

pletely feasible in terms of present technology. No new inventions will be needed, but much hard engineering work will have to be done, it was stated.

The United States' scientists were led by Wolfgang K. H. Panofsky, head of the high-energy physics laboratory at Stanford University. The leader of the Soviet group was Yevgeny K. Fedorov of the Soviet Academy of Sciences. Henry Hulme, adviser to the Defense Ministry, was the British leader.

Western observers hailed the completion of the report in less than 3 weeks as a major achievement.

Non-nuclear Club Proposal Studied in England

A plan for the formation of a "non-nuclear club" of major nations other than the United States and Russia is currently being debated in England. The proposal, that the possession of nuclear weapons be limited to these two countries through voluntary action on the part of club members, has been advanced, in slightly different forms, by the Labor Party and by the editors of the influential Manchester Guardian. According to English commentators, the Labor Party's attitude toward the plan was originally passive. In recent weeks, however, its attitude has changed to one of active advocacy, with leading members of the party, such as Gaitskell and Bevan, taking part in the campaign. One version of the non-nuclear club proposal was discussed in the 25 June issue of the Guardian; the following questions and answers are taken from that discussion.

What Is Proposed?

The British are to try to stop the spreading of nuclear weapons to fourth, fifth, and sixth nations and so to the *n*th nation. Our Government should seek an agreement through the United Nations that nobody except the Americans and Russians will make or acquire any nuclear weapons. If such agreement is reached the British must be ready to destroy or hand over their separate weapons.

Why Leave Out the Americans and Russians?

Because an agreement which lets them keep their weapons will be easier to negotiate. Each of them—quite rightly—regards its bombs and missiles as vital to its security against the other.

Neither will give them up for a long time to come. But other nations apart from the British do not possess nuclear weapons. Therefore they are being asked only to deny themselves something that they have so far done without.

The United States and Russia must, however, support the agreement. They must undertake not to supply weapons to anyone else.

What about Control?

Control is possible in two ways. The first is to check the use of all fissile materials produced by reactors, which is said to be technically practicable. The second is to find out whether countries are equipping themselves with medium or long-range missiles. Such missiles are one of the principal means of delivering nuclear weapons, and they are too expensive to be worth producing except for use with nuclear warheads. This form of control leaves two loopholes—the chance that the Americans and Russians may secretly supply someone else, contrary to the agreement, and the chance that aircraft rather than missiles may still be used to carry nuclear bombs. There can be no thorough protection against these possibilities. (Nor, of course, is there thorough protection in any other practicable policy.)

What Is Gained?

Chiefly a reduction in the risk of nuclear war. If the spreading of weapons is not stopped, sooner or later someone will use them. Once anyone uses them a world war is likely (though not certain) to come by a chain reaction. This is because of the premium which to-day's nuclear weapons place on instant action. You must hit back at once or your means of retaliation may be destroyed. Bombers on airfields and missiles on fixed land bases are vulnerable; and if country X (large or small) has reason to suppose that its potential enemy Y is preparing an attack or has launched one, it must get its bombers or missiles into the air at once. (Bombers can be recalled: missiles cannot.) Nuclear weapons to be effective as a deterrent must be constantly ready for firing. Consequently X and Y, even if politically not in a crisis of conflict, militarily must remain tensely alert against each other.

At present, when only three nations manufacture nuclear weapons, it may be possible to prevent their spreading. Once a number of nations have them, international control will be beyond at-

tainment. When a bomb or warhead has been made or stored it can be discovered only by a screwdriver. Further, as a former chief of staff of the I.R.A. (now the Irish Foreign Minister) has said, the weapons of armies to-day become the weapons of revolutionary movements to-morrow.

Small nations, with less to lose than large industrialized nations, may be more ready to risk using their nuclear weapons. And, the more widely these weapons are distributed, the greater the risk that they will come under the control of unstable governments or impetuous officers.

Can It Help towards Comprehensive Disarmament?

Yes. You have to have a starting point, which may be with ending tests, or with a form of disengagement in Europe, or with stopping the spread of nuclear weapons—or with all three. The Americans and Russians are unlikely at present to allow thorough inspection of their factories or bases, so there is value in a control system which can be demonstrated in practice first on the territory of other nations. To say that it should not be accepted until there is general agreement on comprehensive disarmament is like saying that the United Nations should not have been accepted because it was less than an effective world government. The non-nuclear club can be one of the stages on the road to greater disarmament.

What about the French?

The French Government is now so fully committed to making its own bombs that it cannot stop or be stopped. It can, however, be asked to join the British after it has proved its bomb-making ability. It can be asked to sponsor the non-nuclear club jointly with the British. Will it do so? Not if President de Gaulle is immovably convinced that Western Europe must build a deterrent force of its own, so that it can stand apart from the Americans. But if he is chiefly concerned with securing equality of status with the British, his point can be met.

And the Chinese?

