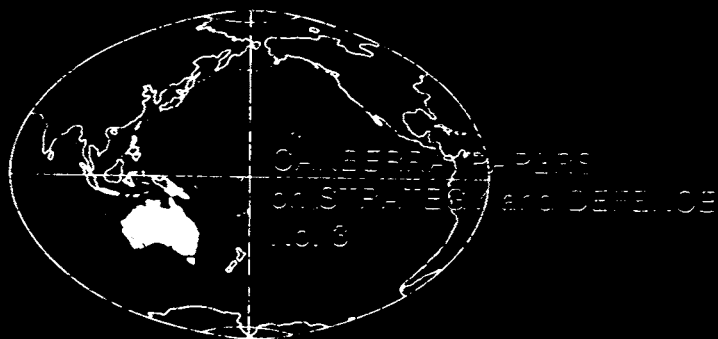




J. L. RICHARDSON

Australia and the Non-proliferation Treaty

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On 1 July 1968 the United States, Britain, the Soviet Union, and some fifty other states signed the Treaty on the Non-Proliferation of Nuclear Weapons. Australia has not yet signed, and this monograph examines the issues the treaty raises for her.

The study is intended as a contribution to the debate on a major issue in foreign policy. It is critical of the Government's attitude as manifest in the United Nations debate on the treaty and argues that three criteria should govern Australia's signing: the treaty's probable value as a brake on the further spread of nuclear weapons, its effect on Australia's civil nuclear development, and its effect on Australia's external security. It then proceeds to examine these considerations and concludes that Australia should sign, though not unconditionally.

The issue is of fundamental importance for Australia; nor is it one whose relevant considerations are wholly technical or specialist. It is, therefore, a subject of unusual interest for those interested in Australia's foreign policy, specialist and layman alike.

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J. L. RICHARDSON

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AUSTRALIA AND THE NON-PROLIFERATION TREATY

THE Treaty on Non-Proliferation of Nuclear Weapons, which was put forward by the governments of the United States and the Soviet Union at Geneva on 15 March 1968, debated in the United Nations in May and June, and signed by fifty nations on 1 July, presents Australia with issues which attracted little public interest before that date, although the negotiation of a non-proliferation agreement has been at the centre of the Geneva arms control talks for the past three years and has been accorded the highest priority by the American, Russian, and British governments.* There has been a continuing, if rather muted, debate on the question of whether Australia should acquire nuclear weapons — the most important question, but by no means the only one, raised by the treaty.¹ There

* The views on non-proliferation in this paper owe much to discussion with my former colleagues in the Arms Control and Disarmament Research Unit of the British Foreign Office, and especially its then Director, Professor Hedley Bull. The paper has also benefited from my participation in two seminars on Australia and the treaty, held by the Australian Pugwash Committee in Canberra on 18-19 May 1968, and the Australian Association for Cultural Freedom in Sydney on 26 May. It goes without saying that none of these bodies is in any way committed to the views expressed here.

¹ See, for example, *The Bulletin*, 19 June 1965; Australian Institute of International Affairs, *Nuclear Dispersal in Asia and the Indo-Pacific Region* (Canberra: A.N.U., 1965); A. Clunies Ross and P. King, *Australia and Nuclear Weapons*

has been widespread acquiescence in the position taken by the Australian government in this debate: that in present circumstances Australia, adequately protected by its alliances, has no need for nuclear weapons, but that Australia should not give a general undertaking not to acquire them.² Neither the Australian Labor Party (A.L.P.), with its former support for a nuclear-free zone in the southern hemisphere, nor the Democratic Labor Party (D.L.P.), with its advocacy of Australian nuclear weapons, has been able to win strong support for an alternative, or even to raise very much interest in the issue.

Australia's choice is not limited to the simple options of signing or not signing the treaty. Amendment to the treaty draft is no longer possible, but it remains open to the government to seek clarification or to make Australia's signature subject to conditions. The Australian statement to the United Nations (17 May 1968) has indicated that Australia's signature will depend on certain clarifications. If Australia signs, the question arises of how far the government should go towards acquiring a nuclear weapons 'option', i.e. towards placing itself in a position to manufacture nuclear weapons with the shortest possible delay.

This paper will be concerned primarily with the question of Australia's signing the treaty: though not excluding the question of a weapons option, it will not attempt a full examination of this complex issue. Australia's decision on whether to sign, or the conditions laid down for signature, should depend on three considerations: the treaty's value for checking the spread of nuclear weapons; its effect on Australia's civil nuclear development; and its effect on Australia's security against potential threats. These are the issues raised in the Australian speech to the Political Committee of the United Nations General Assembly and in the earlier statement in Parliament by the Minister for External Affairs.³

(Sydney University Press, 1966); 'Should We Have the Bomb?' *The Australian*, 15, 16, 17, and 22 November 1967 (articles by Senators McManus and Murphy, H. G. Gelber, and L. Bickel).

² Letter from the Minister of External Affairs to the Acting Secretary-General of the United Nations, 15 March 1962, in *Current Notes on International Affairs*, April 1962, pp. 27-8.

³ Australia, *Parliamentary Debates*, House of Representatives, 26th Parliament, 2nd session, 26 March 1968, pp. 455-6; *Canberra Times*, 27 March 1968 (text of Mr Hasluck's statement); *Sydney Morning Herald*, 20 May 1968 (summary of United Nations speech); text of speech supplied by the Department of External Affairs.

PROVISIONS OF THE TREATY

THE central obligations of the treaty, contained in Articles I and II, recall the Resolution of 4 December 1961, passed unanimously by the General Assembly—the 'Irish resolution'—which called on nuclear states not to transfer the control of nuclear weapons to any non-nuclear state, and on the non-nuclear not to manufacture or otherwise acquire control over such weapons. Under the present treaty, nuclear-weapon states undertake not to transfer control over nuclear weapons or explosive devices to non-nuclear-weapon states,⁴ directly or indirectly, or to assist them to acquire such weapons or devices; and non-nuclear states undertake not to receive them from any potential supplier, nor to 'manufacture or otherwise acquire' them.

