

can relations are "friendship and alliance." He acknowledged that, in order to defend themselves against the Soviet threat as long as it lasts, the peoples on both sides of the Atlantic must be linked together, and more specifically, he asserted that despite divergencies over the organization and functioning of the alliance itself, France and the United States would be side by side again in the event of a general war. In short, on the 29th of July, General de Gaulle did not appear to fear entrapment, and he had by no means abandoned hope for the future of the alliance.

Looking to the future, the NATO alliance will be making a major effort to come to grips with the difficult problems of nuclear control and mutually consistent strategies, forces, and budgets. A diversity of views is to be expected. But if these discussions are conducted with a view to the continuity of objectives which virtually all the members have displayed, and if the alliance maintains the flexibility to adjust to changes in the East-West situation such as the test-ban agreement, the end result should serve the interests of all. If on the other hand, the proceedings are conducted amidst allegations of infidelity and duplicity, only the common enemies of the West will benefit.

GRADUAL ARMS REDUCTION

Amitai Etzioni

Can a disarmament plan be devised that would satisfy both the U.S. demands for inspection and the USSR desire for initial maintenance of considerable secrecy? "Gradual Arms Reduction" is a three-stage plan suggested to solve this inspection deadlock: Further discussion is invited.

The method of disarmament—that is, the sequence for reducing or eliminating arms and the inspection and verification system to be employed—is only one of many factors in disarmament. Hence, it is utopian to expect that if a "good" method could be found, disarmament would take place. At the same time, it is important to realize that the method has some importance in itself. The lower the

"costs" of disarmament, in terms of what the two sides have to take on trust or the risks they have to accept or the changes required in their economic or social structures, the more likely they are to agree on a method.

All disarmament sequences proposed to date have required substantial if not complete removal of nuclear weapons in the first stage of disarmament, and have also required, by the U.S., immediate and intensive inside inspection. The Soviet Union's reluctance to accept the latter requirement is based, not only on military needs for secrecy, but also on the long history of Russian society as a closed one.

To overcome the inspection deadlock, it is necessary to find an arms reduction system that fulfills the legitimate Western demand for inspection, yet does not require a rapid opening up of the Communist societies. Proposed here is a three-stage plan for multilateral disarmament that should satisfy both requirements.

The plan would be initiated by a reduction of conventional arms to the levels needed for internal security. The second stage would be an area-by-area elimination of nuclear weapons and their means of delivery. This would lead, finally, to the third stage: general and complete disarmament. The first stage of this system does not require foreigners to enter the inspected countries. In the second stage, only parts of the countries are so inspected. Only the last stage requires a full, free inspection.

● STAGE I. REDUCTION OF CONVENTIONAL ARMS

Conventional arms would be reduced in four major steps, according to quotas and schedules agreed on for each step in a multilateral arms reduction treaty:

(a) The elimination or alteration of large and expensive items. Most military naval units, heavy tanks, and artillery would be sent to a neutral spot outside the inspected countries either for simultaneous destruction or for alteration in such a way that to rearm them would be time-consuming and expensive—cannons, for instance, might be melted down and the steel blocks returned. (To celebrate the initiation of the arms reduction treaty, a splendid gesture would be the sinking of an American and a Russian de-

stroyer, tied together, in mid-ocean.)

(b) The simultaneous closing of particular navy, army, and air bases. Militarily obsolete bases would be closed first, then the bases that become unnecessary because of the reduction in arms.

(c) The simultaneous withdrawal of Russian and American troops from areas outside the two superpowers, such as South and North Korea. (Unlike the closing of a particular base, a large area, even an entire country, would be involved.) This would best be accompanied by a reduction in the arms of other forces in the area and by the posting of inspectors along tense borders.

(d) The demobilization of troops and the reduction of small arms to the level necessary for internal security. This fourth step would complete the first stage—that of conventional arms reduction.

