

FACTORY
INSPECTION
AND
ARMAMENTS
CONTROL



PUBLISHED BY THE INSTITUTE FOR INTERNATIONAL ORDER

A REPORT ON A
PILOT STUDY OF
MANUFACTURER
OPINION ON
INSPECTION
AS A STEP IN
DISARMAMENT

A NOTE ON THE STUDY:

Intensive interviewing techniques were used to collect manufacturers' opinion in this pilot study, completed by International Research Associates, Inc. in the Spring of 1956. Companies of varying size, with and without defense work, and representing a wide range of industry types, were included. Stephen Fitzgerald and Company, Inc., public relations counsel, served as advisor to the Institute for International Order in planning the study.

ONE STEP TOWARD PEACE

THE INSTITUTE FOR INTERNATIONAL ORDER, to further its goal of making an effective contribution to peace, has concentrated on the issue of armaments control and the related problems of inspection. In order to make an initial exploration of the practical and ideological considerations involved in an inspection program for U.S. factories, the Institute requested International Research Associates to carry out a pilot study among selected U.S. manufacturers.

The objective of the study was to determine the views of certain manufacturers on the prac-

tical aspects of inspection. Focus of the study was on these central issues:

1. The level of awareness of, and interest in, the inspection issue on the part of these manufacturers.
2. The manufacturers' recommendations of practical steps toward an inspection program.

The study was accomplished through intensive personal interviews with 20 selected respondents — principally top executives and plant managers/engineers. It should be recognized that the findings of the study are limited in their applicability. This is not a sample of manufacturers, but a small group purposively selected in order to test the feasibility of research in this area, and in order to establish some initial guidelines for further thought and development.

The Institute for International Order undertook this study because its officers and directors believe that a runaway arms race tends to heighten, rather than ease, the world tensions which prevent the achievement of permanent peace.

The logic of inspection, as a step in disarmament, is irrefutable. But inspection cannot be successful if it is viewed as a propaganda device alone. A workable system, encompassing all the technical tools of inspection, must be blueprinted; the various inspection techniques include aerial reconnaissance, ground inspection of military and rail centers, audits of national budgets, and many others.

A rather controversial phase of inspection is the subject of the study at hand. Factory inspection is only one of the technical inspection tools, but it should be carefully worked out and included as a part of any comprehensive system.

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support of the United Nations . . .
and of measures to strengthen it
and enable it to maintain peace."*

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SOME HIGHLIGHTS OF THE STUDY

Inspection as a step in disarmament is a subject with which most of the respondents are unfamiliar. Only one could really be said to have given previous thought to factory inspection, and many were not even aware of President Eisenhower's aerial inspection plan. In talking about factory inspection, the respondents are not dealing with a concrete thing. To them, it is vague; they lack an image of it.

How does this affect their opinions? Since it is not real to them, they lack conviction that factory inspection is likely to come about. They have no picture of it, so they have developed no real resistance to it. They are not fighting it because they have had only a fleeting glimpse of it. What resistances they do have to factory inspection tend to be general rather than specific and are the outgrowth more of a general feeling of international tensions and distrust than of any concrete objections to the proposal.

Interestingly enough, as will be shown in this report, when manufacturers' minds are challenged to design an inspection scheme on short order, a wide range of valuable ideas is produced.

Of the 20 respondents, only five could be said to have had definitely unfavorable reactions to the idea of factory inspection when first confronted with it. Only four had positively favorable reactions. The remainder — the majority — were in-betweens. They were either neutral, balanced both for and against, or without immediate reaction to the idea of factory inspection.

Policy Objections to Factory Inspection

The objections raised to factory inspection were of two general types: those concerning policy, and those of an operational nature. The former were of a kind which were usually expressed even before the respondent had been asked to describe how he would carry out factory inspection. The latter were usually raised in connection with the working plan of the program. In other words, some people were against the *idea* of factory inspection, and others found real problems in its *operation*.

It seems important to understand the kinds of policy criticisms which were made against the idea of factory inspection, for here, in this minis-

cule array of negative reactions, one is likely encountering most of the arguments which would be mustered at the outset by the opposition to a real factory inspection agreement between nations. The vagueness of the image with which these respondents are attempting to deal, the blurred vision that results from the total newness to them of the idea, lead to uncertain grounds for objection in many cases, though not in all.

Running through the interviews is an undercurrent of what appears to be resignation to the atmosphere of a hostile world, where mutual distrust is here to stay, and where distrust of Russia and the Russians is constant and strong. When no more specific objections to factory inspection as an idea and a policy are forthcoming, then distrust and the hopelessness of attempted international cooperation are the basis for rejection of the plan.

Among the policy objections — problems raised by respondents prior to having discussed in the interview the actual workings of such a plan — were the following:

- A bureaucracy in the U. S. would become involved and would hinder it.
- The Soviet Union would never consent to it.
- You never could trust the Russians.
- The European countries will put up a lot of resistance to it.
- It wouldn't work without the trust of others (implying that even if the U. S. were for it, other countries wouldn't trust the idea).
- The danger of giving away our commercial secrets is too high a price to pay.

