

PART THREE ☆ **CHARTING A NEW PACIFIC**

The U.S.S. *Pinfado* blockaded by the Peace Squadron,
Waitemata Harbor, Auckland, N.Z. 5 January 1978
(Creative Photography, Auckland)



TWENTY ★ CHARTING A NEW PACIFIC

[The] nuclear-free Pacific concept is . . . being put forward by people who either do not understand the full implications of such a policy for American strategic interests, or who do not wish to see the United States maintain a presence.

—William Bodde, U.S. State Department, 1982¹

The great ocean that surrounds us carries the seeds of life. We must ensure that they don't become seeds of death.

—Jean-Marie Tjibaud,

New Caledonian Government Council, 1982²

The nuclear peril in the Pacific is growing. Hair trigger weapons, rigid and inadequate structures of command and control, sectarian rivalries between the military services, fluid political situations – all these combine to create a superpower “peace” based on a mounting risk of nuclear war and accident.

Can the nuclear threat in the Pacific be reduced? Is it possible to chart a course to greater safety?

Arms control, as it is currently pursued, is not a promising tack to take in the Pacific. The muscular diplomacy of Washington's new Cold Warriors rests on the concept of “peace through strength” – the belief that clear-cut U.S. superiority on all fronts is the prerequisite to arms control negotiations. In this view, the U.S. must deploy Tomahawk cruise missiles in the Far East to bargain against Soviet SS-20s.³ The

Soviets, in turn, justify their Asian-deployed SS-20 missiles as a counter to Tomahawk missiles.⁴ And so on in an inevitable arms race.

Nuclear arms control discussions, furthermore, have focused primarily on long-range missiles, ignoring theater or intermediate-range nuclear forces in Asia or Europe. Indeed, there exists neither a formal nor a tacit "regime" or set of understandings governing superpower deployment of nuclear weapons in the Far East.*

Some security analysts argue that the best way to reduce the threat of nuclear war is to "denuclearize" all American and Soviet forces which operate beyond superpower home territory, including those in the Pacific.⁵ Nuclear weapons, however, are deeply integrated with conventional weapons in both U.S. and Soviet forward-deployed forces. Proposals to excise nuclear weapons while leaving intact conventional offensive forces and military alliances are simply unrealistic. Furthermore, "denuclearization" might enhance the likelihood of a superpower *conventional* war, which carries the risk of escalation to nuclear attack launched with home-based nuclear forces.⁶

Rather than putative attempts at nuclear excision, the control of integrated conventional and nuclear forces requires shrinking the geographical space in which they operate. Only by physically separating superpower forces where they now confront each other "eyeball to eyeball" can the threat of nuclear war in the Pacific be lessened. Only by establishing areas which are off-limits to Soviet and U.S. military intervention can the possibility of superpower combat over Third World interests be eliminated.

This approach to regional disarmament and demilitarization has three components. The first is the creation of zones free of all nuclear-capable and offensive conventional forces. Such a nuclear-free zone is most urgent in the Northwest Pacific, where the risk of nuclear war is greatest. But it would be buttressed by nuclear-free zones which would eventually cover the entire Pacific region.†

* Except for the broad, global taboo on nuclear attack which underlies a nuclear-armed peace. Warfighting doctrine and strategy, conventional and nuclear, are themselves unregulated in the Pacific nuclear frontier.

† The South Pacific "Nuclear-Free Zone" proposed originally by Australian Prime Minister Robert Hawke is severely flawed and would require substantial expansion in scope

The second component is the formation of non-intervention zones, in which *all* forward-deployed foreign forces would be excluded. The prime candidates for such zones are politically volatile areas where both superpowers have vital interests, such as Southeast Asia and the Middle East.

A focus on nuclear-free and non-intervention zones comprises a regional approach to defusing the nuclear threat. Pacific nations, however, are implicated not only in intermediate-range or theatre nuclear weapons but also in long-range U.S. and Soviet nuclear forces. Pacific nations host facilities which guide or test long-range nuclear weapons, making them targets as well as accomplices in escalating nuclear risk. The third component of a Pacific disarmament strategy, therefore, must aim at capping and reversing the global nuclear arms race. This would require Pacific nations to press for and participate in a freeze on the testing and deployment of intercontinental nuclear forces.

This three-pronged approach is not necessarily sequential. Indeed, popular and state initiatives – mostly at the national or sub-regional level – have been and are being undertaken on each of the components throughout the Pacific.

The success of this or any other course away from the nuclear brink in the Pacific depends on broad-based regional consensus and collective action. Regional concert by Pacific nations offers the possibility of reducing the risk of nuclear war, while preserving or enhancing regional peace and independence.

Northwest Pacific Nuclear-free Zone

The nuclear peril in the Far East is concentrated on Northeast Asia, the powder-keg of the Pacific. The outbreak of war between north and south Korea would be likely to prompt immediate U.S. nuclear attack (see Chapter 12). Nuclear war in Korea could spill over into nuclear exchanges in the Seas of Japan and Okhotsk, triggering an all-out nuclear war.

Defusing the nuclear time-bomb in Korea requires reducing tensions

to meaningfully contribute to this process. The Hawke Zone allows the transit of nuclear warships through a nuclear-free zone, and does not prevent signatories firing nuclear weapons into or out of the zone.⁷

in the Peninsula and eliminating the risk of U.S. nuclear attack on north Korea. Regional powers such as China and Japan have a direct interest in lessening hostilities and removing forces from the Korean Peninsula; north Korea has also called for a Korean Nuclear-free Zone. Pressed collectively by their allies and friends throughout the region, the super-powers might find a Korean Nuclear-free Zone in their interest, provided that the necessary reductions of nuclear and conventional forces occur on both sides of the Demilitarized Zone.

The pre-conditions of progress are American, Soviet and Chinese guarantees that they will not be the first to use nuclear weapons in Korea or to transfer nuclear weapons to the governments of either north or south Korea.⁸ It is equally important to initiate *rapprochement* between north and south Korea. China could prod the U.S. to sponsor three-way talks between the two Koreas and the U.S.* Such talks could aim to achieve a north-south non-aggression pact, prompting great power cross-recognition of the two Koreas and setting the scene for U.S. disengagement.¹⁰ After these steps were taken, the U.S. could then shift its nuclear-capable artillery south, beyond the range of the DMZ. This minimal adjustment to the U.S. posture could indicate good faith to all parties.

Little further progress could be made until south and north Korea replaced their offensive with truly defensive forces. The U.S. could match a phased, mutual reduction by the two Koreas with a step-by-step withdrawal of its own nuclear and conventional forces.

Intense pressure on north and south Korea would be necessary to overcome entrenched military and bureaucratic resistance to the proposal. China and the Soviet Union would probably have to pressure north Korea into disarming its offensive forces and accepting the existence of a south Korean state in exchange for prospective reductions of the American nuclear threat. By the same token, the U.S. would have to push south Korea into accepting the settlement by committing itself publicly to removing all nuclear weapons from Korea, thereby forcing political adjustments inside south Korea.†¹¹

* The U.S. nearly launched such an initiative in Peking in May 1984 in response to north Korea's proposal for three-way talks. At the last moment, hawks in the State Department sabotaged the move.⁹

† At the same time, the U.S. would have to carefully head off any south Korean effort to substitute a home-grown Bomb for American nuclear warheads.

If political and military obstacles were overcome, north Korea, south Korea and the U.S. could phase out their offensive and nuclear forces in incremental and agreed steps. By the end of the process, the U.S. would have withdrawn *all* its nuclear-capable forces from south Korea.

Rather than a negotiated settlement, strong internal pressures for democracy and reunification in south Korea might eventually force the U.S. to withdraw all its forces hastily. At the least, success of the democratic opposition in south Korea would increase the pressure on the U.S. to seek *rapprochement* and denuclearization. While the repressive capability of the south Korean government makes it unlikely that a democratic revolution could succeed in the near future, popular sentiment for democracy and reunification runs deep.¹²

Whether prompted by external or internal pressures, the creation of a nuclear-free zone in Korea would significantly reduce the risk of nuclear war in Northeast Asia. But the threat of nuclear attack in Korea stems not only from U.S. forces on the Peninsula but also from U.S. and Soviet warships and warplanes which surround the area. The U.S. could rapidly reintroduce its medium-range nuclear forces in the Northwest Pacific into Korea. Both Soviet and U.S. theatre forces project nuclear threats from offshore which would undermine the credibility of a Korean Nuclear-Free Zone. Furthermore, Soviet and American forces directly confront each other, heightening the risk of accidental nuclear war.

To retreat from the nuclear brink in Northeast Asia, it will be necessary to withdraw from the region *all* U.S. and Soviet nuclear-capable forces which can hit targets in the region. As a first step, Soviet and U.S. naval-nuclear forces would need to disengage from the area adjacent to the Korean and Soviet coastlines. Since it depends on substantial progress in Korea, a naval-nuclear disengagement zone would have to be negotiated after or at the same time as a Korean Nuclear-free Zone.

Crucial to a broader Nuclear-free Zone in the Northwest Pacific, a naval-nuclear disengagement zone could initially incorporate the Yellow Sea and the Sea of Japan (see Map 16.2). Except for specified transit between naval bases and the Pacific Ocean, both Soviet and U.S. surface fleets could be banned from sailing these seas.^{*13} Intimidating military exercises in the area by either side could also stop.

* Soviet use of the Sea of Okhotsk for ballistic missile submarines is probably non-negotiable and would be likely to continue under a limited naval nuclear disengagement zone.

Even after pulling back from Korea, the Yellow Sea and the Sea of Japan, U.S. aircraft carriers, Tomahawk-armed warships, and F-16 and B-52 bombers could still hit the Soviet Far East from bases throughout the region and all the way out to 2,500 km into the Pacific. Likewise, Soviet SS-20s and Backfire bombers could hit U.S. bases in Japan, Korea, Guam, and Alaska, and aircraft carriers and warships at sea. Eventually, therefore, the naval-nuclear disengagement zone should extend 2,500 km out from the Soviet coastline; and Soviet SS-20 missiles and Backfire bombers should be dismantled or withdrawn to central Siberia, beyond range of Korea, Japan, Guam, and Alaska. Furthermore, American F-16s based in Japan and Korea and B-52s based in Guam and Alaska would have to be withdrawn.*

Defusing the regional threat, in short, will require reductions not only in forward-based but also home-based nuclear forces of both the U.S. and Soviet Union. The Soviets have already conceded the possibility that Soviet territory may be included in regional nuclear-free zones in Europe.¹⁴ The U.S. would have to concede the same principle if a Northwest Pacific Nuclear-free Zone were to be created. To avoid *de facto* reintroduction of nuclear weapons, naval bases would be closed to transit for nuclear-capable warships, as would the ocean covered by the zone.

Since Soviet SS-20 missiles and Backfire bombers in Siberia and the Far East are aimed at China as much as at U.S. forces, Soviet compliance with the nuclear-free zone proposal would require the reduction of tensions along the Sino-Soviet border. The Northeastern border is the area of greatest tension, where the military forces of both sides threaten each other's most valuable territorial assets.¹⁵ Major breakthroughs in Sino-Soviet relations would have to occur before a U.S.-Soviet disengagement could be completed.

A Sino-Soviet *rapprochement* could emerge, however, if U.S. withdrawal from Korea were linked to Soviet withdrawal from Afghanistan, clearing the way for a battlefield nuclear-free zone along the Sino-Soviet border. A Northwest Pacific Nuclear-free Zone focused on Korea and naval-nuclear disengagement could thereby substantially reduce the risk not only of U.S.-Soviet but also of Sino-Soviet nuclear war.

* Anti-submarine forces in the Northwest Pacific could also be partially disengaged at this phase of the zone.

Non-intervention Zones

The risk of nuclear war in the Pacific stems not only from the integrated nuclear and conventional offensive forces which the superpowers aim directly at each other. It also arises from the possibility that Soviet and American military interventions in the same country or region will overlap, triggering a clash between the superpowers and escalation to nuclear war.¹⁶ To reduce the nuclear peril, both superpowers must eschew military intervention in the Third World and withdraw all forward-deployed forces.*

A global "non-intervention regime" would buttress nuclear-free zones, such as the one proposed for the Northwest Pacific, improving the climate for negotiations on such zones. Furthermore, a global regime would ensure that superpower interventionary forces based in distant areas such as the Indian Ocean or even at home could not threaten the area of nuclear disengagement. This potential would undermine the credibility of nuclear-free zones in the Pacific, just as it would the zones proposed for Europe.¹⁷ To eliminate the threat of renewed and nuclear-armed intervention, even home-based interventionary forces would eventually have to be dismantled.

Even before the superpowers have embraced the general principle of non-intervention, states in Asia and the Pacific can move in this direction by establishing regional non-intervention zones. Because of their strategic importance to the superpowers, Southeast Asia and the Indian Ocean stand out as prime candidates for such zones.¹⁸ Both superpowers are already involved in interventions in both areas – the Soviet Union in Vietnam and Afghanistan; the U.S. in the Philippines and Diego Garcia.† Both superpowers also have an intrinsic interest in demilitarizing the sea lanes of trade, especially for oil.

In both areas, moreover, there are already strong regional sentiments in favor of non-intervention. Southeast Asian nations are committed, on paper at least, to a regional zone of peace and security. In the Indian Ocean, coastal states and even the superpowers have long pro-

* An exception might be made for small, multinational peace-keeping forces accountable to the United Nations General Assembly.

† The U.S. also has de facto bases in Oman and along the African coast.

posed naval disengagement. By gradual extension, Indian Ocean and Southeast Asian non-intervention zones could eventually abut each other as well as a Northwest Pacific Nuclear-free Zone, creating a continuous buffer zone between the superpowers.

