Chapter II

1957: La Mise en Scène

I

What Beginning?

Neither October 31, 1958, the opening date of the Conference on the Discontinuance of Nuclear Weapon Tests, nor July 1, 1958, when the Conference of Experts began—the conference which formulated the technical basis for the subsequent diplomatic talks—is an appropriate starting point for an analysis of the nuclear test ban negotiations. The negotiations, and American policy in them, can be properly understood only when put in the context of earlier events, particularly several occurring during 1957. For one thing, the 1957 London session of the Subcommittee of the Disarmament Commission of the United Nations was clearly a prelude to the nuclear test ban negotiations; there is an important connection between the two, and the latter was in many ways a consequence of the former. For another, certain conflicting international and domestic forces vitally affected American policy on the question of a test ban; and, although it is difficult to fix a point in time when these forces first emerged, their impact was strongly felt by 1957. Finally, the formal arrangements for the participation of scientists in the policy process within the United States government were signficantly altered in 1957.

II

The Status of International Negotiations

The Confrontation at Lancaster House

The Subcommittee of the Disarmament Commission composed of Canada, France, the USSR, the United Kingdom, and the United States, held its most significant, and also its last, session at the Lancaster House in London from March to September of 1957. As

a consequence of major policy reviews, both East and West came to the meeting with new proposals, and during the course of the session, they revised their policies still further.[1] Three developments during the London meetings in effect set the stage for the Geneva test ban negotiations.

The first of these developments was the announcement by the USSR on June 14 that it would agree to the establishment of a control system, including control posts on its own territory, on that of the United Kingdom and the United States, and in the Pacific Ocean, to monitor an agreement for the cessation of nuclear weapon tests.[2] Until that date the Soviet Union had always argued that no international control mechanism was necessary for this purpose. In the same announcement, the USSR also declared its willingness to accept a temporary suspension of tests for a period of two to three years. Previously the Soviet position had been that any agreement on suspension must be of unlimited duration. Both aspects of the announcement represented an important change from past Soviet positions. Ever since 1954 when the testing of nuclear weapons had become a matter of widespread public concern, the Soviet Union had sought to place itself in the forefront of the movement to prohibit further testing, although it had continued its own test program without interruption.[3] Starting in May 1955, the USSR had advanced a variety of proposals on the subject, and because of its insistence, this issue had been placed at the head of the agenda for the London session of the disarmament Subcommittee. In the Western view, however, prior to June 14 the Soviet positions offered no basis for constructive negotiations.

The West also altered its position on a test ban during the course of the London session, and this was the second development which contributed to the subsequent Geneva negotiations. Previously, the cessation of nuclear tests had been accorded relatively

[1]For detailed descriptions of the London session see Bernhard G. Bechhoefer, *Postwar Negotiations for Arms Control,* pp. 241-439, and Ciro E. Zoppo, *The Issue of Nuclear Test Cessation at the London Disarmament Conference of 1957: A Study in East-West Negotiation* (The RAND Corp., RM-2821-ARPA, 1961).

[2]UN Document DC/SC. 1/60.

[3]See Joseph L. Nogee, *Soviet Policy Towards International Control of Atomic Energy,* pp. 211-13.

low priority in Western proposals, and the Western states had taken the position that they could accept a ban on tests only if an adequate control mechanism was operative and the ban was part of a broader agreement covering other measures of disarmament as well. There were several reasons for the Western position. The most important was that Western military strategy depended on nuclear weapons to counter Soviet superiority in conventional forces. In addition, France, which was just beginning to develop nuclear weapons, was unwilling to have a test ban block its progress in this area, unless it were confident that the three nuclear powers were actually going to reduce their nuclear arsenals and perhaps also other components of their military power. The insistence on the establishment of a control system was, of course, an integral part of the Western position on disarmament.

At London, three changes were made in the Western position. First, the United States indicated at the outset that it was willing to accord a new priority to a test cessation; this measure could become an integral part of the initial stage of a disarmament agreement.[4] Secondly, on July 2, after the Soviet Union announced its willingness to accept an international control system, the four Western members of the Subcommittee stated that they would agree to a temporary suspension of testing while the control system was being established.[5] The following day, Harold Stassen, the American representative, mentioned ten months as the duration of the temporary suspension. Later, he offered to extend this period to twelve months, and to agree that there might be an additional suspension of another year. Thirdly, the Western powers hinted that they might accept a loosening of the tie between the test ban issue and other measures of disarmament, although the extent of this concession was not clear. In the end, the Western powers presented all of their first stage measures as an indivisible package, thus reducing the scope of the concession.[6]

This package—the provisions of which significantly would have allowed the transfer of nuclear weapons to non-nuclear powers—included measures for numerical limitation of armed forces and fixed reductions in armaments, safeguards against surprise attack,