Manufacturers and "Trade Secrets"

Of the policy objections to factory inspection, most frequently mentioned is the issue of commercial protection — of protecting methods of manufacture, new plans and developments, and so-called "trade secrets." It is difficult to assess the strength with which this type of resistance is believed, or how basic it really is. It is significant to know, for the future, that this matter of commercial protection is a signal light which often flashes on in the mind of the manufacturer when factory inspection is mentioned. While a majority of the respondents touched to some extent on the issue of self-protection, not all by any means

thought of this as an insuperable barrier to an inspection plan.

One view was expressed by the president and owner of a small chemical plant which manufactures chemicals used by plastic manufacturers for purposes of coating and providing adhesion to various surfaces, or between various plastic parts. His comment on self-protection came early in the interview:

"Factory inspection in connection with disarmament is something I have never thought about. It is important in the chemical industry, and I am talking now about large and small companies both—the process may be in the text books, but there usually is some little catalyst needed to make the process go—and that is where trade secrets enter in—the knowledge of what such a catalyst might be. I've heard of public—government, that is—inspectors coming into a plant to perform their inspection who ask for the formulas used in the plant, and then later the owner of that plant finds out that the secret has been passed along to a competitor. A person who knows the chemical business can walk through a plant and pick up a tremendous amount of information that will enable him to duplicate the processes going on there."

The most interesting part of this man's comment came, however, when he was asked to refocus the discussion, "Well, how about factory inspection in relationship to disarmament?" His reply, despite the above, was: "I am all for it regardless of the consequences to the owner of the plant in the matter of loss of secrets."

The fear of showing one's methods does not extend to all manufacturers. There are those whose operations are already an open book; there are those who do not really believe that trade secrets can remain secrets despite any amount of protection; and there are those who believe that giving up commercial protection is not too great a price to pay for a step toward disarmament. The latter view is almost always qualified with the provision, "... assuming the government (or the President) is really behind it;" or, "... we'll show what the government tells us to show." Where the reaction to protect one's self commercially arises, it is to be distinguished from the need to protect the U. S. from a potential enemy

who will use the opportunities of factory inspection to gain a military advantage.*

COMPONENTS OF A FACTORY INSPECTION SYSTEM

All the respondents were asked to describe the steps they would follow in an inspection in the United States of their own type of factory; they were also asked to describe the steps they would follow if they found themselves a member of a team in Russia inspecting their own type of factory. These questions brought the respondents to the task of actually designing an inspection system. Few of them fared well. The newness to them of the subject, their total lack of experience in the task which they were being asked to undertake, was reflected in the uncertainty of their approach. However, faced with this task, these manufacturers came up with a surprising array of ideas which, when considered as an initial effort, appear valuable.

Their contributions tended to fall into the following categories:

- A. What to Inspect
- B. Conditions Which Reduce the Inspection Task
- C. Problems Anticipated in the Operation of an Inspection System
- D. Who Should Do the Inspecting
- E. Required Frequency and Duration of Inspection
- F. Anticipated Success in Hiding War Production

Under each of the categories, the frequency of mention of a particular idea is not shown. With so small a number of cases (20), and with the large range of replies encountered in each category, any concentration of opinion becomes negligible. The ideas are presented here not as direct quotes, but with the meaning the respondents attached to them retained.

* This study did not focus on any of the personality motivations of the respondents, but the possibility exists that the tendency to secrecy and distrust may be a psychogenic factor as much as, or more than, an industry-type motivated factor. This is an issue to be considered were it desired to combat this fear.

A: *What to Inspect*

1. Detailed plans showing the factory layout, to be sure that every part of the factory is covered.
2. All incoming materials and equipment, in order to see if they match up with the declared production program of the factory.
3. The raw materials on hand, to be sure they are of a kind that would normally be used in the declared production program of the factory.
4. Engineering data, including blueprints and patterns, specifications, computations.
5. Material handling equipment, to learn what the capabilities of the plant are in this connection.
6. Tooling, to learn both the nature of the plant's production capability and its potential volume.
7. The assembly system of the plant, as well as all other actual production activities, to determine the kind and volume of the plant's output.
8. Personnel records, with particular attention to the total number of employees, the total hours worked by them, changes in the labor force that might indicate changes in production activities.
9. The production control records.
10. The Inspection Department of the plant, to determine whether the plant is producing what it says it is; the nature of the inspection assignments, the care with which work is carried out, and records.
11. The gauges used in the plant, to see if their measurement scales are in keeping with the plant's declared production; the source of the gauges, as this may reveal activities in other plants supplied by a common source for gauges.
12. The manufacturing accounting records, to determine finances, purchases, inventories.
13. The end product, the key to the operations of the whole plant.
14. The uses of the end product, to be demonstrated by the manufacturing engineers.
15. Shipping records, to be coordinated with receipts at destinations.
16. Sales records, apart from manufacturing records, to see if they are in step with output.