Pacific allies and non-aligned nations can play a pivotal role in pressing the superpowers to respect non-intervention zones. The heavy logistical demands of intervention mean that the superpowers must rely on their allies and friends in the region to host airfields, visiting warships, and communication sites. The allies could make superpower access to these facilities contingent upon commitment to respect non-intervention zones. Alternatively, the allies could simply withdraw their support, making intervention not only in the zones but beyond much more difficult and unlikely.

The short-term prospects are poor, however, for achieving broad regional consensus to regulate superpower intervention. Many Pacific elites seek domestic or regional advantage from superpower forward deployment. By entering regional conflicts, the superpowers and their local allies strive for marginal political or military advantage over their adversaries.

Nonetheless, there is strong nationalist sentiment throughout the Pacific. To expand their efforts to insulate the region from superpower intervention, Pacific states could create and strengthen regional institutions to mediate and resolve regional conflicts. The newly created South Asian Association for Regional Cooperation, for example, is likely to move in this direction.^{*19} And there have been efforts by Southeast Asian governments to settle the conflict in Indochina. Besides keeping direct superpower intervention at bay, regional resolution of conflicts would ward off *indirect* intervention – the use of local states as surrogates for external powers.

Another route to the creation of non-intervention zones is through broad superpower negotiation. As part of negotiations toward a Northwest Pacific Nuclear-free Zone, for example, the superpowers could undertake non-intervention commitments elsewhere in Asia-Pacific. This package would entail U.S. and Soviet withdrawal from existing interventionary springboards in Southeast Asia and the Indian Ocean.

* Members include India, Pakistan, Bangladesh, Sri Lanka, the Maldives, Bhutan, and Nepal.

Nuclear Freeze in the Pacific

The creation of a Northwest Pacific Nuclear-free Zone and non-intervention zones in Southeast Asia and the Indian Ocean would substantially eliminate the possibility that the superpowers might clash and escalate to nuclear war in the Pacific. While such steps could enhance the confidence necessary for a global disarmament regime, they would not exclude the region from an all-out nuclear war begun elsewhere in the world, most likely in Europe or the Middle East.

Should war erupt between the superpowers, it is likely that both the U.S. and Soviet Union would move rapidly to reintroduce intermediate-range nuclear weapons into the Far East. Until they are dismantled, bombers and aircraft carriers can always be sent back. Furthermore, not even the farthest corners of the Pacific could escape the devastation of radiation and nuclear winter which would result from a superpower nuclear war. Removing the threat of nuclear war from the Pacific requires simultaneous initiatives in regional and global dimensions of nuclear deployment.

Tackling the *global* aspects of nuclear war will require – as a first step – a superpower freeze on the production, testing, and deployment of new long-range nuclear weapons, including delivery systems.²⁰ A freeze would directly affect the Pacific. It would end U.S. and Soviet long-range ballistic missile tests into the Pacific. It would halt Star Wars and anti-satellite tests from Hawaii and Kwajalein. It would block deployment of ground or air-launched cruise missiles, Pershing II or Trident II ballistic missiles, and neutron bombs. It would disallow any additions to existing nuclear capability such as Soviet SS-18 and SS-20 missiles, or American Trident I or Tomahawk missiles.

Pacific states cannot directly veto production, testing, or deployment of long-range nuclear weapons.* Nonetheless, the region has some leverage over U.S. and Soviet long-range nuclear policies. U.S. allies host nuclear communications bases for submarines and B-52 bombers. They also supply airfields and joint naval operations for anti-submarine warfare. Australia and Japan for the U.S. side and, to a lesser extent,

* Pro-independence forces in French Polynesia have claimed repeatedly that they would shut down France's nuclear testing station in the islands, bringing to an end French nuclear tests in the region.²¹

Vietnam for the Soviets also host important intelligence facilities which acquire targeting information useful to nuclear attacks.

Most of these facilities support nuclear weapons which are inherently pre-emptive. Shutting them down would marginally reduce the incentive to strike first in a nuclear crisis. Faced with the serious possibility of eviction, the U.S. might find a freeze more interesting than in the past.

Once they have agreed to a freeze, the superpowers could begin to cut their nuclear arsenals. They could start with land-based missiles, the most pre-emptive and vulnerable delivery systems.²² Anti-submarine forces – which are nearly as provocative as land-based missiles – could be cut back, and the remaining capability only operated in coastal waters adjacent to the superpowers. If a Northwest Pacific Nuclear-free Zone had not already removed them, the B-52 bombers in Guam and Backfire bombers in the Far East could be moth-balled. As the forces were dismantled, communications and intelligence facilities supporting nuclear war and intervention could be removed.*

Regional Concert

Left to their own devices, the Cold Warriors in Washington and Moscow are unlikely to cede an inch of their nuclear deployments or spheres of influence. "What should we give up?" asked U.S. Defense Secretary Caspar Weinberger in 1984. "Should we give up NATO? Korea? Japan? The Mid-east with its oil fields? The Caribbean? Defense of the continental United States? We can't give any of it up."²³ The Soviets similarly see important strategic advantages flowing from their forward deployment.²⁴

The superpowers are likely to find mutual Pacific disarmament in their interest only when pressed by a regional concert of allies and non-aligned Pacific states. Indeed, collective regional action by Pacific states is probably the surest way to superpower disarmament in the Pacific.

* Intelligence monitoring of compliance with arms agreements may facilitate radical cuts. Special exceptions which are equitable to both superpowers and acceptable to the region acting collectively could be made to retain such facilities.

Prompted by broad-based popular movements, regional concert complements political pressures within the U.S. and Soviet Union to pull their nuclear forces and military forward-deployment back from the brink.²⁵

Besides giving a voice to the smaller nations of the region *vis-à-vis* the superpowers, regional concert could help to establish a non-proliferation regime in the Pacific. Such a regime would inhibit the development of nuclear weapons by "near nuclear" nations such as Japan, south Korea, Taiwan, Indonesia, Pakistan, and Australia.²⁶ It could also help to prevent China or any other regional nuclear power from supplanting the U.S. and Soviet Union with their own power projection capability.

By definition, a regional concert would be organized by and composed of state leaders with diverse interests and varying levels of political power. China and Japan are the only states in the region with enough political clout individually to affect superpower decisions on long- and medium-range nuclear arms. Both states also have powerful security incentives to explore regional concert for reduction of the nuclear peril. To successfully complete its program of "socialist modernization", China needs at least twenty to thirty years of peace. Furthermore, China is apprehensive of the threat posed to its fledgling nuclear force by the nuclear arms race and Soviet deployments of SS-20 missiles and Backfire bombers in Asia.²⁷ China has long pressed for a Western Pacific Nuclear-free Zone and a no-first-use guarantee.²⁸

Japan is well placed, in principle, to sponsor a regional concert for superpower disengagement and non-intervention, especially if it entailed Soviet withdrawal from Vietnam and Afghanistan.²⁹ Although Prime Minister Nakasone and the hawks behind Japan's current rearmament are unlikely to promote regional arms control initiatives, this very trend could encourage China to pursue regional arms control initiatives as a means of containing Japan's power in the region. There are also powerful neutralist and anti-militarist sentiments in Japan, even in the ruling Liberal Democratic Party. Even among Japan's military forces, there is awareness that a nuclear attack on Japan would be devastating because of the proximity of U.S. bases to Japanese cities. It is at least possible that Japan would not want to be seen as blocking arms control initiatives by countries in the region with which Japan has extensive economic ties.

The other allies and non-aligned states have little direct leverage on

the superpowers, especially in creating a Korean Nuclear-free Zone. They could, however, directly veto the use of their territory to prepare for naval-nuclear war in the Pacific and Indian Oceans. The U.S. and, to a lesser extent, the Soviet Union depend on regional states for airfields for maritime strike aircraft, especially anti-submarine warfare planes. The allies also host communications and intelligence bases essential to fighting a nuclear war at sea.

The initiatives of individual nations to disengage from the nuclear peril lay the foundation for collective strategy. Rather than China or Japan, less powerful nations have taken the lead. Indeed, it has been at the edges, rather than at the strategic center, that the Cold War blocs have started to melt. New Zealand and Vanuatu, for example, have broken from nuclear alliances, established national nuclear-free zones, and promoted a far-reaching South Pacific Nuclear-free Zone. South Pacific island nations as a whole have actively supported the concept of a nuclear-free Pacific.³⁰ These initiatives make it possible realistically to consider diplomatic offensives aimed at bringing the region together to discuss reducing the nuclear peril in the Pacific.

New Zealand and Vanuatu have demonstrated that small nations can be politically potent in setting the stage for regional concert. If the Vanuatu experience is any indication, island states such as Belau or Kanaky (New Caledonia) which are still under a colonial thumb will adopt an active anti-nuclear foreign policy at independence. Without doubt, the revolutionary struggle in the Philippines poses the greatest immediate challenge to American forward-deployment in Pacific Command. A non-aligned Philippines supportive of a nuclear-free Pacific would enormously boost the prospects for a regional concert.

The first step toward regional concert is the creation of an inclusive North and South Pacific regional consultative framework on security issues. Unlike current American and allied proposals, such a forum must include the U.S. and the U.S.S.R., but only as observers. Such a Pacific Peace and Disarmament Forum could generate proposals and discuss collective interests in reducing the nuclear peril.

The notion of regional concert to reduce the nuclear peril parallels the sentiment that growing *economic* interdependence in the Pacific requires regional cooperation.³¹ Indeed, the Soviet Union, Vietnam, and north Korea could find attractive the prospect of economic development and increased trade which would result from increased econ-

omic regionalism. This incentive could induce a positive response to an overall regional security settlement.^{*33}

People's Diplomacy

At the root of Pacific governmental initiatives toward disarmament – whether at the regional or national level – are broad-based domestic movements. From Japan to the Islands to Australia, these national movements are typically composed of popular peace forces, churches, trade-unionists, and anti-nuclear, independence, or social democratic political parties.³⁴ Loosely constituted throughout the region as the nuclear-free Pacific movement, they have pursued not only nuclear disarmament but also political independence for the remaining colonies in the region.³⁵

Since the early 1970s, the nuclear-free Pacific movement has generated a powerful “people’s diplomacy”, bringing together activists from island and “rim” national movements in conferences and speaking tours to adopt priorities for mutual support and regional action. Working with regional organizations such as the Fiji-based Pacific Council of Churches and the Pacific Trade Union Forum, the movement has helped to evoke a regional consciousness of common interest. These concerns have crystallized into coordinated pan-Pacific campaigns against new weapons systems such as Tomahawk missiles, or into support for anti-nuclear and independence movements such as that in Belau and Kanaky.[†]

The growing transnational network of the nuclear-free Pacific movement is the cutting edge of regional disarmament. Intergovernmental concert in the region may eventually develop out of the regional dialogue about the nuclear peril which the movement promotes, as well as

* This proposal should not be confused with suggestions for the creation of a Pacific economic or security community which excludes China, north Korea, Vietnam, and the Soviet Union, and which is managed by the U.S. and Japan.³²

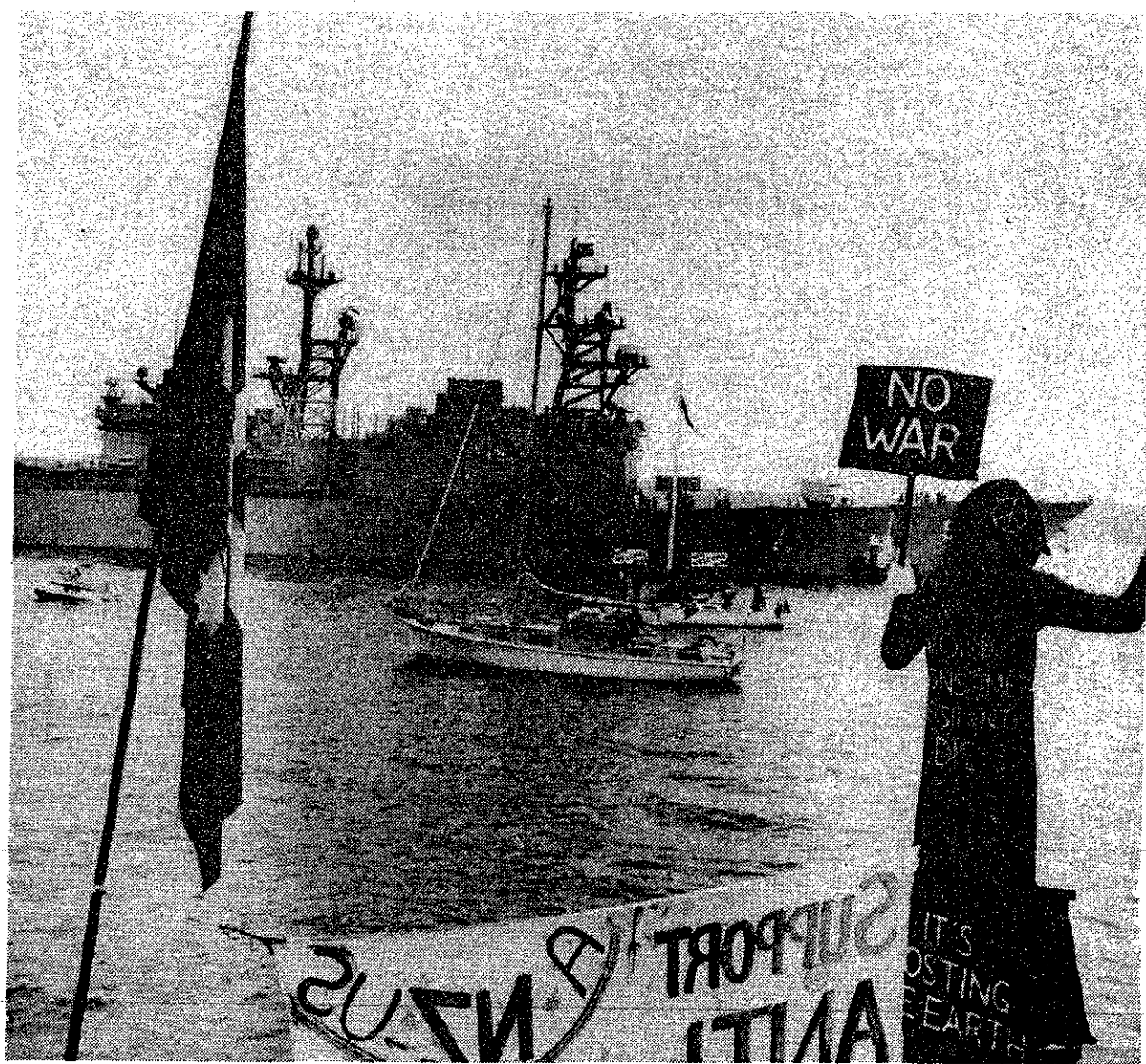
† A major and so far successful campaign of the nuclear-free Pacific movement was aimed at curtailing Japanese plans to dump low-level nuclear waste into the North Pacific near the Marianas Islands. As a result of the transnational campaign, all of the island states, including Guam, caused Japan to abandon its dumping proposal.³⁶

the installation of anti-nuclear governments. Crucial elements of the power of the non-governmental forces to change the *status quo* are the nascent networks which reach into both Koreas, China, and the Soviet Union, cutting across East-West and North-South lines.