What are the external inspection and verification methods to be used at each step of the first stage? The destruction of weapons can be done in a neutral spot outside the countries inspected, say in the Solomon Islands. Each side will be committed to show the other side the weapons it contributes for demolition. This will automatically reduce the value of whatever like weapons the same side might hide; for instance, if the U.S. can freely examine the virtues and defects of a Soviet destroyer, its military value becomes less. The weapons that are to be altered, rather than destroyed, by neutral experts should also be open to inspection. Altered weapons might be reexamined at stated times to show that they have not been rearmed.

The closing of bases can be inspected from a satellite like the Samos and from reconnaissance planes like the U-2. Flights would be limited to base areas and to the agreed routes leading to these. As Cuba showed, it is virtually impossible to use a military base without that use being recognized by aerial reconnaissance.

Aerial reconnaissance could also be used for inspection of disarmed territories. In addition, since the citizens of these territories are aliens to the disarming superpower, some of them are quite likely to volunteer information of violations to the other side.

The commitments most difficult to validate are those promising not to

build conventional arms of the types that are to be destroyed, and to demobilize troops. To a limited degree, this can be done by analyzing national budgets. If the Russians cut their military forces by fifty per cent, almost any use claimed for the resulting savings in funds could be verified, though only crudely. If taxes have been reduced, every citizen will know it. If the standard of living has risen, this should not be hard to establish. Cuts of a smaller magnitude, however, would be difficult to ascertain.

The work of intelligence agents should not be shunned. For evidence of a violation of the treaty, it would be enough for an agent to photograph a single destroyer after all destroyers had been reported as altered or demolished, or to detect a troop movement in an area of a base claimed as closed, or to report the production of a category of weapons officially discarded.

All these methods of verification combined do not provide a fool-proof system, but they do suffice to make any large-scale violations likely to come to the attention of the other side and therefore to be of little use.

At any moment in the first stage, both sides will still have their full nuclear deterrent power. Hence an attack on the heartland of either side will be equally as deterred as it is today. An attack on a third country would automatically put an end to the arms-reduction treaty and would result in conventional rearmament and the restoration of the status preceding the attack; this would be a commitment explicitly stated in the initial treaty. The side that failed to honor such a commitment would be left without allies overnight—not so much because of any moral indignation aroused as because of the collapse of the credibility of its protective umbrella.

In sum, a potential violator would have to consider that it could not cripple or eliminate the other superpower; would be unlikely to get away with the conquest of a third country; and would sacrifice the chance of getting agreement on a disarmament treaty, for no country would agree to such a treaty after such a violation.

● STAGE II. AREA-BY-AREA NUCLEAR DISARMAMENT

In the second phase, both countries will be divided into a number of ter-

ritories, say ten each. These territories or areas will completely disarm by an agreed schedule (say, one each year). As each area is disarmed, it will be opened to an internal inspection that will check the complete elimination of atomic, nuclear, bacteriological, and chemical weapons, as well as of missiles and missile bases, and will recheck the elimination of conventional arms carried out in the earlier stage. The particular area to be disarmed each year will be determined by lot, to ensure that weapons will not be concentrated in some areas yet to be disarmed. As soon as an area is selected for disarmament, inspectors will be posted on all its borders, and transportation from the area by air, land, sea, or waterways will be stopped until the initial inspection is completed. Later, a sample inspection of the borders and the area will continue as long as the inspecting side so desires. The possibility of a citizen inspection gradually taking over some of the burden should not be excluded.

It is now clear why a power is unlikely to succeed in hiding conventional arms or in producing them secretly until the other side has given up its nuclear deterrent: the internal inspection of the signatory countries will precede the removal of the nuclear deterrent.

For the same reason the otherwise very difficult problem of exchange rates seems surmountable. It is obvious that the various powers have different amounts and qualities of weapons and different military needs in order to maintain the same security posture. It would be almost hopeless to try to reach an agreement if it were necessary to match exactly the reduction in the military potential of each side at each step. Fortunately, this is not necessary for two reasons.