[4]See UN Document DC/SC. 1/PV. 89, pp. 2-14.
[5]UN Document DC/SC. 1/59.
[6]UN Document DC/SC. 1/66.

limiting entry into outer space exclusively to objects designed for peaceful and scientific purposes, a cut-off on the production of fissionable materials for weapons purposes, and a test cessation. However, during the London session there were various indications in the press (especially following the review of American policy in May) that the United States was willing to treat questions relating to the production and testing of nuclear weapons as a separate issue.[7] Moreover, the only condition that Mr. Stassen listed for extending the temporary suspension of testing for a second year was that there should be progress "in relation to the cessation of production of fissionable material for weapons purposes."[8] In addition, he implied that the suspension would become permanent if a cut-off on production were achieved during the second year.

Thus, the gap between East and West on the question of a cessation of nuclear weapon tests had been narrowed considerably. However, important differences still remained. The Soviet Union was opposed to formally linking a test cessation with any other measure of disarmament. It was also unwilling to accept the extensive controls which the Western proposal would have required for supervising a cut-off on the production of fissionable materials for weapons.[9] In fairness, it should be pointed out that other states, such as Canada, also had some reservations about the extent of the proposed controls.[10]

The final development during the London session of the disarmament Subcommittee which had a bearing on the Geneva test ban negotiations was the introduction by the Western delegates of the idea of holding technical talks on control systems. As early as the opening meeting, Britain's Foreign Secretary, Selwyn Lloyd, suggested that the Subcommittee consider appointing technical working groups which would meet concurrently with the Subcommittee and explore the technical aspects of the various agenda items. This idea of having technical experts meet was an old favorite of Mr.

[7]See *New York Times,* June 1, 1957, p. 1.

[8]UN Document DC/SC. 1/PV. 149, p. 24.

[9]See Ambassador Zorin's statements in the Subcommittee on July 8 and August 27, 1957, UN Document DC/SC. 1/PV. 132, pp. 2-26; and DC/SC. 1/65/RPV. 1.

[10]See Bernhard G. Bechhoefer, *Postwar Negotiations for Arms Control,* p. 342.

Lloyd's, which he had raised several times previously in other contexts. On May 6, the United Kingdom formally proposed "that a Committee of technical experts be established within the framework of the disarmament Sub-Committee, to consider possible methods of limiting nuclear test explosions and to investigate the requirements of effective supervision over an Agreement to limit such explosions."[11] This same suggestion was repeated in the July 2 response of the Western powers to the Soviet acceptance of the principle of international control, again by Selwyn Lloyd on July 17, and finally by Harold Stassen on August 21 when he announced the willingness of the United States to agree that the temporary suspension could be extended for a second year. The motivation for this suggestion was never made explicit. The British may have hoped that the proposed technical talks might precipitate broader political agreement. For the Americans, it was most likely a way of testing the reality of an essential aspect of the new Soviet position; that is, the declared Soviet willingness to accept a control system. The USSR, however, refused to consent to technical talks unless there were first an agreement on the period and the conditions of a test cessation.[12] From the point of view of the Geneva negotiations, the important thing was that the idea of technical talks was introduced and gained currency.

III

Conflicting Forces in Test Ban Policy Formulation

International Pressures

The encounter between the East and West at the conference table in London was only one factor in the formation of the American policy leading to the nuclear test ban negotiations. In diplomatic negotiations, the point and counterpoint of proposal and response often force adjustments of policy, but as a rule factors external to the negotiations play a greater role. Facts as understood by the policy-makers; their assumptions, philosophies and idiosyncrasies; the general policy framework; the working of national institutions as well as the many complex pressures exerted upon the policy-

[11]UN Document DC/SC. 1/56, p. 1.

[12]See Ambassador Zorin's statement, UN Document DC/SC. 1/PV. 136, pp. 2-15.

makers by individuals and groups in and outside the government, privately and through the mass media of communications; interventions of friendly governments in and outside international organizations; estimates of reactions of unfriendly governments—all these affect the content of a policy. Exact weighting of the relative influence of these factors is impossible in the case of the American test ban policy—as it is in most cases. For the purpose of this background, however, it may suffice to identify certain salient international and domestic forces which had a crucial impact on the policies pursued by the United States in the London session of the disarmament Subcommittee and thereafter. The principal issue for the American policy-maker during and after the London confrontation was whether and on what conditions the United States could accede to the Soviet demand and agree to taking the test ban negotiations out of the disarmament package with the resulting possibility that a test ban could come into effect without any assurance of nuclear or other disarmament.

One of the most important of the external pressures was the widespread public feeling against the testing of nuclear weapons. The motives for this worldwide attitude were mixed. For some, the issue provided a dramatic focal point for expressing their pacifist beliefs. Others, recalling Hiroshima and Nagasaki, were horrified by the frightful devastation which modern weapons could cause and feared the consequences of further technological developments. The fact that nuclear weapons had been used first and only against a nonwhite population linked the test ban issue with antiwhite and anticolonial attitudes. The problem of fallout, though, was probably the principal reason for the issue's arousing such a broad public response.