17. Freight shipments, to determine the nature and destination of each item.

In addition to the above, there were certain suggestions for alternatives to factory inspection. Respondents giving such ideas did not necessarily reject outright the idea of factory inspection, but thought the following were potentially more direct and efficient:

1. Inspect the national budget of each country for spending plans for war production.
2. Inspect military installations.
3. Inspect the training and flow of military personnel, on the theory that you can't fight any war without trained personnel, and that by learning what they are being trained to do, you will learn the entire war plans of a nation.
4. Inspect warehouses where finished war materiel might be stored, on the theory that it's the finished articles, ready for war, rather than the items in production which pose the threat to peace.

B: *Conditions Which Reduce the Inspection Task*

1. It would not be necessary to have 100% effectiveness in inspection; to uncover any of the possible violations would be sufficient.
2. It would not be necessary to inspect any but the large countries, or those with a large production potential.
3. It would not be necessary for inspectors to concern themselves with the possible falsification of records, since it would be almost impossible to keep two sets of records, one false and one true.
4. It takes such a vast amount of production to fight a modern war, that if there were arms production, at least some part of it would certainly be found out.
5. It would not be necessary to inspect all the factories in a country; a sample of them could be chosen for the purpose.

C: *Problems Anticipated in the Operation of An Inspection System*

1. It is often very difficult, particularly in certain industries, to distinguish between military production and civilian production.
2. A quick change-over from civilian to military production is possible in many industries.
3. It is possible to split up production among

many small plants, thus disguising the true nature of the activity.

4. The geographical area of Russia is so great, and uninhabited areas so widespread, that satisfactory inspection would be very difficult if not impossible.
5. The working population of Russia is so disciplined and controlled, that carrying on secret manufacture would be possible.
6. The difference of language between countries constitute a barrier to satisfactory inspection.
7. The size of the task is enormous.
8. The cost of the job would be tremendous.
9. A sufficient number of persons to do the inspecting job can't be found.
10. In any agreement on inspection, there will be loopholes that can be used to circumvent the plan.

D. Who Should Do the Inspecting: Technical Qualifications

1. Top grade engineers.
2. Top production men.
3. Technically trained persons.
4. Specialists for various industries (such as chemists and chemical engineers to inspect the chemical plants, and accountants to inspect the material, production, shipping and sales records).
5. Technical people who also have some ability in diplomacy.

Who Should Do the Inspecting: Composition of Teams

1. Civilian teams (NOT military)
2. Industry teams (NOT military)
3. UN teams.
4. U. S. Embassies abroad.
5. Nationals of the countries involved.
6. Mostly U. S. personnel.
7. Teams to be made up of U. S. and Russian representatives, plus a disinterested third party to act as umpire or arbitrator.

It is interesting to note, in connection with the sponsorship of factory inspection, that over one-third of the respondents volunteered that the United Nations would appear to be the logical agency for this purpose.

E. Required Frequency and Duration of Inspection

Generally speaking, comments on the desired frequency and duration of factory inspection were scattered and diverse. It was perhaps even more difficult than the respondents realized to put time limits on systems which they had unexpectedly been asked to create.

On the desired frequency of inspection, the range was as follows:

Three times a year
Twice a year
Once a year
Irregularly
Continuously

On the span of time required to complete one inspection, the range was from one day to continuously. It was pointed out several times that inspection should be carried out without advance notice.

F. Anticipated Success in Hiding War Production

Opinion was about evenly divided on the possibility of success were one desirous of secretly carrying on war production despite an inspection system.

THREE INTEGRATED INSPECTION PLANS

The components of an inspection plan presented in the preceding pages might well form the basis for the development of a reasonably efficient working system. As noted, however, few of the respondents achieved any integration of their ideas on how to go about inspection. The best system would come, then, from a combination of some of the ideas rather than from any one respondent's plan.

In order to understand how some respondents really reacted to the inspection idea, and how they went about working out an inspection plan in their own minds, it is perhaps valuable to examine the words of three respondents whose plans were relatively more integrated than the others. The first comments are taken from an interview with the chief engineer of a medium-sized electronic manufacturing company. He was about 45 years old, apparently skeptical by nature, blunt and direct in dealing with people and problems, and highly pragmatic. Some of his comments on how he would operate an inspection plan follow:

"The inspectors would have to be technically capable; they would have to be completely and thoroughly versed in electronic and manufacturing techniques; and they would have to be able to recognize war production when they saw it . . . I would get an organizational chart of the plant. After studying it, I would select the heads of the department that I thought required special attention and interview them to find out whether there was anything suspicious or prohibited going on. I would then ask them to guide me through the plant.

An Inspection Checklist

"The sort of things I would be interested in would be the number of people employed, the number of hours worked, the number of people added or subtracted from the working force by department. I mean I would want to know why there were any changes in the labor force — are they increasing production or producing something different which requires more people, perhaps because it is more complex and therefore might require more man-hours per unit? I would also want to know the production schedule of the department; then I would look at the production records and the rates and check these items against the number of personnel in the department . . .