It should first of all be pointed out that large imparities have existed, yet have not led to war. In 1946, the Russians had 6,000,000 men under arms and the Americans 670,000; nor did the large differences in nuclear capacity in the late forties and in the late fifties lead to war. It seems that the deterrence system can stand fairly large differentials in power. Moreover, under the proposed arms reduction system, a mistake in estimating the military value of a base or a weapon could not be detrimental, since nei-

ther side will reduce its nuclear deterrent before the reduction of conventional arms is completed. The two sides can therefore afford to be quite generous in their estimates of each other's capabilities, and should be able to reach an agreement on the various quotas and schedules.

● STAGE III. GENERAL AND COMPLETE DISARMAMENT

The arms reduction process will be complete when the last area has disarmed. The two sides might well agree that the last area would be the seas—that is, nuclear submarines, since these are considered the least vulnerable second-strike forces. A purely defensive weapon, such as a line of short-range antimissile missiles, would of course be preferable. Another possibility is to leave as a last zone the area that comes out last in the lot. This area would be disarmed only after the two sides have satisfied themselves that the other areas have been disarmed, and that institutions of international security have been developed. They may also agree that, while all the other steps are to be carried out according to a schedule agreed on in the initial treaty, the disarmament of the last area will occur at a date to be agreed on at the end of the second stage.

● THE PACE OF ARMS REDUCTION

The essence of the arms-reduction plan suggested here lies in the sequence by which the steps are introduced, not in the time taken to carry out each step. In theory, the first stage might be carried out within a year (the U.S. cut seven-eighths of its war industry and military machinery in less than a year after World War II). Similarly, the second stage, might be carried out within a few years, and the third in an even shorter period. In actuality, however, the process is likely to take much longer.

For one thing, the stages of the plan will have to take long enough to allow a still partially closed society to open up gradually to the degree necessary for internal inspection. This might take five to fifteen years. Here, the important effect of the plan itself should be taken into account. If, as the reduction of arms is taking place, the experience of nations carry-

ing out their commitments under the treaty should markedly improve international relations, this progress is likely to accelerate the liberation of Communist societies and then allow the sequence of reducing arms to be accelerated.

A slow pace of arms reduction enhances not only its acceptability to the USSR but also to the U.S. The conversion of military industries to peaceful purposes will raise some difficulties in the U.S., particularly in view of the existing unemployment and the present unused capacity for production. It is obvious that the longer the phases of arms reduction take, the easier the adjustment becomes.

Enough time is also needed to allow new international institutions to develop. In the present state of world hostilities, it is hard to imagine really effective international institutions; but as arms reduction progresses and as a new climate becomes established, it might be easier to develop a stronger United Nations, a more powerful international court, and, eventually, an international police force. All these are necessary, not only to prevent rearmament after disarmament, but also because the two sides would probably refuse to complete their arms reduction and give up their national deterrent power without these institutions. However, the pace of development of such institutions is likely to be quite slow. This alone may require a delay in stage three or force an expansion of stage two.

In short, the needs of the Communist and the Western societies for gradual adjustment to a disarmed world, as well as the needs of international institutions, prescribe a fairly slow pace in reducing arms. If developments prove more rapid than expected, nothing in the plan offered here prevents an acceleration of arms reduction. Whatever the pace, however, there is going to be a critical period with few conventional arms and many nuclear weapons. Will this phase increase the probability of nuclear war?

The dangers of the present deterrence system are those involved in possessing and using nuclear weapons. Hence, an arms-reduction plan that eliminates the less dangerous weapons first and leaves the more dangerous for a later time is correctly viewed as a

roundabout approach. Yet efforts to tackle the problem at the nuclear end have all failed. The choice might be between no disarmament and conventional-first disarmament. Not only might the roundabout sequence be the only feasible plan, but it also reduces the likelihood of nuclear war from its very initiation.