The Americans have made it clear that NATO's present nuclear arrangements would not be called in question by the treaty. Under these arrangements (the 'two-key' system), certain European states control nuclear delivery vehicles, but the warheads remain under American physical control. An understanding has emerged from the negotiations, however, that any nuclear sharing arrangement (such as some versions of the once-projected NATO multilateral force) under which nuclear members would not have the right of veto, and presumably effective control over the warheads, would amount to the transfer of control to non-nuclear states, hence would now be prohibited.

The obligation of the non-nuclear states not to manufacture or otherwise acquire nuclear weapons has not, up to the present, been adequately clarified. It remains unclear precisely what activities are prohibited: the assembling of a stockpile of warheads or explosives is ruled out, but the acceptability of research and development activity directed to this end remains in doubt. A literal rendering of the treaty language suggests that all such activity short of final assembly is permitted, but it seems unlikely that this was the intention of the treaty's sponsors, nor is it what has been understood, for example, in the case of the West German undertaking to its allies not to manufacture nuclear weapons. It will be noted that nuclear explosives for peaceful purposes are prohibited along with nuclear weapons, in recognition of the fact that the explosion technology is the same in both cases, and thus a stockpile of explosive devices would amount to a weapons stockpile. A later

⁴ For text of the draft treaty see *Survival*, March 1968. This paper has not adopted the precise (but cumbersome) treaty formulations 'nuclear-weapon state' and 'non-nuclear-weapon state', but follows common usage, referring to these as nuclear and non-nuclear states respectively (the non-nuclear in this sense include the major civil nuclear powers).

provision (Article V) lays it down that nuclear explosions for peaceful purposes may be carried out by nuclear states, or a projected international body, for the non-nuclear states, at a charge which will exclude any contribution towards research and development.

On the other hand, propulsion reactors for nuclear-powered warships, including submarines, are not prohibited under the treaty. These are not defined as 'weapons'.⁵

The treaty's inspection provisions are set out in Article III. All source and special fissionable materials⁶ used in the civil nuclear programs of non-nuclear states are to be placed under international inspection. This inspection will be regulated by agreements between each state (or group of states, in the case of regional agencies such as Euratom) and the I.A.E.A. in accordance with the Agency's statute and its safeguards system, under which a considerable number of nuclear facilities, including the High Intensity Flux Australian Reactor (HIFAR), are already subject to international inspection. It is not laid down whether these agreements with the I.A.E.A. are to be uniform, how they are to take account of the variety of national nuclear programs, or whether they may include any restriction of the I.A.E.A. system as at present operating. Negotiation of the agreements is to begin within 180 days from the treaty's entry into force, and to be concluded within eighteen months. The treaty makes no provision for cases where agreement is not reached. It seems likely that in practice some of the major governments will seek to settle the main points in the inspection agreements before signing the treaty: if this is not done the treaty procedures seem calculated to produce deadlocks.

⁵ Statement issued by U.S. Department of State, 14 March 1968. A possible conflict between this statement and the statute of the International Atomic Energy Agency (I.A.E.A.) which is responsible for inspection under the treaty has been noted by the commentators: the statute authorises the Agency to ensure that materials under its supervision or control 'are not used in such a way as to further any military purpose' (Article 3). This would appear to rule out military propulsion reactors. However, as Professor Hedley Bull has pointed out, Article III of the treaty requires non-nuclear states to accept Agency safeguards solely for the verification of their treaty obligation not to divert materials to nuclear *weapons* or explosive devices.

⁶ These terms are not defined in the treaty text, but are defined in the Statute of the International Atomic Energy Agency, Article 20. Source material includes natural uranium and thorium in the form of metal, alloy, chemical compound or concentrate, and any other material which the I.A.E.A. Board of Governors may determine. Special fissionable material includes plutonium and enriched uranium (both U-235 and U-233) and any other materials which the Board of Governors may determine.

In addition, all signatories undertake not to provide nuclear materials or specialised equipment to non-nuclear states, except under I.A.E.A. safeguards. Most nuclear suppliers already require safeguards, not necessarily I.A.E.A. safeguards, and policies are co-ordinated informally. The treaty would bind all suppliers to require uniform safeguards. This represents an important addition to the first safeguards provision, since it would extend the application of safeguards to non-signatories or to states which might withdraw from the treaty, in so far as they depend on external supplies.

The safeguards provisions are designed to detect violations of the treaty, but no sanctions are provided against violators. The minimum sanction, and that most likely to be applied, would be the termination of nuclear assistance and supplies, a natural response to violation, but one which would be effective only against states dependent on foreign suppliers. But the treaty gives no ground for sanctions against states which withdraw legitimately from the treaty.

The treaty emphasises the principle (also laid down in the I.A.E.A. statute) that safeguards have the sole aim of preventing the diversion of 'peaceful' nuclear materials to weapons or explosives, and that they shall not be used to hamper peaceful nuclear development. It refers specifically to research, the exploitation of nuclear energy, and international trade or the exchange of information (Preamble; Article III, 3; Article IV).

Amendment of the treaty would be extremely difficult, since amendments require the approval of all nuclear signatories and all members of the Board of Governors of the I.A.E.A. (which numbers 25). Moreover, amendments bind only those states which ratify them. The treaty remains in force for twenty-five years; review conferences may be held at five-yearly intervals, but in view of the rigid amendment procedure they seem likely to be of limited importance.

The 'escape clause' is therefore especially significant. A signatory may withdraw from the treaty if it decides that 'extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country' (Article X). It must give three months' notice of its withdrawal to all signatories, stating its reasons. These provisions are similar to those of the partial test ban treaty.

The treaty contains no 'security guarantee' for the non-nuclear. However, a three-power Security Council Resolution issued by the United States, Russia, and Britain on 8 March 1968, and adopted by the Security Council on 19 June, supplements the treaty in this direction.

The resolution makes three points: that nuclear aggression, or the threat of it, would oblige the Security Council, especially its permanent members, to act immediately in accordance with the U.N. Charter; that certain states have pledged 'immediate assistance' to such victims of aggression; and that the right of individual or collective self-defence remains unimpaired, until the Security Council has taken adequate measures. The resolution does not commit the Security Council, or the nuclear powers, to any form of nuclear threat against such aggression or to nuclear assistance, nor is there any indication of how a threat of nuclear aggression is to be interpreted; nor does it include an undertaking by the nuclear powers not to use nuclear weapons against non-nuclear signatories, a type of 'guarantee' that was prominent earlier in the negotiations.