Public concern about radioactive fallout began to mount in 1954. On March 1 of that year the United States detonated a 15 megaton hydrogen bomb over the Bikini Atoll in the Marshall Islands.[13] The fallout from this explosion covered an unexpectedly

[13]For a detailed analysis of the public reaction to this shot see Earl H. Voss, *Nuclear Ambush: The Test Ban Trap* (1963), pp. 37-50. In general, Voss tends to belittle the danger from fallout. The United States' testing of nuclear weapons in a UN Trust Territory raised several political and legal issues. For analyses of these points see Harold Karan Jacobson, "Our 'Colonial' Problem in the Pacific," *Foreign Affairs,* Vol. XXXIX, No. 1 (October

large area of approximately 7,000 square miles. Some of the inhabitants of the American Trust Territory were endangered, and a Japanese fishing vessel, the *Fukurya Maru,* was contaminated. Shortly thereafter, a radioactive rain fell on Japan as a consequence of a Soviet hydrogen bomb test. People throughout the world were alarmed by these incidents and by the increasing quantity of radioactive material in the atmosphere. Later in March, 104 British Labor Members of Parliament signed a motion asking the United Nations to proclaim a ban on testing hydrogen weapons. The following month Prime Minister Nehru addressed a personal plea to the United States to end such tests. A few days after that, in a speech before the Indian Parliament, he proposed that the three nuclear powers should accept a "standstill agreement" on nuclear testing.

The limited extent of knowledge about fallout and its consequences—particularly the genetic effects—allowed a wide variety of estimates of the danger, and this in itself probably made the public alarm greater than it would have been had the dangers of fallout been known exactly. The United States government moved to quell these fears, but with little success. In February 1955, the Atomic Energy Commission published a report on this subject, but many discounted it on the ground that the source was an interested party. Later that year the United States and the United Kingdom proposed that the United Nations establish a scientific committee to study the effects of atomic radiation. This proposal was adopted unanimously, and the Committee was appointed in December 1955. However, it did not publish its first findings until June 1958.[14] Meanwhile, public concern about the effects of fallout grew, and Soviet tactics played on these fears.

During 1957 international opposition to the continued testing of nuclear weapons reached a high point. In March the Japanese

1960), pp. 56-66, at 59; Myers S. McDougal and Norbert A. Schlei, "The Hydrogen Bomb Tests in Perspective: Lawful Measures for Security," *The Yale Law Journal,* Vol. LXIV, No. 5 (April 1955), pp. 648-710; and, Emanuel Margolis, "The Hydrogen Bomb Experiments and International Law," *The Yale Law Journal,* Vol. LXIV, No. 5 (April 1955), pp. 629-47.

[14]UN, General Assembly, *Official Records* (13th Session), Supplement No. 17, "Report of the United Nations Scientific Committee on the Effects of Atomic Radiation."

government decided to send Professor Masateshi Matsushita, an eminent scientist, on a special mission to the USSR, the United Kingdom, and the United States, to urge a cessation of nuclear weapons tests. The following month, in a major address, Prime Minister Nehru renewed his appeal for a test ban, and he continued to urge such action throughout the year. Again in April the Labor Party in Britain, during a Parliamentary debate on the 1957 White Paper on Defense, moved that the government should be requested to take immediate initiative and put forward effective proposals for the abolition of hydrogen weapon tests through effective international agreement.[15] Later that month, eighteen of West Germany's leading nuclear physicists, including Professor Otto Hahn, the first to split the atom, signed a declaration that they would not participate in the construction or testing of nuclear weapons. On April 23 Dr. Albert Schweitzer issued an appeal through the Norwegian Nobel Committee which was broadcast in fifty countries, and received wide coverage elsewhere, asking that public opinion demand an end to nuclear tests. Within a few days his appeal was endorsed by the Pope, and on May 10 the West German Bundestag adopted a resolution, sponsored by the governing Christian Democratic Coalition, urging the three nuclear powers to temporarily suspend their tests, pending the negotiation of an arms control agreement.[16]

During the most active phase of the London session of the UN disarmament Subcommittee, these pressures subsided somewhat, but even then they remained at a high level. During June and July the Soviet Union gained some support in its efforts to have the International Labor Organization and the Economic and Social Council of the United Nations recommend a test ban, and in August the World Council of Churches urged an international accord to stop further testing, or if that proved impossible, unilateral action.

"The Disarmament General Assembly"

When the Subcommittee's failure became apparent, the pressures rose again, and they came to a head at the twelfth session of the UN General Assembly in the fall of 1957. It is significant that

[15]See U.K. House of Commons, *Debates,* April 16, 1957, 5th ser. vol. 568, col. 1758-1878; and, *ibid.,* 1929-2060.

