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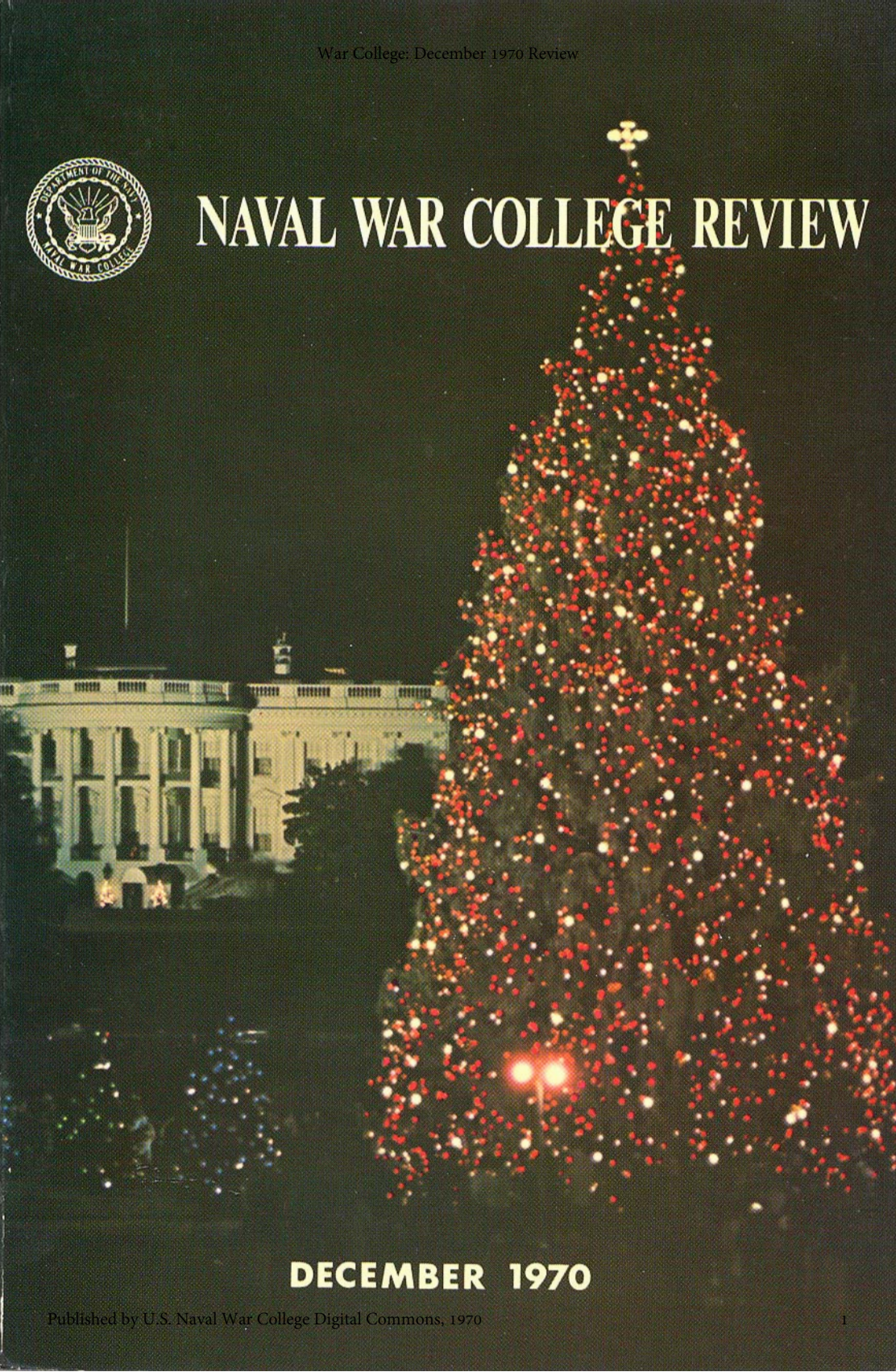

NAVAL WAR COLLEGE REVIEW

DECEMBER 1970

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FOREWORD The *Naval War College Review* was established in 1948 by the Chief of Naval Personnel in order that officers of the service might receive some of the educational benefits available to the resident students at the Naval War College. The forthright and candid views of the lecturers and authors are presented for the professional education of its readers.

Lectures are selected on the basis of favorable reception by Naval War College audiences, usefulness to servicewide readership, and timeliness. Research papers are selected on the basis of professional interest to readers.

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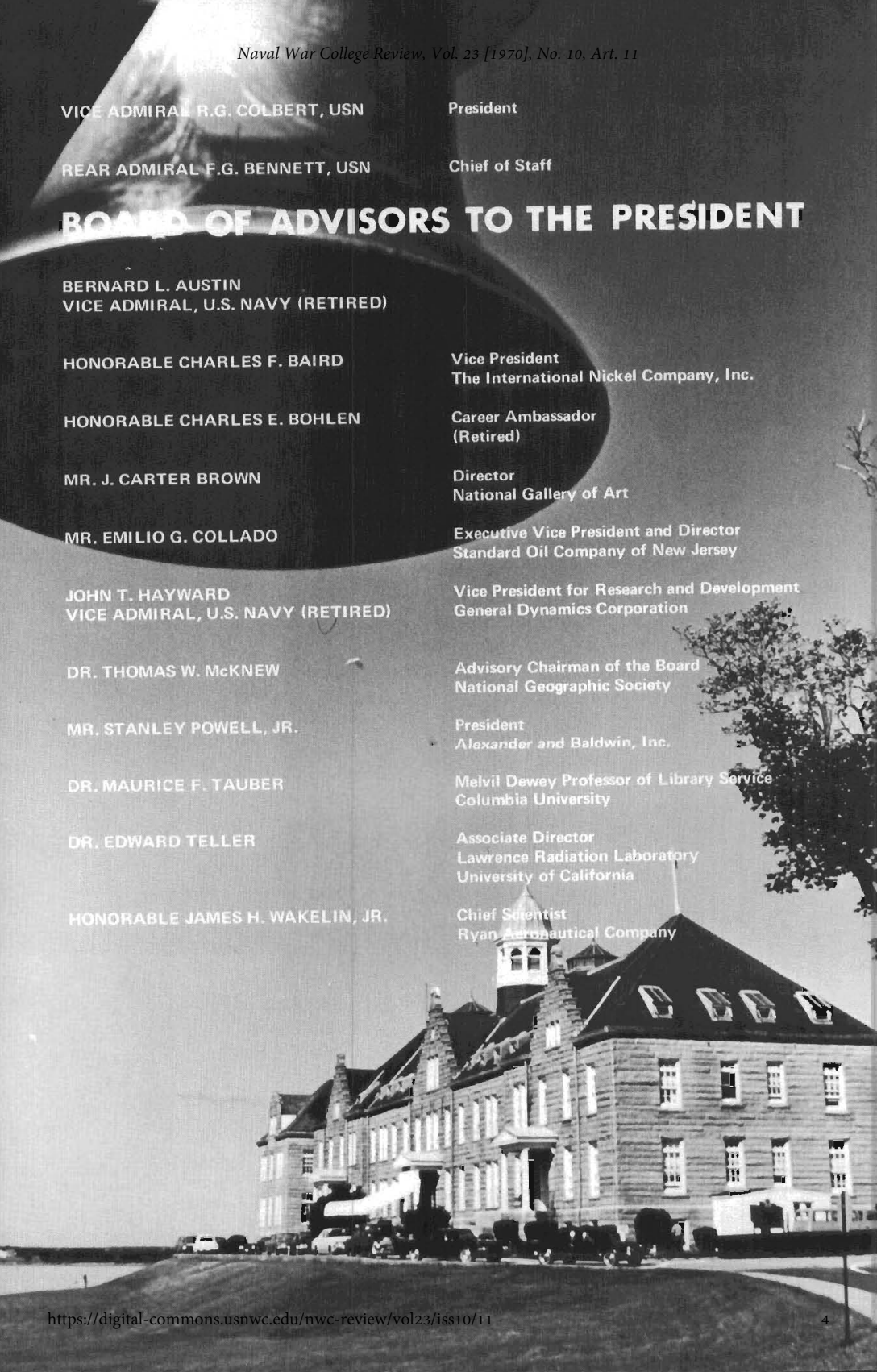


CHALLENGE !

Military assistance, economic aid, political support for local causes and leaders, all backed at the appropriate time by a naval presence. This is the four-pronged approach the Soviet Union has used to gain eminence in the Mediterranean and with which it is attempting to establish itself in a similar fashion in the Indian Ocean area. In the near future we may well see the same strategy used to foster greater Soviet influence in our own hemisphere.

On the one hand, recent Soviet naval operations off our southeast coast and reports of a possible submarine base in Cienfuegos, Cuba, underscore the growing Soviet imperialist challenge in an area long protected by the Monroe Doctrine. And on the other hand, the election in Chile of the first Marxist president in the free world highlights the Communist ideological challenge in the Western Hemishpere.

Just as the British extended their empire by projecting economic, political, and military power with their vast seapower, so too have the Russians adopted a similar approach to the extension on their own empire in the "Third World." Clearly the Soviet leadership has studied the works of Alfred Thayer Mahan and the principles he laid down as essentials for any nation which is seeking global power.

In the Mediterranean area we have seen the Soviet entrenchment in the United Arab Republic and Syria; and we have witnessed a growing influence in Algeria and, most recently, Libya. While none of these Arab States have yet become the "satellites" that most of the Eastern European nations are, the fact remains that the influence of the Soviet Union in these nations far exceeds that of the West. And this evolution has all occurred within less than a decade.

Economic aid—such as the financing of the Aswan Dam; political support—in taking up the cry of the Arab States versus Israel; and military assistance—such as rearming of the humiliated Arabs following the June 1967 war have all been parts of this Soviet strategy.

The fourth element of their adroitly orchestrated strategy aimed at gaining control of this strategic and economic crossroads of the world has been, of course, the timely deployment of Soviet naval task groups. By using a naval presence to give visible support to their political strategy, the Russians are meaningfully and effectively using a tactic known historically as "gunboat diplomacy."

Prior to June 1967, Soviet naval operations in the Mediterranean posed no significant challenge to our own mighty 6th Fleet. Three years later the Mediterranean is no longer the exclusive U.S. and NATO "lake" it once was. Between 30 and 45 Soviet ships operate there at any one time. Five times, in the last 2 years, the number has swollen to fleet size: August and November 1968; March 1969, just prior to the 20th anniversary of NATO; September 1969; and this past April, on the occasion of the Lenin centennial.

The Soviet naval presence in the eastern Mediterranean and along the northern littoral of Africa unlocks many

doors of political and paramilitary importance. It threatens the southern flank of Europe. It displays the hammer and sickle, giving psychological support to the various radical regimes which struggle to maintain their control in several countries. At times it even neutralizes our 6th Fleet operations in these areas.

When King Idris of Libya was overthrown in a coup in September of 1969, Soviet naval forces took station along the Libyan coastline. Others shadowed our 6th Fleet ships more closely than usual. The Russians indirectly were warning us to stay clear, to avoid any action paralleling our landings in Lebanon in 1958 or the Dominican Republic in 1965. They were using their ships to neutralize our own and, at the same time, making political and psychological capital with the Arabs. Immediately following the coup, the new Libyan Government publicly expressed "thanks" to the Russian Navy for preventing the 6th Fleet from "intervening."

Another area of growing interest for the Soviet Union is the Indian Ocean. Their strategic naval interests there are obvious. First, the vital link which that ocean provides for their ships moving between the Soviet Atlantic and Pacific fleets; second, the important sea access to the underbelly of Communist China.

In addition, the Soviets have important political interests in that region of the world. They would seek to dominate east Africa and south Asia, as well as the oil-rich areas of the Red Sea and Persian Gulf. Such dominance would mean they could negate the rising political and economic influence there of Communist China. With the ability to deny the oil of the area to Europe, the United States, and other nations of the free world, the Kremlin would have a potent political tool.

To achieve these ends the Soviets are moving into the Indian Ocean area, using the same tactics they have so successfully employed in the Mediterranean—military assistance, political support, and economic aid. Again, all backed by an appropriate naval presence. And the important point here is that Russia is the *only* nation offering this attractive combination of assistance, support, and aid to the nonaligned nations of the area.

Russian "technicians" and "advisers" abound in Somalia and South Yemen, just as they do in the UAR, Syria, and Iraq. Moslem guerrillas, bearing Soviet arms, harass Ethiopia's maritime province of Eritrea. Use of "trade and aid" tactics along the east coast of Africa provide a legitimate vheicle by which eventual political leverage can be extended in several vital areas. Newly established fishing accords and aid agreements with Mauritius presage similar political gains on that strategically located island nation. Mauritius, as a Russian naval base in time of war, could pose an ominous threat to the free world sea lines of communication around the Cape of Good Hope through the Indian Ocean to the Malacca Straits.

Key to the Russian strategy in the Indian Ocean is, as in the Mediterranean, their navy. "Showing the flag" by brandishing their modern and impressive naval power serves Soviet political interests and goals in this area well. It gives the Soviet Union a very real presence in an unstable region, a presence which derives importance from both the psychological and military advantages it affords. It is a valuable politico-military tool, making important new options in this area available to the Kremlin for the first time.

In early 1968, when the British Labour Government announced its decision to withdraw all British military forces east of the Suez by 1971—a decision which has since been changed—the Soviets were quick to react. Within 2 months a task group made up of a cruiser, guided missile frigate, guided missile destroyer, and an oiler all

departed Vladivostok, steamed a grand total of 25,000 miles in 5 months, visiting 10 ports and eight nations around the Indian Ocean periphery in the process.

Last year alone, 20 Soviet combatants visited the Indian Ocean, "showing the flag" and making their naval presence obvious in some two dozen ports of 14 nations.

In our own hemisphere the Soviet strategy has yet to assume the four dimensions it has in north Africa, the Middle East, south Asia, and east Africa.

Military assistance has gone only to Cuba. Similarly, economic aid to the area has been limited, primarily taking the form of commercial exchanges—Russian and Eastern bloc equipment for Latin raw materials—which have often benefited the Soviets more than the Latins. And economic development programs sponsored by the Soviets to date are very modest.

In the political area, evidence of a Soviet strategy similar to that in the eastern Mediterranean and Indian Ocean regions is likewise scarce. Political support has been given indigenous Communist Parties rather than existing governmental structures. The adverse reaction of Latin Americans to the Cuban missile crisis, in which Castro appeared to have substituted Soviet dominance for "Yankee imperialism," must have warned the Russians to keep their political advances on a low key. This they have done. Political support for Chile's new President is to be expected, but only to the degree that the new Government might request it. While the Soviets have established diplomatic relations with five Latin nations in 1969-70, the tactic has been to allow the Latins to take the initiative in proposing political ties.

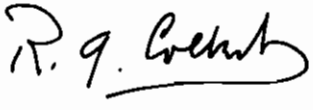
Despite the Soviet hesitancy to date in the economic, political, and military spheres, their naval interest in the Caribbean has been far from passive.

In July 1969, while Foreign Minister Andrei Gromyko was publicly calling for friendlier United States-Soviet relations, nine Russian ships—two with surface-to-surface missiles, along with three submarines—conducted maneuvers in the Gulf of Mexico. Again this past spring a destroyer, cruiser, tender, and three submarines conducted similar operations in our home waters.

Admiral Gorshkov, Chief of the Soviet Navy, once asked, "How would the American like it if rocket launching Russian ships maneuvered in the Gulf of Mexico 80 miles from New Orleans?" In neither July 1969 nor this past spring were Soviet ships that close to New Orleans, but they *did* pass within 25 miles of Miami!

In September of this year the Russian Navy conducted its third deployment to the Caribbean within 15 months. One signal was all too apparent: it plans to operate freely in waters close to the shores of the United States.

Successful employment of their naval presence in Latin waters, especially in the all-important psychological and political dimensions, could well be the precursor to stepped-up economic, political, and military efforts to project influence in Latin America. The challenge to this Nation is to devise a viable Latin American policy to keep that area from falling prey to the four-pronged Soviet approach which has worked so well in the Mediterranean and Indian Ocean areas.



R. G. COLBERT
Vice Admiral, U.S. Navy
President, Naval War College

Many of the Military Establishment's present critics assert that the money required for our domestic needs can be found simply by cutting the defense budget to its pre-Vietnam level. Unfortunately, a reduction of this magnitude, considering inflation and added personnel costs, would reduce the Defense Establishment to its 1949 level—an era when the Soviets had no strategic nuclear capability and virtually no navy. Such a curtailment of defense forces could very well place the security of our Nation in jeopardy. We must, therefore, obtain the funds for new domestic initiatives either through additional taxation or by reevaluating those sections of the budget which are now considered to be uncontrollable.

DEFENSE SPENDING: MYTHS AND REALITIES

An address delivered at the Naval War College

by

The Honorable Robert C. Moot

Assistant Secretary of Defense (Comptroller)

There has been much talk in recent months about setting new national priorities. I think this kind of talk is basically healthy. And, of course, you gentlemen will spend some time on this topic in the spring. We should constantly be reviewing our Federal programs, discarding old ones, including new ones, and changing priorities to meet the country's needs as effectively as possible. To many people, however, a new set of national priorities means just one thing—cut the military budget and reallocate the funds to the long-suffering civilian sector of public spending. The critics of the military will assure you, not once but many times, that the defense budget is the logical source of ready cash. They claim that by cutting the war-swollen defense budget, inflation as well as all other domestic ills can be cured.

It may come as a surprise, but this just is not true. The budget situation that the critics are describing simply does not exist today. Trends in Government spending have changed over the past two decades, and our critics continue to address past history rather than current facts.

To illustrate, let us consider all Government spending in three pieces. The Department of Defense (including military assistance) is one piece; Federal civilian agencies, added together, are the second piece; and State and local governments, added together, are the third. Back in 1953, when spending for Korea peaked, defense spending was clearly dominant; nearly half of all Government

spending was for defense; the other two components (all Federal civilian agencies and all State and local governments) barely equaled the defense spending total. The situation is drastically different today, for defense has dropped from 50 percent to 20 percent of total Government spending. Spending by Federal civilian agencies is twice that of defense, and spending by State and local governments is also twice as high as defense spending. The figures are, roughly, $136 billion for Federal civilian agencies and $145 billion for State and local governments versus $71.8 billion for defense. Defense spending no longer dominates total Government spending.

To continue the illustration, let us take the matter of budget growth, beginning with 1964--the last full peacetime year. Defense spending is up $21 billion from 1964 to 1971, the current fiscal year. Federal civilian agencies are up $65 billion in the same span, and State and local spending is up about $75 billion, both roughly doubling. It is worth noting that State and local spending has grown more since 1964 than the total 1971 defense budget, which includes wartime costs. Almost the same growth pattern is true for Federal civilian spending. We have added the equivalent of two new defense budgets, in 7 years, to Government spending--but in civilian, not defense, programs.

Let me be more specific and quote one of our critics, the former Chairman of the Federal Reserve Board, Marriner S. Eccles. In a recent interview[1] dealing with the Nation's economic problems he said:

> In the past five years, we have had an expenditure on Vietnam alone of over $125 billion. Our total federal deficit for the same period is around $75 billion. So if we didn't have Vietnam, we would have a surplus of over $50 billion. We would have no inflation. We would have been able to avoid cutting back on many of our essential domestic needs.
>
> If you want the real culprit for this country's mess, it is Vietnam, not the Federal Reserve.

Now, let us look at the facts: The cumulative increase in the defense budget since 1964, the last peacetime year, is $116 billion. What Mr. Eccles does not understand or does not recognize is the further fact that public spending *other* than defense *increased* $442 billion in the same period. Defense no longer dominates public spending and cannot therefore be blamed for all problems which emanate from public spending. If the public spending increase is only 20 percent due to defense needs, 80 percent of the blame should be elsewhere. It goes without saying that the facts also refute Mr. Eccles' assumption that resources have been cut back for essential domestic needs.

The defense budget for 1971 is equivalent to 7 percent of the gross national product, which is 34.6 percent of the Federal budget total. These are the lowest defense shares since 1951 and 1950, respectively--since before the Korea buildup. In peacetime 1964, for example, defense spending was 41.8 percent of the Federal total and 8.3 percent of the GNP. Many people seem to have a permanent impression that defense spending is a fixed 50 percent or 80 percent or 90 percent of the Federal total. Actually, defense has not had half of the Federal budget since 1958, a milestone that was passed with little fanfare.

As any comptroller knows, manpower impacts need to be considered as carefully as dollar impacts. Defense clearly has been a major factor in manpower in the past, as anyone of

[1] *Dun's*, September 1970.

World War II vintage knows. During the Korean buildnp, defense manpower requirements for all purposes grew hy 5.5 million. The total labor force grew by only 2.5 million. This meant that there were three million less in the labor force in 1953 for all civilian pursuits than there were in 1950. During the Southeast Asian buildnp, defense manpower grew by 2.6 million, but labor force growth was 6.8 million, leaving 4.2 million additional people for other activities. From pre-Vietnam 1964 to 1971, the labor force will grow by about 11 million. However, defense manpower will only be about 500,000 above the 1964 level, so that 10.5 million additional workers will be available for other purposes—four times the number of the corresponding period in the 1950's. All of the figures I have used include defense-related employment in industry, in addition to military and civilian personnel of the Department. The relative impact of defense on the Nation's labor force has changed over the years.

Just considering military personnel, on 30 June 1964 the number of military was 2.7 million. This peaked at 3.5 million in 1968. By 30 June 1971 the number will be 2.9 million—roughly 9 percent above the prewar level. Defense clearly does not dominate the lahor force the way it did in the past. We do have some impact, and we have contributed to the recent surge in unemployment, which is a point I shall cover presently.

I mentioned earlier that defense spending has grown hy $21 billion from pre-Vietnam 1964 to 1971. With the phasedown in Southeast Asia, it is fair to ask, shonld we not see the defense budget returning to the prewar level of about $50 billion? And should not this produce a peace dividend of some $21 billion which can be applied to nondefense programs? The answer, unhappily, is no—nnless we ent military strength far below the prewar level. In fact, such a defense budget level, even with absolntely no special war costs, would involve lowering our military strength to the level of the late 1940's—to the level that prevailed before the Soviets developed nuclear weapons, before Korea, and before NATO.

The reason is quite simple; pay and price increases since 1964 have eaten up $16 billion of the $21 billion added to the defense budget since then. In real terms—that is, in dollars of constant buying power, our budget for FY 1971 is only $5 hillion, or 7.5 percent, higher than the prewar level of 1964.

Pay increases alone account for $8 billion. Payments to retired military personnel are up $2 billion, with a growing retired population and automatic increases tied by law to increases in the cost of living. And another $6 billion is involved for increased prices of goods and services purchased by the Department. And that, in brief, is the story of the defense budget increase since peacetime 1964. Pay raises, increased retired pay, and higher purchase prices account for a total of $16 billion, which adds not one man nor one weapon. The 1964 program—the same number of men, the same number of ships and aircraft, the same amount of jet fuel—would cost $66.8 billion today. Our 1971 budget is $71.8 billion. We are fighting the war within a budget that is $5 billion above the peacetime level, in real terms. This does not come close to covering our war costs. The incremental cost of the Southeast Asian conflict is more than double this $5 billion increase in our budget. Funds available to the Department for nonwar purposes are lower than they have been in 20 years when the distortion of inflation is removed.

The question of incremental war costs versus full war costs bas caused much puhlic confusion. You are one of the few audiences who ean quickly grasp the significance of the difference.

Full war costs are the total costs of Southeast Asian operations, including all costs for military pay, B-52 sorties, fleet operations, and so forth. Incremental costs are the difference between total war costs and the cost of normal peacetime operations. Thus combat pay for regular Army troops in Vietnam is an incremental cost, while their basic salary is not. The cost of ammunition fired above the normal training allowance is an incremental cost, as is the extra aviation gasoline and munitions used in B-52 operations. There are many more examples.

