACS (American Chemical Society) and the American Institute of Chemical Engineers feel that they have responsibility to the public in their area of scientific discipline. I think that this would be a part of the area of responsibility of the ASM. Then I think the other area youre discussing can possibly be solved ~~xpeax~~ separately from this is whether the Society members feel that the United States should have efforts in ~~this~~ a certain field. I think they are not necessarily the same effort and not necessarily embodied in the same particular organization in the ASM.

Dr. Clark:

I would like to comment on this. At least the ACS feels that advice to the Department of Defense is within the purview of the responsibility ~~of~~ to the public because they are bound by law to advise the Department of Defense. They are federally chartered. And there are two conditions to that charter. One is that they report to the Congress on their activities and the state of ~~that on~~ their budget. And the second is that they advise ~~to~~ the Department of Defense on weaponry. I don't know if that is true of the American Institute of Chemical Engineers but I think that the ASM is free of that legal obligation.

Dr. Rothschild: But they wrote their charter. But they have a charter that they wrote and the members of the Society know what to do.
Dr. Clark:

Dr. Rothschild:

I was actually speaking of more than a legal obligation. I was speaking of the social moral obligation of any society that's as widely based as this and in the particular case I'm speaking of is advice on for example whether you are going in a direction that is inimical to the interest of the American people as a whole. In other words the danger of using something that might cause widespread infection, etc. That is separate from whether there should be work going on in the biological warfare field.

Dr. Clark:

Yes of course. But the social responsibility is I think precluded by the legal one in this case. The question is not clear whether the ACS has decided of its own free will on a policy of advice to the Department of Defense or whether that is a policy they have adopted because of their federal charter. Dr. Rothschild: But ASM must be chartered somewhere. Dr. Clark: The ASM is a private organization and not chartered by the federal government, and so it has no legal responsibility to the federal government for advice on weaponry. ASM is not federally chartered

~~Questioner~~: Dr George Hegeman

It occurs to me that speaking of social or moral obligations that there are branches of the ASM, Mexico and I believe and Brazil as well, in addition to their international being a very large membership It seems to me that we are in a somewhat paradoxical position in advising specifically the US Army with regard to biological weaponry. We might be put in a very ambiguous position if the Mexican Govt. decided through their local branch to request some help in developing along these lines This is not a nationally chartered organization so far as I know. but international and it has an independent Constitution.

Dr. Clark:

Are there other comments?

~~Question~~: Dr. Wyatt

The American ~~Chemical~~ Physical Socieyt has no such Advisory Committee and look what's happened to nuclear weapons. Now here's an opportunity for the ASM to do something before it gets to the state that the physicists ____?____ on the biological program.

Dr. Clark:

Actually that analogy is particularly apt I think. The microbiologists find themselves in a very curious and ambiguous position. In a sense they are like ~~physicists~~ physicists prior to 1932 ~~in~~ in continuing work in which they don't the outcome, whether the outcome will make the particular weapons feasible. In a sense they are like the physists during the WW II working on a Manhattan Project in which the outcome is known in which weapons are being developed ~~and~~ or stockpiled ~~and~~ for potential use. The microbiologists then find themselves with a kind of involvement which is very analogous to the situation of the physists ~~vis~~ vis a vis atomic weapons.

Question: Is it or is it not appropriate at this meeting to try to get a resolution passed ____?____.

Dr. Clark:

It is not appropriate at this meeting.

~~Dr.~~

Question: I think there's one other point which might be mentioned in connection with the suggestion that this policy might be split up a little bit - split up into a policy of technical aspects. You mentioned a reason but an additional reason might be that individuals that you wanted to reach might be the same as ____?____ with technical and policy advice ____?____ might actually be different.

Dr. Clark:

I didn't quite catch the relevance of that.

Question:

The point I have in mind is that technical advice would go to the actively working staff of Fort Detrick. I would suppose that if you wanted reactions to suggestions or advice on policy from others than the employed technical staff of Fort Detrick because I would doubt that they have any great amount of policy control, as voice as citizens probably at the moment.