Anti-nuclear states and the nuclear-free Pacific movement face stiff American and Soviet opposition to regional controls on their nuclear shadow-boxing in the Pacific. The superpowers can be expected to insist on their "rights" to traverse the high seas in warships bristling with nuclear weapons, or to appropriate the Pacific for ballistic missile tests in preparation for the final showdown. To match the superpowers will require perseverance and carefully constructed, long-term strategy.

Without doubt, popular movements and pro-disarmament governments will chart new routes to peace and security in the Pacific. They will suffer setbacks, as well as make advances. But demands for a new order will certainly persist. "It is a matter of life and death", asserted Walter Lini, Prime Minister of Vanuatu in 1983, "that our Pacific Ocean be declared a nuclear-free zone. Testing of any kind must be outlawed, as must the dumping of nuclear waste, the firing of nuclear devices, and the passage of submarine or overflying aircraft carrying them. On this crucial issue there can be no compromise or retreat. If we continue to deny ourselves any decision on this, our children of tomorrow will condemn us, and it will be a condemnation we have deserved."³⁷

Demonstrators on Sydney Harbor on departure of the U.S.S. *Buchanan*
and *John Young*, 8 March 1985
(Peter Moxham, Sydney Sun)



EPILOGUE ☆ JUST THE TWO OF US?

Industrial centres and military installations in Australia could – I repeat, could – become nuclear targets.

—Jim Killen, Minister for Defence, 1981¹

We acknowledge that the fact that we host these joint facilities does entail possible risk in the event of nuclear conflict.

—Bob Hawke, Prime Minister, 1983²

Every Australian knows about the danger of bushfires. When hot winds blow, a stab of lightning – or an arsonist – can set a firestorm raging across the mountains. On Ash Wednesday, February 16, 1983, sixty-eight people died in such a fire.

Every day of the year is a Total Fire Ban Day in the world of nuclear war. Like matches scattered in the undergrowth, fifty thousand warheads are spread across the global landscape. Who would be confident that lightning will never strike? Through its military alliance with the U.S., Australia helps provide the infrastructure for nuclear weapons. Is the alliance a firebreak against a nuclear firestorm – or a magnifying glass for nuclear war?

In 1984, New Zealand closed its ports to U.S. nuclear warships. American response made it clear that non-nuclear alliance with the U.S. was impossible. In July 1985, the U.S. State Department asserted that ANZUS was gone and “It’s just the two of us.”³ New Zealand’s actions,

however, have prompted many Australians to ask if they too should withdraw from their military alliance with the United States.

Balance Sheet of National Survival

Whether or not to remain in the alliance is a decision which must be based on an assessment of the costs and benefits to Australia. For the United States, the benefits of the nuclear alliance are clear. It has meant the ability to locate important bases and to dock visiting nuclear warships and warplanes in Australia. The American bases and warships, however, place Australians at risk, first and foremost because they make Australia a Soviet nuclear target.*

In a nuclear war, the Soviet Union might attack only the U.S. bases at Northwest Cape, Nurrungar, and Pine Gap, killing anywhere between 500 and 20,000 people. It might attack a warship visiting Cockburn Sound, or B-52 bombers in Darwin dispersing from Guam, killing up to 125,000 people.⁵ More remote is the possibility of Soviet attacks on Australia's cities, killing millions of people and intended to block any hope that the U.S. could use Australian resources to recover from a nuclear attack.⁶ Leaders of both major political parties have admitted that Australia is exposed to these risks.

There are military reasons to believe that the last two types of attack are less likely than the first.† Since only the Soviets know who is on their target lists – and in a nuclear war, even *they* may lose track – it is prudent to assume that any of the possible targets in Australia could be attacked and destroyed.

* There is also the possible but incalculable risk of a major nuclear weapon accident aboard a visiting American warship or warplane, in peacetime or war.⁴

† The Soviets have fewer accurate, promptly deliverable nuclear warheads than they have hard or urgent military targets in the U.S. Their targeting doctrine also concentrates on military targets rather than cities, suggesting that they would not “waste” warheads on Australian cities. Conversely, as two American analysts write, “Undoubtedly there is a place in Soviet planning for destroying elements of the enemy's economic system that might enhance his strategic stature in post[nuclear]war global affairs.”⁷ The Soviets do have a large stockpile of obsolete “surplus” nuclear missiles which could be used against

For Australia to make a rational decision to stay in the nuclear alliance, the benefits must be commensurate with the enormous risks to national survival. Short-term commercial or military advantages such as selling more beef or gaining access to advanced defense technology hardly count. Furthermore, some of these "spin-offs" are available whether or not Australia is in the nuclear alliance.

To date, most discussions of the alliance – pro and con – have focused on the military impact of the bases on nuclear deterrence and warfighting. The argument revolves around whether the bases reduce or enhance the probability of global nuclear war. For the only conceivable benefit to Australia great enough to justify the risks which the bases pose is that they reduce the likelihood of global nuclear war. Australia's social and political life would be severely degraded by such a war, even if it escaped direct attack. If a nuclear winter were to sweep over the equator, Australia itself could be destroyed. In short, one can virtually equate Australia's national survival with avoiding global nuclear war.

Supporters of the alliance argue that Australia's military ties with the U.S. reduce the likelihood of global nuclear war, more than offsetting the risk to Australia of a direct attack should a nuclear war erupt.⁹ Opponents believe that the nuclear alliance itself enhances the probability of global nuclear war, placing Australia in double jeopardy. Can either of these arguments be sustained?

urban-industrial targets. We do not know if Soviet economic targeting extends to Australia; nor, we are sure, does the Australian government. It is unwise, however, to discount the possibility that Australia's cities could be hit in a nuclear war. There is little analysis in the open literature of American incentives or plans to rely on allied economies for post nuclear war recovery, or the role such considerations might play in Soviet anti-recovery targeting. American strategic thinkers such as George Quester have argued that "Our planning for World War III is . . . hardly complete unless we incorporate considerations of how best to dissuade the U.S.S.R. from attacking the centers of key resources in other countries, of how best to keep the U.S.S.R. after the attack from attempting to coerce and blackmail the outside world into the delivery of such resources [in the aftermath of nuclear war], and how best to get such resources delivered as needed to the United States," so we can expect similar thinking to occur in the Kremlin.⁸ It is fair to assume that there are Soviet strategists worrying about whether they should block American recovery using allied resources by nuclear devastation or post nuclear war coercive diplomacy.

Nuclear Firebreak?

Alliance supporters have argued over the years that the alliance is fundamental to Australia's defence because it deters both nuclear attack and invasion. The alliance protects Australia from invasion, they claim, because the strategic services which the bases provide are so valuable to the U.S. that it would defend them against any external threat.

Apart from the fact that Australia faces no credible threat of invasion, it is evident that American forces are vastly overextended and unlikely to rush to Australia's defense.¹⁰ Indeed, it is much more likely that Australians would die to defend the U.S. bases, with only incidental American help. Australian defense planning already proceeds largely on the assumption that Australia must defend itself.¹¹ Any costs or benefits arising from nuclear alliance are extrinsic to this fundamental fact.

Nuclear alliance is not only a poor antidote to conventional invasion. It also fails to shield Australia from nuclear threats or attacks.* No less an authority than Admiral Noel Gayler, former Commander-in-Chief Pacific (CINCPAC), underscored the point in 1984: "Anyone who thinks that the Americans are going to start a nuclear war in defense of them is deluded."¹²

More recently, supporters of the *status quo* have argued that the alliance is a firebreak against the threat of global superpower nuclear war. According to Foreign Minister Bill Hayden in 1985, the bases are an "essential ingredient" of nuclear deterrence.¹³ In this view, the bases – which act as the eyes, ears, and mouth of the U.S. – vitally contribute to stabilizing superpower nuclear relations by aiding the operation of U.S. deterrence forces, as well as by monitoring Soviet compliance with arms control agreements.

The base at Northwest Cape, for example, transmits nuclear fire orders and other directives to American nuclear submarines, the ultimate retaliatory force upon which "stable" nuclear deterrence depends. The Pine Gap and Nurrungar bases relay to the U.S. information collected by American spy satellites on Soviet and Chinese

* It does not serve as a credible shield against China, for example, from which some Australians feared nuclear attacks in the 1960s.

nuclear forces. This intelligence includes missile tests, nuclear explosions, missile launches, radars, and communications.

Nurrungar's satellite allows the U.S. to recognize and terminate false alarms by cross-checking earth-based radar warnings of Soviet nuclear missile attack. At the same time, the satellite provides warning of attack fifteen minutes earlier than the radar. It thereby gives more time for American commanders to communicate with the Soviets and to make better decisions, reducing the itch in American trigger fingers to launch a pre-emptive strike.*¹⁴

Since a pre-emptive strike brings enormous advantages to the side which launches it, the pre-emptive urge, as Thomas Schelling and Morton Halperin wrote a quarter of a century ago, "converts a possibility of war into an anticipation of war, precipitating war."¹⁵

Nurrungar and Pine Gap also play a role in arms control, helping to make the U.S. confident that the Soviets are observing the ground rules for the nuclear arms race as outlined in the SALT I and II agreements. And the bases verify compliance with the Nuclear Non-proliferation and Partial Test Ban Treaties.

Alliance supporters argue, in short, that if American commanders can transmit more nuclear information faster and with greater reliability, both superpowers will be less likely to launch a pre-emptive strike, thereby reducing the risk of nuclear war.

Force Multiplier

Every now and then, as most farmers know, a firefighter turns out to be an arsonist. Critics argue that, far from being a firebreak, the alliance increases the overall risk of nuclear war.

Like a telescopic lens on a rifle, the communication and intelligence systems based in Australia enhance the *offensive* capability of the U.S. nuclear arsenal. They allow more missiles to fire earlier, accurately pinpoint more targets, and assess damage from the initial attack. Indeed, according to one American general, systems such as those in

* A pre-emptive strike is an attack aimed at limiting the attacker's damage from a perceived imminent enemy attack, that is, a "defensive first-strike." It is not the same as a surprise, "bolt out of the blue" first-strike aimed at disarming the other side, the "offensive first-strike" often discounted by Australian officials who defend the U.S. bases.

Australia are "one of the most significant force multipliers" in the American nuclear arsenal.¹⁶ Alliance critics argue that radical changes in the nuclear offensive and defensive forces have increased the pre-emptive urge. The U.S. bases in Australia, they assert, are coupled with these forces in a way which surpasses their stabilizing role, making nuclear war more rather than less probable.¹⁷

In this vein, three potential destabilizing effects are said to offset Nurrungar's stabilizing effects on the nuclear brink. First, Nurrungar's very early warning of Soviet missile launch could prompt the U.S. to fire a pre-emptive strike without waiting for radar to cross-check the information.* This heightens the risk of inadvertent U.S. nuclear attack. Second, the same sensors that detect nuclear explosions to verify arms control treaties can be used to assess the damage caused by American pre-emption in Soviet missile fields, serving nuclear warfighting capabilities.†¹⁹ Third, information collected by Nurrungar's satellite may already be used in Star Wars research. By the 1990s, satellites may support an anti-ballistic missile system, dooming the Anti-Ballistic Missile Treaty.‡²¹

Northwest Cape offers another example of the dual nature of the bases. Northwest Cape may deter an all-out Soviet surprise attack by increasing U.S. capability to retaliate with submarine-launched missiles.§ Assured of a second-strike capability, the U.S. would also be less likely to launch its own pre-emptive first strike.

But Northwest Cape also serves a highly offensive part of the American arsenal: reportedly, it is used to communicate with American attack-submarines under the Guam-based commander of U.S. naval

* If the Soviets fire a "small" salvo of nuclear missiles in reply to a similar American "shot across the bow" or before any American strike, American commanders could "launch under warning."¹⁸

† NAVSTAR satellites will take over this role in 1988.