[16]German Federal Republic, *Der Deutsche Bundestag, Verhandlungen,* 209. Sitzung, Mai 10, 1957, pp. 12051D-12138A.

that session has been dubbed the "Disarmament General Assembly." In all, eleven different resolutions dealing with disarmament were considered, as well as several amendments to them. Most of the proposals, in one way or another, dealt with the question of testing. The USSR led off by proposing—along the lines of its London announcement—that further tests of nuclear weapons be suspended for a two to three year period starting January 1, 1958.[17] It also proposed—as it had at the London meeting—that an international commission should be created to supervise the test suspension, and that control posts should be established on a basis of reciprocity in the USSR, in the United Kingdom and its possessions, in the United States, and in the Pacific Ocean areas, including Australia. However, the Soviet Union eventually withdrew its draft in favor of an Indian proposal. The Indian resolution would have asked the nuclear powers to agree immediately to suspend tests and also would have provided for the creation of a commission of experts to recommend an adequate control system.[18] This resolution was rejected by a vote of 24 to 34, with 20 abstentions. Pakistan and Tunisia were the only countries from the African and Asian group to vote with the West. The Assembly also rejected a Japanese proposal which was somewhat closer to the Western position. In the end, the Assembly adopted, by a vote of 56 to 9, with 15 abstentions, a resolution sponsored by twenty-four powers, which in effect endorsed the package proposal for a first stage disarmament agreement which the Western powers had presented during the closing days of the London session.[19] This proposal included a test cessation as only one of several measures which presumably would occur simultaneously.[20] In addition, as a consequence of an amendment proposed by Norway and Pakistan, the resolution requested that the disarmament Subcommittee appoint groups of experts to study the technical aspects of monitoring disarmament agreements—an idea also aired at London.

After the twenty-four power resolution had been introduced in the Political Committee, and it was evident that it would probably be adopted there and in the plenary session, the Soviet Union

[17]UN Document A/3674 and Rev. 1.
[18]UN Document A/C. 1/L. 176 and Revs. 1, 2, and 4.
[19]General Assembly Resolution 1148 (XII).
[20]See *ibid.* §1(a).

announced that it would no longer participate in the Disarmament Commission or its Subcommittee.[21] The reason which the Soviet delegation gave for this position was that both bodies were composed in a one-sided fashion. The USSR was the only Communist country represented on the two organs. Nine of the twelve states on the Commission were members of the Western alliance system, and four of the five states on the Subcommittee were members of NATO. The fact that the twelfth Assembly was the first occasion, with one minor exception, since 1948 that the West—reportedly in response to a personal decision by Secretary Dulles—had insisted on the endorsement of its position on arms control despite Soviet opposition, may also have affected the Soviet stand. Generally, the practice had been to refer both sides' proposals to the Commission or the Subcommittee for further negotiations. The Western action in obtaining the backing for its position in the Assembly underscored the importance of the composition of the negotiating forum. However, it should be noted that the USSR had criticized the composition of the Commission and the Subcommittee from the opening of the Assembly session.

The Soviet Union proposed that the Disarmament Commission should be expanded to include the entire membership of the UN; and, although the Soviet representatives did not state this explicitly, they implied that such a body should conduct its affairs in public.[22] Alternatively, the USSR was willing to support proposals which would alter the composition of the Commission in the direction of parity between East and West. The West, on the other hand, even though it was willing to enlarge the Disarmament Commission, was unwilling to accept either solution favored by the Soviet Union. The net result was an impasse—although the Assembly voted to increase the membership of the Disarmament Commission, it did not significantly alter the disparity between East and West (sixteen of the twenty-five members belonged to Western alliances), and the Soviet Union stated that it would not participate in the new body either.

[21]UN, General Assembly, First Committee, *Official Records* (12th Session), p. 117.

[22]UN Document A/L. 230. See the statements by A. A. Gromyko and V. V. Kuznetsov: UN, General Assembly, Plenary Meetings, *Official Records* (12th Session), p. 34, and pp. 469-70.

The denouement was susceptible to varying interpretations. Bernhard Bechhoefer, in his authoritative account of the post-Second World War arms control negotiations, called the Assembly resolution endorsing the Western package proposal a "hollow victory" for the West.[23]

He asserted that:

> The Soviet refusal to participate further in the work of the Disarmament Commission was a logical and foreseeable consequence of the Western insistence on securing the United Nations endorsement of their August 29 proposals.[24]

It is also possible to argue, however, that the dispute about the composition of the Commission was independent of this action; that the USSR would not have agreed to participate in any body which would have been acceptable to the West at that time. In the narrow context of the test cessation issue, although the West enjoyed a temporary triumph, the resolution did not reduce the pressure for a nuclear test ban in any lasting way. In addition, the West found itself without any forum for continuing the negotiations, since *Hamlet* cannot be performed without the Prince of Denmark.