"I think you would want to try to establish in your own industry a pattern of the production factors with attention given to such factors as man-hours, output, and complexity of the product. That could then be used to check approximately what was going on in the same industries in other countries. This would be useful in spite of any possible discrepancies in efficiency. I think that a two or three-day visit by two men could cover a plant of average size, that is, a plant that employs about 2,000 people. One man, a manufacturing engineer, would check the technical aspects of the organization; the other would check the administrative aspects, that is, the financial and sales end of the business. The check on sales would be to see who the customers are who get the final product. You would want to check the individual company sales pattern against the industrial pattern. If there was a marked discrepancy, you would become suspicious and inquire into it. This might possibly be an indication of a shift to military production.

"I would also look at the production tech-

niques. This depends on whether or not the production is civilian or military. The organizational charts might also show up whether the product was civilian or military. The government requires certain things that the commercial industries don't and this could determine who was ultimately responsible for inspection and quality control. For example, if the inspection is responsible to the sales department, that is one thing; but if the inspection is responsible to the engineering, that might be an indication of the higher requirements set by the military, and you should certainly check into it . . .

"As for the frequency of inspection, it would have to be at irregular intervals based on what the inspectors saw at the plant on their previous visit. Where there was something suspicious, they would drop back in a short period of time to check again. To establish such a program, the government should take leaders in the industry and let them work out, by an industrial committee, the techniques to be used. I am a firm believer in this approach. I do not think the government would have trouble in getting people to take part in such an undertaking. People would be willing to do this in the interest of disarmament and peace; and the government, I think, has a real flare in getting people to work for itself, I mean in setting up things like this. The industrial committee could sort of practice by telling their people to try to cheat on the inspection system in as many ways as they can possibly think of. This would be while they are trying to figure out a technique, not once the program has been set up, of course. This would give an opportunity to find out possible loopholes and to figure out ways of plugging them . . .

"In the electronics industry, I think there are about 200 companies; my estimate would be, very roughly, it would take 600 man-hours for the actual inspection of all of them. You would only have to check the sizable ones. The statistical information on the industrial patterns would be important in this connection . . ."

Civilian Teams and Arbitrators

The next comments come from an engineer who is in charge of one of the large plants of a national machine and foundry company. He is about 50 years of age, an engineer by training, and experienced primarily in the metal working industry. His duties now are mainly administra-

tive, but his office is in the same building as the plant, and he is in the plant frequently. His company is now devoting about 40% of its production to military needs. His comments follow:

"The set-up should be established by an international agreement between the United States and Russia; it would probably be civilian teams from each country. The inspectors would be familiar with the factory they are inspecting. The military would not have the technical knowledge you need for such a job."

(Probe: "You think this would be a bilateral arrangement or would it be one with a third party involved?")

"A third party would be required. Both countries involved should be represented on the inspection team. The presence of an umpire or arbitrator might be valuable in dispelling any distrust. Certain ground rules would be established and the third party would be present to see that the ground rules would be observed and didn't degenerate into a hassle between the two prime parties.

Complete Visual Inspection

"Visual inspection and knowing the potential of the plant, that is, what machines are in it and the materials handling equipment, would be all that was required. I mean visual inspection of the entire plant, all the buildings and locations within the plant grounds. You might use an aerial map as a double check to make sure you had inspected every building and area. If there was mutual trust on both sides, further inspection inside the plant is all that is necessary to make sure that they are making only what they are supposed to be making. If you are suspicious, you might check the freight car yard for shipments of illegal production. If they are producing in any quantity, you should be able to detect it there. If weapons could be produced on a restricted basis, it is harder to gauge in terms of the rate at which a plant can produce than its potential, which means whether it can produce a certain item at all, whether it has the tools and equipment for producing. You would have to look into the purchasing records to see what raw materials were bought and in what quantity; also, a manufacturer of weapons rarely manufactures all its components. Some of them must be bought and this should show up in terms of type and number in the purchasing records.

"You would also look at the production control records which would show the schedule or the movement of parts through the plant. This would give you an idea of the rate of production. The number of people employed and the number of shifts operating are other things you would want to know. It would require a closer scrutiny than would be necessary where war production is prohibited. As far as falsification of records goes, there would have to be a complete duplicate set of records that was consistent with itself and that would hold up under a check against the situation in the plant. This would not be an easy thing to operate.

"I would look for hidden facilities such as an underground adjunct that is shut down part time but might be put into operation quickly.

"The average plant is pretty well integrated. The complete plant has a balance between the different amounts of machines. If there was a preponderance of one kind of machine, I would be suspicious. I would also look for equipment that did not fit in with the plant's legitimate product line. I would also want to check on the suitability of their transportation facilities for the type of product and their production output. I mean if they had very heavy trucks, and they were shipping only small devices that by the truck-load didn't weigh too much, I would want to find out what the story was."