‡ Nurrungar may be relegated to a backup communications link for the satellites when satellite-to-satellite crosslinks become operative. Even as a redundant backup, however, Nurrungar would still contribute to these destabilizing effects.²⁰

§ Northwest Cape would probably be a primary communications station for Ohio submarines operating in the Northwest Pacific or Indian Oceans. Should the submarines operate close to the U.S. West Coast, Northwest Cape would probably be a backup to a similar facility on the U.S. West Coast.

forces in the West Pacific who commands Northwest Cape.²² According to U.S. Secretary of the Navy John Lehman, these submarines will attack Soviet missile-firing submarines in the North Pacific in the first five minutes of a conventional or nuclear war.²³ In January 1986, Admiral James Watkins confirmed officially that such an attack against the Soviet Union's crucial retaliatory force was the official deployment doctrine of the Navy.²⁴ By undermining Soviet confidence that they could ride out and retaliate to any American first-strike, this public proclamation of Navy doctrine may have increased the risk of nuclear war – and Northwest Cape's contribution to such a risk – without any consultation with Australia.*

Even the CIA's intelligence base at Pine Gap can be viewed as enhancing the risk of nuclear war. While some in Washington may indeed rely on Pine Gap's information to put a brake on the arms race, Pentagon lobbyists are equally likely to use it to shoot down arms control agreements.²⁵ This is possible because the significance of electronic intelligence processed at Pine Gap is not clear-cut; its interpretation is often a matter of judgement on non-technical grounds.²⁶

Hawks in the influential Committee on the Present Danger, for example, used the Pentagon's accuracy estimates for the Soviet SS-19 missile to vilify the SALT arms control agreement.²⁷ They portrayed the U.S. as vulnerable to a disarming Soviet first-strike, creating a climate of distrust inimical to superpower negotiations. In 1985, using the same information, the CIA contended that the Pentagon had overstated the accuracy of the SS-19, and reduced the estimated Soviet arsenal of first-strike warheads by 40 per cent! But by then the political damage was done.²⁸

Besides its use in sabotaging arms control, information from Pine Gap could put the final touches to a U.S. nuclear attack plan. In the unlikely event that Pine Gap survived the start of the war, it could also help to reconstitute and retarget American nuclear forces and guide

* A broadcast of "go" orders to implement such plans is likely to be sent over many media, including satellites, and low and very low frequency stations in the West Pacific including Northwest Cape. Some American attack submarines, however, would already be "on station", trailing Soviet ballistic missile submarines in waters already subject to Soviet anti-submarine forces. These attack submarines would probably rely on very low frequency radio to avoid the risk of Soviet detection arising from satellite or low frequency communications.

U.S. long-range bombers around Soviet air defense radars for the last lick at a first-strike.

One might argue that Pine Gap will be needed to verify arms control agreements when the political pendulum swings back to detente. However, the best form of arms control – a freeze on missile tests and nuclear tests, and radical cuts in nuclear forces – would not require verification by Pine Gap. Soviet compliance with a freeze which banned missile tests could be adequately monitored by early-warning satellites and radar.* Such an approach has been advocated not only by popular peace movements but by retired senior military commanders such as Admiral Noel Gayler.²⁹

In short, alliance critics argue that far from reducing the risk of nuclear war, the bases destabilize the nuclear brink and should be evicted immediately.

Balance Sheet Revisited

The balance sheet of national survival lists the contribution of the bases to arms control and deterrence on the one side; and their negative effects on Soviet *and* American propensity to launch a first-strike on the other side.³⁰ Unfortunately, there is no objective way to produce a nett measure of these contradictory effects. No one in Washington or Moscow, let alone Canberra, can determine to what extent additional information improves or degrades nuclear decisions. No one can predict whether the bases and forces together increase or decrease Soviet and American reciprocal fear of surprise attack. No one knows how to relate information flows to nuclear performance attributes such as accuracy, firepower, lethality, range, recallability, etc. Even worse, they have no method to determine how the coupling of decision-makers to forces via communication and intelligence systems in the American

* By 1988, the NAVSTAR satellite will be available for such monitoring, relegating the Nurrungar satellite system to a backup. Navstar can also detect missile launches, providing verification of compliance with a missile test ban, making Pine Gap superfluous for substantive arms control.

nuclear arsenal interacts with its Soviet counterpart, each element of which differs from its American counterpart.*

In short, neither supporters nor critics of the alliance can sustain an argument built on the premise that the bases stabilize or destabilize the nuclear brink. No one in a position of authority can determine whether more nuclear communication and intelligence in a crisis will accelerate American or Soviet first-strikes or brake the momentum.

Not only are these effects incalculable, they are also unlikely to significantly or even marginally influence nuclear war decisions. Compressed in time, such decisions are likely to be based as much on gut-fear as on a rational calculation of nuclear deterrence.³¹

In the final moments of truth, therefore, the bases in Australia would be irrelevant. If the world topples over the nuclear brink, it will be because of poor decisions, terrifying weapons deployed in aggressive fashion, organizations running amok, and misunderstandings.³² It will not be saved – or destroyed – by more or less communication and intelligence hardware. Trying to ascertain whether the bases increase or decrease the risk of nuclear war is like asking how many warheads can crowd onto the head of a missile – it is simply the wrong question.³³

Willing Accomplice?

Since it is not possible to determine what direct impact the bases have on the risk of nuclear war, we must find alternative criteria to decide whether the alliance enhances or reduces the likelihood of a global nuclear war. Instead of gauging the military impact of the bases, we could ascertain whether the alliance represents potential Australian political leverage over American nuclear-related decisions. For even if it could be proven that the nuclear alliance reduces the risk of nuclear war, it is possible that an alternative approach might reduce the risk even more.

We believe that there are three possible paths open to Australia. Each

* Indeed, our Freedom of Information Act requests and informal enquiries in Washington, D.C., indicate that the Pentagon has not even considered the problem.

approach aims to affect the political perceptions and attitudes which ultimately determine the risk of launching a nuclear war.*

As an ally and willing accomplice, Australia might influence American behavior well before the brink, reducing the probability of a crisis. This outcome would result from American fear of pre- or post-crisis allied response to its escalatory tactics, inducing conservative behavior on the part of the U.S. leadership.† Of course, fear of Australia's reaction *after* a nuclear war is unlikely to endow it with any influence in Washington just before a nuclear war.

There is little evidence, however, to demonstrate that junior allies such as Australia have affected American decisions early in budding crises at the lower levels of the escalation ladder. In 1958, the U.S. came to the very brink of attacking China with the bomb over Taiwan. Then CINCPAC Admiral Harry Felt dismissed 1958 ANZUS meetings held at the height of the crisis as "talk talk."³⁵

In the Cuban Missile Crisis, Secretary of State Dean Rusk advised Kennedy that "if we take a strong action the allies and Latin America will turn against us."³⁶ He recommended that the U.S. proceed unilaterally to wipe out the Soviet missile sites in Cuba "after informing MacMillan, De Gaulle, Adenauer, and possibly Turkey and a few Latin Americans."³⁷ Rusk felt at the time, "If we don't do this we go down with a whimper. Maybe its better to go down with a bang."³⁸ Allies such as Australia were not even to be warned in advance, let alone consulted on the best way to go down.

In response to crisis in the Middle East in 1973, the U.S. did not even

* There is no historical "frequency" of nuclear war with which to estimate nuclear "risk", nor a formal, deductive method to predict it. Indeed, if a global nuclear war can occur only once, its probability is indeterminate. The term "risk" collapses into a subjective, consensual judgment.³⁴

† A variant of this argument runs as follows: indeed, the bases and alliance may be destabilizing, but eviction will lead the U.S. to relocate the same facilities to U.S.-controlled territory (Diego Garcia, Guam, satellites), leaving the risk unchanged. As an active partner, Australia could influence American behavior, and the bases should therefore be kept as a means to this end. This argument, however, suffers from two irremediable flaws. First, the evidence cited above is cause for skepticism that such influence can be exercised. Second, if such influence could be shown to exist, proponents of this argument must also admit that Australian support for America's nuclear modernization and escalatory tactics could also "egg on" the U.S., offsetting any stabilizing effects.

inform, let alone consult with Australia, when it signalled a global nuclear alert through Northwest Cape. Prime Minister Gough Whitlam noted angrily at the time that the alert was "a good example of how a foreign base on Australian soil might be used to launch World War III without Australia's consent or knowledge."³⁹

Nor can it be said that a willing accomplice has much impact on U.S. arms racing. Senior Pentagon official Frank Gaffney, for example, stated in 1986 that the Complete Test Ban Treaty is "frivolous". Yet the proposed Treaty, which Gaffney rejected as "neither strategically acceptable nor conducive to effective, verifiable arms control," is the centerpiece of Australia's arms control diplomacy.⁴⁰

Honest Broker?

Australia might be able to do more to reduce the risk of nuclear war as an honest broker than as a willing accomplice. Australia could use the bases and its regional influence to affect directly the political relationships which determine whether nuclear war is *felt* to be more or less likely, and therefore *is* more or less likely.

To this end, Australia would continue in the alliance but use Pine Gap and Nurrungar as bargaining chips with the U.S. To protest against provocative U.S. attack submarine strategy and pending Trident II missile deployments, Australia would immediately evict Northwest Cape. This move would communicate to the United States that Australia is serious about reducing the nuclear peril. If the U.S. did not make a good-faith effort to achieve meaningful nuclear arms control and reductions within five years, Australia would evict Pine Gap and Nurrungar. This policy would place the onus to produce tangible results where it belongs, on the U.S. To pressure the Soviets to participate, Australia could also make the eviction contingent upon Soviet nuclear arms control and reductions.

The U.S. might, of course, pick up its marbles and go home. By so doing, however, it would admit that Pine Gap and Nurrungar are not very important in avoiding or fighting a nuclear war – at least, that they are less valuable than keeping an ally subordinate and compliant. But given a "fair go", the U.S. could not complain that Australian demands were unfair or unfriendly.

Go It Alone?

Instead of waltzing on with Uncle Sam, Australia could go-it-alone at the outset, recognizing the futility of trying to dictate terms to a super-power as a dependent ally. It could energetically promote collective constraints and sanctions by Pacific states on both American and Soviet nuclear deployments in the Pacific. Pursuing a regional concert for arms control could be more productive than remaining a willing accomplice or giving the U.S. a "fair go".

Australia would first evict all the bases and put up a "not welcome" sign to all nuclear warships and warplanes. Out of self-interest, Australia would support the creation of non-intervention zones in the region, aimed equally at the forward-deployed forces of both super-powers. It would demilitarize its relations with regional states and adjust its military posture to a strictly territorial defense by phasing out long-range strike forces.⁴¹

With its own house in order, no axes to grind and none to wield in Asia or the Pacific, Australia would see the political credibility of its anti-nuclear diplomacy increase substantially, presenting a more potent political challenge to the regional nuclear arms race.⁴² Since Australia would not support the American nuclear arsenal or its interventionary power projection, this policy should eliminate the risk that the Soviets would make Australia a target in any circumstance – assuming that Soviet military bureaucrats ever revise their target lists.

Historical precedents give credence to the idea that an independent course maximizes Australia's influence. Independent diplomatic initiatives pursued by Australia in the 1945–1950 period forced the U.S. to adjust its foreign policy on key issues.⁴³

By itself, Australia's ability to overcome the regional inertia in the face of the nuclear peril facing the Pacific would be severely limited. But combined with the voices of New Zealand and island states, the call would echo to even distant corners of the region. Even a small shift toward regional concert for nuclear arms control could greatly exceed the impact of a willing accomplice or an honest broker.

Whichever way Australia chooses, it is imperative that she address the real political issues which constitute the risk of nuclear war. Instead of engaging in fruitless debates about the role of the bases and the efficacy of nuclear deterrence, Australia could force the U.S. to choose whether it is committed to arms control or to nuclear superiority. Aus-

tralia could demand that the Soviets choose between non-nuclear friendship and nuclear intimidation in the Pacific.

Rather than preparing to abdicate all responsibility at the moment of greatest threat to national survival – the brink of a nuclear war – Australia could take itself out of the line-of-fire and off the nuclear frontline. Rather than remaining a junior partner of the U.S., Australia could join New Zealand as a strong regional voice for a truly peaceful order in the Pacific.

Marshall Islanders set up protest camp next to radar screen in Kwajalein
in "Operation Homecoming", Fall 1982
(Julian Riklon)





APPENDIXES

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**Appendix A:
Reference Tables**

**Appendix A1:
CINCPAC Defense Representatives in Pacific
Command**

Australia	US Air Force Liaison Officer to Australia
Burma	US Defense Attache
China	US Defense Attache
Hong Kong	US Defense Liaison Office Representative
India	US Defense Attache
Indian Ocean	Commander, Middle East Force (as of 1979)
Indonesia	US Defense Attache
Japan	Commander, US Forces, Japan
South Korea	Commander, US Forces, Korea
Madagascar	US Defense Attache
Malaysia	US Defense Attache
Nepal	US Defense Attache
New Zealand	US Defense Attache
Philippines	Commander, US Naval Forces, Philippines
Singapore	US Defense Attache
Southwest Pacific Island Area	CINCPAC REP Southwest Pacific
Sri Lanka	US Defense Attache
Thailand	Commander, US Military Advisory Group, Thailand

Note: The CINCPAC-appointed Defense Representatives are instructed to "take local initiative to improve the interface between non-combat DOD [US Department of Defense] elements, the U.S. Ambassador, and the host government defense establishment". (Instruction 5400.20 D, p. 2). CINCPAC REP Southwest Pacific is based in Fiji. CINCPAC also has representatives to Strategic Air Command at Anderson Air Force Base in Guam and at the Joint Strategic Target Planning Staff at the Offut Air Force Base, Omaha, Nebraska, and at the Naval Station at Adak in the the Aleutians.