The Presidential Campaign

For those who had to set the course of American policy, particularly the Secretary of State and the President, this pressure was not merely an international phenomenon but a domestic one as well. Within the United States, discontinuing nuclear weapon tests became an important issue in the public debate in 1956, when during the Presidential campagin the Democratic nominee, Adlai E. Stevenson, suggested that the United States might unilaterally stop testing as the first step toward obtaining an agreement with the Soviet Union on this subject. Apparently the question of ceasing the testing of at least the largest nuclear weapons had been under study within the Administration since the spring of 1954 or per-

[23] *Postwar Negotiations for Arms Control*, p. 418.
[24] *Ibid.*, p. 425.

haps even earlier.[25] Mr. Stevenson's proposal therefore was not a totally new suggestion. President Eisenhower's response to the proposal was that to take such action outside of the context of a comprehensive, enforceable disarmament agreement would endanger the security of the United States. At the time, in the public image, the twin crises of Hungary and Suez seemed to support his position. The fact that the Chairman of the Council of Ministers of the USSR, Nikolai A. Bulganin, publicly endorsed Mr. Stevenson's suggestion probably did little to enhance its attractiveness, either to the Administration or to the American public.[26] However, as the Soviet posture became less bellicose in 1957, there was a resurgence of public concern about the effects of further testing.

Mr. Stevenson continued to press his position, and others joined him. The American Friends Service Committee and the American Unitarian Association both formally urged a test cessation, and they were joined by other religious groups. In several public appearances, Norman Thomas called for a monitored moratorium on further testing. Individual scientists and groups of scientists also took a stand. In February 1957, the Council of the Federation of American Scientists recommended that the Administration should "seek worldwide cessation of nuclear weapons tests without making this contingent on achieving more far-reaching goals in arms limitation."[27] In May and June over two thousand American scientists signed Linus Pauling's petition urging an immediate international agreement to stop the testing of nuclear bombs.[28] In public pronouncements, Dr. Pauling, winner of the 1954 Nobel prize for research in molecular chemistry, stressed the dangers of radioactive fallout resulting from nuclear testing.

Voices in the Congress

Various congressmen also urged that the United States should seek a test ban of some sort. In June Senator Mike Mansfield, a

[25]See Robert Gilpin, *American Scientists and Nuclear Weapons Policy*, p. 154; Thomas E. Murray, *Nuclear Policy for War and Peace* (1960), pp. 86-89; and Earl H. Voss, *Nuclear Ambush*, pp. 31-34.

[26]For the reaction of one Administration official see Lewis L. Strauss, *Men and Decisions* (1962), pp. 416-17.

[27]*Bulletin of the Atomic Scientists*, Vol. XIII, No. 4 (April 1957), p. 138.

[28]See *ibid.*, Vol. XIII, No. 7 (September 1957), pp. 264-66.

member of the Committee on Foreign Relations, proposed that a summit conference should be held on halting tests of large nuclear weapons. That same month, Representative Chet Holifield, Chairman of the Special Subcommittee on Radiation of the Joint Committee on Atomic Energy, recommended that the United States might unilaterally halt such tests to alleviate the problem of fallout. In July, Representative Sterling Cole, another member of the Special Subcommittee, made a similar proposal. The recommendations by Representatives Holifield and Cole—Democrat and Republican respectively—were especially noteworthy because they were made immediately after their Subcommittee had conducted an extensive public hearing on the dangers of radioactive fallout.[29] During the year, the Subcommittee on Disarmament of the Senate Committee on Foreign Relations explored the issue of a test ban, and in November, the Chairman, Hubert H. Humphrey, suggested in a letter to President Eisenhower that the United States should:

> . . . declare its willingness to negotiate separately on a ban on nuclear weapons tests for a 2-year period with the only condition being agreement on an effective inspection system with United Nations supervision to insure that the ban is being scrupulously observed.[30]

Although President Eisenhower's reply was noncommittal,[31] he obviously had to take these pressures into account. Thus, the Administration was being pushed by powerful international and domestic forces toward agreeing to some limited accord for the cessation of nuclear weapon tests.

New Tasks for Nuclear Weapons

However, other influential factors worked in a different direction. Although by this time the United States had abandoned "massive retaliation" as a conceptual basis for its military doctrine—if

[29]U.S. Congress, Joint Committee on Atomic Energy, Special Subcommittee on Radiation, *Hearings: The Nature of Radioactive Fallout and Its Effects on Man,* 3 parts, 85th Congress, 1st Session (1958).

[30]U.S. Congress, Senate, Committee on Foreign Relations, Subcommittee on Disarmament, *Control and Reduction of Armaments: Final Report,* 85th Congress, 2d Session (1958), p. 34.