Southeast Asia costs peaked in FY 1969, when full costs were about $29 billion and incremental costs were about $22 billion. Last month Secretary Laird stated that both the full and incremental cost of the war would be halved after all currently announced troop withdrawals have been accomplished. This means that the additional cost due to the war will have been reduced by some $10 to $11 billion after the announced figure of 150,000 troops have been withdrawn by 30 April 1971. It is a very fair question to ask where this money went. Part of the answer can be seen in the budget totals for fiscal years 1969 and 1971. The fiscal year 1969 budget was $78.7 while fiscal year 1971 is planned for $71.8, which is $6.9 billion less. This is a large and readily apparent portion of the peace dividend. The other portion is not as apparent. You will recall that inflation added $16 billion to the DoD budget from FY 1964 to FY 1971. As everyone knows, inflation has accelerated in recent years, and the rise from FY 1969 to FY 1971 alone accounts for $5.9 billion. This $5.9 billion in inflation costs must be added to the $6.9 billion of current dollar cuts to get the total real program reduction—$12.8 billion. The reduction in the incremental war cost of $10 to $11 billion is included in this total reduction. Funds have not been diverted from war costs to nonwar programs. Nonwar programs, in fact, have also been sharply reduced since 1969.

This defense cutback is very real. We had 3.5 million military on 30 June 1968. We will have 2.9 million on 30 June 1971, for a reduction of 600,000. Civilian employment will be cut 11 percent from the 1968 peak, and purchased goods and services will be down 30 percent. We have to go all the way back to 1946 to find a year when we bought fewer aircraft than FY 1971. I think everyone recognizes that 1946 was not a year with emphasis on the procurement of new military hardware. We have laid up nearly 200 ships, and the Navy still has 47 percent of its ships more than 20 years old. These are some of the consequences of fighting a war with a peacetime-level budget.

Most of the military and DoD civilian cutback planned through 30 June 1971 has already occured. However, because of a 6- to 8-month production pipeline, there is a greater time lag between defense reductions in procurement and the impact on the economy. We estimate that defense-related employment in industry will fall by well over one million from the 1968 peak with more than one-half of the cut still to come. Indeed, a recent report by the Bureau of Labor Statistics attributed the recent surge in unemployment in large part to defense cutbacks.

Total defense-related employment, including that of industry, has decreased by 958,000 jobs from June 1969 through June 1970. During this same 12-month period, the ranks of the unemployed have increased by 1,137,000, driving the national unemployment rate from 3.4 percent to 4.7 percent. While our information is incomplete, we know that not all of the defense reductions go directly into the unemployment total. As an example, many of the military who have been released return to school. However, I think everyone agrees that the defense reductions have had a big influence on the increased

unemployment rate, and the reductions which are planned for the remainder of the fiscal year will keep the upward pressure on unemployment.

Now let us turn back, for a few moments, to rising prices and the inflation trend. As I said earlier and despite common beliefs, defense spending is not the cause. I believe these additional facts will help illustrate this. Let us look at this matter by comparing two periods in our history—first, 1950 to 1956, covering the complete Korea cycle. From 1950 to 1956 *annual* defense spending rose by $26 billion; all other Government spending by $13 billion. During Korea, defense was clearly the dominant factor. Second, let us look at the Vietnam period. From 1964 to 1971, defense spending rises by $21 billion; all other Government spending rises by $122 billion. Earlier we were talking of cumulative increases in public spending, now we are talking of annual rates. Prices are undoubtedly higher today than they were in 1964. If you think that higher Government spending is the answer, try to bear in mind that defense accounts for only a small portion of the Government spending increase since 1964. Clearly, defense had a decisive impact in the 1950's; it does not have such an impact today—prices continue to rise as defense is being sharply cut.

Our tax policies in the 1950's were very closely attuned to shifts in defense spending. Major tax increases were enacted in anticipation of Korean war costs. This has clearly not been the case in the 1960's. The Southeast Asian buildup began while the economy was being stimulated by the 20 percent tax reductions of 1964, and even though taxes were not raised until defense spending had peaked, our price experience was no worse than during Korea. One shudders to contemplate what our price experience would have been in the 1950's had our tax policies then been established with such indifference to defense spending trends. Such a course was possible (if not desirable) in the 1960's because defense spending was no longer dominant.

You may have heard another statistic that would cause you to question some of the points I have made. Some people say that defense takes 80 percent of the controllable part of the budget. That has gained some currency lately, but how does it square with the facts? I first have to point out that the correct figure is now about 65 percent, not 80 percent, but that is a minor point. About half of Federal spending, or roughly $100 billion in FY 1971, is subject to annual control through the appropriation process. That is, the President asks for specific appropriation amounts in the budget; Congress provides appropriations in specific amounts; thereafter, the President allows (or does not allow) the agencies to spend the money the Congress has provided.

The uncontrollables are not subject to the same restraints, but represent payments authorized under basic legislation which is not subject to annual review. The payments are made (often according to a formula prescribed by law), and the funds are automatically available unless Congress takes positive action to change things. This is roughly the other half of the FY 1971 budget or $100 billion. The defense uncontrollable cost is military retired pay, which is about 4 percent of our budget in FY 1971. The law prescribes what a military retiree will be paid. Unless the law is changed, there is nothing that can be done by the President or the Secretary of Defense or through the appropriation process, to alter this fact. The man must be paid. Over 70 percent of civilian spending is in this uncontrollable category, compared to 4 percent of defense spending.

This condition is a matter of extreme concern in Federal budgeting. The uncontrollable items are very difficult to change in a given year, and spending in

this area has grown sharply—often through the operation of formulas set years ago. In a time of budgeting stringency or economic necessity, one must control what can be controlled and make cuts there regardless of the fact that huge increases in the uncontrollable area are of lesser priority. It simply takes too long and is too difficult to make the changes. As President Johnson observed in his last budget, "... national priorities are arbitrarily distorted by the fact that outlays for some Federal programs are sheltered in basic law from meaningful annual control." Since defense is 65 percent of the controllable portion of the budget, defense still must bear the brunt of short-term reductions even if it means that some military readiness must be sacrificed. The fact is that we just cannot go on much longer with an allocation and review process that only covers half of Federal spending.

All I have said here today has been said repeatedly by Secretary Laird and other leaders both in the executive and legislative departments. Yet critics of defense do not appear to hear. Ignoring what has been done, they say that we must start to reorder our national priorities and start to cut the defense budget to its proper level in the context of these priorities. They say that the Pentagon must be forced to plan more realistically and manage more effectively, so that billions (10 to 15) can be diverted from the swollen defense budget. And these funds should be reallocated to the real business of America: halting inflation and curing urban blight, crime, pollution, inadequate health care, inadequate housing, and all other domestic problems. The argument is quite compelling, and I have not embellished it much from the way it is usually presented.

Unfortunately, by ignoring the facts and addressing the past rather than the present, our critics do the country a disservice. Let me explain why. The Peace dividend produced by reductions in defense to date has already been returned to the country or used to offset inflation. We have made additional reductions in the defense baseline force and have announced that our baseline force plans ultimately involve a cut well below that prewar level. In real terms, that is in constant dollars, defense spending has been cut over $17 billion since 1968, and the President has reallocated these funds to nondefense programs. The critics, however, assume that nothing has changed and talk about cutting from today's level. War costs have been and are being rapidly phased out so such reductions must be applied to the peacetime baseline forces. Suppose you wanted to cut that baseline or nonwar budget by $15 billion. This would reduce our military to about 1.8 million men—1.8 million men is the number of men we had under arms in June 1941—6 months before Pearl Harbor. In other words, a $15 billion cut in the baseline force would result in a pre-Pearl Harbor level of defense, a level about in line with the lowest point in the demobilization period of the late 1940's—pre-NATO, pre-Korea, and prior to Soviet nuclear weaponry.

In broad terms, that's what a $15 billion further cut in the defense baseline budget would mean. On the nondefense side, how big is that $15 billion? Nondefense total governmental spending is $245 billion this year, and it has been growing at about 10 percent per year. At that rate, it will grow about $150 billion in the next 5 years. So that $15 billion or 20 percent cut in defense would be equal to, roughly, 6 percent of nondefense spending this year. It would be equal to about 10 percent of the 5-year increase in such spending.

The defense budget simply is not, and cannot be, the central element in our resource allocation problems for the years ahead. It should be scrutinized carefully, and it should be placed in priority review with other needs. But

defense spending cutbacks cannot be assumed to be the source of all resource needs. Our national security is too important for such erroneous reasoning to be accepted. We are dealing with a gross national product that will be growing some $350 billion or more in the next 5 years, toward $1.4 trillion; total governmental spending growing perhaps $150 billion to some $465 billion; and revenues of the same magnitude. In this context, the size of the defense budget does not loom as large. In the context of all of these facts, it does not seem logical to me to make massive cuts in defense and seriously weaken national security for what must be only a marginal increase in domestic spending. Recent votes in the Congress on the Defense Authorization Bill for FY 1971 indicate that a significant majority of the Congress understands and agrees with this reasoning.

By emphasizing these facts, I am not denying that there have been waste and mismanagement in the Department of Defense. Obviously there have been. President Nixon and Secretary Laird have attacked this problem in several ways; one of the most important was the appointment of the Blue Ribbon Defense Panel. As you know, the panel's report was released recently. It contains many thoughtful recommendations that will be adopted. But, in addition to special approaches, we as managers must continue the attack on inefficiency and waste at all times. The taxpayer should receive a dollar's worth of defense for every dollar spent and should get no more defense than he needs.

I do want to reiterate, however, that defense reductions, based on either force cuts or improved efficiency or both, cannot be the principal source of funding for new domestic initiatives. The orders of magnitude are just too far apart. I am concerned about people recognizing this, because the country cannot and should not start reordering priorities from a false premise. As a Nation, we need to look where the money is. Some of it is in defense, and defense should be scrubbed. But the hard questions are in areas such as health insurance, veterans' benefits, farm subsidies and in the billions in tax subsidies that never appear on the expenditure side of the Federal budget.

BIOGRAPHIC SUMMARY

The Honorable Robert C. Moot has had a long and distinguished career in Government service. Following service with the U.S. Army in World War II, he entered the Civil Service in 1946. In 1962 he became Comptroller for the Defense Supply Agency, and in 1965 he was appointed as Deputy Assistant Secretary of Defense for Logistic Services. From 1966 to 1968 he served as Deputy Administrator and then Administrator of the Small Business Administration, and in 1968 Mr. Moot assumed his present position as Assistant Secretary of Defense (Comptroller).

Ψ

According to a recent survey completed at the Naval War College, the majority of naval line officers are dissatisfied with their role in the development of naval weapon systems and platforms. A group research project at the Naval War College examined this dissatisfaction in a statistical survey and made several recommendations concerning it.

THE RESPONSIBILITY OF NAVAL LINE OFFICERS IN DETERMINING WEAPON SYSTEMS/PLATFORMS

A Group Research Project

Project Members

Comdr. Samson Mikitarian, USN
Comdr. Lennart R. Salo, USN
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Lt. Comdr. Thomas J. Turpin, Jr., USN

Introduction. The Navy of today has adopted modern and systematized management techniques that are designed to receive and process large volumes of data from the fleet and other sources. As evidenced by the great number of studies, congressional inquiries, and organizational changes, the Navy's entire process of research and development, equipment design, procurement, and operational maintenance has been taken under close scrutiny in an effort to achieve the most efficient system possible. Communications within the process have also received their share of attention, including not only the transmission of data, but the human element of communications as well. Dialogs, or the lack thereof, among the parties involved have all been considered and have provided fertile ground for the researcher and the analyst.

In spite of the foregoing, very few line officers would deny having experienced feelings of dissatisfaction in regard to the line officer's ability to influence the choice or design of the tools of his trade or to improve those already in existence.

The degree of dissatisfaction was established by means of a survey questionnaire which was administered to the surface and aviation line officer student body of the School of Naval Warfare and the School of Naval Command and Staff at the Naval War College. These students comprise, in the judgment of the research group, a sample of a representative group of "innovative" line officers in the Navy. Vincent Davis confirms this judgment in his monograph, "The Politics of Innovation," in which he describes the usual innovative advocate in the Navy as "a man in the broad middle ranks . . . lieutenant commander, commander or captain . . . ranging in age from the early 30's to the middle 40's."[1]

Methodology. The attitude of naval line officers toward their role in determining future weapon systems and platforms was elicited by the use of a survey questionnaire. The aim of this questionnaire was to gain a line officer's attitudinal profile in respect to his ability to contribute to and influence Navy weapons development. No previous work of this nature was available that could have conceivably provided a base of previous data.

The development of the questionnaire required the use of successive pretests with successive revisions being constructed following the use of same. Students sampled in the pretesting procedure were not sampled in the final survey.

Regular Navy line officer students of the School of Naval Warfare and the School of Naval Command and Staff of the Naval War College were used as the sample population for the questionnaire. Sixty-seven students of the School of Naval Warfare and 105 students of the School of Naval Command and Staff participated in the survey. Seven Naval War College Regular line officer faculty members with submarine experience were also included in the sample population because of the low number of students with submarine experience in the 1969-1970 Naval War College student body.

Naval officers attending the Naval War College have demonstrated potential for higher command and staff positions. The students sampled in both the School of Naval Warfare and the School of Naval Command and Staff have diverse naval operational experience in both command and staff positions. Of a final survey questionnaire distributed to a sample population of 203 officers, 179 (88.1 percent) were returned. The distribution of the line officers who failed to return the completed questionnaire was not centered in any particular area of expertise or experience. All questionnaires returned were used in the data. Questions on the questionnaires that were not filled out or were illegible were treated as a no-response value for that particular question, and these nonresponses averaged less than 2 percent for any given question.

All answers to questions were numerically coded on punch tape by means of an identification number. The biographical data for the respondents was obtained from student records at the Naval War College. The computer time-sharing facility at the Naval War College was used in analyzing the collected data, and from the resulting frequency tables various cross-analyses of intergroup and intragroup variations were studied. Special emphasis was put forth to determine the degree of satisfaction with present roles in both current and future weapon systems development and influences on these roles. Where applicable, Goodman and Kruskal's coefficient of ordinal association

was used.[2] Four of the 24 officers who did not return their questionnaires were randomly selected and surveyed. Their responses showed no great variation from the other questionnaire respondents.

Survey Results. The survey revealed that 20 percent of the line officers interviewed were satisfied with their role in effecting changes in *current* weapon systems/platforms, while 80 percent were dissatisfied. The majority thought they should have a major role and view their present role as being minor. No officers thought their voices should not be considered or that they had too much of a voice. The more senior officers of the School of Naval Warfare had a 22 percent satisfaction index, while the more junior officers of the School of Naval Command and Staff had a 19 percent satisfaction index. Officers whose primary operational experience was in submarines or missile destroyers tended to be less dissatisfied than officers of nonmissile destroyer operational experience. Differences were also noted between officers with and without staff experience in the Naval Systems Command, and it was apparent that Systems Command experienced officers were significantly less dissatisfied with their present role than non-Systems Command experienced officers. No associated differences were found between officers with or without research, development, testing, and evaluation experience.

Although they did not differ from surface officers as a group, naval aviators exhibited significant differences of opinion among themselves. Fighter and patrol aviators tended to be more dissatisfied than attack and ASW aviators. All other intergroup analysis showed no trends toward any differences of opinion.

The results of this same survey indicated that 16 percent of line officers were satisfied with their present voice in determining *future* weapon systems. School of Naval Warfare officers had a 20 percent satisfaction index, while officers from the School of Naval Command and Staff had a 13 percent satisfaction index. No officers thought their voices should not be considered or that they should be the overriding consideration. One officer thought he had too much of a voice. The majority of officers thought they should have a significant voice but presently have only a minor voice. Officers with Naval Systems Command experience were again less dissatisfied with their present role. Officers with research, development, testing, and evaluation experience did not differ in their satisfaction with officers without research, development, testing, and evaluation experience. Officers with submarine, missile destroyer, and destroyer operational experience tended not to differ on their roles in future weapon systems development as was the case on current weapon systems development.

The effect of command emphasis on the submission of suggestions and ideas on weapon systems was studied. The results of this area indicate that an increase in command emphasis results in an increase in suggestions and ideas submitted. It should be noted that a small increase in command emphasis resulted in a large increase in the frequency of submission of suggestions and ideas. Analysis of intergroup and intragroup responses found that officers with command experience tended to submit suggestions at a higher frequency than officers without command experience. No such difference was noted between officers with and without staff experience.

The relationship between the number of means of suggestion which an individual has knowledge of and the number of suggestions one submits was examined. This study revealed that increasing knowledge of suggestion procedures led to an increase in the frequency of

submission of suggestions. No significant differences were noted among the groups of the officer population, but officers with Systems Command staff experience or command experience tended to be aware of more procedures than those without Systems Command or command experience.

A statistical analysis was also made to determine if an increasing knowledge of procedures led to increasing degrees of satisfaction. The results of this examination revealed that, statistically, it did. A further test to determine if increasing the frequencies of submission of suggestions resulted in increasing degrees of satisfaction produced findings that were nonconclusive.

In an effort to determine which methods of suggestion were considered by line officers to be most significant in affecting changes in weapon systems/platforms, the line officers surveyed were asked to choose from a list of methods the one which they considered to be the most effective and to rate that method on a scale from one to four in effectiveness. The ratings given each method were then averaged in order to determine the relative effectiveness of the various methods in the opinion of those marking the survey.

The results revealed that the SSBN Patrol Report and the Trouble Failure Report, both used by submarine officers, are considered to be highly effective by those individuals who utilize them. (Their ratings on the 4.0 scale were 3.5 and 3.2, respectively.) Also rated high in effectiveness were the Surface Missile System, Commanding Officer Narrative Report and the Maintenance and Material Management (3-M) System (both 3.0). Rated as especially ineffective were routine reports and Ship or Ordnance Alteration Recommendations. The two most frequently cited methods of the latter via the chain of command and personal contact with friends in action agencies were accorded the very modest effectiveness ratings of 1.2 and 2.2, respectively. The balance of the methods cited for consideration were rated as mediocre—including OPNAV visits (2.5), professional periodicals (2.2), contractor visits (2.0), and symposiums (1.3).

Summary of Findings. The results of the survey show a marked degree of dissatisfaction among naval line officers with their role in development of naval weapon systems/platforms. Specific groups of line officers expressed varying degrees of dissatisfaction. The more senior officers of the School of Naval Warfare expressed a lesser dissatisfaction than the more junior officers of the School of Naval Command and Staff. This difference is not believed to be a function of rank but is attributed to background and experience. School of Naval Warfare officers represented 74 percent of the officers who have had command and 66 percent of the officers who have had Systems Command experience. As was shown in the data, officers with Systems Command experience exhibit significantly less dissatisfaction than officers without these backgrounds. Officers of the Schools of Naval Warfare and Naval Command and Staff without these backgrounds tended to have similar opinions.

It is apparent that line officers with command and Systems Command experience knew of more procedures which they can exercise to make their ideas and suggestions known. This knowledge appeared to decrease the levels of dissatisfaction with roles in weapon systems/platforms development. A probable reason that no similar differences were found between officers with and without research, development, testing evaluation experience is that line officers in these positions are generally involved in the component or more specific areas of weapon systems programs.

The lesser dissatisfaction among submarine officers and missile destroyer

experienced officers can be attributed to the specialized procedures available to them for voicing ideas and suggestions. These procedures apply only to current weapon systems/platforms, and the officers' degree of dissatisfaction is no different from that of other line officers with regard to future weapon systems/platforms.

The effect of increasing command emphasis and knowledge of procedures led to an increasing of the level of the number of suggestions and ideas submitted. The increasing awareness of ways to make ideas and suggestions known had a positive correlation with an increasing level of satisfaction, whether or not this option was exercised. Findings concerning an increase in the rate of suggestion submission leading to increased line officer satisfaction were not conclusive. The inconclusiveness of this latter finding is probably the result of the expressed general ineffectiveness of the communication methods available.

The differences between groups in the foregoing discussion are significant and point out the effects of various influences on line officer dissatisfaction with their role in weapon systems/platforms development. Overall, however, the two main influencing factors found in this study appear to be the lack of knowledge of procedures by which to make their voices heard and the lack of communication methods that line officers think are effective for them.

Feedback Systems. All of the methods mentioned by the respondents for recommending changes in weapon systems/platforms and as many more as could be identified by the authors were studied in the hope that such study would assist in the determination of causes for the low degree of satisfaction indicated by the respondents. It was the judgment of the authors that a comparison of the methods was necessary in weighing the differences in effectiveness of ratings assigned.

Most of the methods identified are readily recognizable from their respective titles and of such general application that an individual description of each is unnecessary. Examples of these methods are letters via the chain of command, postexercise reports, inspection reports, and OPNAV, Systems Command, and contractor visits. The authors selected a number of the more formally structured methods, which are described briefly below.

- The Unsatisfactory Material Condition Report enables commanders to promptly report to the Naval Air Technical Service Facility any material failure in aeronautical material which affects safety or maintenance procedures. These reports are evaluated by the Naval Air Technical Facility, and the results are disseminated to the appropriate commands.[3]
- The Naval Ships Systems Command Defect Prevention Reporting Program provides for the reporting of defects discovered in spare parts, instruments, or other material procured for shipboard construction or repair. Action activities then investigate the report and determine what measures are necessary to prevent recurrence. Defects rather than innovations are emphasized.[4]
- Any alterations in the design, materials, number, or location of the ship's component parts must first be approved by the Naval Ship Systems Command. Requests for such changes are forwarded in a letter via the chain of command to NAVSHIPS, where they are given a priority rating. A recurrent shortage of funds usually precludes all but the most urgent of alterations, and the lengthy approval procedure limits the effectiveness of the system. This probably results in a reduction in the number of submitted requests and the accomplishment of many unauthorized alterations.[5]

• SSBN Patrol Reports are a series of comprehensive reports which are submitted by the SSBN commanding officer, via the chain of command, upon completion of a patrol.[6] As with most reports of this nature, endorsements and comments are required through the chain. The details of the contents of the report and the methods used are classified. Suffice it to say, however, that due to the strategic importance of SSBN's, it may be assumed that these reports receive appropriate attention throughout the chain of command with action responses commensurate with the degree of urgency applied.

• Report of Unsatisfactory or Defective Torpedoes or Equipment, the RUDTORPE System, provides a means of reporting unsatisfactory torpedoes, mine vehicles, ASROC and SUBROC missiles, and their associated equipment and for recommending improvements thereto.[7] Shop, maintenance, and operating personnel may submit RUDTORPE reports on items which are unsatisfactory or defective. All reports are sent to Naval Underwater Weapons Research and Engineering Station, Newport, R.I. (NUWS), where they are referred to the appropriate action activity, which may include manufacturers. NUWS compiles RUDTORPE data and publishes the montly RUDTORPE Digest, which contains information on items reported and action taken. It is distributed to all interested activities. In addition, each RUDTORPE submitter is individually informed of resolution of the problem reported.

• The Commanding Officer's Narrative Reports on Surface Missile Systems Deficiency Corrective Action Program (DCAP) provide a means by which commanding officers of guided missile equipped ships, missile schools, naval weapons stations, and naval ammunition depots with missile checkout installations may, on a regular basis, present a comprehensive assessment of the Surface Missile System as a whole.[8] Allowing wide latitude in scope and format, the report is intended to convey the personal judgment and assessment of the commanding officer as seen from his unique command position. The material reported is elective in nature, permitting the originator to comment according to his desires. The reports are submitted quarterly to Naval Ship Missile System Engineering Station (NSMSES) where they are reproduced and distributed to all interested activities. Acting as a central clearing house, NSMSES reviews the reports to determine action required and acknowledges all reported problems and deficiencies.

• Another specialized Navy feedback system for weapon systems/platforms is the Fleet Ballistic Missile Weapons System Trouble and Failure Report.[9] This report is submitted on any material failure in equipment under the cognizance of the Strategic Systems Project Office. These reports are incorporated into Corrective Action Recommendations which are examined by one of several technical offices and incorporated into a monthly report to all FBM activities. Considering the critical nature of the subject matter, these reports are processed expeditiously.

• The Maintenance and Material Management System (3-M) is an integrated management system designed to provide for reporting and disseminating significant maintenance information.[10] Its two subsystems are the Planned Maintenance Subsystem (PMS) and the Maintenance Data Collection System (MDCS). The former defines uniform maintenance standards based on engineering experience and delineates simplified procedures for performing the required maintenance. The PMS Feedback Report (OPNAV Form 4790/7A) provides type commanders with a means of recommending changes in the maintenance procedures and literature instructional material.