Sources: CINCPAC, "U.S. Defense Representatives in Foreign Countries", Effective Instruction 5400.20D, January 12, 1984, pp. 3-4. Department of the Navy, *Environmental Impact Statement, Military Use of Kaho'olawe Training Area*, Honolulu, 1979, pp. 1-4. N. Foster, personal communication, December 26, 1984.

Appendix A2:
U.S. Command Posts in Pacific Command

<i>Site</i>	<i>Command</i>	<i>Service</i>
Hawaii	Commander-in-Chief, Pacific, Camp H.M. Smith ^a	U
	Commander-in-Chief, Pacific Fleet, Makalapa	N
	Commander, 3rd Fleet	N
	Commander, Submarine Force, Pacific	N
	Commanding General Fleet Marine Force, Pacific Camp H.M. Smith	N
	Naval Logistics Command, Pacific	N
	Commander, Intelligence Center, Pacific	U
	Commander, Middle East Force, Persian Gulf ^b	N
	Army Western Command, Fort Shafter	AR
	Commander, Pacific Air Forces, Hickam AFB	AF
San Diego	Commander, Naval Air Force, Pacific	N
	Commander, Training, Pacific	N
	Commander, Naval Surface Force, Pacific	N
	Commander, Anti-Submarine Wing, Pacific	N
Guam	Commander, Naval Forces, Marianas, Nimitz Hill	N
	Command Post, SAC 8th Air Force, Anderson AFB	AF
Okinawa	Command Post, III Marine Amphibious Force, Camp Courtney	N
	Command Post, 18th Tactical Fighter Wing, Kadena AB 3 AWAC (Airborne Warning & Control) Aircraft, Kadena AB	AF
Japan	Commander, 7th Fleet, Yokosuka	N
	Commander, Naval Forces, Yokosuka	N
	Command Post, U.S. Air Force U.S. Fifth AF, Yokota	AF
	Commander, U.S. Army, Camp Zama	AR
Alaska	Command Post, Alaska Air Command, Elmendorf AB ^c	AF
Korea (south)	Commander, UN Command, U.S. 8th Army U.S. Forces, Seoul, Yong San AB	AR
	Command Post, 314th Air Division of 5th AF, Osan AB	AF

Appendix A2: (continued)

<i>Site</i>	<i>Command</i>	<i>Service</i>
Philippines	Command, U.S. Naval Forces, Subic Bay	N
	Command Post, 3rd Tactical Air Wing, Clark AB	AF
Diego Garcia	Commander, Middle East Forces in Persian Gulf ^d	N

Key: N = Navy, AF = Air Force, AR = Army, U = Unified

Notes: a. Alternate Command Post underground at Camp H.M. Smith; another alternate Command Post at Kunia; Blue Eagle PACOM Airborne Command Post at Hickam AFB. CINCPAC also maintains a rapidly deployable mobile command post.

b. Operational control only of forces deployed by Commander, U.S. Naval Forces, Europe, London.

c. CINCPAC does not control Alaskan-based forces, only the Aleutians.

d. CENTCOM regional commander afloat in region, operating out of Diego Garcia.

Sources: J. Laurance, "U.S. Pacific Fleet Organization", *Signal*, February 1984, p. 71; Office of Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), *Base Structure Annex to Manpower Requirements, Report for FY 1982*, January 1981; U.S. House of Representatives, Committee on Appropriations, Subcommittee on the Department of Defense, *Department of Defense Appropriations for 1985* (Hearings), Part 1, U.S. GPO, Washington, D.C., 1984, pp. 785, 789, 839, 843; N. Weatherble, "C and S in Japan: Coordination and Change", *Signal*, February 1984, pp. 42-43; C. Weinberger, *Annual Report to Congress, FY 1985*, U.S. Department of Defense, Washington, D.C., 1984, p. 197; O. Wilkes, Foreign Military Bases Project files, SIPRI, Stockholm, 1983.

Appendix A3:
U.S. Navy General Purpose Forces,
Strength and Disposition, 1958-1984

<i>Ship Types</i>	<i>1958</i>	<i>1968</i>	<i>1978</i>	<i>1984</i>
Aircraft Carriers				
Attack	9	9	6	6
Anti-submarine ^a	5	4	—	—
Surface Combatants				
Battleship	—	1	—	1
Cruiser	9	13	16	17
Destroyer	104	240	30	29
Escort/Frigate	37	59	33	43
Patrol	—	—	1	—
Attack Submarines	43	115	36	48
Amphibious Warfare Vessels	86	157	32	32
Mine Warfare Vessels	43	86	—	—
Auxiliaries	124	247	52	55
Pacific Fleet Totals				
(General Purpose Forces)	463	503	206	231
Navy Totals				
(General Purpose Forces)	901	932	418	465

Notes: 1984 excludes mobilization forces assigned to Pacific Fleet.

a. Anti-submarine warfare aircraft carriers phased out in mid-1970s, and ASW functions transferred to attack carriers.

Sources: R. Weinland, *The U.S. Navy in the Pacific: Past, Present, and Glimpses of the Future*, Center for Naval Analyses, Professional Paper 264, Virginia, 1979, p. 7; J. Collins, *U.S./Soviet Military Balance, Statistical Trends, 1970-1982*, Congressional Research Service Report 83-153S, Washington, D.C., August 1, 1983, pp. 116; 130. U.S. Navy, Office of Public Affairs, February 1, 1984.

Appendix A4: U.S. Marine Forces and Bases in the Pacific

<i>Forces</i>	<i>Bases</i>
Okinawa	
10,000 Personnel	6 Marine Corps Bases
III MAF	3 Ranges (exercise or gunnery)
3rd Marine Wing	Air Wing at Futema Air Station
1st Marine Wing	and Kadena Air Base
3rd Force Service Support Group	
1st MAB	
Philippines	
About 2,000 Personnel	Use of Philippines sites for
1st MAU	bombing exercises
Japan	
Foreign Transiting Tankers	Marine Corps Air Station at
Marine Fighter Aircraft and	Iwakuni; Marine Air Wing, Misawa.
Helicopters	Use of Sasebo and Yokosuka
Logistics/Naval Support	naval bases
—2 squadrons/24 F-14 fighters	
—1 squadron/19 A-4 fighters	
—1 squadron/10 A-6 fighters	
—1 detachment/6 AV-8 fighters	
Hawaii	
24 F-4 fighters	Marine Corps Air Station, Kaneohe, Oahu

Notes: MAF = Marine Amphibious Force, normally constitutes 32,600 troops plus tanks, aircraft, and artillery; MAB = Marine Amphibious Brigade, normally constitutes 15,500 troops plus tanks, aircraft, and artillery; MAU = Marine Amphibious Unit, normally constitutes 2,500 troops plus tanks, aircraft, and artillery.

Sources: U.S. House of Representatives, Committee on Appropriations, Subcommittee on the Department of Defense, *Department of Defense Appropriations for 1985* (Hearings), Part 1, U.S. GPO, Washington, D.C., 1984, pp. 807, 859, 862; R. Halloran, "18-Month Survey Finds U.S. Forces Lacking Readiness," *New York Times*, July 22, 1984, p. 14; O. Wilkes, *Foreign Military Bases Project*, SIPRI, 1983; J. Collins, *U.S./Soviet Military Balance, Concepts and Capabilities*, McGraw Hill, New York, 1980, p. 347; J. Collins, *U.S./Soviet Military Balance, Statistical Trends, 1970-1982*, Congressional Research Service Report 83-153S, Washington, D.C., August 1, 1983, pp. 127-130.

Appendix A5:
U.S. Army Bases in the Pacific

<i>Forces</i>	<i>Bases</i>
South Korea	
8th U.S. Army	Camp Casey
2nd Infantry Division	Taegu
19th Support Command	<i>Totals:</i>
	24 camps/barracks
	11 training/gunnery sites
	4 armistice sites
	(Panmunjom)
	4 supply, maintenance, administrative only
Japan	
Camp Zama	HQ U.S. Army, Japan
Army logistics/repair depot	Sagamihara
Exercise	Camp Fuji
Okinawa	
Army Logistics Depots	4 Sites
Philippines	
Logistic Support Unit	Manila
Guam	
Army Civic Action Team Base	Camp Covington
Hawaii	
25th Infantry Division	Schofield Barracks, Oahu

Sources: U.S. House of Representatives, Committee on Appropriations, Subcommittee on the Department of Defense, *Department of Defense Appropriations for 1985 (Hearings)*, Part I, U.S. GPO, Washington, D.C., 1984, Appendix A2, Part 1, pp. 785-787; O. Wilkes, *Foreign Military Bases Project*, SIPRI, 1983.

Appendix A6: U.S. Central Command Forces

Army

1 Airborne Division
1 Airmobile/Air Assault Division
1 Mechanized Infantry Division
1 Light Infantry Division
1 Air Cavalry Brigade

Air Force

7 Tactical Fighter Wings
2 Strategic Bomber Squadrons

Navy

3 Carrier Battle Groups
1 Surface Action Group
5 Maritime Patrol Air Squadrons

Marine Corps

1 1/3 Marine Amphibious
Forces

Source: C. Weinberger, *Annual Report to Congress, FY 1985*, Department of Defense, Washington, D.C., 1984, p. 197.

Appendix A7: Major U.S. Logistics and Storage Bases in PACOM

<i>Forces</i>	<i>Base</i>
Okinawa	
U.S. Air Force	Kadena AB, MAC terminal, air refuelling squadron, logistics for SAC B52s.
U.S. Army	Sundry port, fuel, munitions, supply depots.
U.S. Marine Corps	Air and amphibious equipment logistics; Naval Hospital.
Guam	
U.S. Air Force	MAC terminal, squadron 6 KC 135 air refuellers.
U.S. Navy	Fuel and nuclear weapons storage; munitions, magazine, supply depots.
Hawaii	
U.S. Navy	Lualualei, naval numbers storage including nuclear weapons; Red Hill, Naval supply center, especially fuel. Seven other logistics sites, especially Pearl Harbor Naval Shipyard for repairs.
Johnston Island	
?	Storage of obsolete chemical weapons.
Alaska	
U.S. Air Force	Elmendorf, MAC refuelling point, logistics.

Appendix A7: (continued)

<i>Forces</i>	<i>Base</i>
Japan	
U.S. Navy	Naval medical Center, Yokosuka. Fuel and munitions at Tsurumi, Koshiba, and Yokohawa.
U.S. Army	Fuel and munitions depot at Yokohama, Akizuki, Kawakami, Kure, Hiro and Sagamihara. Twelve logistics sites operated for U.S. by Japan.
Philippines	
U.S. Air Force	Clark, MAC terminal, fuel and munitions storage.
U.S. Navy	Cubi Point, fuel and munitions storage. Subic Bay, major ship repair facility, fuel and munitions storage, naval medical center.
Singapore	
U.S. Air Force	Changi, Lockheed repair facility contracts to USAF.
U.S. Navy	Sembawang, USN office contract ship repair.
Australia	
U.S. Air Force	Learmonth, Pearce, Richmond, MAC depots.
New Zealand	
U.S. Air Force	MAC Terminal, Christchurch.
U.S. Navy	Support for <i>Operation Deepfreeze</i> in Antarctica.
Diego Garcia	
U.S. Air Force	MAC alternative airfield en route to Middle East.
U.S. Navy	Naval logistics, especially fuel and munitions storage. Near Term Prepositioned Force for CENTCOM.

Source: O. Wilkes, Foreign Military Bases Project, SIPRI, 1983.

[illegible]

Malaysia	32	34	16	186	4	156	231	149	359	226	397	600	3	10
Philippines						13	8	17	12	43	4	64	169	2386
Singapore		8		8		19	34	7	36	24		34	162	
Thailand														
Indian Ocean														
Diego Garcia			15	19	7	1	18	67	77					204
Maldives								5	5					10
Seychelles						3								3
East Africa														
Djibouti						1	1	4						6
Kenya		6		5		11	15	10	9			9	65	
Somalia							2	2				2	6	
Middle East														
Bahrain					27	66	43	41						177
Oman				5	18	12		21						56
United Arab Emirates					3		5							8
Saudi Arabia						11								11
South Asia														
Pakistan				3	7		16	8						34
Sri Lanka		5		5	5	4	8							31
Totals incl. Hawaii	197	95	94	847	1620	558	490	3425	4607	805	1584	14,321		
excl. Hawaii	196	91	93	737	608	540	458	1541	802	339	1416	6,879		

Key: CV = aircraft carrier; CG = Guided Missile Cruiser; DDG = Guided Missile Destroyer; DD = Destroyer; FFG = Guided Missile Frigate; FF = Frigate; SS = Attack Submarine; AMP = all classes of amphibious and supply warships (LST, LHA, LKA, LPD, LPH, LCC etc); N = nuclear powered class.

Notes: a. No visits to Taiwan listed, China visit cancelled 1985. b. No battleship port visits listed for 1983 for New Jersey. Source: U.S. Navy, Office of Information, Washington DC, computer printout, 1984.

**Appendix A9:
Major Signals Intelligence (SIGINT^a) Bases
in PACOM**

Japan

Misawa: Major SIGINT station in NE Asia; AF 6290th Electronic Security Group; Naval Security Group; Army Security Group, and Marines Personnel. Covers Seas of Japan, Okhotsk, Kurile Islands, Soviet Far East and Siberia.