THE TREATY'S EFFECTIVENESS

THE Australian government holds that it is an important Australian interest to discourage the spread of nuclear weapons.

The Australian Government has consistently seen the dangers inherent in the proliferation of nuclear weapons and in the increase in the number of nations possessing such weapons.

We therefore fully share the hope that effective measures will be found to prevent such further spread of nuclear weapons. We also share the hope that this proposed treaty may become such an effective measure.⁷

Most would accept that the spread of nuclear weapons would be dangerous to Australia, in so far as it would increase the risk of serious international instability, including the risk of nuclear war. This cannot be demonstrated: a minority view would be that the spread of nuclear weapons may be a factor for restraint in international conflict generally, as nuclear weapons may be held to have been a factor for restraint in the Cold War. However, political choices are never based on demonstrable certainties, but rather on a weighing of probabilities, and on this basis there are good grounds for accepting the common-sense view that nuclear proliferation would be dangerous. Some international quarrels are far more deadly than the postwar quarrel between the Russians and Americans: nuclear weapons cannot be relied on to moderate them. Moreover the spread is likely to proceed unevenly as between adversaries, tempting the stronger to attack, and newcomers to the nuclear club are likely for

⁷ *Parliamentary Debates*, loc. cit. Repeated in the statement to the United Nations, 17 May 1968.

some time to have forces vulnerable to attack by some or all other nuclear powers. In general the risk of nuclear war through accident, miscalculation, or irresponsibility seems likely to increase at least in proportion to the number of nuclear powers. Finally, granted that a small-power nuclear war may remain limited and localised, there is a risk that it will not. All governments, then, have good reason to make non-proliferation an objective of policy: it is not merely an interest of the present nuclear powers.

Is the draft treaty likely to prove an effective measure against proliferation? The answer will not be found in the fine print of the treaty but must be sought by viewing it in the context of the present phase of world politics, the policies of the two nuclear super-powers, and the relations between nuclear and non-nuclear powers generally. It would be unrealistic to suppose that further proliferation can be totally prevented, but it may be greatly delayed and reduced by agreements backed by the policies of the super-powers.

First and foremost, the treaty can inhibit proliferation by influencing the intentions and expectations of non-nuclear states. It has become the symbol of the non-proliferation enterprise. Just as its rejection would create an expectation that proliferation is inevitable, so its support by the great majority of states would strengthen the belief that it may be checked. In the one case, many governments might feel obliged to realise their military option as it became technically feasible; in the other, they might do so only in the last resort. In the one case, rival powers would be under pressure to 'race' for the possession of nuclear weapons; in the other they would have reasonable confidence that the rival was not about to go nuclear. The treaty can enhance the credibility of a world of few nuclear powers, in which many refrain from taking up their nuclear option.

The treaty's effect on expectations will depend greatly on the response of certain key states, viz. those with advanced civil nuclear industries, therefore close to a weapons capability, and the chief protagonists in intractable regional conflicts. The former group includes India, Japan, Canada, West Germany, Italy, and Sweden; the latter, pre-eminently, Israel and the United Arab Republic. The treaty would lose much of its force if most of them refused to sign. But the refusal of a few is to be expected (India has repeatedly asserted its reluctance to sign) and need not undermine the treaty, especially if, like the partial test ban treaty, it is signed by the great majority of states.

If the treaty succeeds in winning the necessary support this will be largely due to the influence of its super-power sponsors. It differs from

most classic arms control/disarmament proposals in being, not a product of idealism directed against the policies of the great powers of the day, but a proposal taken up and worked out in detail by today's great powers. The treaty is by far the most important and complex undertaking on which they have sought to collaborate. Not only their individual prestige but their future collaboration will be at stake. The longer-term prospects for non-proliferation will be even more dependent on the role of the super-powers: unless they can provide a tolerable framework for international security, states with a nuclear potential will be moved to realise it. This does not *necessarily* imply a continuation of the present *détente*, even though international *détente* offers the most favourable climate for checking proliferation. A revival of Soviet-American tension need not necessarily lead to proliferation, provided both powers continue to resist it within their respective spheres of influence and provided most states feel a need for support from one of them, or both.⁸ The basic prerequisite is that the two powers continue to accord it a high priority in their policies.

The treaty's inspection provisions would enhance its effectiveness by establishing confidence that its undertakings are in fact being observed. An uninspected treaty, especially in times of tension, would offer little assurance that governments were not secretly engaged in fabricating nuclear weapons. Even though inspection cannot provide absolute assurance that there is no diversion of nuclear materials for weapons purposes, a safeguards system such as that of the I.A.E.A. or Euratom can offer assurance that any diversion is on a very small scale. Moreover, the presence of expert inspectors would be a substantial deterrent against such evasion. One consideration counting in favour of an inspection system is that the states most capable of successful evasion, the most advanced industrial states such as West Germany or Japan, would have a requirement for relatively large nuclear stockpiles, therefore little interest in small-scale evasion; while those smaller states with stronger incentives for such evasion will in general be of a lower technological level, therefore less capable of outsmarting the international inspectors.

A second contribution of inspection is more uncertain, and depends in part on the interpretation of the 'acquisition' and 'manufacture' of nuclear weapons, discussed above. If these are construed to rule out, e.g. research and development specifically directed towards nuclear weapons,

⁸ The above presupposes a continuation of an essentially bipolar distribution of power, a view which is defended below. However, this is not central to the argument: those who envisage a genuinely polycentric world may substitute 'the five (or *n*) nuclear powers' for 'the superpowers'.

then inspection will tend to deter such activities, thus increasing the 'lead time' between a state's decision to acquire nuclear weapons and its actually doing so.⁹ Clearly, the longer the lead time, and the more public a state's decision to acquire nuclear weapons (in the case envisaged it would have to signal its intention by withdrawing from the treaty), the more likely it is to yield to the pressures to remain non-nuclear. The chances of nuclear lobbies are greater the easier it is for them to confront the world with a *fait accompli* in the form of a nuclear test and/or stockpile.