• The Maintenance Data Collection System is a compilation of reports by

maintenance personnel which are used in preparing maintenance information and recommendations. These reports are made on a special form (OPNAV Form 4790/2L), which may include remarks and observations.

• The procedures by which fleet aircraft may be modified provide the naval officer with an opportunity to influence present weapon systems/platforms.[11] Prior to the accomplishment of any installations or prototype change in naval aircraft, the controlling custodian is notified of the proposed change and is provided with justification and a complete description of the modification. Upon approval of the submitted change, *ONE UNIT* may be modified. After a satisfactory time period for evaluation of the modification, the originating activity submits a rough-draft Technical Directive embodying the proposed change and, upon approval, is responsible for the issuance of the formal Technical Directive and the material required.

• The Cash Awards Incentive Program establishes procedures for military personnel to submit practical contributions for cash awards to increase the efficiency and economy of the Navy Department and Government operations.[12] Contributions are submitted via the chain of command on a general form and are reviewed by the Navy Incentive Awards Board.

There are three categories for cash awards: suggestions, inventions, and scientific achievement. A *suggestion* is defined as a proposed method of doing a job better, faster, or cheaper for the Government. *Invention* is the development of a new and useful process or machine which is patentable under the patent laws of the United States. The *scientific achievement* is an act, deed, or accomplishment which significantly furthers the research efforts of an activity or project.

• The Naval Air Training and Operating Procedures Standardization Program (NATOPS) is a method of rapidly evaluating and disseminating personnel suggestions for improved training and operating practices of aircraft.[13] It has been highly successful due to the rapidity of action required on the urgent items and the convening conferences for the routine recommendations. In addition, the active support of many commanding officers has encouraged personnel to formulate new and improved procedures.

• The last of the feedback systems which will be treated in this article is the End of Line Report, an unofficial document circulated by fleet aviation squadrons to their sister squadrons which operate the same type of aircraft. The report summarizes statistically the operation and maintenance statistics of the particular aircraft type concerned. The End of Line Report is used mainly among the squadrons which operate sophisticated aircraft in the Gulf of Tonkin, and it is submitted only following the combat line period.

The study of feedback systems revealed certain characteristics common to almost all of them, regardless of application. Most systems have the improvement of existing hardware as a goal and have the potential, through data analysis, to influence future hardware design. Limited in scope, they emphasize deficiencies rather than positive or original suggestions. They are slanted toward the specialist, the enlisted technician, or maintenance man, not the line officer.

The feedback programs which received the highest average effectiveness ratings by respondents to the survey questionnaire were those associated with relatively sophisticated weapons systems, notably missile systems. This is not surprising, since these programs, due to the strategic or tactical importance of the weapon systems with which they are associated, are well funded and receive commensurate attention. It is worth noting that surface line respondents

who had never served tours associated with a missile system not only indicated a greater degree of dissatisfaction than their missile-oriented contemporaries, but when asked to identify the most effective feedback system known, frequently answered, "I don't know of any," or, as one respondent put it, "I've been too busy just trying to keep World War II vintage ships afloat to worry about making suggestions."

Finally, the fact that the aforementioned missile systems are relatively sophisticated with sophisticated problems may dictate the need for a special feedback program.

In the field of aviation it appears that established feedback programs offer even less to the line officer as an avenue of communication. As with the surface connected programs, they emphasize defect reporting or maintenance data collection. The aviators among the questionnaire respondents generally indicated a preference for more informal communications methods, notably personal contact. The previously described End of the Line Report, which is unofficial, appears to have evolved from the recognition by the fleet of the lack of a method of communicating valuable operational information and ideas between carrier-borne squadrons and to cognizant agencies up the command chain. It is unique among the aviation feedback programs and certainly points up the need for the formalization of an official system.

In the judgment of the authors, the most desirable characteristics of the feedback systems studied from the viewpoint of the individual line officer are as follows:

1. The establishment of a central clearing house to receive inputs from the fleet, assign problems to action agencies, and monitor the system.

2. Where appropriate, the provision for positive, individual response to inputs, with response deadlines established and adhered to.

3. The provision of input formats, designed to permit brevity but allowing latitude for comments and recommendations, without excessive technical justification and documentation.

4. The elimination of "via" addees. Inputs are received by the "clearing house" and redistributed as necessary throughout the chain of command.

5. The regular, periodic distribution of system summaries, containing items of interest, to all participating activities.

6. The active participation and accessibility of Navy and civilian contractors and scientists.

7. A clearly defined organization in which responsibilities are well delineated.

The preceding feedback systems are representative of the methods by which management data, suggestions, and ideas may be communicated. Another method of practical value to the Navy, from the standpoint of material management, is the ad hoc conference, symposium, or review. Unlike the systems previously described, these conferences usually grow out of recognition of a specific problem area. The following are two examples of this method.

• Officers assigned to OPNAV planning assignments frequently turn to the fleet operating forces for advice on follow-on weapon systems/platforms. This is usually done on a person-to-person or office-to-office basis. The persons of offices (staffs) consulted are usually selected because of knowledge or individual expertise. In the past the practice has usually provided the limited amount of information requested.[14]

In early 1967 it became apparent to OPNAV planners that this practice should be formalized in order to gain full advantage of the wealth of experience that was developing in the fleet due to the hostilities in Southeast Asia.

The concept was implemented when in 1967 planning was begun for an Annual Requirements Conference on Fighters and Attack Aircraft. All fleet

and shore activities directly associated with operation of fighter and attack aircraft were advised by CNO that such a conference was being planned with the objective to exchange views on fleet requirements, explore current weapon/aircraft limitations, deficiencies, and major problems, and to utilize fleet inputs in future requirements planning.[15] The response was favorable, and after the appointment of a steering committee to plan the agenda and other conference specifics, the conference was scheduled for 3 days in June 1967 at NAS North Island. Attendees were limited to 100 with prorated representation from each command.

After the conference was convened, the conferees were briefed on various subjects, including future weapons, weapon systems, and aircraft developments which could be available in the 1970 to 1985 time period. Following this briefing, both the attack and fighter oriented conferees went into committee sessions which produced conclusions on future aircraft requirements in the areas of fire control systems, displays, electronic countermeasures, communications, navigation, and other aircraft characteristics.[16]

This conference was notable because it was designed specifically to receive innovative ideas from line officers currently in the fleet, and it resulted in a unique dialog between planners and operators.

• During hostile engagements in Southeast Asia between 17 June 1965 and 17 September 1968, it became apparent through analysis that a large number of air-to-air missile firings were required in order to achieve one kill. As a result, CNO in July 1968 established a five-man team to conduct an ad hoc review, the purpose of which was to determine in depth the entire process by which the Navy's air-to-air missile systems are *acquired* and *employed* in order to identify those areas where improvements should be made.[17] The review occurred August to November 1968. The systems reviewed included the current Navy fighter aircraft and their missile systems that were operating in Southeast Asia at that time.

After an initial review, the team director, accompanied by task leaders selected for their particular area of expertise and the particular area of inquiry, made personal visits to fleet commands, industry, and CVA's. Approximately 87 activities were visited by one or more team members. The visits included type commanders, Marine Corps activities, deployed CVA's, major contractors, major fleet staffs, and many other activities associated with air-to-air missiles. The preliminary series of visits provided the team the perspective essential to meaningful evaluation.[18]

Subsequent to the preliminary team visits, an air-to-air missile system symposium was held. The symposium

> . . . brought together 200 attendees representing the complete spectrum of interest and/or direct participation in all phases of air-to-air missilry: Industry, fleet, shore establishments, and Marine Corps. The primary objective of the symposium was to identify problems and reach concurrence on their definition. No real attempt was made to solve problems then identified . . .[19]

Shortly after the symposium, three major contractors formed a management and engineering team in an effort to solve these problems.

The review described above typifies the ad hoc method of receiving feedback information. It arises from the acknowledgment of a specific problem area for which possible causes or solutions are sought on a one-time basis. It provides planning and technical agencies with the opportunity to gather fresh viewpoints and to make personal contact with operational units.

The ad hoc method, although tailored more for the officer than for technicians and maintenance personnel, appears to have limited value to the individual officer as a means of making himself heard. Of certain value to the Navy in dealing with specific problem areas, it is, nevertheless, necessarily limited in scope and is usually conducted on a one-time basis. Additionally, it is usually available to only a few select officers, chosen for their experience level and not for their desire for innovation.

Findings. The main finding of this study was the vehemency of the dissatisfaction of naval line officers with their role in weapon systems/platforms development. The authors interpret the vehemency of dissatisfaction as being strong, requiring a satisfactory solution. The sampled line officers perceived different levels of responsibility toward future and current weapon systems/platforms development. The stronger role indicated toward current weapon systems/platforms is perhaps dictated by their familiarity with these systems.

Differences in envisioned roles in the different communities of line officers were found. These differences were studied not for themselves, but in an effort to discover the reasons for them. The reasons for the major variations between communities were a lack of knowledge of procedures to make their voices heard and the lack of communication methods that line officers think are effective for them. It was found that the most highly rated communication methods were those related to new, well-funded current weapon systems/platforms. From this information some characteristics of these good communication methods, in the line officers' view, have been outlined. It was further found that no effective method is available by which line officers can make their ideas and suggestions on *future* weapon systems/platforms known. The method apparently is contact with friends in appropriate naval staff positions and is dependent on knowing someone in the right agency. This method obviously has limitations for the junior officer who has had less opportunity to establish such contacts. The assignment of line officers to naval staffs involved in weapons development is a communication method in itself but appears to have limited effectiveness. Officers initially upon assignment to staffs can make known their own ideas or suggestions or those of others with whom they have associated, but with time and the lack of continuous direct association with operating elements, their effectiveness as a means of communication is believed to diminish.

The authors of this study recommend that a determination be made on the role desired for the line officer in weapon systems/platforms development by the Navy Department. If that role is less than that indicated by line officers in this study, adequate explanation should be given to alleviate the widespread dissatisfaction currently indicated. It is further recommended that an effective program for the communication of ideas and suggestions on both current and future weapon systems/platforms be established and that such a program receive wide dissemination in the form of a directive to all levels of command. It is envisioned that such a program would not be tied to an already existing program but would have as its sole purpose the interchange of thoughts on weapon systems/platforms development.

FOOTNOTES

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6. U.S. Navy, Submarine Force, U.S. Atlantic Fleet, "SSBN Patrol Reports and Weapons Systems Data," (U) COMSUBLANTINST PO 3480.2E Norfolk: 10 November 1966. CONFIDENTIAL.

7. U.S. Navy, Bureau of Naval Weapons, "Report of Unsatisfactory or Defective Torpedoes or Equipment (RUDTORPE)," BUWEPSINST 8510.8A Washington: 31 October 1962.

8. U.S. Navy, Naval Ordnance Systems Command, "Commanding Officer's Narrative Reports on Surface Missile Systems and Associated Equipment," (U) NAVORDINST 8810.5 Washington: 6 June 1968. See also U.S. Navy, Surface Missile Systems Project Office, "Surface Missile Systems Deficiency Corrective Action Program (DCAP); Requirements for," SMSINST 8810.1A Washington: 4 March 1968.

9. U.S. Navy, Strategic Systems Project Office, "Trouble and Failure Report Program," (U) SSPINST 3100.1C Washington: 1 May 1969.

10. U.S. Office of Naval Operations, *Maintenance and Material Management (3-M) Manual,* OPNAV 43P2 (Washington: n.d.)

11. U.S. Navy, Bureau of Naval Weapons, "Proposed Modifications to Naval Aircraft and Related Equipment; Instructions Concerning," BUWEPSINST 13050.6 Washington: 8 March 1963.

12. U.S. Office of Secretary of the Navy, "Cash Awards for Suggestions, Inventions or Scientific Achievements," SECNAVINST 1650.24A Washington: 10 September 1968.

13. U.S. Office of Naval Operations, "Naval Air Training and Operating Procedures Standardization Program (NATOPS)," OPNAVINST 3510.9E Washington: 23 June 1967.

14. Telephone interview with Capt. P.F. Cunningham, USN, formerly Strike Warfare Section, Planning Requirements Branch (OP-50), Office of the Chief of Naval Operations, Washington: 4 January 1970.

15. Message from Chief of Naval Operations to Commander in Chief U.S. Pacific Fleet, Commander in Chief U.S. Atlantic Fleet, Commander in Chief U.S. Naval Forces Europe, Chief of Naval Material, and Commandant of the Marine Corps, (No title), Washington: 1 May 1967, p. 1.

16. Speedletter from Chief of Naval Operations to Commander in Chief U.S. Pacific Fleet, Commander in Chief U.S. Atlantic Fleet, Commander in Chief U.S. Naval Forces Europe, Chief of Naval Material, and Commandant of the Marine Corps, "Fighter Aircraft Requirements Conference (FARC) and Attack Aircraft Requirements Conference (AARC) (U)," OP-506C/kas Ser 06060P50, Washington: 26 May 1967, p. 1-7.

17. The following account is taken from U.S. Navy, Naval Air Systems Command, "Report of the Air-to-Air System Capability Review," (U) Washington: 1 January 1969. CONFIDENTIAL.

18. *Ibid.*, p. 8, 16.

19. *Ibid.*, p. 8.

BUORD UNDER FIRE IN 1864

The following letters were extracted from photostats of the Bureau of Ordnance records furnished by the National Archives.

Headquarters Dep't of Virginia and North Carolina

In the Field, Va.
Aug. 12th 1864

Capt. Henry A. Wise
Chief of Bureau of Ordnance
Navy Department

My dear Sir:

I have received your telegram in answer to my request to loan me a block for a gun to be put at the disposal of Mssrs. Sawyer for the purpose of being rifled, saying that the block cannot be loaned me as requested, "because it is not considered strong enough to be made into a rifled gun."

I take leave to suggest that I asked the Navy Department for a gun and not for an opinion—I can get the latter anywhere.

I suppose it would depend something on the size of the block and the size of the bore whether it would be "strong enough to be rifled."

To bring the opinion to the reductio and absurdum suppose we take a block for an 11 *inch* gun and rifle it to the calibre of a Springfield musket, 58/100 of an inch, would the block be strong enough to be made into a rifled gun?

I beg leave also to add that in the Fall of '61, Mssrs. Sawyer rifled for me with Five inch bore two Navy 32's which I took to the Gulf and they did such excellent shooting that the Navy officers borrowed them from me and never returned them, being the only rifled guns they had on board two boats, therefore it was that I ventured to ask the loan of the block. If the Navy will send back my two guns I shall not want to borrow the block, besides I won't say anything about the Twenty five hundred tons of coal I loaned the Navy at the mouth of the Mississippi, which has never been returned or paid for.

Most truly your obliged friend (but not for your opinion)

sgnd—Benj. F. Butler, Maj. Genl.

Bureau of Ordnance
Navy Department
Washington City

15 Aug. 1864.

My dear General:

I have this day received your letter of the 12th instant, containing your "opinion"—which I should find difficulty in getting "anywhere" else—in reply to what you think of my opinion in reference to gunblocks.

Now let me give you the facts and I think you will then admit that your argument is based upon an entire misapprehension of the real state of the case.

By the way of illustration you ask, if an XI $\frac{in}{}$ gunblock were bored up to about the size of a pipe stem would it be strong enough for a rifled gun?

Certainly it would—not a doubt of it—provided, however, the gunblock had not *already* been bored to eleven inches, and the iron was good; which is not the case with blocks at Alger's—they being *already bored to 7-1/2 inches.* So that unless the present hole is filled up and a new tube of 58/100 *in* inserted your illustration will not touch the question.

Again these 7-1/2 inch blocks of 16000 lbs. each, have been found from the results of trial under the direction of Admiral Dahlgren—who designated them—in his opinion, to be of defective metal, and, consequently, of insufficient strength for Rifled Cannon.

You would certainly therefore deem it not less than criminal in me to transfer to you one of these blocks, to be rifled by Messrs. Sawyer, or any one else, for use in the Army to the imminent danger of the men, without at least giving an "opinion".

With reference to the two Sawyer guns the Navy borrowed from you, both gave way under ordinary fire on board ship, "shooting" in different ways, which impressed us with such an idea of that species of rifled artillery that we did not deem it expedient to borrow any more of them for Naval purposes: the sailors did not seem to appreciate them! I send you herewith a sketch of one of them with a report from Admiral Farragut, and the broken guns are now at the New York Navy Yard subject to your orders.

Nevertheless if, with the above facts before you, you still wish to have one of the blocks, a requisition for it in the usual form, through the War Office, will be immediately complied with.

As for the 2500 tons of coal, that operation I have nothing to do with; I have heard, however, incidentally, that at the capture of New Orleans *by the Navy,* there were seized a number of valuable streamers, cattle and divers other articles, but eventually taken possession of and used by the Army for its purposes—these, perhaps, in the final adjustment of the coal account, will be considered.

All such matters, however, I leave to wiser heads—my business is only Ordnance, for *Ne suter ultra repidam.*

I am, General, with great regard for your opinions in everything save Gun Blocks

Your friend and Servant

Signed—H.A. Wise, Chief of Bureau

Maj. Genl. B.F. Butler
Headquarters Dept. of Va. & N.C.

EVOLUTION OF THE CONCEPT OF LOGISTICS

Although many efforts have been made to define precisely the concept of logistics, there remain today many shades of meaning for this term. It is important to understand precisely what the concept encompasses in order that planning and communication may be facilitated.

An article prepared

by

Lieutenant Colonel Graham W. Rider, U.S. Air Force

Logistics has been, is, and probably will continue to be a most controversial military subject. There is absolutely nothing wrong with controversy when it leads to better understanding, better organization, or better operations. With regard to military logistics, however, these objectives have escaped our grasp time and time again because very few of us have ever appeared to be talking about the same thing. One has only to compare any two definitions of logistics to get the point. Yet, if you were to compare all of the definitions of logistics that are available, you would recognize that logistics is a function of warfare, that it has social and economic purpose, that it is a function of the organization, and that most of these definitions say the same things even though they differ widely in detail.

Reading definitions is a rather dry academic pursuit which should be left to academicians. On the other hand, most of us are deeply interested in understanding our profession, and logistics is a part of it. This article proposes to improve that understanding through an investigation of the origins of the word logistics and its conceptual applications to military organizations from its first use by the French Army of 1670 to its more recent use by U.S. Armed Forces in World War II. There then follows a brief look at developments concerning logistics in the postwar period. These have been sponsored by the services. The article concludes by describing a research study undertaken to resolve the current confusion surrounding the military concept of logistics.

The Origin of the Military Word Logistics. In the beginning there were two words, *logistikos* and *logisticus.* The first is Greek, the second, Latin, and they both had the same meaning—calculation or reasoning in a mathematical sense. At some later time the word took on a second meaning, so that today *logistics* in current usage can take either one of two totally different definitions. The first meaning, to reason mathematically, has remained constant for centuries.

We can trace the second meaning of logistics back to some obscure early usage of the latin root, *log-*. Latham states that *logluguea*, a noun meaning lodge or hut, appeared in records dated 1350; and *logio*, a verb meaning to lodge or dwell, appeared in 1380.[1] He attributes the French verb, *loger*, meaning "to lodge" to this Latin antecedent, and we might note that the root's usage is current. You can still buy a ticket for a loge seat in some local movie theaters.

The French verb *loger* leads us directly to the second meaning of logistics. As civilized societies grew out of the Medieval Age and began to acquire sophistication, so too did the nature of the warfare in which these societies engaged. Armies grew in size, and the problems of administering them also grew. Sometime near the year 1670 an adviser to the French King, Louis XIV, proposed a solution for these military problems in the form of a new staff structure for the army. One of the newly created positions was that of *Marechal General des Logis*, whose title came from the verb *loger.* This officer was responsible for planning marches, selecting camps, and regulating transportation and supply.[2] This instance appears as the first application of the new meaning of logistics and the first organizational usage of logistics as we recognize it today.

There are some who would argue with the last point by recalling that there was an officer in the Roman Army called the *Logista.* However, Latham states that the first recorded usage of the term occurred in 1574 and that it was the title for an accountant. This seems perfectly in keeping with the first meaning of logistics and the early Latin word *logisticus.* Even if the title was used in the Roman Legions, probably the official would have been a paymaster or an administrator. There is another argument that traces from the title of Quartermaster General. That title appeared in European armies at about the same time that the French created the *Marechal General des Logis.*[3] Since, as we shall see later, the two titles mean essentially the same thing, the argument goes that the earliest logistician was called the *Quaestor*, another official of the Roman Army. However, Latham states that this office originated as a judge, or more properly as an inquisitor, and later it became the title of the paymasters of the legions. From another source, H.M.D. Parker, who is an authority on the Roman Army, we find that neither *Logista* nor *Quaestor* were used as titles for legionary officers. Instead, he lists the *Praefectus Castrorum* (person in charge of the camp), and he describes this officer as a sort of glorified quartermaster who in time of peace was in charge of the camp and the specialists who were assigned to it. In time of war this same officer was in charge of the legionary train and supervised the provision of supplies.[4]

Although we could go into greater detail in investigating the origins of the logistics profession, it seems enough to say that someone has always had to furnish supplies and transportation for military forces. That office has had a number of titles down through history, but it was the French who gave us the modern term logistics. Very soon after the creation of the office of *Marechal General des Logis*, his duties were being described as *la logistique.*

Early Application of Logistics. Jomini first used the term *la logistique* which has been translated to English as logistics. He can be called the "father" of military logistics. He drew upon his experiences in a number of wars, principally from those campaigns when he was a staff officer for Napoleon, to write the following:

> If it be acknowledged that the ancient logistics was only a science of details for regulating everything material in regard to marches; if it be asserted that the functions of the staff embrace at this day the most elevated functions of strategy, it must be admitted also that logistics is no longer merely a part of the science of the staff, or rather that it is necessary to give it another development, and to make of it a new science which will not only be that of the staff but that of generals-in-chief.[5]

The duties of the *Marechal General des Logis* expanded and took on new dimensions. Logistics did not long remain on this high plane. In fact, it was eclipsed and, as we shall see, remained virtually so until World War II. The man who cast the shadow was none other than Karl von Clausewitz. In a very short span of time, the leading military men of the world adopted the Prussian interpretation of Clausewitz's theory of war. Since he makes no mention of logistics in all of *vom Kriege (On War)*, the concept of logistics lost most of the military meaning that Jomini had given it.[6] For example, about 40 years later, in 1876, an English major general published a dictionary in which he defined logistics: "With reference to military science, it is the study of the military resources of countries, which forms part of the information gathered by the intelligence department of armies."[7]

Edward S. Farrow, an instructor of tactics at West Point, in 1895 brought logistics back toward its original meaning but probably fathered a misconception mentioned earlier:

> Bardin considers the application of this word by some writers as more ambitious than accurate. It is derived from Latin *Logista*, the Administrator or Intendant of the Roman armies. It is properly that branch of the military art embracing all the details for moving and supplying armies. It includes the operations of the ordnance, quartermaster's, subsistence, medical, and pay departments. It also embraces the preparation and regulation of magazines, for opening a campaign, and all orders of march and other orders from the General-in-Chief relative to moving and supplying armies.[8]

A few years earlier, in 1888, Lt. Charles C. Rogers, USN, introduced the subject of Naval Logistics at the Naval War College, just 4 years after the institution's founding. Since that time the subject has had varying degrees of importance and emphasis in the curriculum.[9] The nature of the subject as it was studied there just prior to World War I is illustrated by this quotation from a lecture presented by Comdr. C.T. Vogelgesang, USN, in 1911: "... Logistics comprehends all the operations conducted outside the field of battle and which lead up to it, it regulates the execution of those movements which in combination become the functions of strategy ...."[10]

Logistics had not yet regained the position of a new science of warfare accorded to it by Jomini. A bright spot did appear in a book written in 1917 by Lt. Col. George C. Thorpe, a Marine and a graduate of the Naval War College. The book was called *Pure Logistics*, and in its preface Thorpe resurrected Jomini:

> The terms "pure" and "applied" may he used with the same meaning as to Logistics as to other sciences. Pure Logistics is merely a scientific inquiry into the theory of Logistics—its scope and function in the Science of War, with a hroad outline of its organization. Applied Logistics rests upon the pure, aud concerns itself, in accordance with general principles, with the detailed manner of dividing labor in the logistical field in the preparation for war and in maintaining war during its duration.[11]

Thorpe's influence was not immediately felt. In faet, many continued to regard logistics solely in terms of its application. For example, Farrow revised his dictionary again in 1918 and in it offered a definition of logistics which was succinct in comparison with his earlier work: "*Logistics*—That branch of the military art which embraces the details of moving and supplying armies."[12]

Bringing Logistics Up to Date. A number of definitions of logistics that appeared during the 1920's and 1930's said essentially the same thing that Farrow said in his last revision. Logistics was in the doldrums. Apparently, nothing of note was done organizationally or otherwise that could have given logistics a push either in theory or in practice. However, World War II changed the situation—it made logistics a household word.