Karil Seya: Major naval HF SIGINT "Operations Complex".

Hakata: Army Security Agency SIGINT station.

Atsugi: Air Base, EP-3E and SIGINT aircraft.

Camp Fuchinobe: National Security Agency Pacific representative and base.

Okinawa

Torii: Army Security Agency upper and lower spectrum SIGINT site.

Hansa: Sobe, Naval, Security Army, Air Force, National Security Agency SIGINT site.

Onna Pt.: National Security Agency COMINT relay center.

South Korea

Yonchon, Sinsan-ni, Kangwha: Army Security Agency Sites.

Guam

Agana NAS: 2 squadrons SIGINT EP3s; SR-71 strategic reconnaissance aircraft.

Finegayan: Naval Security Group SIGINT site (Classic Wizard).

Philippines

San Miguel: Naval Security Group, SIGINT site.

Hong Kong

Kittiwake: joint U.S.-U.K.-Australia SIGINT station aimed at PRC.

Australia

Pine Gap: Satellite Ground Station for upper spectrum COMINT satellites over Soviet Union; COMINT in Australia region.

NW Cape: Naval Security Group SIGINT site.

Shoal Bay: Australia SIGINT station, provides SIGINT to U.S.

New Zealand

Tangimoana: HF Radio Direction Finding Facility.

Diego Garcia

Ocean Surveillance SIGINT site (Classic Wizard).

Alaska

Shemya AB: USAF aerial surveillance squadron 'Cobra Ball' for monitoring Soviet test missiles over Pacific; also SAC RC-135 airborne spy planes; ground ELINT site for 'Cobra Dane' radar for monitoring Soviet missile tests plus probable SIGINT site; ship-borne 'Cobra Judy' missile test monitoring radar off Aleutians in NW Pacific.

Adak: Naval Security Group SIGINT site. *Gambell*, *NE Cape* (both St. Lawrence Is.), *Kenai*, *Attu*, probable SIGINT sites, possibly NSA.

Hawaii

Kunia: National Security Agency SIGINT analysis site in underground bunker.

Wahiawa: Naval Security Group, SIGINT site. *Helemano*: Army Security Agency, SIGINT site.

Pearl Harbor: Fleet Intelligence Center, Navy.

Camp H.M. Smith: Intelligence Command, Pacific; National Security Agency Operations Group, Chief of NSA Pacific, NSAPAC representative to CINCPAC.

Canada

Masset AB: Queen Charlotte Island, Canadian SIGINT feeding to U.S. HF Direction Finding Stations.

Whitehouse: Canadian SIGINT site feeding data to Alaska, Elmendorf AB SIGINT site.

China

Leninsk and Sang Shagan: N.W. China, two Chinese SIGINT stations with U.S. equipment, data shared with U.S. on Soviet missile tests.

Taiwan

Shu Lin Kou: SIGINT Station for National Security Agency.

Pakistan

Bada Beir (Peshawar): SIGINT site on Soviet and Chinese nuclear and missile tests, possibly reactivated?

Key: HF = high frequency radio; LF = low frequency radio.

Notes: National Security Agency is administered and funded as a U.S. defense agency.

a. SIGINT: SIGINT is composed of Communications Intelligence (COMINT), Electronic Intelligence (ELINT) Signals Intelligence, comprises COMINT, ELINT, foreign instrumentation SIGINT, non-imagery infrared and light signals. COMINT: Communications Intelligence, the interception/processing of foreign communications passed by radio, wire, or other electromagnetic means, and processing of foreign encrypted communications. ELINT: Electronics Intelligence; the observation, recording and processing for intelligence information from foreign, non-communications, electro-magnetic radiations (not from atomic detonations or radiation). PHOTINT: Photographic Intelligence.

b. Extensive SIGINT facilities constructed by U.S. in Thailand during Vietnam War may be available again to U.S.

Sources: P. Bamford, *The Puzzle Palace, A Report on NSA, America's Most Secret Agency*, Houghton Mifflin, Boston, 1982, pp. 165-166, 438-441; P. Chapman, *Canada and the Movement for a Nuclear-Free Pacific*, Project Ploughshares, Working Paper 84-2, Conrad Grebel College, Waterloo, Canada, 1984; *National Times* (Sydney) May 6, 1983, p. 6; O. Wilkes, Foreign Military Bases Project, SIPRI, 1983.

Appendix A10: Pacific Missile Range Bases

<i>Site</i>	<i>Function</i>
Vandenberg, California	Launch ballistic missiles.
Pt. Mugu, California	Launch ballistic missiles.
Submarine launch site off California coast	Submarine-launched ballistic missiles.
Kwajalein Atoll	Instrumented terminal impact area for incoming re-entry vehicles from test missiles; Pacific Barrier Radar.
Guam	Pacific Barrier Radar.
Hawaii	
Kaena Pt.	Mid-range missile tracking radar (AF).
Kokee (Kauai)	Mid-range missile tracking radar (Navy).
Haleakala (Maui)	ARPA Optical site infrared and optical missile tracking and identification techniques.
South Pt. (Hawaii)	Missile launch site for ARPA tests.
Midway Island	Missile impact locating system.
Wake Island	Missile impact locating system.
Saipan Island	Missile tracking radar and telemetry system.
Oeno Island	Missile impact locating system.*
Broaa Ocean Areas	
600 km NW Guam	Oceanic splashdown for re-entry vehicles.
"North of Kwajalein" †	Oceanic splashdown for re-entry vehicles.
"Wake"	Oceanic splashdown for re-entry vehicles.
"Oeno"	Designated for future Trident tests.
Tasman Sea SE of Sydney	Designated for future MX tests.

Note: Former sites which might be reactivated include Easter Island, Enderbury, San Nicholas, Johnston, and Eniwetok Islands.

* Oeno Island was used for satellite observation in 1969-70 by the U.S. Air Force.

† Sites in quotation marks are Air Force designations.

Sources: O. Wilkes, Foreign Military Bases Project files, SIPRI, 1983; Ballistic Missile Defense Systems Command, *SSTSS*, 1981; Air Force, Navy Offices of Public Affairs, November 1984; Space and Missile Tracking Organization, *SAMTO Test and Evaluation Support Resource Plan (FY 1982-1989)*, Vandenberg Air Force Base, California, 1982, p. III-1-3.

Appendix A11:
Tomahawk-capable U.S. Pacific Fleet Warships

<i>Tomahawk-capable Naval Units Assigned to the Pacific Fleet: Class and Type^a</i>	<i>U.S. Navy Vessel Registration Numbers</i>	<i>Number of Tomahawk SLCMs per Naval Unit^b</i>	<i>Number and Type of Nuclear Warheads per Tomahawk</i>
Attack Submarines			
9 Sturgeon SSN:	639, 648, 652, 660, 662,† 665,* 672, 682, 684	8 [12] ^c	1 W80
8 Los Angeles:	688,* 692,† 969 697, 698, 701,* 711,* 713,* 715,* 716,* 718*	8 [12] ^c	1 W80
Cruisers^f			
2 Virginia CGN:	39,† 41	16	1 W80
1 Long Beach CGN:	9	16	1 W80
[Ticonderoga CGs] ^g	all	24	1 W80
Destroyers^a			
5 Spruance DDG:	964, 973, 976,* 984, 985, 992	8 [16 VLS] ^d	1 W80
Battleships			
2 Iowa BB:	62,* 63	32	1 W80

Note: SCLMs may be nuclear or conventionally armed.

a. Jane's, *Fighting Ships, 1983-1984*, London, 1984, pp. 633, 636, 659, 660, 664, 674; T. Cochran et al., *U.S. Nuclear Forces and Capabilities*, Ballinger, Cambridge, 1984 p. 172-173, 258. Note that these numbers will increase by the time SLCMs are widely deployed on the surface fleet.

b. T. Cochran et al., *ibid.*, p. 186.

c. Present torpedo tube launching allows for carriage of 8 SLCMs. VLS will allow twelve tubes for Tomahawk. *Ibid.*, p. 186.

d. Two unknown units of the Spruance-class will have 16 VLS for Tomahawk. It is assumed that the remainder will have a minimum of eight SLCMs.

e. Ticonderoga is a new class of guided missile cruisers not yet deployed in the Pacific.

f. No CG-37 California-class Tomahawk-capable currently assigned to Pacific Fleet.

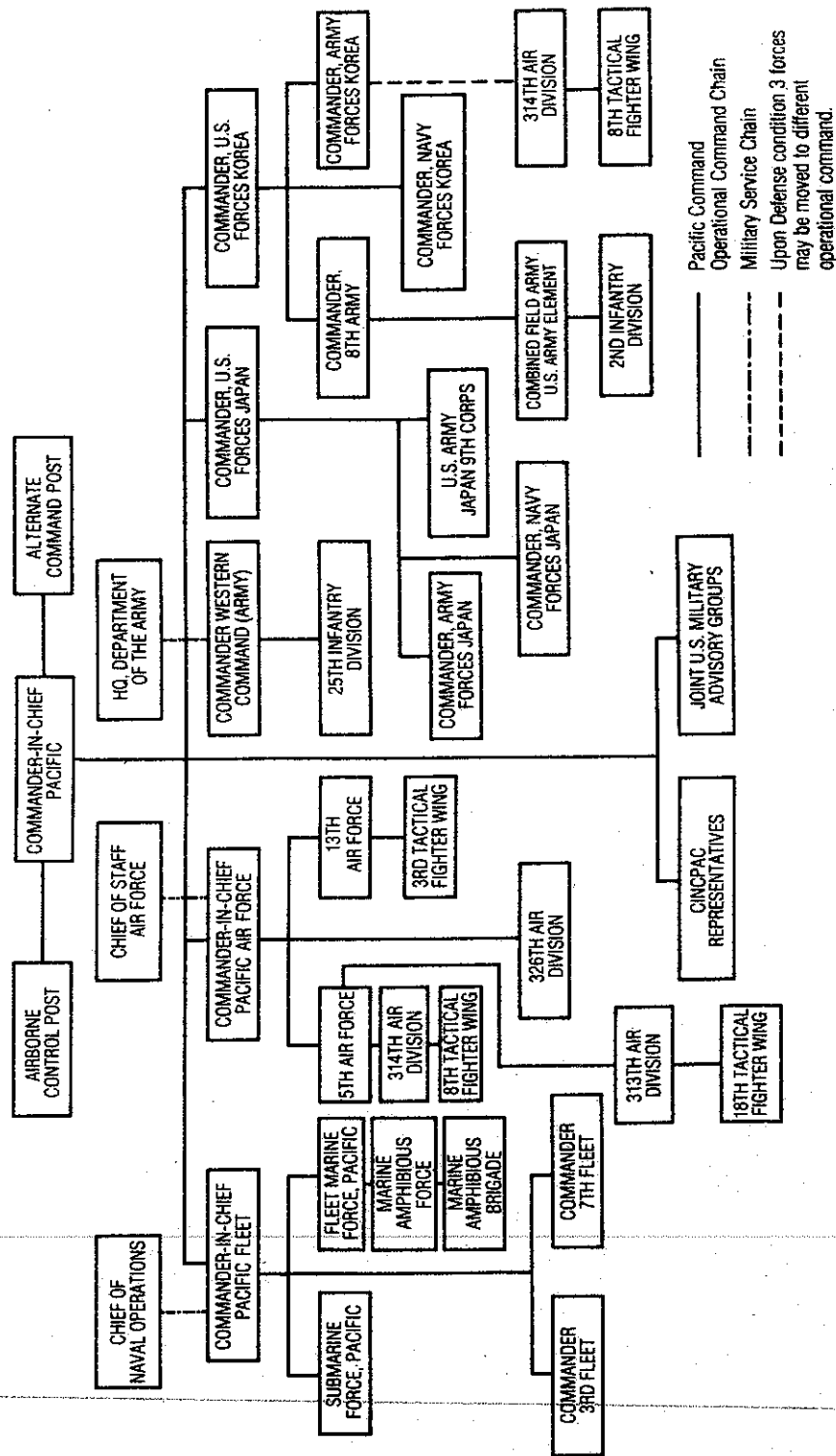
g. First Tomahawk-capable DDG-51 Burke-class not launched until 1989.

* Known to be fitted with land-attack Tomahawk missile capability as of March 1, 1985.

† To be fitted with land-attack Tomahawk missile capability by December 1986.

Sources: As above.

Appendix B: Command Structure: Pacific Command



Source: W. Simons, "Command and Control in the Pacific," *Journal of Defense and Diplomacy*, Volume 3, no. 1, January 1985, p. 19.

APPENDIX C:**Satellite Tracking and Ground Control, and Early Warning Bases in Pacific Command****C1. Satellite Tracking/Ground Control****Japan**

Dodaira, Baker-Nunn camera operated by Japan feeding to U.S. Defense Mapping Agency eventually.

South Korea

Pulmosan (Taegu), ground-based electro-optical satellite tracking system (GEODSS) to track high altitude satellites.

Marshall Islands

Kwajalein, Missile and satellite tracking radar, part of Pacific Radar Barrier to monitor Soviet satellite and ASAT launches and maritime reconnaissance satellites on first orbit; DSCS ground station. NAVSTAR navigation system monitoring site and antenna.

Guam

Northwest Field, Satellite Control Facility for EW, reconnaissance, weather satellites control and data acquisition. Pacific Radar Barrier satellite tracking radar planned.

Davidan, Satellite tracking and telemetry station.

Philippines

San Miguel, Pacific Radar Barrier satellite tracking site.

Australia

Orroral Valley, NASA satellite tracking/data acquisition antenna serving DOD scientific, geodetic weather satellites.