~~Dr. Moulder~~: Dr. Marr:

I would like to respond briefly to a point made by Dr. Hegeman on the international character ~~involved~~ of our ASM. It seems to me that logically if we accept that as being a substantive matter that we have ~~as~~ international responsibilities to both branch organizations and other countries ~~and an~~ international membership in the ASM ~~that~~ there is no way out short of abolition of the existing committee without establishing any other kind of committee which engages ~~itself~~ in active policy. I think ~~that~~ if we want to act in such a way as to influence national policy we'll have to ignore the issue of foreign membership in our Society and the foreign branches in our organization. Perhaps that what we'll choose to do but ~~that~~ we should face that ~~and~~ it poiht would be by ignoring ~~it~~ altogether the interests of these people.

~~Question~~: Dr. Phaff

If the National ~~Security~~ Research Council ~~reviewed~~ were to have a committee of this sort, ~~making~~ taking its membership from the ASM it would avoid the complication of foreign countries; That would not be officially sanctioned by the ASM. But the Pres. of the ASM would make a panel of people available followed by ——?——. The Natl Research Council would have the obligation to advise the Govt. on ——?—— seemingly in the best position to do it than the ASM, a private organization

Dr. clark:

Presumably the Army might seek to take such action if this committee were abolished.

~~Question~~: Dr. Phaff:

The only disadvantage of that, is then of course that the ASM except through individual members of the organization ~~the ASM~~ has no further say or control over what develops there at Fort Detrick. As someone on the Committee has pointed out this leaves the relations between the Society and what goes on at Fort Detrick although very vague at this point policy-wise.

Dr. Clark:

Well, I wonder if that is true. ~~Mr~~ Does anyone have any opinions on that. Would the Society have any influence except through ~~the Advisory~~ this kind of Committee on the research and development of biological weapons on the policy on the US Army and the government in this area.

Dr. Moulder:

Probably is the largest single micro biological Society in the country. We have something like 10,000 members. I just can't believe that if there is any real unanimity of opinion at any level on these problems that the Society can't come up with some instrument by which in a legitimate fashion it can't influence policy. And I am quite sure as individuals we aren't going to do anything. Our only hope is through the Society and I would like to point out what I said before. If we just give up and do it the easiest way let the present ~~the~~ Committee run ~~right~~ along the way it is or take the next easiest way out and simply discharge out it without any other activity. Our obligation and our involvement is going to remain and we won't be doing anything about it at all. That is certainly what I would hate to see as large and as powerful a society as this simply give up on an issue that's is important to all of us as this is. This is why I would be against dissolving the Committee without concurrent efforts to replace it with any other instrument of involvement.

~~Question:~~ Dr. Dimmick
John, it seems that one problem is technical advice and one is policy advice and I think its policy advice that's really worrying us. Could it we do ourselves and perhaps in the interests of a favor If we simply kept this committee and left it as a technical advisory committee and set up our own policy committee which would be elected by the Society and which would make their statements available freely in the form of a yearly report. Whatever policy this Committee would come up with. It easier to change year to year also

Dr. Marr
I admitt the logic of the division that you and others have spoken of. I cannot understand why the ASM should be the vehicle for providing technical advice. We have been told by several people including members of the current committee that that advice is marginal in terms of the

amount of time spent. We have been told that other advisors other scientific advisors spend vastly more time, are more familiar with the technical details of the operation. I must ask ourselves why there is such a committee. It is apparently not performing as good a function as it could considering the quality of its members. It may have then some other reason for existence apart from ~~essentially~~ simply providing technical council to the Army Biological Laboratories.

~~Question:~~ Dr. Dimmick How about the psychological problem if we take a stand that we will refuse as a Society to furnish technical advice Regardless of how much you think they might listen to ~~that~~ any policy statements we might make. On the other hand if we take the stand that we will advise the Army technically and at the same time make the policy this gives ~~us~~ the impression at least that we are trying to be unbiased and fair about the situation as possible.