The task of moving and supplying armies assumed by our Nation during World War II was greater than ever before experienced in military history. Troops and supplies were moved to the South, Central, and North Pacific Ocean areas; to China, Burma, and India; to Russia through the Persian Gulf and to the Barents Sea; the Mediterranean; and, of course, to Europe. The Army judged its prewar organization inadequate for this huge task. Accordingly, it reorganized early in the war to form the Army Service Forces along with the Army Ground Forces and the Army Air Forces. The Service Forces seemed equal to the task of moving and supplying armies all around the world, hut iu the opinion of the headquarters staff, the words "supply" and "service" were not. Logistics seemed more appropriate, and hy the time the organization disbanded, following the war, its use had become official. The Army Service Forces' final report was titled *Logistics In World War II*, and its introduction explained the use of the word in this manner:

> The word "logistics" has been given many different shades of meaning. A common definition is: "That branch of the military art which embraces the details of the transport, quartering, and supply of troops in military operations." As the word is used in the following pages, its meaning is even broader. It embraces all military activities not included in the terms "strategy" and "tactics." In this sense logistics *includes procurement, storage, and distribution of equipment and supplies; transportation of troops and cargo by land, sea, and air; construction and maintenance of facilities; communication by wire, radio, and the mails; care of the sick and wounded; and the induction, classification, assignment, welfare, and separation of personnel.*[13]

Now this was a significant development for logistics. It occurred in one of the largest organizations ever assembled by man, and it contributed to victory in one of the largest wars ever engaged in by man. Since one usually does not argue with success, logistics was accepted in the postwar years as much

more than moving and supplying armies —the concept was expanded to include construction, communication, medicine, and personnel. In 1948 a very slightly reworded version of the italicized part of the preceding quote appeared as the official JCS definition of logistics. However, it was not universally accepted by the Military Establishment. Presumably, the doctors, communicators, personnel managers, and others did not see themselves in quite the same way that the Army Service Forces did. Furthermore, one really cannot see any difference between that definition and one describing the entire field of military administration. In any event, attempts were made in the next few years to reword the definition so it would conform to actual military applications. The result was achieved in 1953 and has remained virtually unchanged since.

> *Logistics.* The science of planning and carrying out the movement and maintenance of forces. In its most comprehensive sense, those aspects of military operations which deal with:
>
> (a) design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel;
>
> (b) movement, evacuation, and hospitalization of personnel;
>
> (c) acquisition or construction, maintenance, operation, and disposition of facilities; and,
>
> (d) acquisition or furnishing of services.[14]

Thus, our exploration of logistics ends with a current definition. It is a long way from the original meaning of mathematical calculation and the later added meaning of lodging troops and ordering marches. Along the way, military scholars like Jomini and Thorpe have claimed that logistics is a science, but for most of the time it was neglected or relegated to a series of tasks that, hopefully, somebody else would do. World War II brought logistics to center stage for military men.

Post-World War II Developments. Interestingly enough, those who have become involved with logistics, particularly those with an inclination toward military scholarship, have given less than enthusiastic support to the official definition. In whole or in part they have tended to ignore it. Their efforts have taken the form of intensive scholarly inquiry and practical organization experimenting, most of which began with the book *U.S. Naval Logistics in World War II* written by Duncan Ballantine and published in 1947 at about the same time as was the report of the Army Service Forces mentioned earlier.

Ballantine was a historian and was encouraged and supported by the Navy to record the history and lessons of naval logistics during the war. He saw logistics as a process in which: " . . . the raw warmaking capacity of the nation is translated into instruments of force ready to be employed in pursuit of strategical or tactical objectives. As such it is both an economic and military undertaking."[15] Using this as a beginning, we can briefly describe some of the post-World War II developments that have taken place before getting into a detailed description of a study of these same developments which resulted in a modern definition of the concept of military logistics.

Navy Developments. In 1949 the Navy established The George Washington University Logistics Research Project. As mentioned previously, the subject of logistics had been taught at the Naval War College as far back as 1888. Benefiting greatly from the results of the ongoing Logistics Research Project,

the War College was able to place new emphasis on the subject in its curriculum. Rear Adm. Henry E. Eccles participated in the research project and in the Naval War College educational program. He has been a key figure in the latter and has written three books on logistics as well as numerous articles. Using his own studies and research to build upon Ballantine's foundation, Eccles offered a perceptive definition of logistics in 1959: "*Logistics* is the provision of the physical means by which power is exercised by organized forces. In military terms, it is the creation and sustained support of combat forces and weapons. Its objective is maximum sustained combat effectiveness."[16]

Army Developments. The Army also encouraged historians to work under its auspices in World War II and allowed them unlimited access to its files both during and after the war. Many Army studies have been published, but the most notable were two volumes written by Leighton and Coakley and two by Ruppenthal which dealt with global logistics and European logistics, respectively.[17] Their studies imply the same concept of logistics as was proposed by Ballantine. Leighton and Coakley observed in 1955 that, in spite of the official definition of logistics then published by the Joint Chiefs of Staff, there existed differing military interpretations of logistics. These were found in speeches and writings by members of the services and especially in organizational applications that varied widely from the official definition. They concluded that there was a:

> . . . widespread uncertainty in the military profession itself as to precisely where logistics stops and something else begins. Evidently the term is still in process of rapid and healthy growth. Until it matures and settles down, we must accept it, perforce, in whatever guise it appears—that is to say, with the specific shape, content, and emphasis it derives from its concrete environment.[18]

In the years since World War II, the Army created the Logistics Management Center at Fort Lee, Va., whose responsibilities range from academic to practical organizational applications of logistics. Army schools, particularly the Command and General Staff School at Fort Leavenworth, emphasize logistics in their curricula. The Army has also been a major contributor to the evolution of the modern concept of logistics.

Air Force Developments. The Air Force also sponsored logistics research in the postwar era. The Rand Corporation, established on an Air Force contract in 1948, organized a logistics research department in 1954. Rand research has helped the Air Force in its efforts to apply the concept of logistics in everyday operations.

On the academic level, the Air Force organized an Advanced Logistics Course in October 1955 at Wright-Patterson AFB, Ohio, in a residence program offered by the Air Force Institute of Technology. In cooperation with Ohio State University, this 6-month course was gradually improved and expanded into a 1-year curriculum which leads to the degree of Master of Science in Logistics Management. The degree has been fully accredited by the North Central Association of Colleges and Secondary Schools since 1963, and some 500 graduates now hold the degree. Thus the newest of our services has made its contribution to the store of logistics knowledge.

The Concept of Logistics in 1970. Obviously, the services have devoted a great deal of their resources during the past 25 years to the research and study of military logistics. Its importance as a function of war and as a primary organi-

problem has been to translate the idea, the concept, of logistics into a usable framework so that it can be successfully applied to military organization.

Since World War II a great deal of effort has been expended by the military services on academic research, study, and practical application in order to define the scope of logistics. To many observers these efforts seem to have produced a myriad of conceptual interpretations of logistics, each of which has been constructed to meet the individual need at hand.

However, an alert observer notes that the differences are not so much conceptual as they are semantic. The year-long study reported in this article took notice of the fact that logistics is conceived at three different levels of purpose or function. They derive from the viewpoints of the military authorities who have studied and written about the subject. These three levels were defined as the social and economic purpose of logistics at the highest level; the system processes or steps through which the purpose is achieved at the second level; and the work-functions or organizational tasks that must be performed to make the system work form the third level of the definition of logistics. Once this key to understanding the relationship among the differing views of logistics had been discovered, the simple task of categorizing definitions and resolving semantic confusion, though time-consuming, was done with ease. The resulting definition makes sense because it reasons logically both inductively and deductively. Many of the logistics management problems that military organizations face today can be solved through a rational application of this concept.

> *Military Logistics:* The social and economic function of Physical Supply and Physical Distribution that creates time and place value for military goods and services. As a military organizational system, the purpose of logistics is accomplished through the processes of Requirements Determination, Acquisition, Distribution, and Conservation. The organizational work-functions or physical tasks that must be performed to accomplish the purpose of military logistics are Traffic Management, Supply, Maintenance, and Facilities Engineering.

There stands the concept of logistics as it has evolved through the past three centuries. Let us take advantage of our knowledge to improve military organizations so that we can more effectively and efficiently accomplish our national purpose.

BIOGRAPHIC SUMMARY

Lt. Col. Graham W. Rider graduated from West Point in 1952 and was commissioned in the U.S. Air Force. He served for several years as an avionics and munitions maintenance officer in both squadron and headquarters staff assignments. Subsequently, he attended the Air Force Institute of Technology, School of Systems and Logistics, and received his master of science degree in logistics management in 1966. After serving for a year on the faculty of that school, he was selected by the Air Force to study for the degree of doctor of business administration at Arizona State University. Having completed that degree in June of 1970, Lieutenant Colonel Rider is now an assistant professor of logistics management on the faculty of the Air Force Institute of Technology. He is a recipient of the U.S. Air Force Institute of Technology Logistic Merit Award and is a charter member of the Society of Logistics Engineers.

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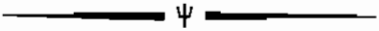

I don't know what the hell this "logistics" is that Marshall is always talking about, but I want some of it.

E.J. King: To a staff officer, 1942

The importance of the container ship for future logistical planning is difficult to overestimate. Because of this new development, a significant reduction in transportation costs and a revival of the U.S.-flag merchant marine are realistic prospects. These two trends will increase the capability of the United States to logistically support overseas commitments, but careful planning is necessary if their full effect is to be achieved.

AN ANALYSIS OF THE EFFECT OF THE CONTAINER SHIP REVOLUTION ON MILITARY LOGISTICS

A research paper prepared

by

Commander James H. Gallaher, U.S. Navy

School of Naval Command and Staff

> Spark for a sealift version of the industrial revolution has been ignited by those who have pioneered development of the container and containership.[1]

This statement by the Commander, Military Sea Transportation Service (MSTS) sums up the great changes which have been taking place in the merchant marine. The container ship revolution began in 1957 when Sea-Land Service, Inc., introduced three C2 cargo ships converted to carry 226 containers in Atlantic coastwise shipping. It took about 10 years for container ships to prove their value, and in 1967 the first container ships were built that were new construction and not conversions from older cargo ships. Since that time container ships have rapidly replaced traditional break-bulk ships in the U.S. merchant marine and hold promise of restoring the United States to a more competitive position in ocean trade.

The container is a simple aluminum or steel box, with doors at one end or at the side, into which break-bulk cargo is packed. For the first time in transportation history, an attempt has been made to standardize unit sizes of bulk cargo to be handled by truck or rail transport, dockside equipment, and the cargo vessel. The containers themselves are very flexible, being available in configurations such as wire mesh, tank, or an open structure which can be folded flat for storage.

The key to the efficient operation of container movement is standardization not only of container sizes, but of

corner fittings and equipment needed to fasten and move the containers throughout their movement cycle. Ideally, the container is sealed at the initial shipping point and remains unopened until its final destination, thereby reducing handling of the cargo and preventing loss, misplacement, and pilferage of cargo.

With the revolution of transporting material, it has become necessary to design a new range of equipment for the effective and efficient movement of containers. It includes, for example, special truck chassis, rail flatcars, mobile container stackers, and transporters. It has also been necessary to construct integrated ocean terminals with container stowage areas and special dockside cranes.

Of prime importance to the military shipper has been the necessity for designing a tailored ocean vessel for the carriage of the containers. These vessels have become known as "cellular container ships." Within the holds there are cellular structures of angle iron forming container guides onto which the containers are stowed. The container movement within the ship is vertical only, and therefore large hatch openings are required to make maximum use of the ship's hold. On many of these ships no cargo-handling facilities are provided, thus these ships operate only from special container ports which are equipped with highly automated gantry cranes to load and unload the ships.

In such a highly automated system a very fast turnaround time is achieved, as it is possible to unload and load a container every 4 minutes. The time in port is therefore cut to a matter of hours rather than the weeks necessary for a standard dry-cargo ship. The maximum economy of containerization is realized only if this high speed of loading is achieved.

Revolutionary Changes in the U.S. Merchant Fleet. As shown in table I, the present U.S. privately owned dry-cargo fleet consists of 598 ships with an average age of 19.2 years. Of this total, 96 ships are container ships representing 185 notional ship equivalents. In other words, the average container ship can replace about two average dry-cargo ships. This replacement factor is lower than might be expected because the container ship fleet has many units which were converted from conventional cargo ships which are smaller and slower than the second generation of container ships. Based on the efficiencies of the second generation container ships, the replacement factor would be much higher. Container ships which have been built new, as opposed to those converted from conventional

TABLE I—DEVELOPMENT OF U.S. PRIVATELY OWNED DRY-CARGO FLEET[a]

Year	Total No. Ships[b]	Avg. Age In Years[b]	Total Container Ships	Total Notional Containar Ships
1950	593	7.5	--	--
1955	620	11.9	--	--
1965	557	18.2	33	43
1968	599	19.2	78	136
1969	598	19.2	96	185

[a]Excludes bulk cargo, reefer, and coastal ships.

[b]*Source:* U.S. Military Sea Transportation Service, *Merchant Ship Register,* July 1969, p. I.

cargo ships, will have an average replacement factor of more than 4 to 1 by 1973.

An example of second generation container ships is the U.S. Lines *American Lancer*, which carries 1,200 20-foot containers, has a cruising speed of 21 knots, makes a round trip from the United States to Europe every 21 days, and replaces 17 standard World War II freighters. Sea-Land Service, an unsubsidized U.S.-flag carrier, is building in an overseas shipyard five 33-knot container ships which will each carry 1,000 containers.[2]

As can be seen from the above table, the total number of ships in the U.S. dry-cargo fleet has remained relatively static for the last 20 years, and the majority of the ships in the fleet are nearing retirement age. Significantly, container ships are rapidly becoming a substantially larger part of the total fleet, going from 5 percent of the fleet in 1965 to 16 percent in 1969. Projections for the number of container ships in the merchant fleet by 1973 indicate a total of 131 container ships representing 371 notional ship equivalents. From the high average age of the total merchant fleet, it is apparent that there will be a large reduction in the number of conventional dry-cargo ships in the near future and a related increase in the percentage of container ships. For the military contingency planner, who must rely heavily on ocean shipping for logistic support, these revolutionary changes have far-reaching consequences.

Included in the 1973 projection of 131 container ships are 14 newly developed barge-carrier ships which are under contract in U.S. shipyards. The operational concept of these barge-carriers centers on the shipper loading his goods into a large barge or medium-sized lighter at either a river or ocean port. The barge or lighter is then moved by tug to the oceangoing ship's side, where it is then loaded aboard and carried to its port of destination. In the delivery port the barge is put into the water outside the congested port area, and the craft are then towed to local warehouses or through inland waterways to the ultimate destination. There are currently two different types of barge-carriers under construction and a third type in the preliminary planning stage.

The first barge-carriers to be built are the Lighter Aboard Ship Handling, or LASH, vessels which will be 814 feet long with a draft of 28 feet and will carry 61 barges with a capacity of 440 long tons each, or 1,508 containers. The barges themselves may be loaded with containers or break-bulk. Eleven of these vessels are to be constructed for U.S.-flag operation at a total cost of over $200 million. The LASH ship will have a 500-ton gantry crane capable of loading an entire ship of barges in 18 hours. The ship will have the flexibility to handle lighters, standard containers, bulk commodities, baled goods, machinery, refrigerated and general cargo and is expected to replace seven general-cargo ships on an Atlantic shipping route. Delivery of the first U.S.-flag LASH is scheduled for 1970.

A second type of barge-carrier is represented by the so-called SEABEE-class barge and intermodal carrier. Three ships of this type are under contract at a cost of over $32 million each and are scheduled to enter service in 1971.[3] They will be 875 feet long with a draft of 31 feet and will carry 38 barges with a capacity of 850 long tons each or 1,600 standard containers. Loading will be by use of a submersible elevator located at the stern which will have a lifting capacity of 2,000 tons. The ship is designed to be highly flexible, combining the characteristics of a barge-carrier, roll-on/roll-off vessel, container ship, unitized or pallet carrier, heavy-lift vessel, or quasi-tanker. It is not cellularly constructed and, as a consequence, is not restricted to a single barge size.

A third type of barge-carrier ship, the "Stradler," is only in the planning stage

of development. It is conceived as a giant catamaran 1,160 feet long that will carry ten 12,000-ton satellite barges. The cost, estimated at $16 million, will be less than either the SEABEE or the LASH, but the "Stradler" will carry many times more cargo.[4] The cost of such large barges, however, will greatly increase the cost of the total system.

Another special category of ships which is included in the current 96-ship container fleet is the roll-on/roll-off ship. Six of these ships, capable of carrying wheeled vehicles or other units, are in service now. One of the largest is the GTS *Admiral William M. Callaghan*, which is privately owned and chartered to MSTS. The *Callaghan* has been operating for the military from the U.S. east coast to Bremerhaven, Germany, since 1967, carrying autos, military vehicles, and containers. Experience with this type ship has demonstrated significant benefits to the military in the form of flexibility and reduced transit and port handling times.[5]

The biggest roll-on/roll-off ship in commercial service is Transamerican Trailer Transport's *Ponce de Leon* which carries no containers or general cargo. The *Ponce de Leon* is a 700-foot, 26-knot ship which was designed for rapid drive-on loading and, unlike earlier roll-on/roll-off vessels, was built with three large side openings connected by ramps to the dock and leading inside the ship to three trailer and two auto decks. The ship carries 260 40-foot trailers and more than 300 autos or trucks on a New York to San Juan run. It can load and unload in as little as 8 hours.[6]

Military Requirements for Ocean Shipping. In an age where great tonnages of cargo are whisked around the world in a matter of hours, the military need for a large dry-cargo sealift capability may be questioned by some. However, because the U.S. military must rely heavily on peacetime commercial capability to support wartime operations, economics dictates a primary reliance on ocean shipping to support military operations 30 days after the outbreak of hostilities. With the innovations taking place in shipping, this reliance should continue into the foreseeable future.

In fiscal year 1969, 30.9 million measurement tons of military cargo were sealifted, more than any year since World War II.[7] This is even more than the total of 28.5 million measurement tons shipped in 1953 during the height of the Korean conflict.[8] Roughly 94 percent of cargo movement to Korea was by commercial ships, and 96 percent of military cargo has moved to Southeast Asia by commercial and Government sealift.[9] Of the 30.9 million measurement tons of military dry cargo moved by sealift in 1969, 3.5 million measurement tons were containerized. The use of container service by Department of Defense shippers for export cargo has shown steady growth in both tonnage and in number of containers from the first quarter fiscal year 1967 through fiscal year 1969. The full potential of containerization has not yet been realized by the Department of Defense. It is estimated that more than 50 percent of all military cargo is amenable to movement in a containerized system.[10] The container ships operating under the U.S. flag in 1969 were capable of transporting 18.6 million measurement tons, and by 1973 their capability should reach 37.3 million measurement tons.

Although some military transportation managers have expressed opinions that more container capability could be used by the Department of Defense, especially in South Vietnam, the total capability available appears to be adequate for the near future. It should be noted that the conflict in Southeast Asia has been adequately supported without resort to the requisitioning of ships, a power which is available to the

President during periods of full mobilization.

In spite of some initial difficulties, the present combat operation in Vietnam is being adequately supported by the current fleet. This does not mean, however, that capabilities will be adequate for a future war. MSTS has expressed doubt that the U.S. merchant marine has the capability to support a major mobilization for war.[11] The reason for this pessimism by MSTS is the general overage of the U.S. merchant marine and the more immediate prospects of modernizing this fleet. While it is apparent that merchant ships will not be replaced on a one-for-one basis, much of the lost capability is being substituted by new container ships. For a 1-year period ending 30 April 1969, 57 dry-cargo ships were scrapped, while the notional ship equivalent container ships built in 1969 were 49.[12]

While the replacement criteria for 1 year does not establish a trend, it does appear that container ships do hold some promise of replacing the capability of the shrinking merchant fleet. There exists a related problem. Will the container fleet have the flexibility necessary to sustain future military operations? Two elements of the problem of flexibility are: (1) will there be adequate conventional break-bulk or roll-on/roll-off ships to move the 49 percent of military cargo that cannot be moved in container ships; and (2) is there danger that container ships will be of little use in contingency operations in underdeveloped areas because they require special cranes at the ports? Both of the above questions can be partially answered from table II.

Table II indicates that a total of 11 self-sustaining ships and 5 nonself-sustaining ships were built in 1969, and 21 self-sustaining ships and 14 nonself-sustaining ships are projected for the period 1970 through 1973. This comparatively brief period of time does not substantiate a trend, but it does show the current inclination of U.S. shipowners to want the flexibility of being able to handle both break-bulk and container cargo. All of the self-sustaining ships listed above are capable of carrying break-bulk cargo and of unloading in an overseas area without specialized cranes in the port.

Given the present condition of the merchant marine and the prospective modernization program, the capability of this fleet to support any significant future military operation is marginally adequate. In addition, the military services will be required to be much more conscious of individual ship scheduling in the future. With the advent of more specialized ships, additional consideration will have to be given to the type of cargo and the capability available for loading and offloading.

TABLE II—NUMBER OF NEW CONSTRUCTION DRY-CARGO SHIPS BY TYPE[a]

	Type of Ship	1969	1970-1973
Self-sustaining	Conventional Cargo	2	--
	Partial Container—60-70 ton booms	5	7
	Roll-on/Roll-off	4	--
	LASH/SEABEE	--	14
Nonself-sustaining	Full Container—No Cargo Gear	5	14

[a]*Source: Merchant Ship Register,* July 1969, p. V, VI, 1-32; *Marine Engineering/Log,* September 1969, p. 9, 71-73.

Areas for Exploitation by the Military. The economics of shipment by container are equally available to the military and the civilian shipper. The principal advantages of containerization over break-bulk shipment are:

1. The major economy comes from reduction of time spent in port by the container ship. The loading and unloading time of a ship by conventional methods is normally 5 to 8 days, whereas a container ship will take only 12 to 36 hours. This results in savings in the cost of handling the cargo and in lower operating costs for the ship itself.

2. Loss and damage are usually reduced. This includes loss from pilferage by cargo handlers, which is notoriously high, the inadvertent loss of small lots in transit, and damage to cargo during handling and transit. In addition to the monetary savings, this has the added advantage to military logistic support of insuring greater reliability of receipt of vital material.

3. Packaging is normally reduced, thereby reducing costs for preparation for shipment and transportation costs which are based on weight.

4. All of the above advantages result in lower inventory costs due to a shortened supply pipeline.

These economies of containerization are passed on to the military shipper. A representative sample of Department of Defense exports in containerized shipments to South Vietnam in 1967 was analyzed by the Military Traffic Management and Terminal Service (MTMTS) to determine the cost of containerization versus the movement of the same cargo as break-bulk. The landed cost was determined for 12 shiploads, a total of 196,772 measurement tons, that moved through a west coast commercial terminal to South Vietnam. The average cost savings for movement by container rather than by break-bulk was $8.24 per measurement ton for a total cost savings of $1,621,246 for the 196,772 tons moved.[13]

In another test, in shipments of 1 million measurement tons valued at $1 billion, the Army-Navy Exchange Service saved $25 million on pilferage and $1 million on transportation costs.[14]

As pointed out previously, over 50 percent of military export cargo is adaptable to containerization. With only about 11 percent currently being containerized, there is an opportunity for further economies in the expansion of containerization by the military shipper.

Providing there is already an established port complex in the theater of operations or there is time available to build one, one of the most important advantages of container shipping to the military logistician is better supply support.