[31]*Ibid.*

it indeed had ever accepted this concept in its bald outline[32]—it still relied heavily on nuclear weapons to deter Soviet expansionist moves. The Air Force, and within it the Strategic Air Command, continued to receive the largest share of the defense budget. Moreover, by 1957 nuclear weapons were also being thought of as important elements in the armament of American tactical forces. Thus, a test ban might inhibit developments of potential importance for both the strategic and tactical forces of the United States. This raised the fundamental issue of the effects of a nuclear test ban on the distribution of military power.

At the time, American scientists were working on the development of so-called "clean" weapons, which would produce little or no radioactive fallout. In general terms, since fission (the splitting of atoms) results in the release of radioactive products, while fusion (the joining together of atoms) does not, other things being equal, the radioactive fallout resulting from a nuclear weapon depends upon the relative extent to which fission and fusion processes contribute to the energy of the weapon.[33] Making a "clean" bomb therefore depends upon minimizing the proportion of the energy of the weapon derived from fission and maximizing that derived from fusion. Such weapons could be of special importance in defense against a nuclear-missile attack and in tactical situations. In addition, the scientists were attempting to improve the yield-to-weight ratio of nuclear weapons, a development which would have general utility, but which would probably have greater significance for the United States than for the Soviet Union, since in the immediate future Soviet missiles would have greater thrust and therefore greater carrying capacity.

This work was outlined in secret testimony before the Military Applications Subcommittee of the Joint Committee on Atomic Energy, which was headed by Senator Henry M. Jackson, on June

[32]Insufficient attention has been paid to the differences between John Foster Dulles' speech before the New York Council on Foreign Relations and his subsequent article, "Policy for Security and Peace," *Foreign Affairs*, Vol. XXXII, No. 3 (April 1954), pp. 353-64. In the latter, he stated a position which was not too different from that of many of his limited war or graduated deterrence critics, see especially pp. 358-59.

[33]See U.S. Department of Defense, Samuel Glasstone (ed.), *The Effects of Nuclear Weapons* (1962, revised edition), pp. 414 ff.

24, 1957, by three scientists from the Livermore Radiation Laboratory of the University of California, Ernest O. Lawrence, Mark M. Mills, and Edward Teller.[34] The members of the Subcommittee were particularly impressed with the concept of a neutron bomb which the scientists advanced. This weapon would have a relatively low yield and would have its greatest use in battlefield situations. It would be produced by tailoring the energy of a fusion explosion so that its primary product would be a burst of neutrons, instead of heat and blast. This burst would operate as a kind of death ray, doing almost no physical damage and leaving no contamination, but immediately destroying all life in the target area. Since this weapon would not produce fallout, there was no contradiction between the interest which certain Congressmen, such as Representative Holifield, displayed in it, and their position with reference to discontinuing tests of high yield, "dirty" weapons. The Subcommittee members arranged for the scientists to present their concept to President Eisenhower the following day. That the President was impressed can be seen by comparing his remarks on a test ban at his news conferences on June 19 and June 26.[35] On the latter occasion his support of an agreed cessation of further tests was a bit more cautious and qualified.

In addition to these factors, several policy-makers had the suspicion that the Soviet Union's demand that further testing be stopped was merely a continuation of its "ban the bomb" campaign. They thought that the Soviet Union would regard a test ban as a prelude to a prohibition of the use of nuclear weapons, and that the whole campaign was merely an effort to render ineffective the American superiority in nuclear weapons while preserving Soviet preponderance in conventional arms. There was sufficient evidence to give this interpretation some plausibility. During his opening statement in the General Assembly in September 1957, Soviet Foreign Minister, Andrei A. Gromyko, in listing the advantages of a temporary cessation of nuclear weapons tests, asserted that it would constitute "a first practical step towards the main goal—the absolute and unconditional prohibition of atomic and hydrogen

[34]See Charles J. V. Murphy, "Nuclear Inspection: A Near Miss," *Fortune,* Vol. LIX, No. 3 (March 1959), pp. 122-25, 155-62, at 156, and *New York Times,* June 25, 1957, p. 1, June 25, 1961, p. 1.

[35]See *New York Times,* June 20, 1957, p. 18, and June 27, 1957, p. 10.

weapons."[36] The same thought, in almost identical phraseology, was contained in the preamble to the draft resolution on this issue which the USSR submitted to the twelfth Assembly.[37]

For all of these reasons a number of high officials, such as Admiral Lewis L. Strauss, Chairman of the Atomic Energy Commission, several members of the Commission, and Secretary of Defense Charles E. Wilson, argued that a test cessation without other measures of arms control would be harmful to American security interests. However, some individuals in this group, for instance Commissioner Thomas E. Murray, would have been willing to have the United States forego testing high yield nuclear weapons in the interest of reducing the effects of fallout. The argument that no test ban could be considered unless it were linked with other measures of arms control was pressed forcefully within the Administration, and carried the day, but curiously it was not articulated clearly or effectively in public until a later time.