(Probe: "Suppose the factory was assigned a quota of arms production?")

"I would look through the records as indicated. I would bring an accountant along to make sure that everything balanced out so that there was no discrepancy between what they received and what they reported shipping out."

(Probe: "How much time would that take?")

"That would depend on the plant. A rough estimate would be five man-days for the accounting end of the job alone. For the inspecting team, it would take ten to fifteen man-days."

Problems in Determining Product End Uses

The third respondent, who produced a relatively integrated though markedly pessimistic approach to factory inspection, is the president of a company manufacturing office equipment and electronic computing devices. He is in his early forties, trained as a business man rather than an engineer. His comments follow:

"Inspection from a practical standpoint in fac-

tories on the ground would be pretty tough in many areas, in many kinds of industries. For example, in atomic energy you go along for about 90% of the way in the development of atomic energy in a direction for peaceful purposes that is exactly parallel to that for war. Not until you get to the last 10% of the route do you make those switches in your plans which turn it into a war device. Now the same thing is true in our business. We make computers, large computers, and in the development of these I think one could say that you might well be 95% — no, that's perhaps overstating it, but say at least 70% — along the way before it would be necessary to introduce those characteristics which would convert the peace-time computer into a bomb sight. You just couldn't tell during the majority of the development and manufacturing stages of such a device whether it was going to be used for a peaceful purpose or not. So I think it would be nearly impossible, this matter of inspecting in factories.

"You could ask, 'Now, let's see the end use of this product,' and then they could show you an office computer, but you still wouldn't know whether all of the units were being developed into office computers. We manufactured gun casings in the last war. With that, it might be somewhat easier, but it tends to get very complicated. I just wouldn't know how factory inspections such as this could be carried out effectively; I don't see how it could. I have been in Russia, I served there during the War, I covered it by air from border to border, flew all over Siberia. Now, if I were there and faced with the task of inspecting, and if I had a 10,000 man team and 1,000 airplanes and could go anywhere I wanted and land and go into any factory that I wanted to, at the end of a year I simply couldn't tell you, though I had gone from border to border, what was going on. The area is so great, the possibility of hiding things is so great. In a country where the population is very sparse in some areas, where you can travel in Siberia for 750 miles and see not a soul, to put a factory underground and then to have the workers live in small huts scattered

throughout the area — it would be impossible to be sure at all at the end of a year that you had found that sort of thing . . ."

(Probe: "What are the real practical barriers to succeeding at this?")

"First, there is just so much land in Russia; it's such an enormous place. Look at this country, the United States. It's enormous and the problems of finding things out here would be great, but in Russia they would be far greater. And they are so controlled in their movements. The working people, the population, are so controlled. For example, in this country if you had gone down to Tennessee Eastman and had walked around in the town and seen large numbers of workers going out to work somewhere, it would have revealed itself. You would have known it was there. But Russia is so vast, so empty, you could hide a plant underground, assemble small dwellings out in some place where there is nothing within hundreds and hundreds of miles, and you'd have a very difficult time ever finding it.

Climate of Cooperation Needed

"I want to say this: I know I'm a pessimist, and I seek an answer that may have some hope for us in this — I think the only answer is going to come about through cooperation. The Russians — it's not here now, I know, this cooperation — but perhaps it will come. They will realize, perhaps, that we are not trying to jump them, and vice-versa, perhaps the Americans will come to realize that the Russians don't really want war . . ."

(Probe: "What if there were full-time, permanent inspecting teams?")

"You mean resident inspecting teams in every city in Russia and the United States? Now, that might make a difference. I've been thinking of the one-shot, semi-annual affair because it seems to me that it would be far easier to get a plan accepted both by the Soviet Union and by the United States if it were of a one-shot or semi-annual type. I think it might be quite different if you had permanent inspecting teams."



INSTITUTE FOR INTERNATIONAL ORDER

11 WEST 42nd STREET
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July 10, 1956

REPORT ON GOULD HOUSE CONFERENCE ON SCIENCE, TECHNOLOGY AND NATIONAL SECURITY (Under the auspices of the Institute for International Order)

I Gould House Conference, Dobbs Ferry, New York, June 22-24, 1956.

The theme of this closed working conference was the revolutionary effect of recent scientific and technological advances on both the waging of war and the possibilities of preventing nuclear war.

In several respects this conference was unique. Initiated and conducted by individuals deeply concerned about our national security and the peace of the world, it brought together, in what seems to have been an unprecedented way, both governmental and non-governmental experts for a free interchange of facts and ideas. It gave these experts an unusual opportunity to focus their widely varied knowledge and experience on the exceedingly complex problems raised by the ever-accelerating arms race, particularly in nuclear weaponry.

Perhaps the most remarkable aspect of the conference was the variety of professions and interests represented by the highly competent participants. Among them were atomic physicists, military strategists, members of the armed forces, economists, political and social scientists, journalists, editors, science writers; staff members of the State Department, White House Disarmament Office and Senate Disarmament Subcommittee; industrialists, financiers, lawyers, and writers on disarmament and peace planning. At least 20 of the 30 participants had written either books or magazine articles on the manifold problems of war and peace.