NW Cape, Ground station CIA/NSA Rhyolite upper spectrum SIGINT; also satellite control facility.

Hawaii

Kaena Point, Oahu, Major Satellite Control Facility, NAVSTAR navigation satellite system monitoring station.

Haleakala, Maui, electro-optical satellite tracking system (GEODSS).

Kokee, Kauai, NASA space tracking, data acquisition station.

Diego Garcia

GEODSS electro-optical deep space surveillance system.

NAVSTAR navigation satellite system monitoring site and antenna.

Mauritius

Port Louis, U.S. operates tracking/telemetry at British naval base.

Seychelles

Mahe, Satellite tracking/telemetry station; DCS satellites.

C2. Satellite Photographic Intelligence Launch and Recovery in the Pacific

U.S.

Vandenberg AFB, California, Launch site for many intelligence satellites.

Midway Islands

Naval AF for C-130 aircraft for mid-air recovery of spy satellite film capsules.

Okinawa

Kadena AB, MAC film recovery HC-130s.

Hawaii

Hickam AFB, YC-130 aircraft, HH-53 helicopters.

Australia

Pine Gap, Satellite Ground Station for photographic satellites, radio data dump.

C3. Satellite Intelligence Systems in PACOM

Photographic Reconnaissance: "Big Bird" Project 467 satellites with variable area and close look capabilities, film capsules plus radio-photo transmission, lifetime greater than one year, inclination placed in high orbits in low earth orbit.

Electronic Intelligence: either large area 300–400 km orbit to monitor high frequency, short-range air defense radars to aid U.S. bomber design of electronic counter-measures, lifetime 1–2 years; or low altitude, concentrated focus ferret satellites in polar orbit.

Ocean Surveillance: use infrared, radio altimeter, and ELINT to locate and track vessels.

C4. Tactical Early Warning: (EW) Ground Station and Assets in PACOM

Air Surveillance Radar

Japan: 28 air surveillance radar sites run by Japan, provides WE to USAF; integrated into similar system in south Korea.

Okinawa: 4 air surveillance radar sites and control center, Kadena AB, run by Japan, provides EW to USAF. 3 AWAC (Airborne Warning and Control) aircraft, Kadena AB.

South Korea: 14 air defense radar/missile sites across south Korea, integrated with AWACs, naval E-2Cs, Japan/Okinawa systems; controlled from Osan AB. OV-10 observation aircraft, Osan AFB.

Philippines: Air surveillance radar site operated by U.S. or Philippine AF.

Alaska, Canada, see Table 12.1. FIX

Hawaii: 2 air surveillance radar sites.

Note: Extensive air surveillance radars in Thailand may be available to the U.S. again. U.S. may also have access to 3 EW radars in Singapore and Malaysia. Integrated Air Defense System of the Five Power Defense Agreement through ANZUS.

C5. Fixed Sub-Surface Oceanic Intelligence

Japan

Kami Seya: Naval Ocean Surveillance Information System Center analyzing data collected by Orion aircraft and underwater hydrophone nets (SOSUS), ASW Center.

Tsushima Sts. SOSUS chain across seabed between Kyushu and south Korea.

Tsugaru Sts. SOSUS chain across seabed between Honshu and Hokkaido. Misawa, ASW Center.

Kuriles

SOSUS in Kuriles trench alleged by Soviets.

Okinawa

Kadena, ASW Operation Center.

Guam

Agana, Guam, ASW Center. SOSUS Station and network.

Philippines

Cubi Pt, ASW Center, SOSUS offshore.

Alaska

Adak, SOSUS station, ASW Center for SOSUS off Aleutians.

Hawaii

Ford Island, Pearl Harbor, probably Fleet Ocean Surveillance Information Center, Pacific.

Pearl Harbor, SOSUS Evaluation Center.

Barber Pt, Oahu; SOSUS system; ASW Center.

North of Hawaii, deep ocean Sea Spider SOSUS network.

Diego Garcia

Probably SOSUS site.

Christmas Island

Hydrophone array related to Diego Garcia SOSUS, possibly dismantled.

C6. Mobile Subsurface Ocean Intelligence:

Attack submarines, surface fleet fixed and towed sonar and helicopter dipping sonar.

C7. Aerial Maritime Reconnaissance

Alaska

Adak, Naval AF, P3C Orions.

Japan

Iwakuni AB, Misawa AB, Kami Seya, P3C Orions

Guam

Agana, Naval Air Station, 1 squadron P3C Orions, Anderson AFB, B-52s used for VP role in Indian Ocean, South China Sea, Northwest Pacific since early 1980s.

Hawaii

Barber's Pt, Naval Air Station, P3C Orions.

Midway Island

P3C Orions.

Philippines

Langley Pt, Naval Air Station, *Cubi Pt, Subic Bay*, P3C Orions for South China Sea.

Singapore

Tengah AB, aircraft staging to Diego Garcia.

Thailand

Takhli AB, Orions staging to Diego Garcia.

Cocos Island

Australian AF, used by U.S. P3C Orions staging to Diego Garcia.

Diego Garcia

AF for 3-5 P3C Orions. Plus Oceanic Reconnaissance Satellites ground stations, see above.

Key: AB = Air Base; AF = Airfield; ANZUS = Australia, New Zealand, U.S. alliance; ASAT = Anti-Satellite; ASW = Anti-Submarine Warfare; AWAC = Airborne Warning and Control; CIA = Central Intelligence Agency; DCS = Defense Communications System; DOD = Department of Defense; MAC = Military Airlift Command; NASA = National Aeronautics and Space Administration; NSA = National Security Agency; NUDET = Nuclear detonation at 100 km altitude.

Sources: B. Jasani, *Outer Space - Battlefield of the Future?* Taylor and Francis, London, 1978; Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics), *Base Structure Annex to Manpower Requirements Report for Fiscal Year 1982*, U.S. Department of Defense, Washington, D.C., 1981; O. Wilkes, SIPRI Foreign Military Bases Project, Stockholm, 1983;

Micronesia, Yap, Eniwetok, Kwajalein, West Fayu, Saipan Islands
Okinawa, Gesashi, Mikayo, Jima, Hokkaido
Wake Island

Mobile Bases:

Aircraft for navigation, blind bombing.
 Surface and Submarine Fleet Short Range only.

C. Medium Frequency (MF)

Description: frequency: 300 KHz-3 MHz; wavelength: 1000-100 m (groundwave in lower MF, skywave); signal range: depends on radiating power, antenna directivity, local terrain.

Characteristics: Dependable in lower MF, decreasingly so in higher MF.

Uses: Ships, aircraft, troops for tactical communications.

D. High Frequency (HF)

Description: frequency: 3-30 MHz; wavelength: 100-10 m; signal range: short, medium, long range up to 3000-4000 km depending on ionospheric conditions (skywave, surface wave).

Characteristics: varying reliability, NUDET effect: ionospheric absorption; multipath fading for hours; unreliable at high altitudes due to auroras, especially in N-S direction. New frequency-hopping HF is jam resistant.

Uses: Tactical Air Fleet, submarine communications; teletype; voice; OTH-B radar; positive control SAC bombers, GIANT/TALK SCOPE SIGNAL.

Fixed Bases

Alaska: Adak NCS, HF for North Pacific Fleet, Elmendorf AFS, HF SAC Signal Scope

Australia: NW Cape: powerful HF station

Diego Garcia: HF tactical and broadcast transmitter

Guam: Barrigada, Naval HF station to West Pacific

Hawaii: Bellows AF Station, SAC; Wahiawa NCS

Japan: Yokosuka NCS, major naval HF station; Yokota AFS, SAC Scope Signal III HF; relocating to Owada and Tokorozawa; Fuchu (USAF), where Japanese C3 integrated into U.S. C3; Fuyuka, Negishi, Nagai, Atsugi;

Camp Asaka, Sagami, Sofu, all AFS.

Okinawa: Senaha, AFS

Philippines: Dau (Clark AFB), SAC HF Scope Signal III HF site; grounder terminal for PACOM's Airborne Command Post; AF HF site; Camp O'Donnell, AF site; San Miguel, naval HF receiver site; Tarlac, naval HF transmissions

South Korea: Seoul, 3 sites for Voice of UN Command.

APPENDIX D: Major Radio Communication Systems in Pacific Command

A. Very Low Frequency (VLF)

Description: frequency: 30–300 Hz; wave length: 1000–100 km (surface); signal range: thousands of kilometres, depending on radiating power, greater than 4,800 kilometres.

Characteristics: NUDET effect: phase shift up to hours; reliable; jam resistant, penetrates water to 6–9 m; needs very large antenna, high power requirement (200 KWe, plus).

Uses: Sonar, navigation, slow submarine communication, one way (to launch platforms) only.

Fixed Bases for Submerged Submarine Communication

Australia, NW Cape Naval CS, fleet broadcast, strategic submarines.

Hawaii, Wahiawa NCS.

Japan, Yosami Naval CS.

Mobile VLF Transmitters for Communication TACAMO EC130s (to be replaced with E6 aircraft), trails a 4 km vertical wire antenna. Airfields for continuously airborne VLF communications with Trident; Hickam AFB Hawaii, with Agana AFB Guam as backup.

Omega VLF (Navigation)

Australia, Darriman, Victoria.

Japan, Tsushima.

Ma'ete (operated by French for US)

Reunion (Indian Ocean)

B. Low Frequency

Description: frequency: 30–300 KHz; wavelength: 10–1 km. (surface); signal range: thousands of kilometres, depending on radiating power.

Characteristics: NUDET effect: absorption for minutes to hours; penetrates water to 0.5 m, requires large antennae.

Uses: LORAN-C navigation, fleet/submarine communication

Fixed Bases (LORAN A or C)

Canada, Williams Lake

Guam

Japan, Iwo-Jima

Johnston Island (U.S.)

Marcus (U.S.)

New Zealand: Christchurch, naval communications, especially for Antarctica.

Mobile Bases:

Most mobile weapon systems in PACOM, workhorse of fleet communications.

E. Very High Frequency/Ultra High Frequency (VHF/UHF)

Description: frequency: 30–300 MHz (VHF), 300 MHz–3 GHz (UHF); wavelength: 10–1 m (VHF), 100–10 cm (UHF), both direct or ground wave; signal range: to horizon, 16–48 km, UHF, less than 480 km, airborne line-of-sight, or relay aircraft needed.

Characteristics: line-of-sight (LOS) transmission, high data rates; relatively secure but ionosphere can propagate; blocked by local terrain; NUDET effect: absorption for minutes, scintillation for hours.

Uses: Short-range tactical communications, troposcatter relay networks (UHF), radar, strategic communications; teletype, LOS satellite broadcast.

Fixed Bases

Alaska: Green Pine SAC, UHF stations, Aleutians/Alaska; Navstar UHF ground station

Diego Garcia: NAVSTAR UHF Ground Station

Guam: NAVSTAR UHF ground station: SCF at Finegayin NCS (UHF)

Hawaii: SCF at Wahiawa (UHF)

Japan: Kwajalein, NAVSTAR UHF ground station, 10 troposcatter relay (UHF) sites

Okinawa: Yaedake, troposcatter relay site to Japan

Taiwan: Juzan, troposcatter relay site between Japan and Philippines

Mobile Bases:

SHF/UHF installed on EC-135 aircraft, AFSATCOM

UHF from Airborne Command Posts

UHF on all AF tactical aircraft, AFSATCOM

UHF on Minuteman Missile launched Emergency Rocket Communications System

F. Super High Frequency (SHF)

Description: frequency, 3–30 GHz; wavelength: 10–1 cm; direct; signal range, short range.

Characteristics: Not reflected far by skywave, high data rates, NUDET effect: absorption for minutes, scintillation for hours.

Uses: Line-of-sight communications, relay networks, satellites.

Fixed Bases

Australia: NW Cape, Satellite Control Facility, DSCS terminal (SHF),
Nurrungar, DSCS Terminal, Pine Gap, Satellite Control Facility

Diego Garcia: DSCS Satellite Terminal (SHF)

Guam: Finegayan, Naval Communications area Master Station, West
Pacific; DSCS Satellite ground station (SHF)

Hawaii: Wahiawa, DSCS Terminal

Japan: Camp Zama, Main Entry, DSCS Terminal for Japan (SHF)

Okinawa: Fort Buckner, DSCS Terminal (SHF)

Seychelles: AFS, Satellite Control Station

South Korea: DSCS Ground Stations (SHF) at Yongsam AB; Song So

Mobile Bases:

Mobile Ground Terminals, "austere backup"

FLTSATCOM Terminals on surface and submarine fleet, naval air, e.g., P3C
Orions (UHF)

AFSATCOM aircraft-terminals (UHF)

G. Extremely High Frequency (EHF)

Description: frequency: 30–300 GHz; wavelength: 1–0.1 cm, direct; signal
range: short.

Characteristics: Projected straight up, reflected back, less vulnerable to
nuclear explosion effects; experimental.

Uses: line-of-sight (LOS) radio, satellites, e.g., MILSTAR, interim FLTSATCOM
7, submarines, radar.

Fixed Bases

Widely dispersed ground stations for MILSTAR; Satellite Control Facilities
above.

Mobile Bases

AF E4B Airborne Command Posts, B-52s, P3s, C-130, TACAMO

Mobile Receivers

Naval C-130, TACAMO, P-35, ASW helicopters, surface and submarine
fleet

Army mobile vehicular terminals

Telephone Submarine Cables are not listed here.