Thirdly, inspection can detect evidence of a projected weapons program by establishing the 'grade' of the plutonium which is produced as a by-product of the operation of nuclear power reactors. It is often mistakenly asserted that the large stocks of plutonium which are thus beginning to accumulate are automatically available for weapons. However, it has recently been confirmed in an authoritative U.N. report that the presence of the isotope plutonium 240, the proportion of which increases with the period of irradiation (i.e. the period in which the fuel rod is in the reactor), creates serious difficulties for the manufacture of nuclear explosives. Even though there is no absolute dividing-line between 'weapons-grade' and 'non-weapons' plutonium, and even if the difficulties with plutonium 240 can eventually be overcome, new nuclear powers would seek to avoid them, indeed would probably have to.¹⁰ The composition of the plutonium, then, offers a rough check on the intentions of a potential nuclear power. To stockpile 'weapons-grade' plutonium is highly uneconomic in the context of electricity generation, since it requires the replacement of fuel rods long before the normal period.

The inspection system proposed in the treaty would have intrinsic value as an arms control measure over and above its contribution to the effectiveness of the treaty. With the expected vast expansion of civil

⁹ This point must be made more tentatively than the former. It seems unlikely that I.A.E.A. inspectors will have access to weapons research establishments. Therefore the deterrent effect of their presence will be more indirect: they may find evidence, or be given information, pointing to the existence of a weapons program outside the declared nuclear facilities to which they have access. Even apart from inspection, many governments will be deterred from engaging in activities which would unambiguously violate their treaty undertakings; at least, they will be deterred from going beyond paper studies to engineering or laboratory work.

¹⁰ A. Kramish, *The Peaceful Atom and Foreign Policy* (New York: Harper & Row, 1963) pp. 23-5; *Report of the Secretary-General on the effects of the possible use of nuclear weapons and on the security and economic implications of the acquisition and further development of these weapons*, United Nations, General Assembly document A/6858, October 1967, Annex IV, p. 3.

nuclear programs, it is very desirable that there should be reliable international monitoring of the movements of nuclear materials. The successful operation of the Euratom safeguards system has shown that such monitoring can be comprehensive and effective without becoming intrusive or imposing heavy costs. The treaty offers an opportunity for establishing such a system in a large number of countries, a major step towards a universal system.¹¹

The Australian statement to the United Nations says nothing on the treaty's potential value as a non-proliferation measure in the present global context, but suggests three reasons why it may prove ineffective, all of which are serious overstatements. China's refusal to sign, it suggests, calls in question the treaty's contribution to world security. But the treaty is not intended to solve all the problems of world security, but to tackle *one* major problem—nuclear proliferation. From the outset of the American-Soviet non-proliferation enterprise it has been clear that China would oppose it; now, if China were to sign, this would not resolve the security problem of those threatened by her. Second, the statement suggests that the treaty could not survive a breakdown in the present *détente*: this is not wholly implausible but, as suggested above, is nonetheless overstated.

More important, the statement argues that the treaty must be accepted by many more states than the forty required for the treaty to enter into force, and that these should include the advanced civil nuclear states. Some few of these, the 'key' states referred to above, may well refuse to sign, but this would not spell the failure of the treaty. It would have to be rated a failure if the overall response was disappointing and the majority of key states refused their signature. But even a moderately favourable response would provide the adversaries of proliferation with a platform for continued resistance to it, bearing in mind that a refusal to sign by no means implies a decision to acquire nuclear weapons, the latter being a far graver and more momentous decision. The statement appears blind to these possibilities, just as it appears blind to the potential advantages of the treaty. If all states followed the principle of withholding their signature until the treaty had overwhelming support, it would be bound to fail.

¹¹ In general, the super-powers may rely primarily on their own intelligence services. But this is not open to the great majority. And even for the super-powers I.A.E.A. inspection could supply a useful supplement to their own efforts.

OBJECTIONS TO THE TREATY

THE principal objections which have been brought against the treaty during its negotiation are fourfold: that it discriminates against the non-nuclear; that it impedes the advance of peaceful nuclear programs, to the disadvantage of the non-nuclear; that it imposes no equivalent restraints on the nuclear powers; and that there are no satisfactory guarantees of the security of the non-nuclear.

The treaty is inherently discriminatory in so far as it seeks to perpetuate a division between nuclear and non-nuclear powers: to this extent the first criticism is disingenuous. However, there is no doubt that such permanent distinctions are widely resented, and resentment underlies many of the specific criticisms of the treaty. Moreover, the treaty is more discriminatory than it need be, notably in the matter of safeguards. The inspection of all peaceful nuclear activities applies to non-nuclear states alone. The United States and Britain, responding to criticisms of this distinction (which was retained on the insistence of the Soviet Union) have offered unilaterally to place their own peaceful nuclear facilities under the same international inspection as those of the non-nuclear—though not, of course, their military facilities.¹²

This offer should allay fears that the inspection provisions will be implemented in ways that could restrict the advance of peaceful nuclear programs. Moreover, the treaty contains emphatic assertions that it shall not impede such advances. One proposed amendment to the treaty, put forward by Italy, is to include a guarantee that non-nuclear powers will have access to nuclear fuel for peaceful purposes.¹³ Such access is implicit in Article III, 3; a binding guarantee would be difficult to formulate in view of possible shortages of uranium or plutonium in the future. Understandings or contracts outside the framework of the treaty may offer a more suitable framework for meeting this concern.

The treaty holds out no more than a distant prospect of measures limiting the nuclear arsenals of the present nuclear powers ('vertical proliferation'). The Russian and American announcements at the time of the treaty's signature that they would negotiate on the reduction of their strategic nuclear forces represent a break with their previous policies; they have taken fundamentally opposed stands on the various proposals which would restrict the unimpeded development of their nuclear forces: the comprehensive test ban; the cut-off (the cessation of further stockpiling of fissionable materials for weapons purposes); or

¹² *New York Times*, 3 December 1967, p. 78 (statement by President Johnson); *The Times*, 5 December 1967 (statement by Mr Mulley).

¹³ *The Australian*, 14 May 1968.

a freeze or reduction in the numbers of nuclear delivery vehicles. At the present time both are developing and deploying new strategic weapons systems including multiple guided warheads and ballistic missile defences.

As a consequence, the two powers may be on the way to restoring the essentially bipolar pattern of power which was shaken by the emergence of France and China as self-assertive nuclear powers. But their policy is calculated to inflame resentment at discrimination: it flies in the face of the many demands for restraints on the nuclear powers which would parallel the restraints proposed for the non-nuclear. It is surprising that this issue was not more prominent in the United Nations debate, since it could have offered an emotional rallying cry to be exploited by opponents of the treaty. As it is, the super-powers have felt bound to make some responses to these demands.