The Chinese may be brought into the non-nuclear club as part of an agreement to admit them to the United Nations. Alternatively, if they insist on parity with the Americans and Russians

the proposal may have to be revised. It may then be necessary to suggest that the British and French—or the British, French, and West Germans jointly—continue to hold their weapons. In effect two nuclear powers on each side would then exist. An attempt would have to be made to get the non-nuclear club sponsored by nations such as Japan, India, and Sweden. But obviously the greater the number of nations who insist on having their own weapons the less the hope of ever forming a non-nuclear club.

What about NATO?

The British proposal will have to be agreed beforehand with our allies in NATO. It ought to be as much in their interests as it is in ours. The dangers which flow from a multiplication of nuclear nations are common to all.

The difficulties here will lie in General Norstad's insistence on the need for tactical atomic weapons in Europe. This can be overcome in either of two ways. One is to let the Americans hold these weapons on behalf of the alliance (as substantially they do at present). The other is to recognize that tactical weapons cannot be used in Europe without so great a risk of all-out war that they are not worth having.

And American Bases?

These can remain in Britain. The non-nuclear club need not prevent their presence here. On the contrary, since the American strategic deterrent remains (as to-day) the key element in Western defence, the Americans ought to be given what facilities they want in the British Isles. So long as we shelter under the American's umbrella—as we have done ever since 1945—we must be ready to help hold it aloft.

When the Americans have produced enough reliable long-range missiles their need for overseas bases will decline. We have to recognize that they will then be less ready to risk an all-out war in defence of Western Europe. Their military guarantee of Western Europe may then become less reliable. This is one disadvantage of the non-nuclear club. Western Europe will be more vulnerable to Soviet threats. But at the same time if the Americans return to their earlier monopoly of nuclear weapons in the West their obligation to Europe is increased.

How Many Must Agree?

Before the club can be formed those countries which might have nuclear weapons in the next decade or so must

come in. They include France, China, Japan, Sweden, Switzerland, Western Germany, Eastern Germany, India, Pakistan, Israel, the United Arab Republic, Argentina, Brazil, Poland, Czechoslovakia, Hungary, Bulgaria, Greece, Turkey, Canada, Australia, South Africa, and possibly some others. It is doubtful whether the club could be of any value if one of these countries stood out against it. But again they share a common interest in trying to prevent the spread of nuclear weapons.

The Americans and Russians must underwrite the agreement. If they were to agree also to inspection of their use of fissile materials—to begin, say, two years after the club had been formed—that would be most helpful.

Is It Likely To Succeed?

That depends in part on whether any British Government is willing to pursue the proposal with vigor. The British at present are particularly well placed to take the initiative. At later dates others may be better placed.

What if Other Countries Refuse?

Any British Government is bound to leave itself freedom of action in that event. It may choose to retain its separate weapons—although it may think that the development of new weapons is economically not worth while—or it may not retain them. Most probably it will be best to keep what it has in an increasingly uncomfortable world.

Space Agency-Pentagon Liaison Group Given New Authority

The Civilian-Military Liaison Committee, a governmental group composed of representatives of the National Aeronautics and Space Administration and the Defense Department, has been given expanded authority by President Eisenhower to deal with jurisdictional differences that arise between the two agencies. Both NASA and the Department of Defense are concerned with space projects. In the past, when conflicts arose between them, either had the option of asking the liaison committee to mediate. Under the new charter which President Eisenhower has recently approved, such conflicts must be mediated by the committee whether or not either of the participants requests such action. In a related development, William M. Holaday, chairman of the committee, was released from other duties, includ-

ing that of director of guided missiles, to spend full time on liaison problems.

The action reflects a continuing effort by the Administration, under the prodding of Congress, to establish order and lines of authority among the many federal agencies concerned with space activities. Last February, similar action was taken when Herbert York, director of defense research and engineering, was given explicit authority to approve, modify, or disapprove programs and projects of all Department of Defense agencies, including the military services.

Cut in Space Budget

In another development involving the space agency, the House of Representatives cut \$68 million from NASA's proposed budget of \$530 million. This reduction, agency officials warned, will have the effect of slowing down United States efforts to place a man in space. The funds are needed, a spokesman said, for research and for the procurement of space capsules for Project Mercury, NASA's manned-satellite program.

Behind the cut are arguments put forth by Representative Albert Thomas (D-Tex.), a member of the House of Representatives' Appropriation Committee. Thomas has commented that the space agency has "more money than they can spend wisely." He also suggested that NASA should not be rushed in its activities.

After the House action was taken, T. Keith Glennan, administrator of NASA, issued a statement saying that the recommendations of the committee imperiled American leadership in space research. "We cannot win this race," he said, "without all-out support from Congress." Congress itself had set the goal of leadership in space, he continued, by enacting the legislation that created NASA. According to an agency spokesman, the cuts would have a critical effect on the research and development programs which form the core of NASA's activities. In addition to slowing the man-in-space program, the spokesman said, the cuts would force curtailment of new tracking-range plans, slow down the schedule of satellite and space-probe shots, and delay development of more powerful boosters and vehicles of advanced design.

Agency officials are hoping for a restoration of the cuts by the Senate, which also has to pass on NASA's request for funds. Even full restoration by the Senate, however, would probably not wholly offset the action of the House,