II Results of the Gould House Conference

Perhaps the most valuable result of the conference was the opportunity for an interchange of ideas by experts and others who had not met before. It confirmed the conviction of its sponsors that valuable months can be saved by providing an opportunity for such personal contacts instead of waiting for development of public policy through long drawn out literary debate.

One purpose of the conference had been to supplement the work of official policy makers by drawing on the knowledge and experience of highly qualified non-governmental experts, some of whom have been at grips with the arms problem for more than a decade. Already the findings of the group, embodied in four panel reports have been reviewed by the White House Disarmament Staff and by the chairman of the Senate Disarmament Subcommittee.

Another purpose of the conference was to prepare working papers for a larger conference in which influential individuals in business, finance, industry and the professions would be brought together on a non-partisan basis with the experts to discuss a rational armaments system and means of maintaining and consolidating world peace. (The disclosure that President Eisenhower has called for a radical reappraisal of these problems by government planners and the continuing deadlock in the U.N. Disarmament Commission, adds timeliness to this project.)

The Gould House participants agreed that such a conference, modeled on the American Assemblies at Arden House inaugurated by the President, is not only desirable but urgently necessary in view of the perils that lie ahead in the race for hydrogen-headed intercontinental missiles.

III Arden House Conference

Arden House at Harriman, N. Y. has been reserved from October 19th to October 21st. Seventy persons will be guests of the conference.

IV Sponsorship of Arden House

The Arden House Conference will be financed, at a cost of \$20,000, by special contributions or grants to the Institute for International Order, a non-membership, tax-exempt, educational organization. Finance Chairman of the conference is Mrs. W. W. Bray, 10147 Rustic Lane, Cincinnati 15, Ohio.

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Gould House of New York University, Dobbs Ferry, N. Y., June 22-24, 1956

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CONFERENCE ON SCIENCE, TECHNOLOGY AND NATIONAL SECURITY
Gould House of New York University, Dobbs Ferry, N.Y., June 22-24, 1956
Sponsored by the Institute for International Order

SUMMARY OF CONFERENCE FINDINGS

(Note: The conclusions of four panel reports are here condensed and somewhat rearranged by the Conference Editorial Board.)

* * * * *

IS "DETERRENCE," GRADUATED AND TOTAL, A RELIABLE SAFEGUARD OF PEACE?

Mankind may be compelled to live for an indeterminate period under mutual deterrents. But the system of mutual deterrence is not to be considered worth pursuing as a long-range policy or as an end in itself. It is too easy for mutual deterrence to slide into mutual terror and mutual terror into mutual hysteria and trigger psychoses. Human reason balks at the notion that a balance of terror represents the ultimate in any reasonable approach to a durable peace.

The threat of massive nuclear retaliation offers a progressively less reliable safeguard against an all-out nuclear war: a) as the ability to wage nuclear war, particularly with long-range ballistic missiles, is acquired by other nations; b) as the possibility increases of errors in judgment in the chain of command responsible for the use of nuclear weapons.

In the case of limited, partial, and peripheral warfare, the threat of massive nuclear retaliation offers no appropriate, or even effective deterrent. Such wars may, however, be prevented or confined by the threat or use of limited force. Therefore the United States, in the absence of a full disarmament system, must be capable of flexible response, nuclear as well as non-nuclear, to all types of war situations, ranging from local outbreaks to major aggressions.

The United States must keep nuclear weapons available for use defensively. The intention to use such weapons primarily for defense should be announced in advance, in the expectation that by such self-limitation the risk of enlarging the conflict or of drifting into initially unintended all-out nuclear war may be minimized. The exact character of this self-limitation needs careful study.

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DOES STRATEGIC STALEMATE IMPROVE THE CHANCES FOR FRUITFUL POLITICAL SETTLEMENTS?

Strategic air-atomic stalemate implies that -- barring some technological breakthrough vastly increasing the power of the defense -- real victory, in any worthwhile sense, is no longer possible for any belligerent. This may remove one major obstacle to an over-all settlement of the cold war. Hitherto, each side has feared that the solution of any of the outstanding issues might give the other side some military advantage. Since both sides, however, now possess adequate deterrent power, the solution of these issues would not affect their fundamental military capabilities. Hence the way lies open to accommodations far preferable to the present deadlocks.

Before agreeing to any settlements, however, the United States should make it unmistakably clear that it is thoroughly determined to resist any further forceful expansion of the Communist empire. Any irresolution on our part, or any uncertainty as to our intentions on the part of the communists, might tempt them to other aggressions. The chief danger may lie in the twilight zone of psychological warfare, subversion and indirect aggression, including the fomenting and exacerbation of internal and international distrusts, antagonisms and conflicts. A clarification of the line between legitimate "competition" and illegitimate intervention might reduce the risk of blundering into a major war. In the absence of such a clarification, "competitive coexistence" may involve grave perils for the free world, which might be immobilized by fear that it might provoke a nuclear war if it offered even legitimate resistance to communist encroachments.