Many governments may in fact be willing tacitly to settle for greater discrimination as the price of greater security. It is clear that a fully binding nuclear guarantee is unattainable, and could not be wholly relied on even if it were attainable. But it is also clear that the chances of adequate nuclear protection by one or both super-powers will be much greater if they remain pre-eminent among the nuclear powers, beyond serious challenge by newcomers. This image of a new bipolarity may prove to have been misleading, but for the present it is the image which counts.

Another current criticism of the treaty is its lack of clarity, e.g. over the scope of inspection agreements with the I.A.E.A. This is due not to awkward drafting but to unresolved differences in the negotiations. The major residual differences on inspection concern the role for Euratom: will it remain responsible for safeguards on its members, subject to token I.A.E.A. supervision, or will it on the contrary retain only a token role itself? The United States and the Soviets were no longer willing to allow such an issue to delay their tabling a treaty; it remains to be resolved in the future, along with others which have been indicated. The success of the treaty, however, does not depend on these matters of detail: they will be resolved if the super-powers and the treaty's other supporters remain committed to making the treaty a success.

Whether these varied objections will lead a substantial number of states to refuse their signatures to the treaty will only be shown by events. The best guess is that if the Americans and Russians remain committed to the treaty, and exercise reasonable diplomatic skill, most will sign in the end. Non-proliferation is an interest of all governments, but one which must be weighed against other, partially competing interests.

Australia's decision will be influenced, but not wholly governed, by the number of signatories; it may even play a modest role in the marshalling of support for, or opposition to, the treaty. Which way the government exercises this influence in the negotiations will depend (or should depend) on its reading of Australia's special economic and security interest, balanced against Australia's interest in non-proliferation—an interest it unfortunately appears to perceive only dimly.

AUSTRALIA'S ECONOMIC INTERESTS

AUSTRALIA'S civil nuclear program is still very limited. The principal activity is research toward the future establishment of power reactors. The Atomic Energy Commission also sponsors exploration for uranium, studies advances in overseas technology, conducts subsidiary research programs, e.g. on radiation, and produces radioisotopes. The principal research reactor, HIFAR, is subject to I.A.E.A. safeguards.

Major applications of civil nuclear technology lie in the future. The most promising of these is the generation of electricity, possibly combined with desalination of water. Nuclear power reactors are now competitive with conventional stations in many countries where there is a high 'base-load' demand for electricity: many of the newer reactors planned overseas will have an output above 1000 megawatts (electric). The Commission formerly envisaged the possibility of relatively small (200 MW) nuclear stations in South Australia by the early 1970s, and larger stations in New South Wales (up to 700 MW) by the late 1970s. The discoveries of natural gas may postpone these.

There is a case, so far rejected by the government, for constructing Australia's first power reactor before it would be justified by fuel economics alone. The first reactor is likely to require substantial foreign assistance and to depend on the import of key components. The development of Australia's capacity to produce its own reactor components can scarcely begin until the first reactor is constructed, and is likely to require a considerable period (perhaps a decade) from that date. Should it be thought desirable, then, that Australia should achieve the potential for nuclear self-sufficiency by the early 1980s, it would be desirable to begin soon.

The underlying considerations here are more military than economic. By the time Australia could construct its own reactors, it is likely that the most advanced countries will have introduced fast breeder reactors, which promise far cheaper electricity than present types but also involve

a more complex technology, which is likely to restrict their production to the few industrial giants. On the other hand, foreign-assisted reactors are likely to be restricted to peaceful purposes: even if the non-proliferation treaty fails, this is at present the policy of the major nuclear suppliers and is likely to remain so. Plutonium for Australian nuclear weapons, then, would probably have to be produced in Australian-built reactors.¹⁴

Aside from the military option, it is certain that nuclear power will eventually become economically very attractive for Australia, especially since power reactors can also be used for desalination. The treaty offers no possible ground for impeding this development: power reactors, both foreign-assisted and home constructed, are becoming commonplace in most of the industrial countries. What the treaty would impede is the use of any of the fissionable materials derived from the reactors for nuclear weapons.

The value of peaceful nuclear explosions is still uncertain.¹⁵ Nuclear excavation of a new Panama Canal may well prove a fantasy. Nearly \$100 million has been spent by the United States Project Plowshare to develop the technology of peaceful explosions: commercial explosions have not yet been attempted. However, if valuable applications are developed, Australia, thanks to its size and sparse population, is likely to be one of the countries best able to benefit. Nuclear explosions may prove effective for water conservation, for freeing underground resources (e.g. oil or natural gas), and possibly for creating harbours.

Uses which involve 'cratering', as distinct from explosions wholly contained underground, produce radioactive fallout, the volume of which is being steadily reduced with new techniques, but which would still cause political misgiving and would be prohibited under the partial test ban treaty if 'radioactive debris' is present outside the territory of the state carrying out the explosion. The non-proliferation treaty would not further restrict the class of permitted explosions but would limit the carrying out of explosions to the nuclear powers or an international body to be formed for the purpose.

Even on optimistic assumptions as to the value of nuclear explosives

¹⁴ An economic argument for a relatively early start with power reactors would be the desirability of accumulating large stocks of plutonium, as this is the fuel for fast-breeder reactors. There appear to be no Australian studies of the implications of the introduction of fast breeders when they are thought likely to be introduced in the United States and Europe, i.e. the late 1970s or early 1980s.

¹⁵ For a general discussion see D. Inglis and C. Sandler, 'Prospects and Problems. The Nonmilitary Uses of Nuclear Explosives', *Bulletin of the Atomic Scientists*, December 1967.

for Australian development, it would not for the foreseeable future be economic for Australia to carry out its own nuclear explosions, except conceivably as an adjunct to a weapons program. The United States has published a scale of charges for nuclear explosives, ranging from \$U.S.350,000 for a 10 kiloton explosion to \$U.S.600,000 for 2 megatons. These charges reflect the fact that the enormous initial research, development, and capital costs have been charged to the military program. Moreover, the American devices incorporate new techniques in fission-fusion technology which can minimise radioactivity by minimising the fission component of the explosive. In order to carry out safe explosions, Australia would have to contemplate not a simple plutonium program, but a uranium separation plant and fusion technology as well.