Dr. Clark: What you seem to ~~seem to~~ be changing the Committee with and what I understood from other comments on the Committee is that the Committee is to be used as a foil as a crowbar or some sort of wedge or some lever against the Army. That is that the technical advice or the fact the ASM would be willing to give technical advice would somehow be dependent upon the Army's taking the policy advice of the ASM.

~~Question:~~ Dr. Dimmick: I'm just saying that they're as human as the rest of us. If they think they are ~~getting~~ gaining an edge from this ~~the information~~ Committee and if you take that edge away from them and anyother human might react and I take it that they're human, they are liable to immediately ~~prevent~~ resent anything else we might say. I don't see any harm in giving the Army technical advice. They're going to get it any way. What's the difference between having this Committee and drawing them come in an choose persons from the microbiological world to begin with

Dr. Hegeman:

Presuming that some of these proposals which envisage a policy — ~~that is~~ and promulgating making role are possible, it seems to me there is

still difficulties. First of all the organization is chartered as a non profit organization and by the same foot is restrained from making political actions of any sort.

~~an organization that is cahrtered a nonprofit organization by the sam fact restraints for making political action of any sort.~~ stand As I under the IRS has fairly strong ideas about this. Now this ~~same~~ statement of policy I suppose wouldn't be regarded as politics but I suppose if it went further than that and changed and became a newsletter and we really got strong on that we might go Dr. Clark: the way of the Sierra Club or some of the others that have gotten into politics.

I see the idea is using the ASM as a lobby

Dr. Hegeman:

Well if you make a policy, and it seems to me you try to promulgate it and you try in a way to have a lollypop and carrot type of approach by offering technical information and at the same time somehow using the Society ~~trying~~ using it as a way to get a policy ~~somehow~~ listened to it seems to me that's what you're going to get.

Dr. Moulder: Well the Sierra Club hasn't been afraid of losing its IRS standing

Dr. Hegeman: They sell a lot of books and we don't - although I guess we do to.

Dr. Moulder: We should be as courageous as they have been.

Dr. Marr:

If I may I would like to comment on Dr. Dimmick's second comment ~~before~~ as I respond to the first. I will be blunt. I think that the ASM is being used or at least that that was the intent. It seems to be very clear from the statements we have heard today that the scientific advice that is given could be gotten and is being gotten in much greater quantity from other sources than from the ASM Advisory Committee. If that is the case and if we are being used, and my suspicions, and I admit they are only suspicions, are correct, I think the only way out is to get rid of the Committee. If we want to try and develop some kind of impact on public policy that is really desirable, and I'm not sure it is for our Society, I have mixed feelings about this, in any event it is clear to me that we should

divorce ourselves from the present role of providing technical adivce which is really only a tiny fraction of the total technical advice. but a big huge chunk of the propaganda.

Dr. Dimmick:

What is your reason for that? Is this because you would disagree with the concepts of biological warfare or because you think that our technical advice is wrong? If you disagree because you feel generally that any aid we give to the Department of Defense in terms of biological warfare is an immoral thing. I don't think the Society should take that kind of stand. I disagree with that let me agree with the morality of the situation but I disagree that the Society should take that stand.

Dr. Marr:

Do you want to know what my beliefs are or do you want to know whether my statement is conditioned by my beliefs on that subject?

Dr. Dimmick:

Your statement is what I'm directing it.

Dr. Marr:

I don't really think so Dr Dimmick. I don't really believe that my position... I think that its simple if we are being used and we are being exploited in some way by having such an Advisory Committee if this does ~~that~~ give a sense of acceptibility to the activities of the US Army Biological Laboratories, then I resent that as a member of that organization being exploited whether I do or don't believe that we should be doing such activities is irrevelant.

Dr. Dimmick:

If the Public Welfare Health Service asked us to set up an advisory committee of the same type to advise the Public Health Services, would you object to that?

Dr. Marr:

I don't the Public Health Service is in trouble politically. I don't think that there is any serious activity on the part of citizens ~~persons~~ in the US protesting the activities of the Public Health Service.