The NATO Interest

Significant international factors were pressing in a similar direction. The attitude of France has already been mentioned. On a more general level, the Western alliance was just as dependent upon American strategic nuclear power as was the United States. Moreover, in 1957 the North Atlantic Treaty Organization was in the midst of what proved to be a series of crises concerning its strategic doctrine. NATO strategy had always been based on the concept of the "sword" and the "shield"; the "sword" being the strategic forces of the United Kingdom and the United States, and the "shield," local forces within Europe. Although the local forces had never been brought up to a level which military planners considered adequate to counter the opposing Eastern forces, until the middle nineteen-fifties there had been general confidence that the superior strategic capability of the United States would deter an attack. With the growth of the USSR's strategic capacity, this confidence gradually began to wane. Many felt that the USSR could

[36]UN, General Assembly, Plenary Meetings, *Official Records* (12th Session), p. 33. See also V. V. Kuznetsov's statements in the Political Committee, UN, General Assembly, First Committee, *Official Records* (12th Session), pp. 97, 135.

[37]UN Document A/3674 and Rev. 1.

neutralize NATO's "sword," and that then Europe would be left with only a flimsy "shield."

Since the NATO powers, for a variety of reasons, appeared to be unwilling to raise the level of local forces—indeed, in 1957 there were even cutbacks—there was considerable groping for some method of restoring confidence. One idea was that arming the local forces with *tactical* nuclear weapons might make up for the gap in numbers, and the NATO Council authorized such action in December 1954. However, because the United States alone could make such weapons and because the Atomic Energy Act of 1954 prohibited the transfer of such weapons from American control, only American troops in Europe received such armaments. Another problem was that the tactical nuclear weapons then in existence, if used, could well contaminate large areas of Europe; hence the attractiveness of a neutron bomb.

A second idea for strengthening NATO was dispersing *strategic* capabilities among more NATO members.[38] NATO began to move in this direction in December 1957 when the NATO Council, consisting, for this meeting, of the heads of governments, decided to establish stocks of nuclear warheads in Europe and to put intermediate range ballistic missiles at the disposal of the Supreme Allied Commander. Again because of the provisions of the Atomic Energy Act, the warheads would remain in the control of American forces; the missiles, however, could be given to non-American troops.

Neither solution was totally satisfactory. Both left Europeans dependent on American willingness to use nuclear weapons, and many doubted even at that time that, short of an attack on the United States, an American President would actually take such a decision, even though at the December meeting President Eisenhower promised that he would do so. Therefore, the crisis concerning NATO strategy created pressures both for the development of clean weapons and for the dispersal of nuclear weapons, either by independent weapons programs, as in the case of France, or by transfer of knowledge or the actual weapons themselves. As early

[38]For cogent expressions of this proposal see Hans Speier, *German Rearmament and Atomic War* (1957), pp. 227-34, and Hans Speier, "Soviet Atomic Blackmail and the North Atlantic Alliance," *World Politics,* Vol. IX, No. 3 (April 1957), pp. 307-28.

as April 1957, Chancellor Konrad Adenauer declared that Germany should be allowed to have *tactical* nuclear weapons for its own defense.[39] During the year other NATO political leaders stated that all NATO forces should be so armed, and there was some discussion of the creation of a NATO *strategic* force. Secretary of State John Foster Dulles, in an article which was published in the October 1957 issue of *Foreign Affairs,* indicated that he was considering these possibilities.[40] On the twenty-fifth of that month in a joint statement President Eisenhower promised Prime Minister Macmillan that he would ask Congress to amend the Atomic Energy Act so as to permit a "close and fruitful collaboration of scientists and engineers of Great Britain, the United States, and other friendly countries."[41] These developments explain why the Western powers included in their first stage package proposal submitted to the London Disarmament Subcommittee on August 29, 1957, provisions which would have allowed the transfer of nuclear weapons.

To summarize the situation as it stood at the end of 1957, although there were powerful international and domestic pressures favoring an attempt to negotiate an arms control agreement covering only a cessation of nuclear weapons tests, there were also strong policy considerations pushing American policy-makers in a different direction. Presumably, the USSR's leaders were also subject to domestic and international pressures, but any analysis along these lines would be beyond the scope of this study. Suffice it to say that during 1957 Nikita S. Khrushchev seemed to be moving toward the consolidation of his power, Messrs. Kaganovich, Malenkov, Molotov, and Shepilov were dropped from their party and governmental posts as a result of a meeting of the Central Committee in late June, and Marshall Zhukov suffered the same fate in October and November. It was impossible to know the actual meaning of these events, but in the West they were widely interpreted as heralding a victory for the advocates of a moderate policy.