At the beginning of the Vietnam buildup, large numbers of ships anchored offshore awaiting discharge, sometimes for weeks. This greatly inflated the number of ships required to support the operation in Southeast Asia and was costly. The solution to this problem required many actions, but the institution of container ship service to the Western Pacific area was a major factor in decreasing turnaround time for cargo ships. The present container ship system to the Republic of Vietnam provides for delivery of approximately 60,000 measurement tons per month. Container ships are turned around on the U.S. west coast in about 48 hours and in Vietnam in 24 to 48 hours. The average lift is 9,000 measurement tons for each of three C2 container ships and 24,000 measurement tons for each of three C4] container ships. On a west coast to Vietnam run, this capability equates to approximately 20 standard World War II Victory ships which constitute the major portion of the MSTS-controlled fleet today.[15]

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It appears that due to budget restrictions, Congress has permanently shelved the Fast Deployment Logistic Ship (FDL) project. All of the military services were agreed that an FDL program was required to provide rapid reinforcement of U.S. forces in limited wars during the 30 to 60 day period after hostilities began. In the FDL concept, Army material would be stowed in FDL ships and maintained in a high state of readiness. The ships, with a 28-foot draft, would be capable of unloading in 72 percent of 1,000 established world ports or over the beach. Capacity was to be 11,000 short tons and the cost of the first FDL approximately $46.8 million.[16]

The LASH or SEABEE barge-carriers discussed previously offer a viable and economical alternative to the FDL program. With 14 of these new ships scheduled to be in operation by 1973, it would be very practicable and relatively inexpensive for the Department of Defense to buy a number of barges and preload them in line with the FDL concept. The LASH ships are designed with a 28-foot draft and would therefore have the same accessibility to world ports that the FDL would have had.

There are some deficiencies in substituting barge-carriers for the FDL. Both the LASH and SEABEE are designed to discharge in still water. They are, however, much more flexible than conventional cargo ships or container ships. Barges can be towed up inaccessible rivers by tugs which can be carried to the overseas area on the mother ship. Another drawback is that any casualty that immobilizes the shipboard crane would stop operations completely. Additionally, the lighters or barges are not presently designed to be self-propelled or to provide over-the-beach discharge. The barges are also not capable of being discharged at their destination without a crane on shore. This crane, however, need be only a relatively small mobile crane which could be carried on the ship and moved ashore with the first load of cargo. One or more helicopters could also be carried on board the LASH or SEABEE ship to carry containers directly to the area of operations.

Once a sufficient fleet of barge ships comes into existence, there are many additional developmental opportunities which should be exploited by the military. Barges could be easily developed for over-the-beach operations, outboard motors could be carried on the mother ships and attached to lighters upon arrival overseas, and specialized barges could be developed to carry troops and their equipment.

By carrying troops in air-conditioned barges on the upper deck of the barge-carrier along with their vehicles on the lower decks, either roll-on/roll-off or in landing craft, the barge-carrier would represent a truly mobile striking force. These features are readily available without design changes in the SEABEE-type ship. The Department of Defense should explore this concept in depth with a view toward eventually leasing or buying barge-carriers for military use.

That the U.S. merchant marine is foundering is a much discussed fact. From 1950 to 1967 the percent of U.S. foreign trade carried in U.S.-flag ships dropped from 39.3 percent to 6.5 percent.[17] The industry is handicapped by high labor costs for ship construction and cargo handling. Currently the cost for loading and unloading ships in the United States is 3 to 10 times foreign costs, and ship construction costs are 2 to 3 times those of foreign shipyards.

The only way U.S. ocean carriers can effectively compete with foreign-flag carriers is to change from a labor-intensive industry to a capital-intensive industry. The United States has traditionally had a competitive advantage over foreign competition in areas which require technology and capital.

Container ships appear to be on the verge of restoring the American mer-

chant marine to a competitive position, which is of vital interest to military logistic support. The technological advantages of the container revolution coupled with a second generation of container ships utilizing the economies of large size and high speed have already recaptured some of the ocean cargo trade for U.S. ships. During the second quarter of 1969, U.S.-flag ships carried 58.6 percent of all container traffic in the North Atlantic and 64.8 percent of all container cargo in the west coast-Far East trade.[18]

Containers offer an opportunity to increase the military peacetime readiness position for wartime operations. Historically the military has had to pick, pack, and mark equipment and supplies and move them in many small lots. This has been time consuming, and the process has often misplaced many vitally needed items within the logistic supply system.

Prepacking may prove to be cost effective if a trade-off can be found whereby investment in prepositioned war reserve material is reduced and several potential trouble spots are covered with a single reserve. It is quite possible that the best combination of maintaining a capability for deploying war reserve material will come from centralization of stocks in the United States in prepacked containers ready for rapid deployment. The trade-off would be realized through the reduced cost in facilities, maintenance programs, and inventory investments in the overseas commands.

Potential Problem Areas. While containerization is an exciting new development in transportation and offers many areas for exploitation by the military, there are also several potential problem areas which offer a challenge to the military logistician.

It is perhaps a paradox that the technological improvements that have made container ships more efficient and economical pose the biggest problems for military logisticians. A major factor in the design of most general-cargo ships has been flexibility, a feature that is not compatible with the efficient handling of containers. The main characteristic of the most economical container ship service is a relatively few large container ships serving a relatively few fixed terminals with the cargo handling gear permanently installed and with feeder ships operating out of the heavy density terminals to service other ports in the general area.

For reasons of economics, many container ship operators prefer a shore gantry crane to cargo gear installed on the ship. This preference is based on the rate at which containers can be loaded or unloaded rather than the comparative cost of each system. The actual cycle time for shipboard gantry cranes is about one-half that of a conventional shipboard boom, while a dockside gantry is almost twice as fast as the shipboard gantry.[19] The shipboard gantry is likely to be more reliable than a shore-based crane on a sustained basis because it is less subject to wind effects and pendulating and can be spotted more easily.

Container ships which are not self-sustaining, that is do not have cargo handling gear on board, may pose a problem for the military. Projections of the container ship fleet for 1973 indicate that approximately 50 percent of the fleet will not be self-sustaining. This has little military implication during peacetime since an extensive worldwide automated container port system is already in being. During wartime, however, these ports would be highly vulnerable and if destroyed would greatly reduce the sealift capability available to the military. Additionally, it may be assumed that future contingencies will be in undeveloped areas of the world which do not have container port facilities.

There are answers to this problem of flexibility. The LASH, SEABEE, and

roll-on/roll-off ships already discussed represent a reversal in the trend toward ships which are not self-sustaining. Both the Naval Facilities Engineering Command[20] and the Maritime Administration[21] have made recent studies of portable port concepts and have determined that practical systems can be developed that will allow unloading of cargo ships in areas that have had their port facilities destroyed. Both studies have included a capability to unload containers; however, the Maritime Administration study only addressed unloading of self-sustaining container ships.

Another possible solution to nonself-sustaining ships is for the Department of Defense to subsidize the extra cost of shipboard gantry cranes. This solution is of doubtful merit since the purpose of the shore-based crane is to speed up container handling, and adding shipboard cargo handling gear would defeat this purpose.

One of the better solutions is for the Department of Defense to promote the development of barge-carriers through long-term charters of this type ship by MSTS. Although Congress has not appropriated funds to buy ships for the MSTS nucleus fleet, MSTS has been given permission to negotiate for ships on a long-term charter basis. Barge-carriers offer the most flexibility of the new ships being built and also offer an opportunity for analysis of actual operations.

A Japanese-built LASH ship recently began operations between the U.S. gulf coast and Europe. Its operations can be observed to determine actual operating conditions and efficiency, and if operating experience shows that the LASH performs to designed characteristics, MSTS would then be justified in chartering this type ship on a long-term charter basis. This would have two beneficial results. The military services would be assured of having at least some flexible ocean shipping capability during the initial buildup of a contingency operation, and by chartering commercial design ships MSTS would increase shipyard production, thereby lowering unit costs on barge-carriers and increasing the likelihood of commercial buys on these ships. This, in turn, would increase the overall flexibility of the merchant fleet.

It should be pointed out that non-self-sustaining container ships do have flexibility of a kind. The experience of one container ship operator, Overseas Containers Limited, has demonstrated the adaptability and flexibility of container ship service. They began operation of a full container ship, carrying 1,300 containers, in March of 1969 between the United Kingdom and Australia. Because of labor problems the company was unable to use a special container port which had been built in England. Instead, Rotterdam and Antwerp were used by utilizing a large-scale switching operation. This involved using these alternate ports and a combination of short sea and rail service for a feeder operation between the ocean ships and their United Kingdom markets. The ease with which container cargo can be handled enabled this transshipment to take place in a manner which would not be feasible for general-cargo ships. The shipper has not suffered a significant loss of time on the switch. Cargo transshipment time from Antwerp to England has added only 60 hours to the total trip.[22] This flexibility is highly significant to the military for peacetime operation and for wartime operations in developed areas.

Progressive substitution of very large and highly productive ships for several older ships may present another very significant problem to military planners. The possibility of loss of several large container ships may make U.S. military logistic support highly vulnerable. There is no doubt that the trend is to fewer ships of larger capacity, so it is imperative that the military have effective

plans to counteract enemy threats to ocean shipping in time of war. Shipping losses as experienced in World War II simply could not be tolerated.

In the past, one of the biggest problems in safeguarding ocean shipping has been the slow speeds of merchant ship convoys. With larger and faster merchant ships, the convoys will be faster and there will be fewer ships to protect. These two factors should afford a much higher degree of protection from an enemy threat, especially the submarine threat. Additionally, the short port turnaround time of the container ships is a decided advantage, since ships in port are highly vulnerable to enemy land, sea, and air attack.

A problem related to unloading containers in an undeveloped area is that of specialized equipment. Once the container is unloaded from the ship, it requires different handling than break-bulk cargo. Some form of special material handling equipment is required to move the container from the dockside to hardstands, marshaling yards, or break-bulk points. This equipment, which includes truck chassis, forklift trucks with special attachments for container handling, and straddle carriers, is readily available as off-the-shelf items. In undeveloped areas, however, this type equipment will probably not be available. This is a relatively easy problem to solve with prior planning to insure adequate equipment is shipped to the overseas port along with the first container ship of cargo.

One new concept which appears promising for solving the problems of destroyed ports, port congestion, and shore-side material handling is the Ship/Helicopter Extended Delivery System (SHEDS). The essential components of the system consist of a ship with a suitable area for helicopter pickup, the helicopter system, and the container or unitized cargo. The advantages of the SHEDS system are port and beach congestion can be bypassed, and delivery can be made to areas where no port facilities are available. The trade-offs in terms of savings in port development could be significant for short-term operations and more than compensate for the added cost of the helicopter system. Initial studies made by MSTS indicate a helicopter discharge system can be cost effective if properly employed.[23]

There are two major shortcomings of the SHEDS system. It can only be used on ships which are self-sustaining, and the helicopters are highly vulnerable in a combat zone.

The military operates ocean terminals on both the east and west coasts and is studying the need for container operations at both locations. There have been no studies completed on the necessity for military owned container handling capability.

Jane's Freight Containers 1968-1969 lists six U.S. west coast, seven U.S. east coast, four U.S. gulf coast, and 32 other world ports which have extensive container handling capabilities. For example, at Howland Hook, Staten Island, American Export Industries is constructing a unique container terminal which will have three berths so highly mechanized they will be capable of handling the equivalent of all the general cargo moving through the port of New York at present, about 14 million tons per year.[24]

From the extent of commercial container port capability available, the assumption can intuitively be made that the military do not need their own container ports in peacetime. Military requirements during war, however, are unique. Ammunition shipments during wartime comprise a large part of the total military cargo and must be handled through special ocean terminals. Because of the special nature of ammunition handling facilities, it has been found that the Government must own these facilities. In any future war, ammunition will be handled in some

form of container. It will therefore be necessary for the military to have some container handling capability, at least at ammunition terminals.

This area needs further study to determine whether funds could be spent more advantageously in developing a SHEDS system, a portable port, or for military application of the barge ship rather than on U.S. port facilities.

If the military shipper is to realize the optimum benefit from the growth in containerization, the consolidation of small shipments must be exploited. When small shipments are consolidated, control improves, transit times are reduced, and lower transportation costs are realized. A small shipment consolidation test was conducted by the Military Traffic Management and Terminal Service (MTMTS) last year, using a commercial contractor in Philadelphia.[25] This resulted in considerable savings to the Department of Defense and, as a consequence, has become a continuing operation. With the gradual replacement of the break-bulk ocean fleet with container ships, cargo consolidation operations will have to be expanded. It remains to be determined if military operated consolidation points would be more economical than commercial ones.

The International Standards Organization (ISO), of which the United States is a member, has adopted as size standards for containers an 8½-foot height, 8-foot width, and 10-foot increments of length up to 40 feet.[26] These standards have been accepted by the American Standards Institute (USASI) and the American Bureau of Shipping (ABS) and are designed to facilitate the movement of containers on an international basis. They are a common denominator for international commerce but have not been accepted by all U.S. container operators. Manufacturers and users continue to design containers based on economic considerations rather than ISO standards. None of the containers owned by two major container lines conform to these ISO standards, and containers are not normally interchanged between container lines.[27] The ocean carriers must use a container which can be economically handled by a truck, and therefore length is the most controversial dimension. Engineers are working on the problem of adapting vessels to various size containers. The SS *Hawaiian Progress*, a new 34,000 ton container ship, has been designed with the capability to handle containers of virtually any size.[28]

Quite possibly there is no valid need to have a single size for commercial containers. The size should be based on how the container will be used; that is, the container should combine the requirements of the two or more modes between which it will be transferred.

The standardization problem is, however, vital to military strategic planning. The military presently owns 200,000 containers of an 8½-foot by 6¼-foot by 6-foot 10½-inch size. These nonstandard containers were developed before the advent of cellular container ships and were designed to be moved on break-bulk ships. The military has a future requirement for a substantial inventory of its own containers in order to exploit the advantages of containerization in prepositioning stockpiles, for containerization of partial or complete depots in the United States for automatic resupply of committed combat forces, and for use where there is no commercial service or commercial service is inadequate.

The Department of Defense is now engaged in procuring a second generation container of 20-foot length which will conform to ISO standards.[29] Additionally, the Army Materiel Command is experimenting with a TRICON of a 8 by 8 by 6 2/3-foot size which will allow coupling of three containers to form a 20-foot standard unit.[30]

In the light of the rapidly growing cellular container ship fleet, the Depart-

ment of Defense should assure that new container procurement will result in containers which are capable of being handled by the largest number of ships. Now and into the future this means containers which conform to ISO standards. Standard containers for military use will insure that the widest possible advantage will be taken of economics of containerization and will greatly reduce requirements for organic cargo handling equipment, both at the ports and over the road.

Some nonstandard containers may be required for the Department of Defense. In some areas it could be more economical to use a nonstandard special purpose container and handle it on break-bulk ships or as deck cargo. There should be no question, though, that the flexibility required in military logistic operations demands that the vast majority of military owned containers conform to ISO standards.

The container ship industry has many other administrative problems such as customs procednres, documentation, insurance, and registration of containers. These are being tackled by various international organizations and will not be covered here as they are not vital to military operations.

Conclnsions and Recommendations. Container ships and special purpose ships are presently a significant part of the U.S. merchant marine dry-cargo capability and will be an even more substantial part in the future. This will affect the flexibility of the commercial ocean carriers to respond to future demands for support of military operations. The military is heavily dependent on ocean shipping for logistic support and must be aware of these changing capabilities.

Even though the makeup of the fleet has changed, the total capability to support military operations short of a general war is adequate for the foreseeable future. This does not mean, however, that the military services do not have to make changes in planning for future logistic support. The container revolution has many problem areas, as well as areas for exploitation, and the military planner must be aware of these.

The major problem area is the loss of some flexibility in relation to cargo choice and in loading facilities. To solve this problem it is recommended that:

1. Container ship limitations and capabilities be included as an integral part of future logistic support force studies to enable military planners to become familiar with limitations of the merchant fleet. Advantage of speed and size, limitations on flexibility, scheduling problems, and vulnerability of each of the specialized ships—LASH, SEABEE, cellular container ships, and conventional cargo ships—should be considered.

2. Vulnerability, speed, and numbers of container ships be considered in developing contingency plans for future convoy operations.

3. A mobile emergency port be fully developed and procured by the Department of Defense. The approach should be in line with the study on portable ports conducted by the Naval Facilities Command and should include the capability to unload container ships which are not self-sustaining.

4. The Ship/Helicopter Extended Delivery System (SHEDS) program be fully developed by MSTS so that it will be operational for future contingencies.

5. The Department of Defense initiate a major study on the possibilities available to the military in the nse of barge-carrier ships for fast logistics replenishment. The study should lead to development and procurement of specialized barges and procurement of barge-carrier ships through long-term charters by MSTS.

Military ownership of container ports is an area that requires more study. In view of the large number of commercial

container port facilities available, the necessity for construction of high-cost military container ports, except for ammunition handling, is questioned.

Containerization offers several areas for improvement in military logistics support, both in reliability and in the reduction of transportation costs. To take advantage of these savings it is recommended that:

1. Military container shipments be increased to the maximum extent possible through expansion of the shipment consolidation operation begun by MTMTS. Further study should be undertaken to determine whether container consolidation points should be military or commercial operations.

2. The Department of Defense study the cost effectiveness of prepositioning stocks in containers for rapid deployment to overseas areas of operation.

The container ship revolution promises many advantages to the Department of Defense, including the restoration of the merchant marine's capability to support defense requirements. The problems of containerization, inherent in any major technological change, can be solved and turned to advantage with awareness and proper planning by the military logistician.

BIOGRAPHIC SUMMARY

As a supply officer, Comdr. James H. Gallaher, U.S. Navy, has had considerable experience in both logistics and transportation. After graduating from Miami University in 1955 with an undergraduate degree in mathematics, he attended the U.S. Naval Supply Corps School in Athens, Ga. Since then he has served in a variety of billets ashore and afloat, including a tour as Executive Officer of the Director of Plans in the Military Traffic Management and Terminal Service. Commander Gallaher is a graduate of the School of Naval Command and Staff at the Naval War College and holds a master's degree in international relations from The George Washington University.

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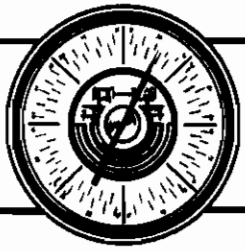
Ψ

There must be no doubt that we can carry the trade, and our goods and our ideas to all the nations.

Representative Herbert C. Bonner
on National Maritime Day,
Fort Eustis, Va., 22 May 1961



THE BAROMETER

(This discussion comments on Professor Vincent Davis' proposed "Universal Service: an Alternative to the All-Volunteer Armed Services" published in the October issue.)

. . . Professor Davis succeeded in scuttling his own proposal by recognizing that present antiestablishment youth would never politically permit a national policy of manpower allocation. In all the discussions pro and con of an all-volunteer force, including the Gates Commission report, none have focused exclusively and in depth on the potential military recruit, his motivations, aspirations, goals, and values. I would like to inject some thoughts for further study by Professor Davis or others at the Naval War College.

(1) The draft has been a *major*, but not the *only* motivation for youth enlisting in the armed services. This statement is supported by recent experience with the draft lottery system. Many of the current recruits do not wait to know their lottery number but enlist on graduating from high school. These are what we in the Recruiting Service, call "runners": people who for one reason or another want to leave home after graduation. These "runners" are not limited to poor, blacks, or blue collar sons, but are a cross-section of middle-class America. "When" they run is dependent on conditions. They won't run from Cape Cod during the summer season nor from Aroostook County, Me., during potato picking time. They may stick around for summer employment or a girl, but soon tire of a $70 per week dishwashing job. The vast majority of naval recruits from July to December are composed of these individuals. The draft is simply not breathing down their necks at that moment. They could opt to wait for their lottery drawing if the draft were the only motivation.

(2) Because of the above, the statement that the armed services under an all-volunteer force would be composed of blacks, poor, and blue collar sons is unsupportable. It can be supported, however, that the percentage of first-term reenlistments and thus career personnel are highest among (1) blacks, (2) persons from rural areas (the South, northern New England, etcetera), (3) persons from substantial unemployment areas, and (4) persons from lower socio-economic groups. The origins of career designated personnel would probably remain unchanged under any system for initial enlistment.

I would not dismiss the all-volunteer concept too readily. It may have some beneficial side effects, such as better career motivation, increased operating efficiency, and greater job satisfaction for first-term recruits. Nor would I concentrate solely on increased pay to make the all-volunteer concept work. Certain administrative steps can be taken now by the Navy at little increase in cost:

(1) Assignment of younger, career petty officers to the Recruiting Service, who have charismatic appeal, public relations flair, and could become effective Navy ambassadors in the community to offset current antimilitary feelings. Motivational studies show that the recruiter is of major importance in affecting a young man's decision to

enlist. The assignment of a greater number of first and second class petty officers would enable civilians to better identify the Navy uniform- The *mod* look—which is not true for the chief petty officer and officer uniform. Also, especially in the case of minority groups, assignment of younger career petty officers would assist in closing the generation gap between recruiter and potential applicant.

(2) School guarantees for qualified applicants. Too often a potential applicant is lost to another service because of the Navy's inability to guarantee specific training. Out of necessity, in the past, the control of recruits to various training activities required centralization of classification and assignment functions to preclude the possibility of too many cooks and no technicians. However, with the development of computerized information systems, it would seem beneficial to decentralize the classification process to the main recruiting stations in order to provide school guarantees for highly qualified applicants.

(3) Greater recognition of civilian training. We have cases where individuals have spent 1 year in data processing training but are rejected for DS/DT rating because they did not receive training in one or two specific pieces of equipment.

(4) Establishment of a mutual contract, rather than a perpetuation of the present feeling of signing-your-life-away on the part of the individual. This could be accomplished by establishing a training/enlistment contract. The Navy would provide x training in return for x years enlistment. Training would include recruit training and Class "A" school training. The enlistment contract would take effect on the completion of all training.

(5) Adjustment of monthly quotas to conform to those periods that youth seek enlistment. It has been our experience that the most qualified applicants enlist between July and December of each year. By January through May, the Recruiting Service is scraping the bottom of the barrel and has problems in filling quotas. There are reasons, of course, for keeping monthly quotas quite uniform: school seat capacities, recruit training command capacities, and budget. However, it would seem the prime mover in this system of distribution should be the youth themselves. A model for this system could be formulated, using the techniques of system dynamics and MIT's Dynamo computer.

America's youth does not have its antiestablishment attitudes without some foundation. On the other side of the coin, I do not believe the Navy should be apologetic for any of its programs nor uncertain about its future under an all-volunteer concept. We have "an honored profession"; it can be challenging to the youth of today. It can be sold by recognizing that enlistment in the Navy has mutual advantages, for the individual and for the Navy.

H.A. BEAULIEU
Commander, U.S. Navy

There have been many cases in which civilian commercial endeavors have been aided by technology previously acquired by the military for a related purpose. One outstanding example of this was the utilization of the experience of the Navy and Coast Guard in the design and planning for the passage of the icebreaker-tanker "Manhattan" from the eastern coast of the United States to Prudhoe Bay, Alaska. By the late 1970's a fleet of such tankers may operate regularly in the Northwest Passage, carrying domestic petroleum to the industrial Northeast.

THE PASSAGE OF THE MANHATTAN AN EXAMPLE OF MILITARY SPINOFF

An article

by

Lieutenant Commander Robert D. Wells, U.S. Navy

High on the North American Continent lie rich deposits of natural resources. Although the area has long been known to contain substantial mineral wealth, the difficulty of traveling in the Arctic environment has delayed the discovery and exploitation of these resources. New strikes of oil in a massive petroleum formation on Alaska's North Slope in 1968, however, have reopened the question of economic sea transportation in Arctic waters. The day is at hand when the ice-choked waters of the North American Arctic may be developed into commercial shipping lanes.

The fabled "Northwest Passage" was not successfully transited by any vessel until Roald Amundsen made the passage in 1905-06 in the 57-foot sloop *Gjoa*. During the late 1940's and early 1950's, various routes through the Canadian Archipelago were cautiously transited by exploring icebreakers and scientific parties. When the Canadian icebreaker *Labrador* led a four-ship United States/Canadian convoy through Bellot Strait in August 1957, there was no longer any question that a deep-water shipping route for oceangoing vessels was available.