The first-stage reduction of conventional arms makes war-by-accident less likely, because it reduces international tensions—as would any other interbloc treaty effectively implemented. Accidents, it is widely agreed, are not that accidental; there are certain socio-psychological conditions under which they are likely to occur. The farther forward that weapons are positioned, the more bombs cocked, the more jittery the nerves of those who finger the triggers—the more likely an accident. Consequently, the lowering of tension achieved by the reduction of conventional arms will decrease the likelihood of war by accident.

The same view holds, though to a lesser degree, for war arising from an unauthorized action. A gradual reduction of arms, verified under potent safeguards, is probably the condition under which an unauthorized action is least likely.

Considerably more dangerous than accidental or unauthorized attacks are escalation and a deliberate strike. It is here that conventional disarmament makes its chief contribution to diminishing the probabilities of a nuclear war. Consider, for instance, the following escalator ride—the publicly discussed plan for Western defense of the routes to West Berlin: If the Communists should block these routes, the West plans to send armored cars or trains to open them; if these are attacked, the West will send troops to defend them. If the Communists then engaged their European divisions, NATO would do the same; but since NATO has far fewer divisions, the Russians might come out ahead in this round of escalation. The West would then either have to give in or use atomic weapons. If the latter, the West would first warn the USSR. If the warning were not effective, the pause (as the warning is usually called) would then trigger a nuclear war, limited at first to Central Europe, and later—who knows. (Similar scenarios are surely written for Southeast

Asia and other places where the limited conventional forces of the West confront potentially larger Communist forces.) The reduction of the conventional arms of both sides would remove the first steps on these escalators. While it would still be possible to deliberately instigate a nuclear war, governments would be less likely to be embroiled in one by escalation.

The downfall of the strategy of massive retaliation in Indochina and the losses to the West there, led many to conclude that the reduction of conventional arms made nuclear war more likely. But the Indochina crisis shows just the opposite: despite a very large imbalance between the striking power of the West and that of the Communists, the West did not use its nuclear arms, and eventually it turned to conventional rearmament. Similarly, if violations of the proposed arms-reduction treaty reached such a level that the treaty were abrogated, the two sides would probably rearm conventionally.

No less important in the Indochina experience is the lesson that the conventional arms reduction that preceded it was unilateral, limited to the already smaller force of the West while the Communists maintained a large conventional force. This, of course, created an imbalance. The present plan, on the other hand, suggests a multilateral reduction of conventional arms in proportional—not absolute—numbers which would bring the two sides more in balance.

Finally, the reduction of conventional arms does not increase but probably decreases the likelihood of a deliberate first strike. If such a strike were to exploit a major technological breakthrough or were to preempt an expected strike by the other side, the amount of conventional arms the opponent has could hardly affect this decision. A deliberate first-strike could result from the feeling that the other side is “pushing us to the wall” (as with our aid to a rebellion in East Germany); but such “pushing” could be done only with conventional arms, the reduction of which, together with disengagement and stationing of neutral forces along tense borders, would reduce, not increase, the likelihood of this source of pressure toward a first strike.

In sum, a multilateral reduction of

conventional arms would make nuclear war less likely, not more so. A temporary stage of high-nuclear, low-conventional capabilities on both sides is not more unstable than the present system. Of course it would be better to begin with nuclear-first disarmament, but if this is impossible, it is clear that reducing conventional arms first will make nuclear war less likely until such time as its instruments too can be removed.

Any system of arms reduction that has general and complete disarmament as its end will inevitably raise many difficult questions. The Communists will have to forgo a means by which they have hitherto helped "wars of national liberation." The West will have to forgo a means by which they resist such wars. Both East and West fear each other and the unknown world of disarmament. Despite these fears, one might hope that eventually all countries would prefer non-armed means of spreading and defending their ideas to the constant danger of an all-out nuclear war. However, the concern here is not whether one should disarm, but rather how this might best be done.