[39]Richard P. Stebbins, *The United States in World Affairs, 1957* (1957), p. 98.

[40]"Challenge and Response in United States Policy," *Foreign Affairs,* Vol. XXXVI, No. 1 (October 1957), pp. 25-43, at 30-33.

[41]U.S. Department of State *Bulletin,* Vol. XXXVII, No. 959 (November 11, 1957), p. 740.

IV

A New Base for Scientists in the White House

The Science Adviser and PSAC

Government organizations and procedures also affect the substance of policy. Since key decision-makers cannot help but be influenced by their immediate advisers, the question of access is crucial. Significantly, the formal arrangements for the participation of scientists in the policy process within the United States government were altered in late 1957, and a new group of scientists was given immediate access to the President. This change is an important element of the background for the Geneva test ban negotiations.

The change actually came about as a response to two spectacular Soviet scientific feats. On October 4, as a part of its participation in the International Geophysical Year, the USSR launched the first earth satellite, Sputnik I. About a month later, on November 3, the Soviet Union launched the half-ton, dog-carrying Sputnik II. These accomplishments were impressive evidence of Soviet scientific capabilities. They also had ominous connotations, for they indicated that the USSR led the West in the development of ballistic missiles. Westerners were hardly reassured when the Soviet Union announced on October 7 that it had successfully tested a powerful hydrogen warhead of a new design. Soviet leaders emphasized that their missiles could easily carry such warheads.

In an effort to restore confidence in American capabilities, President Eisenhower made a special telecast on November 7. After recounting American military strength and scientific prowess, the President admitted that there were certain deficiencies, and he proclaimed that science and technology would receive greater emphasis in the future governmental programs. As a first step, he appointed James R. Killian, Jr., President of the Massachusetts Institute of Technology, as his Special Assistant for Science and Technology. Several days later, the President announced that the membership of the Science Advisory Committee of the Office of Defense Mobilization (ODM) would be enlarged and that the Committee would become a part of the White House Office on December 1. This Committee, which consisted of nongovernment scientists sitting on a part-time basis with certain government administrators serving as consultants, had been appointed by President Truman in 1951.[42]

Dr. Killian had been a member of the group, and with the administrative change, he became its Chairman. In the past, however, the Committee had had access to the President only through the Director of ODM; now it was in a quite different position.

The effect of these decisions was to introduce a new group of scientists into the highest levels of the policy-making process within the United States.[43] Of course many scientists had had access to those levels previously, but in the mid-nineteen-fifties they had principally been those who were directly connected with the Atomic Energy Commission and the Department of Defense. Although the President's Science Advisory Committee (PSAC) contained a wide range of views, there were clearly some members who held opinions different from those which had previously been heard within the inner circles of the Eisenhower Administration.

Thus, when the issue of further testing of nuclear weapons came up again, as it was certain to, given the course of the past negotiations and the current of international and domestic pressures, the President would have scientists on his own staff to turn to for advice and would be confronted with new positions and viewpoints. With this development, the stage was set for the first act of the nuclear test ban negotiations.

[42]For a general description of the evolution of the role of scientific advisers in the policy process in the United States see J. Stefan Dupré and Sanford A. Lakoff, *Science and the Nation: Policy and Politics* (1962), pp. 64-77.

[43]The initial members of PSAC were Dr. Robert F. Bacher, Dr. William O. Baker, Dr. Lloyd V. Berkner, Dr. Hans A. Bethe, Dr. Detlev W. Bronk, Dr. James H. Doolittle, Dr. James B. Fisk, Dr. Caryl P. Haskins, Dr. James R. Killian, Jr., Dr. George B. Kistiakowsky, Dr. Edwin H. Land, Dr. Emanuel R. Piore, Dr. Edward M. Purcell, Dr. Isador I. Rabi, Dr. H. P. Robertson, Dr. Jerome B. Wiesner, Dr. Herbert York, and Dr. Jerrold R. Zacharias. All but seven of the eighteen were physicists. The seven who were not were Baker (physical chemistry), Bronk (physiology, biophysics), Doolittle (aviator), Haskins (physiology, genetics), Killian (administration), Kistiakowsky (chemistry), and Wiesner (electrical engineering). In Robert Gilpin's terms, the "finite containment school" scientists now had access to the Eisenhower Administration comparable to that which those of the "infinite containment school" had had (*American Scientists and Nuclear Weapons Policy*, pp. 176-77). Although his categorization can be criticized as oversimplified, the broad point in this case is certainly valid. For confirmation by a knowledgeable and sensitive journalist see Saville R. Davis, "Recent Policy Making in the United States Government," in Donald G. Brennan (ed.) *Arms Control, Disarmament and National Security* (1961), pp. 379-90, at 384-85.