Dr. Dimmick: Then it is a moral question.

Dr. Clark:

No it isn't it is a question of exploitation. Here are some other opinions.

~~Question:~~ Dr. Wyatt

I think that everyone ~~is~~ agrees that we're ~~are~~ being used.

~~Dr. Marr~~:

So why do it you want to fight? Why don't you just turn the tables and make this Committee into a viable ~~top~~ tough organization. It may turn out to be a ~~toy~~ bit of a thorn in the Army's hide but if you insist ~~x~~ on meeting with the Army four times a year and asking first of all for a complete review of this program and then if they say no then you go to the President's ~~of the~~ Scientific Advisory Committee and you say look we are the ASM and they appointed our Committee and they won't even let us know what they're doing. I think you can ~~xxxxxxx~~ gain much more information and get even for being used.

Question:

One thing I'm curious about. At the end of WW II quite a few of us were asked years ago all and we were all concerned about terrible weapons of warfare ? dropping a few atom bombs on Japan. Now I've known for 22 years or longer than that, that Fort Detrick exists and that they were working on biological warfare. I've also known for a long time that the ASM had

Dr. Marr: an advisory Committee. I think Dr. Marr has known that just as long as I have. And I'm curious about why the great sense of indignation that we're being exploited has come up now.

If I may answer since it seems like you are ~~addressing~~ directing it to me.

It didn't.

Question:

What did you do before?

Dr. Marr:

I was unsuccessful in directing the attention of my colleagues toward what I considered to be an exploitation of the Society. I guess each of us has to answer the question that you have directed to me for himself. Why is it so ~~xxxx~~o late, ~~They~~ that were beginning to consider the matter. It takes time I guess to gain enough support for such an action.

Dr. Hegeman:

I think this question hinges more on ~~the~~ our view of the ASM as a scientific society ~~more~~ than any question of the propriety of biological warfare, the US Army, etc, etc, or anything of this sort. This is an international society. It is not nationally chartered. It is not legally binding on the Society that it advise the ARmy. The Society has had this Committee for a while it is true but I don't think it has been widely known that it existed. I know that at the time I joined I didn't know it existed and I only learned of it fairly recently This is probably an oversight on my part for not looking at the front page of the journal but I really don't think a question of the morality ~~fx~~ of an individual being involved in the national defense effort things of this sort at all. It is a very simple legal question. A question of propriety of ~~the~~ and law, if you ~~would~~ wish.

Dr. Clark:

May I interject that I think ~~that~~ to reinforce Dr. Hegeman's statement that if the ASM is an international organization that I would see it charged with international responsibility and perhaps responsible in the field of biological and ~~chemical~~ warfare, ~~an~~ to international organizations such as perhaps the UN or perhaps to the Pugwash Conference. Or even if the United World Federalists were carrying on research efforts into biological warfare that I would say that perhaps the ASM might have some responsibility

towards them.

~~Question:~~ Dr. Neilands

I should like to ~~debate~~ agree with Gerry Marr that I think the Committee is cloaking the activities of Camp Detrick in some kind of ~~position~~ legitimacy that it probably doesn't have and that's what the Army gets out of this arrangement. I don't know ~~what~~ what the Committee members get out of it. Maybe when they go down there they get turned on or something. But in any case I think it is very detrimental to the best interests of the Society and I'm looking forward at the earliest opportunity to vote this Committee out of existence.

Dr. Dimmick: What are you going to use for a reason.

~~Question:~~ Dr. Neilands

The Army can get its advisors privately and it would now except that its getting some kind of authenticity and legitimacy by servicing them through the offices of the Society

Dr. Dimmick: ?

_____. I see the headlines:

~~The~~ "ASM Recalls their Advisory Committee ~~beofre~~ to Fort Detrick."

Down below: Why?

Dr. Neilands: The arrangement now is very unsatisfactory It has no elements of democracy connected with it. Apparently the Army picks over the nominees and takes those which are considered reliable and then its report is not distributed.