Whether or not the route is commercially practical, however, is an entirely different consideration. What is feasible for a specially equipped icebreaker may not be feasible for a money making freighter with a tight time schedule. The daily operations of a commercial vessel result in steady overhead costs, and the loss of a few days in shifting ice or the cost of an accompanying icebreaker can make the difference between profit and loss. Taken

together with the requirements for special ice-strengthened hulls and higher insurance rates, it is no wonder that commercial shippers have been reluctant to allow their ships to transit the shorter but more treacherous Arctic waters in search of quicker transoceanic routes. The difficulty and dangers of operating in the ice, together with the lack of a compelling commercial incentive, have combined to leave the Northwest Passage and the ice-choked straits of northern Canada virtually untraveled, save for occasional research vessels and summer high-latitude military resupply missions.

Post-World War II years, however, saw a number of discoveries of natural resources in the American and Canadian Arctic regions that pointed toward new Arctic development. Uranium on the shores of the Great Bear Lake and iron in the wilds of Arctic Labrador were among the first mineral deposits to be exploited. Nickel, asbestos, and forest products from the northern stretches of Canada have also been developed. Other valuable deposits have been discovered and then forgotten, the victims of cheaper and more accessible deposits of commercial quality in southerly areas.

In the past 2 years, however, so many more discoveries have been made that the economic facts of life in the Arctic regions may change. The big boom at hand now is oil. Spectacular strikes of high-grade oil near the Arctic coast of Alaska in 1968 have driven the price of "worthless" tundra sky high. The Prudhoe Bay State No. 1 strike and Sag River State No. 1 strike 7 miles away have made it clear that a major field has been discovered.[1] Estimates of the new reserves run from 5 billion to 40 billion barrels, a pool of black gold possibly larger than all heretofore known oil reserves in the United States.

In September of 1969 the State of Alaska auctioned off oil leases on the North Slope for over $900 million, a clear indication of the wealth beneath the permafrost. With that much oil at stake and a relatively easy-to-load cargo at hand, Arctic shipping suddenly had both the market and the money to justify a new look at the Northwest Passage. Atomic icebreakers, 250,000-ton tankers, and navigational assistance from orbiting satellites all became commercially attractive with oil money to back them. Feasibility studies quickly became the order of the day.

Because of the Navy's unique fund of knowledge dating from the last century and the accumulated ice expertise of the U.S. Coast Guard, these agencies quickly became the focus of thoughtful questions from potential shippers considering the use of the Arctic seas. MSTS, as the only American "merchant shipping line" to have had significant ice experience since American whalers went out of business, also was queried.

The bank of knowledge thus sought for commercial exploitation was vast, but scattered. In some cases, such as the Navy's in-house icebreaking expertise, the knowledge was also dissipating, as the icebreaker-trained officers from the Navy icebreakers were shifted into non-Arctic jobs. Written information such as operational reports and research data were available, but they required collating and careful analysis.

Collecting and analyzing the information was not easy, even though ships of all sizes and descriptions have plied the passages of North America's Arctic archipelago. What was available was of great interest, however. The Navy built three ice-strengthened cargo ships in 1956—the *Mirfak*, the *Eltanin*, and the *Mizar*. The Arctic records of these ships, two of which are now in research work, were available for the naval architects to examine. Similarly, the Navy has had ice-strengthened tankers in use in both the Arctic and the Antarctic—including the *Alatna* (T-AOG-81) and the *Chattahoochee* (T-AOG-82). Although these latter vessels, with a carrying capacity of only 2,730 tons d. w. t. (30,000 barrels), could not provide an economical

commercial tanker prototype because of their modest size, the lessons of Arctic naval architecture were useful.

Of greater interest was the MSTS plan to ice-plate portions of the hull of a T-5 tanker, the USNS *Maumee*, for use in the Antarctic. The *Alatna*, which had been used for Deep Freeze resupply at McMurdo, normally had made five trips per season to provide the wintering-over POL supplies, while the New Zealand Navy provided another two shiploads. The larger T-5 has a capacity in excess of the required annual supply of 150,000 barrels and, when modified for operations in the ice, can deliver the entire winter's load of POL to McMurdo in a single voyage, with room to spare. Even this ship, however, would not present the same problems as a commercial carrier: a T-5 is over 600 feet in length, with a beam of 83 feet, but is still just a fraction of the size of the 250,000-ton icebreaking tankers now contemplated.

The economics of operating commercial tankers is the determining factor in the tankers-through-the-Arctic concept. To be economically feasible, the tankers must save enough in time and distance "over the top" to justify the risks of this route in preference to the longer but ice-free southerly routes. If the destination of Alaskan oil were refineries in New York and the vessels were too large to navigate the Panama Canal, we would be speaking of an 8,000-mile, 20-day differential. The cash value of this differential would have to cover higher construction costs, increased insurance rates, possible hull damage, special pilotage fees, and, possibly, icebreaker costs. To justify that financial burden, the ships on the northern route would have to be certain of their ability to move reliably through heavy sea ice.

This, then, is the background of the *Manhattan* experiment. The parameters of the problems were clearly spelled out: an economically sound tanker route may prove feasible, *if* a year-round route can be maintained through the Arctic ice, *if* these ships can alone—or with moderate assistance—transit the ice-choked passages of northern Canada, and *if* they can be made large enough to provide a per-barrel transportation cost sufficiently low to underprice alternative methods of getting the oil from Alaska to market.

With these parameters in mind, three oil companies—Humble, Atlantic Richfield, and British Petroleum—began a preliminary inquiry into the feasibility of such mammoth icebreaking tankers. Economics was one of the first *ifs* to be dispensed with. It was quickly determined that tanker passage from Prudhoe Bay to New York via the Arctic would save approximately $0.60 per barrel, or $1,200,000 per trip with a cargo of 2,000,000 barrels. This financial benefit, spread over the producing life of the oilfield, was estimated at no less than a billion dollars.

The second question was the design of a tanker-breaker for this northern route. This is the phase where civilian oil companies began their quest for Arctic knowledge. Granting a contract to a Maryland-based consulting firm, CONSULTEC, the companies paid $135,000 for feasibility studies on the project, studies which involved an examination of great masses of historical data, cumulative weather and ice records of the region, and models—mathematical and physical—of the proposed vessels. Work quickly expanded into Government channels where access could be had to a Navy ice tank (NEL San Diego), Coast Guard icebreakers (for icebreaking capabilities tests and personnel indoctrination north of Alaska), and voluminous governmental records and reports. The Office of Naval Research[2] became a focus of interest because of its Arctic programs; the Navy Weather Central, Suitland, was tapped for its knowledge of Arctic weather and climatic trends; and the Oceanographic

Office contributed its expertise on Arctic oceanography, charting, and ice forecasting. The Coast Guard, now operating all of this country's icebreakers, also became a focal point and was designated the coordinating agency within the Department of Transportation.

The masses of data, the knowledge of experienced Arctic sailors, and the theoretical computations which grew out of intense and high-priority studies quickly developed into a search for a suitable test vessel. All concerned with the project agreed that the icebreaking tanker was theoretically practical and stood a good chance of success. All that was needed was a test platform.

Quickly the choice was made. The SS *Manhattan*, a U.S. built, twin-screw, steam-turbine driven vessel of 106,000 tons deadweight was selected. Completed in 1962 to rugged near-military standards, the *Manhattan* was the sturdiest supertanker available and the largest commercial vessel under the American flag. The ship was leased from its owners and was promptly sent to Sun Shipbuilding and Drydock Corporation yards near Philadelphia.

The modification of the *Manhattan* was typical of this entire epic: it was unprecedented, it was fast, and it was expensive. The ship was cut into four sections in January of 1969, and the pieces were delivered to different yards where manpower and industrial resources were available to go to work immediately. Management of the project was contracted to Sun Shipbuilding, where the bow remained. The afterbow was sent to Newport News and the midsection went to Mobile, Alabama. The stern section also remained for modification at Sun's Chester, Pa., yard, were the strengthened and heavily plated hull was reassembled in June and July.

The design and construction of an icebreaking bow was the key to the unique reconstruction of the giant icebreaking tanker. Using a general concept developed in a doctoral thesis at MIT in 1965 by Comdr. Roderick M. White, USCG, the 65-foot long, 735-ton upswept bow section was designed to permit more of the weight of the giant ship to bear down on the ice and increased from a gentle 18° angle at the extreme bow to a 30° maximum. It also was designed to push broken ice away from the ship through the addition of extra-wide "cheeks," which added 23 feet to *Manhattan's* beam. According to preliminary estimates, the bow had the capability of cracking 15-foot sea ice and 60-foot pressure ridges. Fabrication of the bow was divided between Sun and Bath Iron Works.

Thus outfitted with a hard nose, strengthened structural members, and a waterline ice belt that girdled most of the hull, the *Manhattan* was prepared for her carefully instrumented test voyage into the icefields of the Canadian Archipelago. A sizable ship by normal maritime standards, it was nevertheless clear in the minds of her sponsors that she would simply be a half-size model and a $39,000,000 experiment in space age Arctic technology.

The structure of the ship, of course, is only a first step in making a workable sea route out of the frozen Arctic Ocean passages. It is apparent that a big bulldozer will push more dirt than a smaller one; similarly, it takes no imagination to conclude that a powerful, well-built ship of substantial dimensions can force her way through the polar icepack, if size and power are the only criteria. If ship construction costs are to be minimized, however, while load carrying ability is maximized, every opportunity presented by the Arctic environment must be carefully exploited. To do this, the latest scientific knowledge, reconnaissance techniques, and ice forecasting experience must be utilized.

In the knowledge of the Arctic and the instrumentation for ice reconnaissance and navigation, military

know-how paid off once again. From their work with various Arctic studies, the Office of Naval Research and the Naval Arctic Research Laboratory at Point Barrow were able to make significant contributions to the data bank. The Army's Cold Regions Research and Engineering Laboratory provided expertise on sea ice qualities and characteristics. The Naval Oceanographic Office and the Navy Weather Central at Suitland were major sources of information on climate, ice conditions, and ice forecasting. Weather satellite data was already permitting ice forecasters to relay provisional ice charts to ships resupplying Arctic bases.[3] The Navy's "Transit" navigation satellite system was available to give positions accurate to one-tenth of a mile in uncharted and hazardous waters. Sophisticated reconnaissance aircraft using infrared film, laser profilometers, and side looking radars could contribute their military-perfected technology to the ice surveillance efforts. Closed circuit TV would permit a constant watch on broken ice as it bumped its way along the ship's hull, while hull-mounted sonar would seek submerged ice formations.

Backed up with all that modern technology and past experience could provide, the *Manhattan* began her historic voyage on 24 August, turning her bow north for the Arctic. Carrying a handpicked crew of 57 and a larger complement of scientists, liaison officers, and technicians, the ship, newly reclassified by the Coast Guard as a "tanker-oceanographic research vessel," reached Baffin Bay and her first exposure to the icepack on 2 September. Stopping briefly at Thule, Greenland, and at Resolute, Cornwallis Island, Canada, the captain carefully tested the ship in the available ice.

Reaching the approximate midway point of her voyage on 8 September, the ship found herself in heavy ice in Viscount Melville Sound. Here, only 25 miles from the North Magnetic Pole, the ship stopped and placed five research parties out on the ice. This procedure, which was to become familiar as data gathering became a routine, permitted the scientists to gather ice core samples and other data for study and collation. This kind of activity, which sometimes was almost obscured by the sensational nature of the trip itself, was, of course, the major mission of the ship. In fact, other than a token cargo of Arctic oil—a gold-painted 55-gallon drum that was airlifted from the oilfields to the ship—scientific data was the *only* cargo the ship carried.

The rest of the voyage has been well reported in various press stories and journals. The ship continued to break ice with her escorts, the USCGC *Northwind* and the Canadian icebreaker *John A. MacDonald*. On 11 September the *Manhattan* reached her furthest penetration of the ice-clogged McClure Strait and became stuck fast. Even with all auxiliary equipment shut down, the ship could not muster enough horsepower to back free of the tenacious icepack. The *John A. MacDonald* was called in for assistance, and after the ice was carefully broken away from the giant tanker, the ship moved once again. The decision was made not to try to force McClure Strait, and *Manhattan* turned south for Melville Sound and Prince of Wales Strait.

The rest of the trip was almost anticlimactic. Relatively little ice obstructed the further westward travel, and *Manhattan* finally anchored off the Prudhoe Bay oilfields on 19 September. The ship loaded the symbolic barrel of Alaskan crude and then moved on to Point Barrow, the final stop of her westward voyage. From then on, the novelty of the cruise was a thing of the past. For more than a month after leaving Barrow the ship continued ice tests in Melville Sound, collecting data in great quantities from literally hundreds of sensors. Finally, in late October, the ship left Resolute, Canada, and

headed home. The data were packaged for later analysis, and the world's largest half-scale model returned to a hero's welcome in Halifax and New York. Within weeks of her return she was on commercial service, a moneymaking cargo vessel once again, carrying huge loads of oil in coastal trade between east coast and gulf ports.

The success of the *Manhattan*, despite her underpowered steam-turbine power plant, was almost a foregone conclusion. From the inception of the voyage it was clear that the greatest value would not be in the ship's physical accomplishments but in her ability to gather meaningful data for the icebreaking tankers needed for the Arctic oil runs of the midseventies. In this she has been successful, and a second trip will contribute further data to this unique search for maritime know-how. For this reason, the fact that she did indeed make it all the way "across the top" is almost irrelevant. The trip, however, served to focus attention on the final goal: the economical commercial exploitation of the frozen North American water routes.

In March of this year Humble Oil contracted with Newport News Shipbuilding and Drydock Company to design an icebreaking tanker for Arctic service. Thus it seems almost certain that the fleet of icebreaking tankers which has been envisioned for the Northwest Passage Alaska to New York route will come into being. Humble Oil, sponsors of the *Manhattan* have estimated that 25-30 icebreaking supertankers might be operating across the top of North America by the late 1970's. By 1980 the Alaskan oil production might reach as much as 2 million barrels per day, fully justifying the construction of the $50 million cargo-carrying icebreakers that would carry the black gold to market. In a summer's time, the *Manhattan* has leapfrogged the liquid cargo technology of the Arctic, while making a quantum jump in the scale of icebreaking capability.

The transit of the *Manhattan* does illustrate a significance too often overlooked. It represents the payoff to the civilian economy of the years of Arctic sailing and exploration, the millions of dollars of research funds, and the countless man-hours of personal experience that have been gathered over the years by our sea services. In times such as the present, when budgets are tight and usable civilian "spinoffs" from military projects are hard to find, the military contributions to the success of such an expedition as the *Manhattan* are of great satisfaction. More than anything else, the success of the *Manhattan* is a tribute to the years of pioneering in the Arctic and Antarctic by the U.S. Navy, the U.S. Coast Guard, and the Military Sea Transportation Service. The research, the perfected technology of military hardware, and the collected experience of thousands of half-frozen officers and men have all contributed to the success of one of the most imaginative commercial enterprises of the century.

BIOGRAPHIC SUMMARY

A 1958 graduate of the U.S. Naval Academy, Lt. Comdr. Robert D. Wells served aboard destroyers for 4 years. He then attended the Defense Intelligence School and the Defense Language Institute, where he studied Russian. After serving as an assistant naval attaché in Istanbul, Turkey, from 1944 to 1966, he served on temporary duty as Russian language interpreter in the Coast Guard icebreaker *Northwind*. He left the service in March 1967 to serve for 2 years as Legislative Assistant to a member of the House Armed Services Committee. Returning to active duty in March of 1969, Lieutenant Commander Wells is currently serving as Faculty Adviser to Attaché Department, Defense Intelligence Agency School.

FOOTNOTES

1. The Prudhoe Bay fields are about 120 miles southeast of Point Barrow, where the Navy finished mapping the huge Naval Petroleum Reserve #4 in 1953.
2. For discussion of ONR's "field station" in Alaska, see Robert D. Wells, "The Naval Arctic Research Laboratory," *United States Naval Institute Proceedings*, September 1969, p. 39-45.
3. "Navy Ice Forecasters . . . ," *Armed Forces Journal*, 14 June 1969, p. 8.

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An excerpt from *United States Naval Institute Proceedings* September 1970

The U.S. military officer traditionally isolates military power from national policy. The American diplomat isolates policy from war. Yet, the purpose of military power is to achieve a political goal. Hence, how can the military professional isolate himself from the study of national politics or the diplomat from study of the role of power in policy? How do the various forms of power affect policy and how do economic or psychological considerations augment or undermine military power? Our narrow view of the role of military power is such that despite the greatest air power in history presently wielded by the United States, for example, we have never really analyzed the basic difference between the *punitive* versus the *persuasive* role of air warfare. Such doctrinal failures in the air war in Vietnam, I believe, have crucified our strategy there.

Because of the gaps in our professional education, we must all, senior and junior, begin at the beginning by a process of self-education, and this is slow and inefficient. Let our younger officers take the initiative; let them take correspondence courses and see what the Navy currently has to offer in many professional fields related to strategy and war. Let them also contribute to the dialogue, and we will all benefit from the results. I shall never forget the tremendous eye-opener it was to receive literature in anticipation of my orders as a student at the Naval War College and the new world which that literature opened for me. Even then, it was a self-education course, but I loved it. From that day, I have regretted the vast amounts of time which I spent previously in other pursuits in my carefree junior officer days, which might well have been used to lay a professional groundwork . . . .

After all, Alfred Thayer Mahan could not publish an article in the *Proceedings* until he was a commander for at least two reasons—there was no Naval Institute and no Naval War College, and he was a captain before his orders to help establish the War College first opened his eyes to the new world around him.

Paul R. Schratz
Captain, U.S. Navy (Ret.)

CAMPUS VIOLENCE:
ACTIONS, REACTIONS, AND AFTEREFFECTS

In recent years student activists on the campus have been successful in intimidating many universities with confrontation tactics. Now, however, many administrators have learned how to control these activities with court injunctions, campus police, and other means. The public and its legislators, angered at previous student outbursts, are now refusing to grant needed financial support to the universities and hence reducing their ability to initiate remedial programs.

An article prepared

by

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The disruptions which have occurred on many U.S. campuses have led to serious questions about the strength and flexibility of our educational system. These questions are serious ones to our allies and adversaries, as pointed out in an earlier issue of the *Naval War College Review.*[1] They are also serious to people in business, Government and the military who question with growing frustration the lack of effective action in dealing with the situation.

The turbulent campuses have given us a group of graduates with views which differ widely from those held by the products of more peaceful academic communities. The recent graduates have observed the failures of some of our best-known educational institutions: the failure to provide a safe environment for teaching and learning; the failure to make adequate responses to the intellectual challenges of the new left; and the failure to take constructive actions concerning the problems facing the institution and our society. Their faith in our institutions may understandably be limited.

Graduates of our troubled colleges and universities are now in junior management positions in the military, Government, and industry. They will be in senior positions before many years have elapsed, and their decisions may well be based on a different set of premises than those held by present senior management.

Both in answer to the frustrations of more senior groups and to correct possible misconceptions by recent

graduates, an overview of campus response to disruptions should prove of interest.

In evaluating the evolving responses to violence, it is advantageous to consider the seriousness of the attack on the universities, the reasons for the initial slow response, the actions being taken now, and the long-range prospects.

There is no longer any doubt that the objective of some key revolutionary student leaders was to destroy the universities, as one step in the destruction of our whole society. Their public statements to this effect were originally written off as mere "rhetoric" (as when baseball fans shout, "Kill the Umpire"). Much hesitation and vacillation might have been avoided had their words been accepted at face value, for these revolutionary students really did intend to destroy the universities by any means available.

Certain other students were striving for some specific goals, such as the development of Black studies programs, the hiring or firing of specific faculty and administrators, or the removal of ROTC units from campuses. These students, when they used violence and/or attempted to close down a campus, did so as a means to an end. The shutting down of the campus was not an end in itself.

It should be stressed that the number of students who participated in violent activities was very small. Most of the students who attended demonstrations did not commit violent acts. Further, most students did not—and do not—condone violent acts.

But the small number of violently inclined students—less than 5 percent of the student body—could cause a great deal of trouble. As an example, the following incidents occurred at San Francisco State College during the disturbances there: An exploding bomb injured a staff member so severely that he will probably never walk, talk, see, or hear again. A student lost several fingers when a bomb he had in his hands exploded. Students, faculty, and visitors were threatened and physically assaulted. One faculty member had his house burned to the ground, and another faculty member had his home firebombed. Two school offices were burned when gasoline was poured under the doors and ignited. Bombs were placed and exploded around the campus. Hundreds of windows were broken, equipment was destroyed, and thousands of dollars worth of damage was done. Automobiles of students and faculty members were smeared with paint, had tires slashed, and had sugar put in their gas tanks. Classes were disrupted, and educational activities were severely hurt.

The incidents at San Francisco State College were not unique. Similar violence occurred, to a lesser or greater degree, at many other campuses across the Nation.

The disrupters did succeed in temporarily closing down various colleges and universities across the Nation. The losses in human distress, educational time, and property were substantial.

Considering the seriousness of the threat to the universities, their slow responses may seem strange. But there were many reasons for the inaction. Both ideologically and organizationally they were not prepared to cope with physical confrontation.

Colleges and universities have traditionally dealt in knowledge and ideas, not in action. Campus problems, like other ideas, were approached through long, careful discussion (and, hopefully, reason). Recent years had seen an increasing trend toward greater faculty self-government and a proliferation in the use of committees in making decisions.

Such an approach is hardly effective against force in a tactical situation. Professor John Bunzel, since appointed as president of one of the California

State Colleges, stated the problem succinctly:

> . . . when an academic community is faced with student demands that are accompanied by the "body-on-the-line" tactic, it responds, not surprisingly, in the only way it knows how: by concession, by pleading for time, by setting up committees, by trying to persuade the radicals of its good faith and intentions.[2]

This approach simply did not stop violence.

It was difficult to get the faculties as a whole to oppose physical confrontation, even on a theoretical level. Radicals devoted serious intellectual effort in an attempt to give moral justification to direct action by students, faculty, and the university as an entity. The revolutionaries pointed to problems in our society (war, discrimination, poverty), argued that reason and discussion had failed to solve these problems, and stated that direct action was necessary. Further, they argued that the university was under a moral obligation to lead the society, whether or not the majority of the people wanted it to do so. That is, they assigned the university (themselves) as a social and moral judge (assuming their own moral superiority)—they consider themselves, as S.I. Hayakawa has noted, an elite.[3]

Their moral attitudes and arguments, in the absence of sufficient carefully designed rebuttal, led to divided faculty opinion—and confusion. The confronted faculties could not agree on acceptable plans of action, even if they had had means to implement plans.

Administrations were similarly slow to act. College presidents and other administrators had not generally been chosen for their abilities to lead in crises. They often considered themselves primarily as representatives of the faculty, a faculty which was itself deeply divided.

There was a lack of organization to cope with disruption. Activity was completely unprogramed. Clear rules of conduct for students and faculty were often lacking. Disciplinary machinery was often nonexistent or unworkable. University personnel did not know what to do, or to whom to report, in the event of an emergency. On-campus security forces were completely inadequate to cope with violent demonstrations.

When individual universities did attempt to set up and enforce rules of conduct, they faced additional problems. Positive identification of specific persons doing specific disruptive or violent deeds was remarkably difficult. People willing and able to testify were hard to find. The school had little legal recourse against disruptive nonstudents; here almost complete reliance had to be made on outside police. In dealing with students, school officials found it necessary to master the rules governing legal due process and what could and could not be done. School officials as well as disruptive students found themselves named in lawsuits.

The university systems have responded to the prolonged disruptions and threats of disruptions in two ways. First, there have been organizational and personnel changes to enable the administrators to take stronger and more rapid actions in controlling disturbances. Second, faculty members and administrators have challenged the theoretical basis laid by the revolutionary groups. The objectives and responsibilities of the university and the need for it to avoid direct involvement in the political arena are being discussed and clarified.

The personnel and organizational changes which have been made in various systems include the following: Stronger presidents have been appointed in a number of colleges and universities. The ability to act quickly and decisively

under pressure has become an important quality sought in prospective presidents. The California State College system provides an example. Two administrators who displayed their abilities to cope with disruptions at San Francisco State have recently been appointed as presidents at other campuses within that system.