H. Switching Devices:

Guam: Finegayan NCS – AV

Hawaii: Wahiawa NCS – AV, AD, AS

Japan: Fuchu AFS – AV

Camp Drake - AD
 Okinawa: Fort Buckner - AS
 Philippines: Clark AFS - AV
 South Korea: Taegu - AD, AS
 Taiwan: U.S. AR, Juzon - AS

Key: AD = AUTODIN; AFS = Air Force Station; AS = AUTOSEVCOM (manual or automatic); AV = AUTOVON; LORAN = Long Range Aid to Navigation; LOS = Line of sight; NCS = Naval Communication Station; NUDET = Nuclear detonation at 100 km altitude; OTH = Over-the-horizon; SCF = Satellite Control Facility

Sources: W. Arkin and R. Fieldhouse, "Nuclear Weapon Command, Control and Communications," in *SIPRI Yearbook, 1984*, Taylor and Francis, London, 1984, p. 458; *Aviation Week and Space Technology*, May 22, 1978, p. 24; D. Ball, *Can Nuclear War Be Controlled?* Adelphi Paper 169, London, 1981; D. Brick and F. Ellersick, "Challenges and Opportunities Face USAF's Tactical Communications," *Defense Electronics*, March 1981, pp. 45-55; J. Bussert, "Computers Add New Effectiveness to SOSUS/CAESAR," *Defense Electronics*, October 1979, pp. 59-64; Chief of Naval Operations, *Naval Operational Planning*, NWP-11 (Rev C), Washington, D.C., 1978, pp. C-5 to C-18; R. Denaro, "Navstar, the All-Purpose Satellite," *IEEE Spectrum*, May 1981, p. 35; H. Higgins, "The Rediscovery of HF for Command and Control," *Signal*, March 1981, p. 57; M. King and P. Fleming, "An Overview of the Effects of Nuclear Weapons in Communications Capabilities," *Signal*, January 1980, p. 65; T. Laney, "Overview of Strategic Command, Control, Communications, and Intelligence," in Program on Information Resources Policy, Seminar on *Command, Control, Communications and Intelligence*, Harvard University, Cambridge, 1980, p. 77; J. Laurance, "U.S. Pacific Fleet Organization," *Signal*, February 1984, pp. 71-72; J. Moreau, "The Coast Guard in the Central and Western Pacific," *Proceedings/Naval Review*, May 1983, p. 274; J. Schultz, "Milstar to Close Dangerous C3I Gap," *Defense Electronics*, March 1983, pp. 46-59; J. Schultz, "Inside the Blue Cube, USAF Modernizes Satellite Tracking Network," *Defense Electronics*, April 1983, pp. 52-59; U.S. Senate, Committee on Armed Services, *Department of Defense Authorization for Appropriations for Fiscal Year 1984* (Hearings), Part 5, Washington, D.C., 1983, p. 2469; U.S. Congressional Budget Office, *Strategic Command and Control and Communications: Alternative Approaches to Modernization*, Washington, D.C., 1981, p. 30; U.S. House of Representatives, Committee on Appropriations, *Department of Defense Appropriations for 1985* (Hearings), Part 5, p. 437.

APPENDIX E:
U.S. and Soviet Forces in East Asia and the Pacific, January 1, 1983;
January 1, 1985

	United States		U.S.S.R. ^a	
	West Pac	East Pac	Total	
A. Ground Forces				
<i>Divisions</i>				
Army	1	1	2	45 (53)
Marine	0.67	1.33	2	0 (1)
Total	1.67	2.33	4	45 (54)
<i>Naval Infantry^b</i>	0	0	0	4 ^a
<i>Regiments</i>				
Medium Tanks				
Army	155	13	168	13,000 (14,900)
Marine/Naval Infantry ^a	34	123	157	20 (120)
Total	189	(39) (194)	325	13,020 (15,020)
B. Air Forces				
<i>Bombers^{c,d}</i>				
Air Force				
Strike				
Heavy	14	0	14	60 (15)
Medium	0	0	0	115 (100)
Total	14	0	14	175 (115)
Support				
Heavy	0	0	0	15 (2)
Medium	0	0	0	60 (60)
Total	0	0	0	75 (62)

	United States		U.S.S.R. ^a	
	West Pac	East Pac	Total	
Navy				
Strike				
Heavy	0	0	0	0
Medium	0	0	0	125
Total	0	0	0	125
Support				
Heavy	0	0	0	20
Medium	0	0	0	40
Total	0	0	0	60
Grand Total	14	0	14	435
Interceptors ^{e,f}	0	0	0	750
Fighter/Attack Aircraft				
Air Force ^g	216	0	216	800
Marine	59	127	186	0
Navy ^h	174	174	348	15
Total	449	301	750	815
C. Naval Forces				
ASW				
Navy (P-3 Orion)	36	72	108	50
Naval Ships				
Aircraft Carriers				
Multipurpose	3	3	6	0
Helicopter	1	5	6	1

	United States			U.S.S.R. ^a
	West Pac	East Pac	Total	
Battleships	0	0	0	0
Cruisers ^j	5	9	14	13
Destroyers ^k	13	(8)	31	20
Frigates ^{l,m}	17	(7)	41	50
Total	39	(23)	98	84
Submarines				
Strategic ⁿ	0	1	1	31
Attack ^o	13	(8)	46	91
Total	13	(8)	47	122
Amphibious ^p	7	(5)	31	12

Notes: Numbers in () are for January 1, 1985, where different from January 1, 1983.

a. All Soviet figures are confined to forces in the Transbaikal and Far East Military Districts.

b. The four Soviet navy infantry regiments reportedly are subordinate to a "marine" division headquarters, but no coordinated exercises have yet occurred.

c. U.S. Bomber figures exclude anti-submarine warfare (ASW) aircraft, such as P-3s. B-52 bombers based in Guam belong to Strategic Air Command.

d. Soviet heavy "bombers" are Bear variants. Medium bombers are Badger variants in 1984, with Backfire variants added in 1985. Those for strike purposes carry gravity bombs and/or cruise missiles. Support types carry out tanker, reconnaissance, electronic warfare, and other tasks. About 115 fixed- and rotary-wing ASW aircraft are excluded from 1984 figures (100 in 1985).

e. U.S. fighter/attack figures indicate squadrons/primary aircraft authorization aircraft.

f. Soviet fighter/attack aircraft exclude reconnaissance types assigned to Frontal Aviation.

g. Soviet interceptors assigned to Air Defense Forces for homeland defense could supplement Frontal Aviation in some circumstances.

h. The U.S. aircraft carrier undergoing overhaul is not included, but its airwing is. It could fly combat missions from land bases.

i. Three of PACOM's 14 cruisers in 1984 were nuclear-powered; in 1985, the number was 6 out of 17.

j. Cruisers with the Soviet Pacific Fleet include 3 Kara, 2 Kresta I, 3 Kresta II, 3 Kynadas, and 3 Sverdlov Class.

k. Destroyers with the Soviet Pacific Fleet include 3 Kanin, 4 Kashin, 1 Kilden, and 2 Kotlin DDGs, plus 10 Kilden/Kotlin/Skory DDs. In 1985, 14 out of PACOM's 29 destroyers are DDGs.

l. Thirty FFs and 11 FFGs comprise the 1984 PACOM frigate mix and 19 out of 47 in 1985. FFs in 1984 include 2 from the U.S. Naval Reserve, excluded in 1985 figures.

m. The 50 Soviet frigates are a mix of Kola, Korl, Krivak, and Riga Class FFs, along with Grisha, Mirka, and Petya Class FFLs. Grisha heretofore has been considered a coastal combatant, but U.S. naval intelligence now carries that class with frigates. Krivak, once called a destroyer, is now considered a guided missile frigate. Seven are included in the Far East total.

n. Note that 2 Ohio submarines out of 3 in the U.S. Pacific Fleet were deployed as of October 1984. Note that the Ohio submarines are controlled by JCS through Pacific Command, but are not assigned to the 7th or the 3rd Fleet. Triton estimates that there were 22 strategic submarines in the Soviet Pacific Fleet (5 Delta III, 1 Delta II, 6 Delta I, 1 Yankee II, 9 Yankee I) in 1983, plus 9 theater ballistic missile submarines (2 Hotel II, 7 Golf II).

o. Sixty-one of PACOM's 86 escorts and 22 out of 46 attack submarines were armed with Harpoon cruise missiles on January 1, 1983. That figure is increasing rapidly. Two diesel-powered attack submarines are found in East Pac. Two are in West Pac. All the rest are nuclear-powered.

p. West Pac included an amphibious squadron of 1 LPH, 2 LSTs, 2 LPDs, and 2 LSDs on December 31, 1982. That figure fluctuates. In 1985, U.S. amphibious ships included 7 LPDs, 3 LKAs, 5 LSDs, 9 LSTs, and 1 LCC, plus the 6 LHA and LPH helicopter carriers listed separately.

q. The separate category naval infantry abolished for 1985 accounting in source report and apparently shifted to Medium Tanks. Source states that 3 or 4 Soviet naval infantry regiments and 1 tank regiment are subordinate to a "marine" division.

Key:

ASW - Anti-submarine Warfare
DD - Destroyer
DDG - Guided Missile Destroyer
FF - Frigate
FFG - Guided Missile Destroyer
FFL - Light Frigate
LCC - Amphibious Command Ship

LHA - Amphibious Assault Ship
LKA - Amphibious Cargo Ship
LPD - Amphibious Transport Dock
LPH - Landing Platform Helicopter
LSD - Landing Ship, Dock
LST - Landing Ship, Tank
PACOM - Pacific Command

Sources: J. Collins, *U.S./Soviet Military Balance, Statistical Trends, 1970-1982*, Congressional Research Service Report 83-153S, Washington, D.C., 1983, pp. 127-130; J. Collins, *U.S.-Soviet Military Balance, 1980-1985*, Tables 43, 44, forthcoming, Pergamon, New York, 1985; J. Tritten, *Soviet Navy Data Base: 1982-1983*, RAND P-6859, 1983, p. 14, 15.

List of Acronyms and Abbreviations

ADM	Atomic demolition mine
ALCM	Air-launched cruise missile
ANZUS	Australia, New Zealand, & United States Treaty
ASEAN	Association of Southeast Asian Nations
ASW	Anti-submarine warfare
AWAC	Airborne Warning and Control Aircraft
C ³ I	Command/control, communications/intelligence
CENTCOM	Central Command
CEP	Circular error probable
CIA	Central Intelligence Agency
CINCFE	Commander-in-Chief, Far East
CINCPAC	Commander-in-Chief, Pacific Command
CINCPACFLT	Commander-in-Chief, U.S. Pacific Fleet
CINCSAC	Commander-in-Chief, Strategic Air Command
CONUS	Continental United States
DCA	Defense Communications Agency
DEFCON	Defense Condition
DMZ	Demilitarized Zone
DNA	Defense Nuclear Agency
DSCS	Defense Satellite Communication System
ELINT	Electronic intelligence
FEC	Far East Command
FMS	Foreign Military Sales
FOIA	Freedom of Information Act
FSM	Federated States of Micronesia
HF	High frequency
ICBM	Intercontinental ballistic missile
IPAC	Intelligence Center, Pacific
JCS	Joint Chiefs of Staff
JMSDF	Japanese Maritime Self-Defense Force
JSSC	Joint Strategic Survey Committee
JUSMAG	Joint U.S. Military Advisory Group
km	Kilometer, 0.6 miles
kt	Kiloton, 1,000 tons of TNT equivalent, a measure of nuclear firepower
KPR	Korean People's Republic
LF	Low frequency
m	meter
MAAG	Military Advisory Assistance Group
MAC	Military Airlift Command
MAD	Mutual assured destruction

MAF	Marine Amphibious Force
MARV	Maneuverable re-entry vehicle
MIRV	Multiple independently targetable re-entry vehicle
MSC	Military Sealift Command
MSG	Mobile Support Group
Mt	Megaton, 1,000 kilotons (see kt)
NATO	North Atlantic Treaty Organization
NBCWRS	Nuclear Biological and Chemical Warning and Reporting System
NORAD	North American Air Defense
NSC	National Security Council
NUDET	Nuclear detonation
NUTS	"Nuclear Use" theories or theorists
Nuwx	Nuclear weapons accident exercise
OPLANS	Operational Plans
OPREP	Operational report
PACAF	Pacific Air Force
PACOM	Pacific Command
Pentagon	U.S. Department of Defense
PHOTINT	Photographic intelligence
PMR	Pacific Missile Range
PRC	People's Republic of China
PSYOP	Psychological operation
RDF	Rapid Deployment Force
ROK	Republic of Korea
SAC	Strategic Air Command
SAG	Surface Action Group
SALT	Strategic Arms Limitation Treaty
SDF	Self Defense Force (Japan)
SEATO	Southeast Asia Treaty Organization
SHAPE	Supreme Headquarters, Allied Powers Europe
SHF	Super high frequency
SIGINT	Signals intelligence
<i>SIOP</i>	<i>Single Integrated Operational Plan</i>
SLBM	Sea-launched ballistic missile
SLCM	Sea-launched cruise missile
SLOC	Sea Lanes of Communication
<i>SOP</i>	<i>Standard Operating Procedure for Atomic Warfare</i>
SOSUS	Sound Surveillance System
SRAM	Short-range attack missile
SRF	Strategic Rocket Force (Soviet)
SSBN	Ballistic missile nuclear-powered submarine
SSN	Nuclear attack submarine

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TJOC	Theater Joint Operations Command (Tokyo)
UHF	Ultra high frequency
URG	Underway Replenishment Group
USAF	United States Air Force
U.S.S.R.	Union of Soviet Socialist Republics
VHF	Very high frequency
VLF	Very low frequency
WESTCOM	Western Command (Army)



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