WHAT IS THE TECHNICAL AND POLITICAL FEASIBILITY OF RELIABLY INSPECTED AND CONTROLLED DISARMAMENT?

The chief obstacle to nuclear disarmament lies in the fact that stockpiles of fissionable materials and nuclear weapons cannot presently be detected by any known mechanical means. Some information might be gained by what is called "psychological inspection," i.e., inspection directed at officials and other individuals who might know the location of hidden stockpiles, secreted in violation of a disarmament agreement. The manner in which such an inspection system might function, and its potential reliability should be given careful study.

As to the political feasibility of inspection, this is always an extremely hard thing to judge outside the context of a particular climate of opinion. Such a climate of opinion is capable of quite rapid change. One has only to reflect on the currents of optimism momentarily liberated in the United States at the time of the Summit meeting in Geneva in July, 1955, and the changes that appear to be going on within the Soviet orbit today. In the present climate of opinion, it is difficult to imagine that a technically adequate inspection and control system would be politically acceptable even in the United States, let alone the Soviet Union, where any limitations on unrestricted sovereignty have been jealously resisted. Since public education may weaken such resistance, both here and in the Soviet Union, strenuous efforts must be initiated at once to drive home the importance of inspection to both sides.

Among the possible inducements of self-interest that might be brought to bear on the Soviet Union in order to elicit agreement to a world-wide inspection system are the following:

1. Freedom from a deliberately planned nuclear attack. (Actually the USSR is in far less need of such protection than is the United States.)

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2. Protection from nuclear warfare touched off perhaps by some irresponsible fourth country. Much greater emphasis should be placed on warning the Soviet Union of the likelihood that other countries will soon obtain nuclear weapon ability in the normal course of peaceful exploitation of atomic energy. It is manifestly in the interest of the atomic powers, the U.S., USSR, and Great Britain, to lessen or remove the danger that such "fourth countries" may develop atomic weapons and perhaps use them irresponsibly or accidentally.

3. It should likewise be impressed on the Soviets that they stand to gain enormously from an atomic disarmament agreement through the freeing of resources for both domestic and foreign use. This argument should be especially attractive at this time when Soviet emphasis is rapidly shifting toward economic "competitive coexistence."

4. The United States should at least consider whether (assuming we have adequate intercontinental deterrent strength) it would be profitable to offer to give up our overseas bomber bases in return for protection against a Soviet attack and for the intelligence advantages accruing from aerial inspection and unhindered ground inspection as part of an over-all agreement. The political difficulties already looming against our retention of these bases should be taken into consideration.

It may be concluded that a trustworthy disarmament agreement will be exceptionally difficult to obtain. But the alternative -- a fear-filled air-atomic stalemate -- is so dismal to contemplate that efforts to reach an agreement, which are now minimal, should be multiplied many times over.

IS A MUTUALLY INSPECTED MORATORIUM ON THE TESTING OF LONG-RANGE
BALLISTIC MISSILES (L.R.B.M.'s) FEASIBLE?

Long-range ballistic missiles with H-bomb warheads, delivered in really large numbers, risk serious damage to civilization and thus may change its nature and direction. Even so, because even more deadly weapons may be developed, L.R.B.M.'s should be called "sufficient" rather than "ultimate" weapons.

Moreover, a substantial operational capability of long-range ballistic missiles in the hands of Russia alone could result in a profound shift in the balance of power. Such a Soviet capability would introduce a great instability in world affairs and might have catastrophic effects on the entire Free World system of alliances. This capability, however, does not consist in merely developing and firing one such weapon successfully, nor does it consist in possessing one hundred perfected weapons. Rather, it consists in the possession of several thousand. Even then, such an imbalance would not completely destroy the air-atomic strategic stalemate because, by keeping a fraction of our retaliatory force bombed-up and in the air at all times, we could maintain sufficient deterrent strength.

At the present moment our security depends on conventional and nuclear weapons delivered by what might be called conventional delivery systems, bombers, rocket-carrying submarines, naval task forces, etc. As of today, these weapons delivery systems are relatively susceptible of observation, control and reduction in number and striking power. As of perhaps the year 1960, plus or minus a year or two, the delivery systems will begin to include missiles and missile-launching platforms, which are far less susceptible of observation and control and, in fact, may be almost impossible to control. As of the year 1965, the likelihood that various missile delivery systems would be practically undetectable is so great as to be almost a certainty.

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Detection of tests of LRMB's is feasible both from the periphery of Russia and inside Russia. From the periphery of Russia, detection is already technically possible with radar, although such detection can in turn be detected and easily jammed. If a peripheral system were established and if it were then jammed by Russia, it might mean that the Russians were either testing or bluffing. The operational feasibility, cost, practicability, etc., are not clear at this time, nor is the time required to install such a system.