Within various universities, lines of communication and responsibility have been clarified. Rules of student (and faculty) conduct have been clarified, and campus courts to handle cases of student misconduct have been established (or reestablished). In some cases additional staff positions have been established to handle problems arising from disruptions. Further, many regular staff members have learned from experience what actions should be taken during emergencies.

Individual campuses have obtained needed legal assistance. The use of court injunctions has come into widespread use. An injunction may be used, for example, to prohibit interference with the rights of students to attend classes. Since defiance of an injunction amounts to contempt of court, the injunction has proved to be a powerful tool in restraining would-be revolutionaries from large-scale disruptive acts.

The use of police on campus has become more acceptable. It has been recognized by an increasing number of administrators and faculty that the use of police is necessary in the face of determined disrupters.[4] Thus there is less hesitation by colleges in calling for assistance when they need it.

Faculties and student bodies show some tendency to elect more moderate representatives for their own groups. The student body at the strife-torn University of California at Berkeley has elected a moderate president, who is currently attempting to repair a badly damaged student image. The faculty at San Francisco State College has voted in a more moderate Academic Senate which has worked more effectively with the administration. These actions may be seen as resumptions of control by middle-of-the-road university groups, after they had previously let control slip to rather nonrepresentative but highly motivated and energetic activitists. The reawakened interest in political activity by the moderates reflected a recognition of the fact that widespread participation is necessary for truly representative self-government. So long as such moderates retain an interest and an active part in campus politics, they will provide a stabilizing force.

Concepts concerning proper university behavior and the university's relationship to society have been given renewed emphasis by administrators and faculty members. Since the colleges and universities traditionally deal in ideas, and since much freedom of action is necessary if members of the academic community are to perform their functions effectively, an acceptable theory of activity is of much more importance in the academic world than in the military, Government, or industry.

David Gardner, assistant chancellor of the University of California at Santa Barbara, has pointed out that the university must emphasize political inquiry, expression, and learning—rather than political action. If it engages in staging and executing political demonstrations and organizes and manages political campaigns, it might as well be counted as a third political party.[5]

Two faculty members from Western Washington State College, Bellingham, have observed that: "Those faculty who cry for greater involvement of colleges and universities in the immediate affairs of society ignore the fact that the involved institution impairs its ability to analyze and evaluate social enterprises." The university's "social conscience

should be vested in the best service it can render the society—objective and scholarly inquiry."[6]

Richard W. Hyman, Stanford's new acting president, has stated bluntly that universities as institutions, must be kept free of political advocacy if they are to survive.[7]

In a statement of policy, the prestigious American Council on Education made the following points (among others):

> Disruption and violence have no place on any campus. The academic community has the responsibility to deal promptly and directly with disruptions.
>
> Student and faculty groups, including the American Association of University Professors and the National Student Association, have recently joined in efforts to improve disciplinary procedures and to formulate clear and realistic codes for dealing with misconduct, and more particularly with violence and disruption.
>
> The historic concern of the university community with academic freedom needs to be restated, reaffirmed, and vigorously defended against all, within or without the university, who would obstruct the right of scholars to investigate, teachers to teach, or students to learn.[8]

John T. Caldwell, chancellor of North Carolina State University at Raleigh, summed up the feelings of a growing number of chief administrative officers:

> I have come to feel, however, that it is absurd for a university head who carries heavy responsibilities to feel helpless and afraid to assert the authority of his office in behalf of the good order of the university community. Or, to state it another way, it is patently absurd for the 90-plus percent of the faculty and students of a university community to be intimidated by irresponsibility or maliciousness in a fraction of that community.[9]

The above ideas may appear to be self evident to most readers. It is, perhaps, an indication of the persuasiveness and organizational ability of the activists, that it has taken so long for some members of the academic community to accept them.

Though the response to violence has been slow, it has come on several levels. There have been organizational changes, personnel changes, and analyses which lessen the possibilities of large-scale disruptions in the future.

Though it appears that there will be fewer large-scale disruptions in the future than in the immediate past, serious problems remain in the college and university systems which have been subject to disruptions.

The disruptions served to help call attention to a number of serious problems in higher education and in our society as a whole. Unfortunately, while increasing awareness of certain problems, the disruptions have both directly and indirectly rendered the universities less able to do anything about them.

Indirectly, the disruptions have resulted in the affected systems receiving less funds. In some states the public has voted down bond issues for college construction, and the State legislatures have cut operating funds far below what could otherwise have been expected. This has resulted in reduced ability to develop ethnic studies and special compensatory education projects, reduced ability to do research, and even restricted ability to continue to handle the regular incoming students. Attempts to improve administrative

procedures similarly suffer when funds are cut.

Of course, during the disruptions, normal administrative and educational processes are severely disturbed, and they do not return to their normal efficiency for a long period afterwards. A general feeling of frustration and hopelessness is likely to sap the energy of many faculty members from all parts of the political spectrum. When the problems are compounded by deep reductions in funds and possibly by punitive legislation, the problems of recovery are multiplied.

The Nation's colleges and universities are displaying the ability to solve their own internal problems. It is vital that they do so. They are, after all, the principal means for transfer of the technical knowledge on which our business, Government, and military depend. They are a main arena for the development and testing of constructive ideas to improve our society. They are the principal agents in providing increased opportunities and broadened horizons for our young people.

It now appears that the voting public may make a mistake similar to the disrupters. The disrupters wanted one thing and took actions that gave them something else. In the name of a better and freer society, they created disturbances which led to a necessarily more restrictive line by college administrators and a lessened school ability to make needed improvements.

Now the voting public, which wants more mature and constructive attitudes and actions from the academic community, is taking actions which cause resentment and reduce the ability of the colleges and universities to take constructive actions. It is not only unjust to punish all faculty and students for the disruptive actions of a few; it is a self-defeating tactic which results in more problems.

It is important that the physical plant of the colleges and universities be expanded to accommodate the increasing student populations. It is important to attract highly qualified administrative and faculty personnel. It is important to avoid punitive legislation which restricts real freedom of inquiry and speech. All segments of our society, including the university, bear some responsibility in each of these areas.

BIOGRAPHIC SUMMARY

Dr. Edwin C. Duerr, a Naval Reserve officer, holds a B.S. degree in engineering from Illinois Institute of Technology, an M.S. in world business from San Francisco State College, and a Ph.D. in business administration from the University of California at Berkeley. He has had several years of engineering and management experience in industry. When student disruptions began at San Francisco State College, Dr. Duerr was an associate professor of management and a member of the Academic Senate there. In 1968 he was appointed Coordinator of Internal Affairs by college president S.I. Hayakawa, in which position he developed new student disciplinary rules and established courts to hear student cases. A commander in the Naval Reserve, recently Commanding Officer of Naval Reserve Unit SAMAR 12-1(S), Dr. Duerr is presently serving as the Resident Director of the California State Colleges' International Program in Sweden, Denmark, and Great Britain.

FOOTNOTES

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2. John H. Bunzel, "Costs of the Politicized College," *Educational Record*, Spring 1969, p. 136.
3. S.I. Hayakawa, "Protest, Pigs and Power Politics," *Liberal Education*, March 1970, p. 20-21.
4. See, for example, Edwin C. Duerr, "Police on Campus: Crisis at SFSC," *Educational Record*, Spriug 1969,, p. 126-130.
5. David P. Gardner, "The Power Struggle to Convert the University," *Educational Record*, Spring 1969, p. 117.
6. Ralph Thompson and Samuel Kelly, "The Case for the Ivory Tower," *Educational Record*, Spring 1969, p. 231.
7. Reported by Ron Moskowitz, "The University and Politics," *San Francisco Chronicle*, 13 August 1970, p. 18.
8. American Council on Education, "A Declaration on Campus Unrest," Chicago, 1969, distributed to ACE members and the press; reprinted in *Educational Record*, Spring 1969, p. 144-146.
9. John T. Caldwell, "Appeal for Action, Unity, Sanity: a Convocation Address," Raleigh, N.C., 5 March 1969, reprinted in *Educational Record*, Spring 1969, p. 138-143.

Ψ

Learned institutions ought to be favorite objects with every free people. They throw that light over the public mind which is the best security against crafty and dangerous encroachments on the public liberty.

James Madison to W.T. Barry,
Complete Madison, p. 337

In recent years the rapidly rising cost and complexity of modern weapon systems have made their development and production prohibitively expensive for individual states of medium economic power. International cooperation in weapons development and production offers not only the advantage of economy, but also the general reduction of international economic and technological barriers. In this article Capt. Alexander H. Cornell summarizes an extensive investigation of the methods and effectiveness of international codevelopment and coproduction of weapons. This investigation included three case studies in coproduction: the Atlantic maritime patrol aircraft, the Hawk antiaircraft missile, and the F104G Starfighter.

INTERNATIONAL CODEVELOPMENT AND COPRODUCTION OF WEAPONS

Some Conclusions and Future Prospects

An article prepared

by

Captain Alexander H. Cornell, SC, U.S. Navy

The increasing sophistication of modern weapons has increased the cost of developing them to the point where it is economically impossible for any industrial state of less than continental dimensions to develop and produce for itself an entire arsenal of modern weapons. This trend of events at first seems to present smaller states with the unpleasant choice of remaining in a state of technological inferiority or of contracting major arms purchases with the superpowers. Today, however, multinational codevelopment and coproduction of weapons offer to smaller states a third option. Recent years have seen a large and little known number of successful projects of this type, including the Atlantic maritime patrol aircraft, the F-104G Starfighter, and the Hawk antiaircraft missile. While most of the codevelopment projects initially undertaken included the United States, the European states of NATO are now beginning to organize independently many projects which fulfill their own specific needs.

International production and development of weapons offer several advantages to the participants. The cost of development is shared by a number of states, thus avoiding duplication of effort and decreasing the cost for each state. The quality of the product usually benefits from the wider experience and knowledge that result from crossing national boundaries. Such projects also usually have the effect of increasing the technological capabilities of each state's industry. This was especially true in the

early projects, in which the United States was a prominent participant. Finally, such projects aid in lowering international trade barriers and in promoting international harmony and understanding.

As might be expected, such projects require sound management practices in order to coordinate the efforts of a multinational and multi-industrial organization. Two different types of management have emerged from these endeavors. One is the so-called institutional type where the project is organized and administered through the organizational framework of NATO. The second is the "permissive" type or a less formal organization which may include any number of states and which usually develops its own *ad hoc* administrative apparatus through an agreement by the participating governments. In this latter type the NATO structure serves more as a sounding board in which the members can air their military requirements and exchange ideas on the subject.

An Overall Assessment. The charge is heard today that technology has outgrown institutions. If so, it is high time to concentrate more effort on bringing the level of organization and institutional achievement up to the level of technology. Science and technology have long been recognized as being international by nature, therefore any progress that can be made in the field of international logisitics institutions should be considered a contribution toward the solution of the problem of technology versus institutions.

A group of relatively successful attempts have been made to disperse the skyrocketing costs and complexity of modern weapons technology among a group of nations and industries. A series of collaborative programs in perhaps the most difficult and complex of all organizational areas—that of an international/interindustrial scope—now stand as successful production accomplishments. It is rather ironical that the collaboration had to first take place in the production of weapons for warfare rather than "peaceful" hardware, but at least it *has* taken place and is continuing to take place. Peaceful hardware collaboration appears to be following on. In March 1969 the commercial supersonic aircraft *Concorde*, developed and produced jointly by France and the United Kingdom, flew successfully.

International military logistics, the larger field of which the subject of this paper is a part, has mushroomed in importance. International logistics has become a positive, ongoing program which has experienced an extraordinary growth in the form of multiple organizational bodies, both national and international. Because of the large number of institutions and the measures taken to manage the programs, most observers agree that it has not been a well-knit, cohesive operation. There have been a multiplicity of organs, programs, and overlapping assignments of responsibilities, particularly in the United States, that may or may not have contributed to the common objectives of the program. The situation is such in the United States that observers have felt there is no one point below the President, or perhaps the Secretary of Defense for most programs, which is capable of bringing about a clear direction of the joint weapons production program as a whole. As compared to American multiplicity of organs, programs, and procedures, the relative simplicity and fewer number of European and NATO organs stand out in sharp contrast.

In fairness to the problem, however, it must be borne in mind that international logistics affairs have been harder to manage because they are fast moving, worldwide, and extremely complicated. Many factors bear upon the problem to a degree not usually experienced by purely national or single industrial

problems. Despite these, it is safe to say that international logistics as a whole, and coproduction in particular, has produced some tangible, successful results since World War II. While expectations have fallen short in cooperative research, there is something to be learned from the codevelopment and coproduction efforts of the past 20 years. The record shows that industrial groups were created and operated of a size comparable to any national giants of industry. For both the governmental side and industrial side of the coproduction organizations, there were new coordinating groups created which managed the industrial combines as well as any unilateral enterprise. Unprecedented accomplishments using multinational and multi-industrial consortia took place with a speed, economy of resources, and production performance that equaled or surpassed many purely national or single industry programs.

Faced with the costly and almost impossible problem of procuring modern weapon systems by unilateral means, the NATO Allies developed a method and process of multilateral production. The method resulted in their being able to jointly participate in and contribute to common production and thereby obtain weapons for themselves they might not otherwise have been able to procure.

In practice the coproduction problems proved that many national, legal, customary, and self-interest barriers between and among participating nations can be eliminated or reduced. The consortia members furthered the cause of strengthening their economic and industrial capabilities and helped reduce the technological gap between them. They also helped reduce or eliminate trade, tariff, tax, and proprietary rights barriers which had been obstacles to production and procurement.

The weapons produced have been publicly acknowledged as being as good, if not superior, to any produced unilaterally. The quality has been excellent and the quantity exactly that which was programmed. They kept remarkably within their original budgets. They produced well the standardized weapons suitable for international operation and provided common maintenance and logistics support by any of the user nations.

To direct successfully vast transnational coproduction programs required an unusual kind of flexible organization and managerial talent. These qualities were apparent not only on the part of top-level coordinators and management within NATO and the international/interindustrial agencies created, but also on the part of the governments themselves and the thousands of workers at the grass roots level.

Integrity and loyalty to the project as a whole were especially noteworthy. The policy of designating one man on policy boards and executive agencies for each nation and the high caliber and intellectual discipline of the designees were keystones of managerial effectiveness. As cohesive groups, they overcame or reduced the day-to-day problems and barriers of different national and business customs to make the programs work. They learned to schedule highly complicated production requirements and cross deliveries that had to be coordinated to meet the total program involving hundreds of industries, and they learned to depend upon each other for such coordinated deliveries.

They surmounted differences in language; differences in engineering standards and procedures; differences in distance and industrial locations; differences in the level of their technological and production capabilities; differences in business practices, measurement systems, and accounting and contracting procedures; differences in patent and proprietary rights laws; differences in financial and credit philosophies and practices; and differences in managerial techniques and

organizational habits, to recount but a few that were brought out in the case studies.

The entire management aggregate found that an organized approach, based on sound and imperative reasons for cooperating, coupled with a willingness to be flexible and to compromise, could make possible the benefits of mutually produced, expensive modern weapons, which they might not otherwise have gained.

Their managerial techniques and organizational elements, while differing in degree of authority, became more patterned and now can be generalized upon in several useful ways. The record of the programs alone shows a broadening but relatively standardized pattern as time and experimentation went on. In each case there was the familiar pattern of a top policymaking board of international members. Beneath it there was in each case a governmental executive agency and usually a parallel industrial executive agency. Similar functional divisions were created beneath these. In addition, other divisions were created as necessary to meet the peculiar demands of the particular production enterprise such as language, liaison, and technical documentation control centers. Even the manufacturing consortia, whether for aircraft or missile production, fall into subgroups organized along major component lines. The use of groups of experts was common practice in all three cases to make initial investigation and to recommend plans and organizational structures. It was generally a matter of degree of authority granted or taken by each of the above levels in which the programs differed.

Early joint production of weapons had as its publicly avowed purpose that of getting defense-related industries started in Europe. The purpose was to build up and broaden the technological base among European members in the belief that broader strength meant greater security. Since then, however, the emphasis has changed to viewing joint production as a method of helping European industries survive in the face of overwhelming American competition. The large and increasing number of smaller programs underway since the first ones of the late 1950's and early 1960's are evidence of this trend. The literature is replete with statements by European nationals and industrialists confirming these new trends and emphases.

While the trend away from broader, multiple-member programs toward more specific bilateral and trilateral projects with more limited objectives is a matter of record, there is one significant exception. That is the NATO Air Defense Ground Environment (NADGE) organization in which all the NATO nations are members. It is submitted that the large, but relatively unknown, number of coproduction agreements taking place in the 1960's testify to the continuing acceptance, interest, and desire on the part of most Alliance members, and especially their developing industries, to participate in joint programs. "Transnational business" seems to have become interested in the practicability of the new way of joint manufacturing and most of the impetus for the new programs now comes from outside NATO as a formal organization.

Actually, as for the inception of most joint projects, nearly all important ones have been started by one or two members since the beginning. Thus, whether the programs have evolved into multilateral ones or have remained mostly bilateral as they are today, their beginnings were usually found in the requirements or interests of one or two members. One answer as to why the programs have gone down to smaller, lower levels has been due to the difficulties inherent in getting multimember agreement on the requirement and participation. However, there are undoubtedly other practical reasons such as

national pride in product, resurgent self-interests, both nationally and industrially speaking, and even selfishness, in view of the economic gain and sales advantages that can be gained by being a limited producer of a needed weapon.

The programs proved in actual practice that many national, political, legal, customary, and self-interest barriers between and among the participating nations and industries can be eliminated or greatly reduced. They furthered the cause of strengthening the industrial and economic capabilities of the partners and helped reduce the technological gap between them. They also helped reduce or eliminate trade, tariff, tax, and proprietary rights barriers. They were good examples of two significant elements necessary to any international or inter-industrial effort—the *will* to participate and the *goodwill* to see it through.

The Role of NATO. It is in the vital function of getting everyone interested and informed who may have a similar requirement that NATO has been of real assistance. The present NATO organization provides the place and opportunity for its members to hear each other's needs and to make the contacts which are necessary to reach an agreement. The very fact that each is made *aware* of the other's intentions and needs is a significant step toward cooperation. Above all, increased mutual respect and trust are fostered by the proof that they have been able to work together.

The present system of management which is in vogue, the permissive type, by no means shuts out the NATO bodies from active participation. All the sections of the International Staff and the military organs that influence production have important functions to perform. Not only do they provide a formal framework for negotiation, but they have facilitated many decisions as the result of informal, behind-the-scenes bargaining. Even Vandevanter, who did not see the staff or NATO playing too important a role in production matters, admitted that the official network was "ideally constituted to act as a continuous channel of communications."[1] He visualized the correct role of the NATO organs as intermediaries rather than arbiters and concluded that the role of arbiter would only serve to curtail NATO efforts to establish criteria and select weapons.

By the late 1950's the Production and Logistics Division and its successors increasingly became the parliament for ideas within NATO rather than the vehicle of their execution. The military organs have not succeeded as well as might have been expected in having their carefully worked out requirements become realities. In fact, with the exception of Atlantic, not a single NATO Basic Military Requirement (NBMR) drawn up by the Military Committee has ever been carried out. On the other hand, a large number of requirements that have come up from the members or their industries have been accomplished.

The NATO International Staffs, in responding to the need to provide some sort of structure in which to fit the growing number and kinds of cooperative programs, drew up general guidelines for them in their "NATO Production and Logistics Organizations" (NPLO's). These structural guidelines were necessary to bring the many current and prospective programs into as routine or standard grouping as possible to avoid political problems arising in the absence of such guidelines. There already had been sufficient patterns set in all three categories of programs to insure that the guidelines were reasonable and would be acceptable. They in no way straitjacketed any desirable deviations or impeded unique organization innovations. No instance was found wherein the International Staff/Secretariat overstepped its bounds as a clearing house or as a coordinating agency and catalyst. Not once did it

overstep its limited operational powers or impede progress by "forcing" any particular organizational arrangement. Its key position and value were recognized, for example, by the United States when it insisted that the staff be the focal point for negotiations between the European members and the United States or its industries for matters concerned with weapons production of U.S. origin.

The Ad Hoc Approach and Other Conclusions. An additional conclusion of this study is that when supranational authority does not exist, as in a coalition such as NATO, a tendency toward *ad hoc* arrangements for joint projects takes place. The necessary centralized authority and responsibility are provided by newly created international bodies or by the use of certain existing national bodies specifically endowed with supranational powers. Moreover, in the absence of real authority in its own right, there is a greater need to rely upon personalities.

The *ad hoc* approach to initial program organization and agreement is still the general method of arrangement between nations in the absence of any supranational authority. However, the nature of joint weapons production has changed from being primarily security mission-oriented and NATO-sanctioned programs, which reflected early U.S. domination of development and production, to programs which reflect broader national, economic, and technological interests.

The size, nature, and specific partners of today's combines have experienced changes. The earlier position of the United States, that of being generally the only one with a ready-to-produce weapon, is undergoing change. The current list of national combinations and weapons shows that all the members are substituting *their* components or *their* weapons more and more in place of components or weapons of U.S. origin. Or, if a U.S.-developed weapon is selected, they are obtaining a larger share of production.

A trend that also may be observed is that the overall programs have moved from one of building up the industrial and technological potential of weaker member countries to one of international cooperation to meet specific needs. European countries have moved away from the intitial security basis for cooperation to one based on greater technological improvement for national or economic reasons.

As a result of this change, the European members are demanding and arranging an increasing share of recent programs. As *quid pro quo* has become a keynote in the outright sale of weapons, it is becoming the practice in codevelopment and coproduction.

Still another conclusion regarding organization is that the present so-called "permissive" system of organization of combinations has fostered a greater number of joint programs than the early one of organizational and operational sanction under the so-called "institutional" method. The International Staff and its principal division responsible for coordinating cooperative weapons development and production can be credited with taking the initiative in seeking a better way, a more acceptable way, of facilitating international weapons planning and production efforts.

Regardless of the organizational "method" used to stimulate pooled productions by NATO, whether "institutional" or "permissive," they were designed to foster as much cooperation as possible. The "institutional" type structure was so short-lived that it certainly cannot be criticized for too much adverse influence on the programs. In fact, it only obtained completely for the Atlantic aircraft, one of the better structured and managed programs. The remainder of the programs have been organized by "permissive" type approaches of one degree or another. The

system, or perhaps better called "process," produced sufficient successful structures to show that it is capable of adaptation to any degree of interest and competition between nations and their industries. However, it has not been either a detriment or a significant means of facilitating joint research and development efforts.

The "permissive" structure is really no prescribed structure at all, but a means of making every conceivable avenue and opportunity for joint efforts available to the members. Buyers and sellers are urged to negotiate in an unrestricted, logical market process. The product itself may be determined by the participants. The door is open even to latecomers who wish to join. When it comes to such crucial steps as the selection of a product, influence is left to exert itself in rough proportion to the amount of risk, production, and sales each member sees fit to pledge. It is not necessarily a one-vote situation. By such realistic apportionment, the system faces up to the facts of business life. The field is open to hard but open negotiation, until a group is found willing to take on the manufacturing task. A competitor whose product is not chosen cannot prevent the others from combining. There is no veto so long as at least two wish to proceed.

Existing international structures were used to assist in the organization of all cooperative projects. The NATO Standing Group, the Military Committee, the Armaments Committee, and particularly the International Staff were not specifically established for these functions but were given responsibilities to play an active part in the cooperative process. The staff was restructured no less than five times to fit the changing patterns of joint endeavor. The same observation is valid as applied to individual programs and organizations. National organs, both government and industrial, were used wherever feasible to operate or to assist in operation of the programs. By using such existing bodies, duplication of organization was avoided, as were the creation of new jobs, the training of new units, and industrial reorganization.

Adherence to Principles and Objectives of International Logistics. The question of how well the case programs met or conformed with the principles of international military logistics can now be answered in summary. Certain basic principles are restated below followed by comment on each:

1. To promote the defensive strength of the allies by developing a coordinated production base in Europe for modern weapons systems.

This objective was enhanced by the three case programs to the extent that they, and many others, have been among the chief reasons for European countries being in the position they are today of initiating their own joint development and production programs.