The treaty gives an undertaking in general terms that the price of nuclear explosions will remain low (it will exclude any charge for research and development). Australia's main interest in this field is to gain assurances that nuclear explosives will be made available under reasonable conditions. In its U.N. speech, it has opposed (para. 27) a Swedish suggestion that decisions on the economic and technical aspects of proposed explosions should rest with an international body, not the state concerned.

A third area of interest to Australia in the longer term is research and development. Here there is a legitimate concern that the treaty shall not be used to preserve the advantageous position of states possessing advanced civil nuclear industries as against those, like Australia, which now lack them. Once again, there is nothing in the treaty provisions which could justify such restrictions. What is conceivable, however, is differential inspections: it is likely, in view of the initial paucity of skilled I.A.E.A. inspectors, and in view of the fear of 'commercial espionage' expressed on all sides, that initially there will be rather limited inspection of the R and D establishments of the major civil nuclear powers. States entering seriously into this field at a later stage could find themselves confronting tighter inspection.

The importance of this sort of issue has doubtless been exaggerated ('commercial espionage' is a respectable objection, the desire for a bomb option is not). But granted that it *could* have some substance, two lines of recourse are open. First, states in Australia's position can seek to establish that agreements to be negotiated with the I.A.E.A. shall follow common principles for all, shall not be *ad hoc*, and shall be implemented in a uniform manner. Many states share this interest. Second, if serious discrimination against states with smaller nuclear

industries does emerge, the five-yearly review conferences offer an opportunity to correct it: since this is likely to be discrimination in the *application* of rules, it would not call in question the treaty text, and would thus not have to surmount the obstacles to amending the treaty. It would be difficult to justify recourse to the withdrawal clause on this sort of issue, since it could scarcely be argued that the country's supreme interests were being jeopardised.

One of the most interesting of the potential future developments is the gas centrifuge. This has recently been described as a cheap method of enriching uranium, following unconfirmed reports of a breakthrough in centrifuge technology in Holland. The prospect is held out of small countries acquiring enriched uranium at low cost, freeing themselves from dependence in this respect on the nuclear powers, and avoiding the billion-dollar capital expenditure of a gaseous diffusion plant, by which the present nuclear powers enrich uranium.

However, the available cost figures do not support this: according to a report in 1960, enriched uranium produced in a small centrifuge plant (capital cost \$U.S.130,000) may cost forty times as much per kilogram as uranium produced in a diffusion plant.¹⁶ Not only must the initial technological obstacles be overcome, but also costs must be spectacularly reduced before centrifuge enrichment would become economically attractive.

The military use of enriched uranium might be another matter. For this reason centrifuge research has been classified by most countries. No doubt, if a bona fide cheap centrifuge method is developed, the information will not be kept classified. For the time being, however, classification serves the interests of non-proliferation. One of the more questionable points in Australia's U.N. speech calls for a review of classification procedures in the interests of 'the fullest possible exchange of scientific and technological information for peaceful purposes.' If this was directed towards centrifuge technology it is at present more than questionable, since the ends likely to be served are far more military than economic.

On the other hand, there is nothing in the treaty or the I.A.E.A. system to prevent states from engaging in centrifuge research. And if the plants eventually come into operation, the same general inspection principles would apply as for all facilities processing nuclear materials. It would be necessary for the I.A.E.A. to devise specific rules for safeguards on centrifuges, but there is no ground for the view that developments such as the centrifuge would render the treaty technically obsolete.

¹⁶ *Report of the Secretary-General* (see n.10), Annex IV, p.2.

In sum, then, the treaty does not threaten Australian civil nuclear development. It offers no basis for restricting the use of power and desalination reactors, and it is unlikely that the inspection provisions could be stretched to limit major research and development projects in the future. It rules out peaceful nuclear explosions conducted by Australia itself, but provides that they may be conducted cheaply by the nuclear powers.

Surprisingly, half of Australia's speech to the United Nations was devoted to the treaty's implication for peaceful nuclear programs, which the statement took to be 'of paramount importance' and 'critical to the success of the treaty'; even more surprisingly, the statement laid down a number of very detailed conditions which, it strongly hinted, would have to be met if Australia were to sign the treaty.

The first condition is the reasonable one that there should be certainty about the safeguards requirements: the essentials of the agreements should be settled before, not after ratification. This would be a clear improvement on the procedure specified in the treaty. But this is linked with the requirement that the terms of such agreements should not be 'varied by changes in the I.A.E.A. arrangements not related to the treaty'. In the past it has been accepted that the implementation of safeguards should be modified in the light of technological advances, and this principle is reaffirmed in the preamble to the treaty. Such changes require the approval of the General Conference of the I.A.E.A., at which all members participate. At the 1965 conference, for example, the procedures were rationalised and simplified. It is not an Australian interest to prevent such changes.

The second condition singles out the mining and early processing of uranium. The government 'would find much difficulty' if safeguards were applied to these. In one of the existing safeguards systems, that of Euratom, these activities are placed under safeguards, but not as closely controlled as reactors.¹⁷ It is clear that I.A.E.A. inspection can more effectively serve the treaty's purposes if it extends to mining and early processing, and it cannot be seriously asserted that it is a major Australian interest to prevent its doing so.¹⁸

Thirdly, the statement insists that nuclear assistance shall not be denied to a non-nuclear state 'until it is clearly established that such

¹⁷ For a description of Euratom's safeguards system see J. van Helmont, 'The European Atomic Energy Community', in Wayland Young (ed.) *Existing Mechanisms of Arms Control* (Oxford: Pergamon Press, 1966).

¹⁸ Australia's known reserves of uranium are 10-15,000 short tons; Canada's are ten times as great.

activity or such supply *will be used* for the manufacture of nuclear weapons, or other explosive device' (my italics). We have seen that the treaty makes no provision for sanctions, but it is a fair presumption that all assistance would be cut off from a violator, i.e. one detected diverting materials from declared peaceful installations. But how is it to be determined that (subsequent) materials *will* be used for weapons or explosives?

In brief, the section of the statement dealing with civil nuclear programs reflects a lynx-eyed suspicion of the treaty and more especially of I.A.E.A. safeguards, and a corresponding blindness to the way in which inspection can enhance the treaty's effectiveness. It can bring no credit on the government to have laboured over such dubious details: no argument is too flimsy, it appears, to serve to fill out the case against the treaty.