FIGHT OVER A BOMB

Alice K. Smith

While advancing a less novel thesis than its publishers claim, "The Fight Over the A-Bomb" by Fletcher Knebel and Charles W. Bailey in the August 13 issue of *Look* discuss an important subject for a popular audience and makes available some fascinating quotations from official files, illustrating what scientists and others interested in the 1945 decision to use the atomic bomb have long recognized—that urgent appeals for a prior warning to Japan were not seen by the President or debated for his benefit in any detail.

Before the official files were opened to anyone, an article in the *Bulletin of the Atomic Scientists* of October 1958 recounted the efforts of certain Manhattan Project scientists to obtain careful consideration of the bomb's use in combat and tentatively reached the conclusion now offered by Knebel and Bailey, who began a few months later to seek access to the documents.

While they waited for permission to publish their findings, much of the information they obtained appeared in the AEC's official history, *The New World*, where, scattered throughout the chronological account, it is found in somewhat better perspective.

The value of the Knebel and Bailey article lies in the more liberal quotation from a few documents such as the Brewster letter to the President, the more specific identification of two petitions from Oak Ridge and Chicago (in addition to Szilard's), the citing of General Marshall's recommendation that Japan be specifically warned, and the information that Oppenheimer made an appeal for a change of plan—what it was is not revealed—after the Trinity test.

The main thesis of Knebel and Bailey seems incontestable, but their brief account does less than justice to the extent to which War Department officials (and it was they rather than the President who made the real decision) were familiar with the ideas expressed by Franck, Szilard, and other dissenting scientists in the spring of 1945, though none of those who have consulted the documents thus far (Herbert Feis, the AEC historians, or Knebel and Bailey) have produced evidence that these ideas were debated as intensively as many think they should have been.

It is good that a wide public should be acquainted with the circumstances of this momentous decision, but one deplores the use of such sensational devices as a box of large red type stating that Oppenheimer disagreed with those who advocated a technical demonstration (as reluctantly he did), while elsewhere the text leaves unanswered the tantalizing question of what alternative he suggested in a teletype of July 19 to which General Groves replied that it was too late to change existing schedules.

It is entirely misleading, if not literally false, to state that Szilard learned only after 18 years that the President never saw his petition. And it hardly required opening long-secret files, as Knebel and Bailey claim, "to show that this dilemma for mankind was forecast by atomic scientists almost two decades ago." This was amply demonstrated in May 1946, when the *Bulletin* published the Franck Report.

SPACE COOPERATION: INTERNATIONAL?

Arnold W. Frutkin

The article, "When is International Space Cooperation International?" (June 1963 *Bulletin*), contains serious errors of fact and judgment. It is unfortunate that it was published without the prior discussions which were offered its author, after advance reading here (at the National Aeronautics and Space Administration) and in the Department of State indicated that such discussions were desirable.

The author argues that "truly international" (by which he means multi-lateral) cooperation in space activities is undermined by bilateral arrangements, especially those between the Soviet Union and the United States. He suggests that the accomplishments of the U.N. Committee on the Peaceful Uses of Outer Space were meager compared with the U.S.-USSR bilateral agreement in this field. He says that either COSPAR or the U.N. Space Committee would have been more desirable forums for these cooperative projects in meteorology, communications, and magnetic field mapping. In fact, the bilateral agreements are operational in character, whereas both COSPAR and the U.N. Committee have explicitly rejected operational roles. (The charter of COSPAR makes this clear, and the chairman of the U.N. Committee clearly expressed the Committee's consensus on this point at the end of its first session.)

Lacking laboratories, manufacturing facilities, launching sites, rockets, or tracking networks, and recognizing the essential waste which would be involved in duplicating existing facilities, both these organizations have wisely directed their respective efforts toward other than operational activities in the space field. COSPAR is concerned with scientific exchanges and the elaboration of desirable objectives for space research. The U.N. seeks to encourage and facilitate cooperation by existing agencies. It is therefore unfair to both COSPAR and the U.N. Space Committee to expect them to arrange for cooperative operational space programs that can be negotiated bilaterally among launching nations.

The bilaterality of the agreements negotiated by Dr. Dryden and Aca-