Ballistic missile test-firings could be detected from within Russia only with Russian approval. A simple detection system, properly equipped with radar, communications, and other instrumentation, could be based on the ground control plan to warn of surprise attack already suggested in the U.N. by the Soviets. Without instrumentation, however, ground control within Russia would not be effective for this purpose; with instrumentation, perhaps several score control points would be sufficient. The general public might be unconvinced by the evidence adduced from the peripheral detection system, but a detection system within Soviet territory should remove any reasonable misgivings.

It must be confessed that Soviet permission for such a detection system within Russia seems unlikely in view of past behavior by the Communists, (e.g., in the North Korean inspection experience.)

However, it is feasible to develop an operational LRBM without any, or only a minimum of test-firing. The required propulsion system has now essentially been developed. The problem of re-entry to the atmosphere can most probably be solved with a minimum of test-firings, although new ground test installations would be required. This would introduce an estimated 2-5 year delay in the solution of the re-entry problem.

As to the guidance and control problem, much of the testing can be done on the ground and with conventional aircraft. It is probably easier to solve the guidance and control problem in 2-5 years than it is to solve the re-entry problem in that time.

With this approach, only a few actual test firings, to confirm data, would be needed.

Although it is reasonably certain that Russia is ahead in some aspects of LRBM development, whether the U.S. or Russia is ahead at the moment should not keep us from seriously considering a moratorium.

We conclude that, without a moratorium on test-firing, either the U.S. or the USSR or both will have a substantial operational capability by the turn of the decade. A moratorium would introduce a delay of an estimated two-five years.

IS A MORATORIUM ON TEST-FIRING OF LRBM's WORTHWHILE?

Yes. First, development of long-range ballistic missiles would create a more stable deterrent situation initially. But it would soon lead to new and even more serious problems. The invulnerability induced by proper design and dispersal of LRBM launching sites would make such sites almost impossible to detect by inspection. Such inspection difficulties would inevitably lead to an accelerated armaments race toward weapons which are even more difficult to discover than the LRBM itself. Such a condition automatically re-induces instability into the situation. Additionally, the "fourth country" problem introduces another type of instability

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but one likely to be brought about more by political than by technical means. (i.e., fourth countries might receive LRBM's from the U.S. or USSR, instead of acquiring them through their own development effort.)

Second, we could take several positive actions during the time gained as a result of a moratorium. Of most importance, efforts to devise satisfactory political solutions could be intensified. A satellite surveillance could be developed, and our present deterrent capabilities, short of the LRBM, could be established on a politically sound international basis. Other peaceful uses for rocket technology could be evolved.

WHAT FURTHER STEPS SHOULD BE TAKEN TO ENSURE A STABLE PEACE?

Mutual deterrence, advance warning systems, missile moratoriums, partial disarmament, are only the first few steps toward the goal of a peaceful world. Piecemeal and unintegrated approaches, some of which may stress saleability rather than intrinsic adequacy, may in fact do grave harm by arousing hopes, the disappointment of which may set the cause of peace back many years.

It is essential therefore that the United States formulate and propose a long-range policy aiming to establish a world order based on justice and freedom. This policy could be proclaimed in a "Declaration of Intent" in which the United States would set forth the kind of international order it hoped ultimately to see achieved, to the development of which it was willing to contribute reciprocally in an increasingly effective United Nations. As a tender of intent the United States should express its willingness to participate in a world-wide exchange of persons and ideas and in programs for economic assistance, without political or military strings attached, for the greater good of the human community. In so doing, the United States will acknowledge and act in behalf of that human unity which transcends the various groupings and allegiances into which the world's peoples are formally divided.

A broad and imaginative plan may have a better chance of being accepted than a constricted or partial one, although only limited moves may be immediately feasible. These are desirable so long as they are in the direction of the ultimate goal, and the ultimate goal is kept in view. Any such plan or grand aim should appeal to the moral side of men and not merely to self interest or the desire for physical safety.

To carry conviction, the plan should go beyond general aspirations to the necessary working machinery of a truly secure peace. This would involve inspected disarmament, an international police force, rules for fair "competitive coexistence" and machinery for peaceful settlement of disputes. These in turn would require a pooling of sovereignty in the strictly defined area of the common safety -- leaving, however, the most important areas of national sovereignty unimpaired, and actually better safeguarded than before.

The incentive rewards of disarmament should be presented in specific and dramatic terms. An agreed fraction of the savings from disarmament should be returned to the taxpayers or spent on non-defense public welfare programs concerned with health, education, research, etc. The remainder should be spent through a world fund for raising living standards, such as the Special United Nations Fund for Economic Development (SUNFED).

(MORE)

The plan should be proposed in absolute good faith, and be designed to hasten the uniting of the human community. Every effort should be made to obtain Soviet acceptance, relying on the weight of world public opinion.

The foregoing offers a realistic and reasonable basis for the United States to assert moral leadership and to develop a sense of direction and vital purpose. The well-being of the entire human community, rather than any of its parts, defines both our grand aim and our present opportunity.

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