AUSTRALIA'S SECURITY

IT has been argued that an effective non-proliferation agreement would be in Australia's interests and that it would not be damaging to Australia's peaceful nuclear development. The issue therefore rests on the final question: would the treaty endanger Australia's security? And if so, how seriously? This issue has received little clarification in the discussions up to the present: although it is clear that suspicion of the super-powers and the desire to keep options open underlies much of the criticism of the treaty, there has been little reference to specific risks to Australian security.

It would seem that there are two general circumstances in which the treaty would endanger Australian security: first if the alliance with the United States should break down, creating an early demand for an Australian nuclear force as a deterrent against major threats; second, if the treaty should close the option to Australia's acquiring nuclear weapons.

Any assessment of these dangers will be dependent on a general standpoint on Australia's security problem in the next decade and beyond. Space does not permit a full development of this theme: the following will merely sketch a general perspective in the light of which the potential risks of the nuclear treaty may be assessed.

The paradox of Australian security is that persuasive arguments can be advanced for opposite positions: that Australia is among the most secure of states, or among the least secure. In defence of the former, it

is argued that no potential adversary is capable of invading Australia, nor of acquiring the capability, nor are there plausible motives for invasion; nor does geography place Australia in the path of potential contending powers.

The pessimistic view would be that East Asia in the future is likely to be dominated by two great powers, China and Japan, whose culture and tradition are totally different from our own, whose policies are unpredictable, and over whom Australia can have virtually no influence. Either might come to regard Australia as valuable real estate (the Manchukuo of the 1980s?). This is not a prediction that these threats will materialise, but a recognition that they may. It can lead to either of two policy preferences: for countervailing American power, or for Australian nuclear weapons.

It is incontestable that great-power threats to Australia may materialise in the future. But this offers little guidance for Australia's short-term security policy. Here some will argue that the alliance with the United States carries more risks than benefits: e.g. the risk of becoming a target of Chinese nuclear weapons. If *ex hypothesi* Australia is secure, the gains for the alliance are illusory.

This sort of view overstates the risks in the American alliance and underestimates its value. It is difficult to believe that Australian targets (with the possible exception of the North West Cape) will rank high in China's priorities, and the same American involvement which introduces the risk also goes far towards removing it. It is not credible that China would strike at Australian cities if a vastly superior United States threatened drastic retaliation: and this is what the logic of deterrence would lead the United States to do, given its basic attitude towards commitments to allies, in this sort of nightmare contingency.¹⁹

The value of the alliance is twofold. First it offers a countervailing American presence in East and South-East Asia, a position endangered by Vietnam but not yet abandoned. The probability is that future American involvement will be much more selective and limited, and less

¹⁹ The 'hostage' thesis, according to which China is likely to hold Australian cities hostage against an American nuclear strike, so long as China lacks an effective second-strike against the United States, has a certain political plausibility: see A. L. Burns, 'Australia's Prospects in the World of Thermonuclear Powers' (unpublished). Australia is non-Asian, hence a preferable hostage to Japan, for example, but is in the relevant region, hence is preferable to Western Europe. The weak point of the thesis is the view that nuclear guarantees are irrelevant to the hostage's situation. The question of hostage-taking arises only in the event of an American strike at China's nuclear force that is less than 100 per cent successful. If the threat to take hostages fails in its aim of deterring the American

military. Even so (or perhaps, all the more), on balance the American presence increases the chances of independence of smaller states in the region and reduces the chances of violent instability.

Australia has little power to promote these causes in the absence of the United States. Second, uncertainties on America's new foreign policy role concern the Asian mainland, not American interest in remaining a world power. They do not affect the ANZUS alliance, which offers the framework for a nuclear guarantee of the most convincing kind: a direct guarantee by a nuclear power to an ally, who shares certain risks, engages in collective undertakings, and in return is protected against nuclear attack. One of the most important developments in strategic thinking in the past decade has been the discrediting of the school of thought associated with France—the doctrine that nuclear weapons render alliances obsolete, that the only effective deterrent is a national one. The members of NATO—most significantly the West Germans—have been persuaded that the United States takes its pledges with all the seriousness that they demand; this is partly because, through the NATO special committee on nuclear planning, Europeans have been made privy to American contingency thinking and planning. Recent American strategic writings have underlined the importance which American strategy attaches to the national reputation in this context:

There is also the more serious kind of 'face' . . . It relates to a country's reputation for action . . . Few parts of the world are intrinsically worth the risk of serious war by themselves, but . . . running risks to protect them may preserve one's commitments to action in other parts of the world . . . Soviet expectations about the behaviour of the United States are one of the most valuable assets we possess in world affairs.²⁰

It is a vital Australian interest to seek similar nuclear assurances—not necessarily public—within the framework of ANZUS. Best of all would be an arrangement along the lines of the NATO special committee, which would acquaint the Australian government with American thinking on nuclear contingencies in the region.

strike, China would have every reason to refrain from actually taking the hostages, since this would risk provoking a (surely credible) American city-strike, which would be implicit in the nuclear guarantee. Possibly Professor Burns's basic thesis is that this is morally unacceptable rather than strategically irrelevant (*loc. cit.* p. 1). I would not agree with his view that a fundamental moral distinction should be drawn between acceptable counter-force strikes (which are unlikely ever to be 'to the exclusion of population') and unacceptable strikes, or *threats*, against cities, especially if the latter are confined to threats of retaliation in kind.

²⁰ T. C. Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966), pp. 124-5.

It is unsound to argue that Australia could achieve the benefit of an American guarantee without incurring the 'price' of alliance. A nuclear guarantee is not offered lightly, since it could involve the ultimate risk: Australians cannot seriously expect Americans to run such a risk on their behalf, unless they are prepared to share the risk and burden of alliance. Nuclear-age alliances, then, differ from classic alliances in being more permanent, more binding, less interchangeable. If the matter is viewed in terms of geopolitics, Australia's importance is not such that the United States would be bound, for reasons of self-interest, to come to the defence of a former ally which had ostentatiously dissociated itself from its protector.

An early Australian decision to acquire nuclear weapons would undermine such an extension of ANZUS. At a time when the United States is pressing for the non-proliferation treaty, such an Australian policy would represent outright opposition to American diplomacy, as well as a massive vote of no confidence in the alliance. ANZUS would be a dead letter, even if it were not finally terminated.