Dr. Dimmick: Thats not answering the question that bothers me. If we withdraw this Committee if we as a Society withdraw this Committee from its use by the Army, what are we going to say we did it for?

~~if we as a society~~ ~~all the information~~ ~~If he~~ ~~all the information,~~

Dr. Neilands

What you tell the public is no concern of mine. ~~I don't~~ I think we have to satisfy our concern and our problems.

~~Dr. Clark:~~

Dr. Clark:

I think that there ~~are~~ maybe some other answers to his question.

Question:

I think the Committee is serving no effective function.

Dr. Clark:

Yes. that certainly could be one reason.

Question:

Can you make a more effective Committee?

Dr. Clark:

In other words are there specific changes ~~that~~ which could be given to the Committee which would provide for some muscle in ~~implementing~~ implementing ~~some~~ ASM policy if the ASM could decide on a policy it wants to follow.

Dr. Hegeman:

Should ~~Sxxx~~ we ~~xxx~~ make a more effective committee? Given the Constitution of the ASM, and the nature of the organization that its the scientific society, dedicated to ~~the~~ disseminating knowledge (rather than) specific arrangements for its distribution

Dr. Calrk:

Actually that is another purpose of the Society which does not seem to be fulfilled by the present Committee as born out by the security clearance and by the restrictions ppon the Committee members in discussing and ~~xxxxxxxxxx~~ indicating to the Society what their recommendations are. And I wonder if either of the two Committee members would care to comment upon their own psychological reactions to having to present ~~to prevent~~ them the activities of their committee or having to discuss in this kind of public gathering. That is to ASM members.

Dr. Moulder:

What ~~other~~ more appropriate body ~~society~~ is there to discuss ~~this~~ them with?

Dr. Clark:

Well I think that is right. Is there a feeling that perhaps some

secure Leak out
matter s might be bugged or that some things that might be said might be misconstrued. Or in other words is there a sense of responsibility to the Army?

Dr. Romig:

Well there is a legal sense in that as it has been pointed there you do have to have a security clearance and as apart of that you agree that if certain things are said to you with the clear meaning that they are secret that they are not to be discussed. And that part would have to be changed if the Committee were to report back everything that they felt relevant and they would have to get the ARmy to agree that this restriction no longer applies to the Committee. Or alternitively it would mean that you would not be told what they felt was secret and in that sense the most anything we could report you could read in the Journal of Bacteriology because as has been pointed out most of the research done there anyway is printed in the open journals. It is only the five or ten percent in which we as Committee members are legally prohibited from discussing that is not printed in the open scientific literature. So some other arrangement would have to be made and I don't know whether that could be done or not. If it could be I wouldn't have any compunctions at all reporting to this or any other ASM meeting what is known. I kind of agree with the Lederbergs idea. There is not have any of secrecy. Usually it is a waste of time anyway.

Dr. Clark:

Is that a kind of policy that the ASM could adopt as a policy of its members that would respect the views of the minority that it would initiate an attempt to remove secrecy from microbiological research?

Dr. Marr: Moulds

It would be appropriate for any councillings Councillors of this branch to bring any resolution or action they choose up in Council and see what happens.

I think that this is the route that should be taken. I think that what you're going to find, what you see herexx even in this small xxxxxxxx meeting there is a tremendous diversity of opinion. This may preclude any collective action but I think the way to do it is if this group can arrive at a collective opinion to introduce it into Council and see what happens.

Question:

I would just like to suggest that if the Society wishes its views on technical matters or policy matters or this matter of secrecy considered or wishes to be an influence it could ~~accomp~~ accomplish it a little more efficiently through official and allied (?) participation. In other words if you want to criticize it seems to me it can be done more effectively from inside while continuing to participate rather than resigning from the human race and criticizing from the outside

Dr. Clark: Resigning from the Army?

I think that the meeting has obviously grown old and I thank you all for participating . I thank DR. Moulder, Dr. Romig, amdDr. Marr, Gen. Rothschild for participating and helping us in considering the Advisory Committee to the US Army Biological Laboratory.

~~Dr. Clark: Resigning from the Army?~~