A second major disadvantage of early Australian acquisition of the Bomb would be its effect in stimulating proliferation in East and South-East Asia: If Australia could not rely on American pledges, why should Japan? And such an Australian policy would be likely to provoke at least a declaratory nuclear policy in Indonesia.

Thirdly, Australia is a long way from acquiring an effective capability, and would have extreme difficulty doing so without external co-operation. No doubt a crash program could produce plutonium devices within a few years, through the use of plutonium production reactors (as in the case of Britain and France), forgoing electricity—such reactors would be simpler to construct and operate than sophisticated power reactors. But a long-range domestically-produced delivery system would be many years away.²¹ Australia would be committed to an extremely costly program, with little assurance that when completed it would be relevant to the kind of threat that might by then have materialised.

After a period of, say, a decade, the situation should be much clearer: many of the uncertainties may be resolved one way or the other. The

²¹ Apart from its range limitation and, at the time of writing, doubtful performance, would the F-111 be usable if the United States withdrew its support? The United Nations report referred to above (see n.10) provides a valuable summary of relevant costs. For example, a minimum long-range delivery system (whether submarine-based or land-based) would cost \$U.S.1,000 million or above, assuming all necessary industries already existed. In addition, a warhead program limited to plutonium fission alone would cost perhaps less than half this; a full thermo-nuclear program a great deal more.

non-proliferation treaty may have succeeded in restricting further spread of nuclear weapons, or it may not. The nuclear powers may still be seeking to stop proliferation, or may have come to accept it. One or other threat to Australia may have become a reality, or the situation may have eased: there may be a Pacific *détente*. The United States may have ceased its endeavour to be a world power or, more probably, its commitment to the Pacific and Asian allies may be taken for granted. Australia, if it follows a policy of working towards a nuclear option and building up ancillary defence industries, will be far better placed to acquire an effective deterrent if the situation seems to demand it.

All the arguments, then, point to the postponement of any Australian decision to acquire nuclear weapons. Even in the unlikely event of a full American withdrawal and a disavowal of ANZUS, it is difficult to see a case for a hasty Australian recourse to nuclear weapons, in the absence of a long-range delivery system and in the absence of any power capable of invading Australia. Even in this case it would appear more prudent to delay a decision, though a substantial expansion of defence industries would be essential.²²

This line of argument presupposes an answer to the second question raised earlier, i.e. it assumes that the treaty does not for all time foreclose the option of going nuclear. This is true in two senses: under the treaty, states may acquire an 'option' in that they may place themselves in a position to fabricate nuclear weapons; second, they may then withdraw from the treaty under the escape clause, in order to take up the option.

It is not clear precisely how close states may come to fabricating warheads, but even on a restrictive interpretation of the terms 'manufacture or otherwise acquire' this would be at most perhaps two years, and meanwhile there is no restriction on building up reactor technology, stockpiling plutonium, or acquiring delivery vehicles, to take the most important requirements. A number of states are likely to do this, treaty or no treaty, as India and Israel have done in the past. It is not hypocritical but merely prudent for states signing the treaty to reinsure against the possible failure of the non-proliferation enterprise.

The withdrawal clause could create embarrassment, but would not

²² This is not meant to imply that nuclear weapons would 'solve' Australia's security problem, if a serious threat emerges. Their function would be last-resort deterrence to discourage nuclear strikes on Australian cities. Whatever the merits of the tactical arguments on the use of nuclear weapons against invading fleets, it would be rash to rely on doing so against a major nuclear power, and far better to have a strong navy. Once again, the alliance seems a better bet than nuclear independence, if the choice has to be made.

represent a formidable obstacle to a state resolved to acquire nuclear weapons. The acquisition of nuclear weapons by another state in the region would present a good *prima facie* case for withdrawal. Waning confidence in a nuclear protector would not, and here perhaps is the greatest difficulty in the treaty for a country in Australia's position. However, this consideration should not be overstated: short of fundamental changes in American thinking, Australia's acquiring nuclear weapons is likely to cause a crisis in her relations with the United States in any case. Withdrawal from the treaty would not be the basic issue.

CONCLUSION

THE argument comes out strongly in favour of Australia's supporting the treaty. It is no mere will-o'-the-wisp, but enjoys the backing of the two major powers: there is a real possibility that they may succeed in checking the spread of nuclear weapons, and such an improvement in the international environment would enhance Australia's security, along with that of states generally. On the other hand, the treaty on any reasonable interpretation does not endanger Australia's economic interests, nor does it endanger Australian security in the short run or tie its hands in the longer run.

To join the states seeking to sabotage the treaty would be to cast aside the measure that now offers the greatest promise for international security, in the name of ideals such as non-discrimination which are unattainable in the present international system, perhaps in any international system. Rather, Australia should support the treaty in the coming negotiations, not uncritically but unequivocally, and should limit its conditions for signing to matters of real substance, such as a reasonable form of agreement with the I.A.E.A.

Some hedging is unavoidable: the treaty may fail to win reasonable support, and there is little to be said for accepting the treaty's restriction if few others do likewise, though this now seems unlikely. Some of the advanced civil nuclear powers should be signatories. On the other hand, there is no state or group of states whose signature is a *sine qua non* for Australia's, not even, for example, Indonesia or Japan, though Japan's refusal would raise very serious questions.²³ In general, Australia

²³ A more relevant response than simply refusing Australia's signature would be to take up with the United States the question of more specific security guarantees. Problems raised by Indonesia, on the other hand, are much less formidable in view of Australia's industrial and technological lead: an Indonesian refusal to sign would probably have diplomatic or political motives and would probably not signify an early start on a weapons program.

should encourage the waverers to sign, rather than use their wavering as an argument for not signing. A possible expedient might be to sign, but postpone ratification until a sufficient number of others had signed.

Australia's initial brusque reaction to the treaty could have some advantages. Prompt acceptance would have passed unremarked in the United Nations: support after due reflection may carry more weight. In the coming negotiations on the treaty Australia faces a choice between the parochial role foreshadowed in the U.N. speech—the defence of inflated special interests—and the role of the diplomat, part advocate, part broker, aware of the intractability of the clashes of interest but also aware of the wider context and alive to the opportunities for manoeuvring towards the desired objective.

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