2. To promote the concept and practice of standardization among the allies.

This principle also was adhered to. Weapons were produced that were identical in performance, support, maintenance, and use in all countries. It is obvious that an even greater amount of standardization among allies can be achieved by multilateral programs than can be by bilateral ones. However, in either case, progress is made toward a common family of weapon systems in use by the partners.

3. The principle that countries are still responsible for equipping their own forces but that cooperative means are indispensable for countries with limited resources.

The first part of this principle is still adhered to and is not likely to change in the foreseeable future. The second part has been the keynote of the case programs and has carried over into present-day cooperative projects.

4. To transfer the factors of production where needed in the alliance

and increase the technological and industrial base.

Proved by the programs.

5. To maximize the exchange and effectiveness of scientific and technical information and resources through elimination of unnecessary duplication of effort and facilities.

This, in fact, took place in the case programs and is continuing under present programs.

6. A NATO principle, that it is politically desirable that cooperative programs take place in NATO or under the NATO aegis.

This principle appears to have been drawn away from on the part of the members. None take place within NATO today, but most seek the NATO aegis. Again, the exception is NADGE.

7. A NATO principle that a system should be evolved whereby cooperation would be both efficient and attractive. Permissiveness, flexibility, an open door to members, and subsequent action taken by interested nations should be on a case-by-case basis in as free a manner as possible.

This principle appears to have taken hold and is the current basis for individual national and industrial cooperative programs. In fact, it has become a more common way of doing transnational business in weapons development and production with or without NATO sanction or initiative.

Some Managerial Conclusions. The touchstone of management problems in multilateral organizations is an understanding of coalitions. A coalition cannot enforce compliance by any sovereign member, simply because there is no supranational authority. Therefore, management is faced with an even greater challenge than is normally found in a typical organization.

One of the management successes was the practice of each government designating one man, and one man only, to represent it on the policymaking organ. This resulted in a small, able group which did well at representing their governments, were very good at clearing problems at their own national levels, and, most of all, worked exceedingly well together. They were given general and flexible direction, real responsibilities, and, above all, trust—a combination that proved itself in the operational results.

The success of what might be described broadly as military/government/industrial endeavors in the joint application of development and production organization in order to produce modern weapons may well serve as an example to other international institutional effort. There are those who even view the successes as presaging a trend whereby the methods used to achieve weapons cooperation may be a useful way of conducting certain other international affairs. Whether one agrees with this or not, the avoidance of duplication of national effort that could be achieved by cooperative efforts in other fields than weapons is certainly an objective well worth considering.

Future Prospects for Cooperative Development and Production of Weapons. Although the problems of effective standardization and common production of weapons by the alliance members are complex and manifold, they are not insuperable. There are basic problem areas which challenge the success of all programs, areas which cut across every known attitude and national interest. There are problems of a more immediate but less fundamental nature, however, that might be resolved more readily if the proper study was attempted. For example, the problems of cost sharing and funding sources or methods are two whose resolution would greatly facilitate future programs. They too will be found by the student of organization to have their roots in the national sovereignty issue.

There is clearly need for some kind of central funding arrangements, particularly for feasibility and design studies and for research and development, if they are to be communal affairs. Central funding would be ideal for production, too, but perhaps more difficult to obtain agreement for in view of the larger sums of money involved. Unfortunately, it is not possible for NATO to commission even general "paper" studies at its own expense. The alliance is dependent upon individual firms or national governments to undertake even these at their own expense and risk. It would appear that if the recently reorganized NATO Conference of National Armaments Directors (CNAD) and newly created NATO National Industrial Advisory Group Conference (NIAG's) are to perform any kind of real planning for weapons development, they must have some kind of funding resources. They should be able to commission innumerable studies to determine the economic feasibility or technical viability of projects they may propose in the future. NATO should continue to initiate projects which might interest any two or more members. It must continue to make its requirements known to members and encourage them to join together in projects where requirements of both the coalition and the individual nations parallel each other. Only in this way can the recent trend toward numerous bipartite and tripartite *ad hoc* arrangements be taken advantage of for the benefit of NATO as a whole.

The second more immediate problem, that of costing out each project to let each member know the total risk and his own share of the risk, is one that demands early study and resolution. Each project should be carefully costed out and sensibly phased, with agreed points fixed at which deliberate decisions must be taken on the future of the project. It will require common resources to carry out such a study for each proposal, whether it be an *ab initio* one such as Atlantic or a purely production program of a weapon in being such as Hawk; whether it be an *ad hoc* project resulting from the usual unsystematic individual approach by one or two members or the hoped for result one day of controlled, advance planning and direction of a total collaborative effort.

The "unknown risk" must be made the "known fact" to the greatest extent possible to attract nations to join. "It is," as James concluded, "only fair to national parliaments, so that governments do not find themselves inextricably involved in projects that might grossly exceed the estimate."[2] In isolating the costing and phasing problems as being of significant importance, he was urging their resolution to satisfy, in turn, the political problem of nations which he too saw as being "in the last resort . . . a problem of political will, *rather than the mechanics of organization.*"[3]

The problem of planning sensible R&D programs in a coalition is an enormously difficult one. Answers to such questions as the comparative usefulness of weapons available a decade or more from the present or how to gauge the probabilities of technical success or how to hedge against failure by a series of technological enterprises that by hindsight will look like "wasteful" duplication—these are tough enough for one group of political or military administrators in a single nation. The problem of agreement is compounded in a coalition many times over. However, if limited funds to integrate NATO R&D efforts could be made available, little would be lost and much may be gained. The added ingredient to a pooled, integrated R&D agreement could be the free exchange of scientific information, with even greater possibilities of gain

Possible Weapons Fields for Future Cooperation. Returning to more factual

possibilities, many feel that the most promising approach would be to combine resources to develop and produce "families" of weapons or equipments. This approach would secure the advantages of cooperation without a great dispersal of effort. It would preclude the tendency of each nation to spread itself too thin into almost every conceivable type of weapon, as is generally the case today. By agreeing to engage in a whole field or family of weapons, each country could benefit and still remain comparatively self-sufficient, and certainly competitive, by being a participating producing member of a family of weapons required by all the others. Such a plan would go a lot further toward the common objectives of standardization and cost reduction than the present practice of securing cooperation on one weapon at a time.

Some say that there are only two basic choices facing Europeans in the problem of meeting the rising costs of modern weapons. One is the deliberate buildup of a European economic and technological system wherein each country attempts to find partners, especially in the United States, for specific projects in which it is interested. The second is the pursuit of a real "NATO Common Market" in arms, a major part of which would be a series of American/European industrial consortia, tied to families of weapons. In this respect the NADGE is pointed to already as an arrangement that goes beyond a single equipment, into a family of communications and warning devices. Such a proposal for the family approach is not without a great deal of interest. So much so, that Hunt, in summing up a forward-looking study of the requirements of military technology in the 1970's, concluded that there are clearly several areas where the member countries, particularly in Europe, could develop and produce their own weapon systems or families of weapons.[4] First, he drew up five categories of weapon systems likely to be continued or to be newly required in the 1970's. Then he carefully estimated whether each weapon family and weapon were susceptible to either single effort or collaborative effort. Next, he forecast those weapons which would be susceptible to NATO collaborative programs and those which the members would be most likely to buy from the United States. There were some he foresaw as being almost certain to be left up to the United States alone to develop.

Many observers feel it is time to raise the sights in real cooperative efforts. If NATO fails in the field of arms coordination and standardization, one which now has proved its practicability, they see the possibility of that failure going far beyond the confines of NATO itself. Other observers feel it is time to abolish NATO and revert to bilateral or other multilateral agreements and treaties. What would be gained by such a change is hard to imagine, especially when there is in existence a good international structure and a history of cooperative effort to build on. An academician from Canada answered the abolitionists in a sensible manner when he wrote:

> NATO is the first peace-time attempt at constructing sophisticated international apparatus for uninterrupted military planning and for the continuous exchange of political information analysis and consultation. Even if the present military raison d'etre of NATO should disappear, the volume and complexity of contacts and transactions at the international level of a group of industrially advanced countries on the verge of forming a "security community" will require the continued operation of some international brokerage apparatus whose features would largely resemble the present NATO model. It would therefore seem prefer-

> able to maintain the organization sufficiently flexible . . . than to follow the counsel of abolitionists, only to discover the immediate need for a laborious restoration of something very similar.[5]

There are some organizational and procedural bright lights pointing toward the future as this paper is written. For one thing, there is the complete rearrangement of the NATO armaments structure and the elevation of the revamped organization to a higher level within NATO. The phrase, "SHAPE requirement" has been discarded as evidence that there need not necessarily be a 100 percent militarily agreed upon endorsement to start a development program by two or more members. As a result of NATO's initiative, the former NATO Basic Material Requirement (NBMR) system has been abandoned. Where there was difficulty before in achieving a unanimity among the nations to start a program, today the flexible policy is that, "if any two countries see fit to enter in a cooperative R&D or production program, they are free to do so, as long as they are willing to pay the price." Moreover, the others are free to participate if they so desire and are willing to share the cost.

There is one improvement that many knowledgeable observers would like to see and that is that more emphasis and coordination power should be given to the most active and interested monitor-organ within NATO, the International Staff/Secretariat. That organization, and especially its Defence Support Division, has demonstrated a dedication that has risen above national interests, the intelligence to foresee the benefits of cooperative efforts from the very beginning, and the flexibility to include industry's assistance when it became a key element. They have earned the trust, confidence, and cooperation of industry. The Staff/Secretariat and its Defence Support Division could be the keystones for achieving greater cooperation in the future.

One thing is clear. The scientific revolution has made the pursuit of special interests in weapons by the separate powers a dangerous, unrewarding, and costly game. This is especially true for the lesser powers, but apparently even for a nation as wealthy and powerful as the United States. Technological progress has placed common challenges before the nations and created common interests far more significant than their separate and often conflicting desires. It has given them the chance to pursue those common problems in international combinations for their own benefit and for the benefit of all other members.

The challenge is clear. The record stands as proof that cooperative institutions and programs can succeed in meeting it. The possibilities are almost limitless. The focus must be more and more on concrete, attainable inter-

BIOGRAPHIC SUMMARY

Capt. Alexander H. Cornell, SC, U.S. Navy, has had extensive experience in the field of business administration. His degrees include a B.A. from Union College, an M.A. in history from Connecticut University, an M.S. in administration from Ohio State University, and a Ph.D. degree from American University, also in administration. As a supply officer he has served in a variety of administrative positions, including a tour of duty as Director of Warehouse Operations with the Naval Supply Systems Command in Washington, D.C. Captain Cornell served as Plans Officer for the School of Naval Warfare during the last academic year and is presently occupying the James V. Forrestal Chair of Military Management at the Naval War College.

national efforts such as have been examined in this study if real progress is to be made toward a safe, prosperous, and united community of the free world nations of Europe and America and the Far East.

FOOTNOTES

1. E. Vandevanter, Jr., *Coordinated Weapons Production in NATO: a Study of Alliance Processes* (Santa Monica, Calif.: Rand, 1964), p. 94.
2. Robert R. James, *Standardization and Common Production of Weapons in NATO* (London: Institute for Strategic Studies, 1967), p. 22.
3. *Ibid.* (Underlining added.)
4. Kenneth Hunt, *The Requirements of Military Technology in the 1970's* (London: Institute for Strategic Studies, 1967), p. 35-36.
5. Harald von Rickhoff, "The Changing Function of NATO," *International Journal*, Spring 1966, p. 167.

Ψ

Decisions which determine the success or failure of the strategic direction of global war have to be determined by the meeting of a number of minds, each of which contributes its own specialized knowledge, while also serving as a balance and a check on the others.

James Forrestal: Testimony,
Senate Naval Affairs Committee,
1 May 1946

Prior to World War II the people of Iceland were, to a great extent, isolated from world affairs. The occupation of their island in 1940 by the British began three decades of controversy in Icelandic politics over the presence of a foreign military force. Today the continued presence of the U.S. Defense Force in Iceland—a key facility for projecting U.S. antisubmarine warfare power in the Atlantic—is directly dependent upon the interaction of this issue with internal domestic politics in Iceland and the quality of the U.S. Armed Forces' community relations program there.

THE INFLUENCE OF DOMESTIC POLITICS ON THE DEFENSE POLICY OF ICELAND

A research paper prepared

by

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In any political system, domestic issues have an important bearing on the management and substance of foreign policy. The internal and external affairs of nation-states do not exist in separate compartments but are related products of the same leadership and have their origin in the same basic national purposes.

Three groups of factors are inherent in the formulation of national purposes. The first group comprises conditions arising from a nation's physical, economic, and human geography; its commitment to history and tradition or ideology; and the status of its technology. The second group involves the internal conditions of a country; its domestic, economic, and military policies; its public opinions and pressure groups. The third group is concerned with such intangibles as the national mind and national morale—factors which make up the so-called national character.[1]

In this study of the defense policy of Iceland, only selected factors will be considered in the examination and analysis of domestic politics on that policy. These factors are:

(1) The physical and political geography, the strategic significance of Iceland and its role in conflicts between other nations.

(2) The military and domestic policies and public opinion.

(3) The intangible known as the national mind and its associated complex of nationalism, neutralism, and xenophobia.

Whether there is such a thing as an identifiable national mind has long been a matter of controversy. Yet a nation's history produces not only stereotypes of behavior, but attitudes which common experiences amplify and which are transmitted from generation to generation. This behavior consists of national likes and dislikes, do's and do not's, and what psychologists term favorable and unfavorable associations.[2]

The discussion of such factors is intended, in this paper, to go beyond a mere catalog of matters over which Iceland has been divided in the period under investigation. It will be cast in sufficiently general terms to encompass past and future conflicts as well as the present situation. The factors which determine domestic political influence are derived from the history of Iceland, and, after extensive examination, they prove to be more deeply interrelated than is at first apparent.

The stereotypes of behavior contributing to the national mind are the consequence of the natural and social environment and the political atmosphere which prevailed in history. They are also the result of the physical and political geography of the country and its role in the concert of other nations; they are brought forth not only in national customs but also in fairly consistent attitudes toward the outside world in general. Altogether this heritage has produced friendships and enmities and has created deeply ingrained predilections and prejudices.[3]

Interrelationship of factors is reflected in Iceland's geographic position which has, ever since A.D. 930, required an arduous struggle for survival because of the harshness of the climate. This struggle has been a strong basis for nationalism, as the Icelanders are a people shaped not so much by their environment as by their determination to overcome it. Their geographic position has fostered an insulation from external contacts which is evidenced by a language and culture protected to this day from the derogating effects of outside influence. The isolated location has resulted in a sense of security from external aggression and, due to this, a lack of any military force. Historic prejudices due to these foundations of nationalism thus shape the national character of the Icelandic people and influence the views of the elite in responsible policymaking positions. Inheritance of atavistic attitudes, positive and negative, cannot easily be neutralized by rational judgment.

We see from the foregoing discussion that the selected factors form, in effect, a coherent system of phenomena. It becomes apparent that the foreign policy problem of providing for the defense of this isolated island is inextricably tied with its geographic position, its desired military policy, and a strong feeling of nationalism.

After a visit to Iceland in 1872, the British political philosopher, Lord Bryce, observed: "Iceland had a glorious dawn and has lain in twilight ever since; it is hardly possible that she should be called on to play a part in European history."[4] Indeed, the nation remained far removed from the mainstream of European affairs and from Great Power politics until the advent of the air age. If Lord Bryce did not foresee the change that technology would make upon the Icelanders, neither did they; for prior to 1939 Iceland had little interest in world affairs and still less in matters concerning the defense of the country.

In 1940, therefore, Iceland was ill prepared to carry the burdens which the war thrust upon her, and, at the conclusion of the war, the nation was even less willing to accept the responsibilities that its newly discovered strategic position dictated. It was inevitable that the question of national defense should become a major national issue and that politicians would seek to gain political advantage by playing upon the strong nationalistic sentiments of Icelanders.

Since the United States had become the principal protector of Icelandic interests during World War II, it was to be expected that U.S. leaders, realizing the strategic importance of Iceland in the developing East-West detente, would wish to have defense facilities in Iceland to assure the security of North America. When Icelandic nationalism thus came into conflict with the strategic requirements of the United States, the ingredients were present for a momentous debate within this newly independent nation. The question was whether Iceland should return to the defenseless isolation of the prewar period and take its chances with world politics or accept the protection of a friendly, powerful neighbor and the responsibilities that are inherent in a military alliance.

The role of domestic politics in defense policy becomes apparent when the course of Icelandic politics since 1940 is examined. The relevant factors are best revealed in the vacillation of the Progressive Party on matters of national defense. The party's background stems from rural sources—commonly accepted to be those associated with the elements of nationalsim and isolationism in international politics[5]—and it has been in a position to influence the Government's policy throughout the period by exercising veto power, whether as a member of the Government or when relegated to the opposition.[6] This position stemmed from the fact that, prior to 1959, the Independence and Social Democratic parties did not have sufficient strength to overcome both Communist and Progressive Party opposition in defense matters.[7]

Of extreme interest to those in a position to formulate strategic policy concerning the North Atlantic and Western Europe is whether or not defense support in Iceland will continue to provide NATO and the United States with facilities in this area. In the following sections of this paper, the influence of domestic politics on the defense policy of Iceland is analyzed in some detail in order to develop criteria which might help in determining what the prospects are for a continued Icelandic defense policy in line with NATO and U.S. interests.

Out of Isolation. Iceland's lack of interest in foreign affairs and defense prior to 1940 has been cited previously. As far as Icelanders were concerned, the country's status prior to World War II remained what it had been for centuries—a remote and forbidding country about which the Great Powers could not have cared less. The neutrality policy laid down by the Act of Union with Denmark in 1918 was thought to be a course of action which would serve the best interests of the country for years to come.[8]

Four provisions of this agreement were of special importance to Iceland's future foreign and defense policies:

(1) The relationship between Iceland and Denmark was declared to be that of "free and sovereign states united under a common king."

(2) Denmark was to administer Iceland's foreign affairs on behalf of Iceland.

(3) The agreement was to run for 25 years; after 1940 either nation could demand negotiations for its revision. If negotiations were not fruitful, either country could decide, by a two-thirds vote of its parliament and a three-fourths majority of the electorate, to cancel the agreement.

(4) The final provision dealt with Iceland's international status. It provided that Denmark would give notice to foreign powers that Iceland had been recognized as a sovereign state that declared itself permanently neutral.[9]

The advent of war in Europe forced Iceland to assume the responsibilities of a fully independent nation earlier than anticipated, although there was little doubt among Icelanders that their nation would elect to cancel the Union

agreement anyway when the 25-year period had expired. As early as 1937 the Icelandic Parliament (the Althing) had passed a resolution which authorized the Government to begin preparations for handling the nation's foreign affairs, "when Icelanders make use of the abrogation clause of the Union Act and take over the carrying out of all affairs of the country."[10]

When Hitler's armies invaded Denmark and Norway in April 1940, Icelanders became concerned that their undefended country might also be attacked. The country felt that the proclaimed policy of neutrality would not be much of a deterrent and one of the belligerents might seize Iceland in order to gain a strategic advantage. The leaders of the Government, while expecting an invasion, were completely surprised when British forces landed on 10 May 1940. The British Government advised them that its forces had occupied the country to prevent an invasion by the Germans and agreed to pay for any damage that resulted from occupation. Although the Icelandic Government formally protested this violation of its neutrality, the Government and most of the population were pleased that the occupiers were British rather than German.[11]

The Icelandic Government consisted of a coalition of the Progressive, Independence, and Social Democratic parties under the premiership of the Progressive leader, Hermann Jonasson. The sentiments of the Government parties and the large majority of the population toward the occupation were summed up in a radio speech Prime Minister Jonasson made to the nation on the evening of 10 May. After reviewing the events of the day and assuring the nation that the British Government had pledged not to interfere in Icelandic matters, the Prime Minister asked the people to accept the situation with calmness and patience.[12] The three Government newspapers supported the Prime Minister and called the invasion a necessary expedient in time of war. Progressive *Timinn* contended that neutrality was no longer feasible as a national policy.[13] Social Democratic *Althydubladid* referred to the occupation as a "necessary evil" and asked the nation to make the best of the situation.[14] The Communist press, however, strongly condemned the Government for its policy. *Thjodviljinn* voiced its opposition in these terms: "We did not ask for this protection. We stand as one man against this violation of our country."[15]

The Defense Agreement of 1941. As German forces swept across Western Europe in the summer of 1940 and gave every indication that they would attempt to conquer Great Britain, the Icelandic Government became concerned over its defense. It became apparent that British forces would be recalled to England should the situation in Europe deteriorate further. This led to a frank and direct meeting in December 1940 between Stefan J. Stefansson, the Minister of Foreign Affairs, and the U.S. consul in Reykjavik. Stefansson pointed out his fears of what would happen if Great Britain were overrun by Germany and speculated that the British forces would be withdrawn, leaving Iceland without protection. He asked that the United States consider taking over the defense of the country from the British and expressed the desire that "Iceland be included in the Monroe Doctrine area."[16] As a result of this request and further discussions between the Governments involved, the United States and Iceland concluded a defense agreement on 1 July 1941, which provided a legal basis for the protection of Iceland by U.S. forces for the duration of the war.

This agreement contained eight provisions which defined the safeguards to Iceland's sovereignty. The most important dealt with the relationship between the military forces and the Icelandic

Government and stated that, "the United States promises not to interfere with the Government of Iceland neither while their armed forces are in the country nor afterwards."[17] In addition, "the United States promises to withdraw all their military forces, land, sea, and air from Iceland immediately on the conclusion of the present war."[18] This provision turned out to be the most critical due to a misunderstanding over the interpretation of the term "present war." On all other points there is reason to believe that the Icelanders were satisfied over the way in which the agreement was implemented, especially the economic and political commitments made by the United States.

Discussion in the Althing in July 1941 when the agreement was ratified showed that a large number of the members believed that the Government had no choice but to conclude the arrangement, but there were feelings expressed that the Defense Agreement signaled the end of Iceland's neutrality policy. The Communists were not so concerned over the departure from this policy as they were over the possibility that Iceland might lose its independence to the United States. They felt that if the country must accept outside help, the Soviet Union should also be included in the agreement.[19]

The Defense Agreement was subsequently passed by the Althing with only the Communists voting against its ratification. Despite their opposition, the Communists felt that it was necessary to assist in the efforts to defeat Germany because of Hitler's attack on the Soviet Union.

Press reaction followed the lines taken by the parties in the Althing. The strongest support came from *Timinn*, which stated that the Government had adopted the best policy for the nation and it was perfectly natural to conclude an agreement with the nation in the best position to guard Iceland's security.[20] In a later editorial, *Timinn* attacked the policy of neutrality and called on all Icelanders to turn their backs on isolationism and accept the international obligations which had been thrust upon the nation.[21] This Progressive Party attitude will be seen to radically change in future events.

The impact of World War II on Iceland was enormous. New-found prosperity had far-reaching effects on the economy, the attitudes of the people, and the way of life. New political forces were emerging which catered to popular demand and looked to the future rather than the past for their inspiration. In 1942 a decisive shift occurred in the fortunes of the two contenders for supremacy in Icelandic politics—the Independence and Progressive parties. While it was caused by a change in the electoral law rather than the presence of foreign occupation forces, the consequences in terms of Iceland's postwar foreign policy were great. The Progressive Party, which had dominated Icelandic politics since 1937, was reduced to a poor second behind the Independence Party. The losses suffered by the Social Democrats during this election, which were traceable to an increase in Communist support, reduced that party to the smallest in the Althing and deprived it of its leadership of the Icelandic labor movement. The elections of 1942 marked the end of an era in Icelandic politics, and the determination of the Progressive Party to regain its preeminent political position has strongly influenced its policy on both foreign and domestic issues during the postwar years.

When the war in Europe came to an end in the spring of 1945, Icelanders expected that the military forces would be withdrawn in accordance with the promises made by the United States in 1941. Many believed that the nation could return to its prewar policy of neutrality and concentrate on building a prosperous society. Only a few agreed with the later Prime Minister, Bjarni

Benediktsson, who had written in 1943 that the Defense Agreement with the United States marked the end of Iceland's neutrality and ushered in a new era wherein Iceland would be forced to choose between competing blocs of world power.[22]

The adaptation of the Icelandic people to the new conditions of the postwar period was complicated by the fact that the Government consisted of a coalition of the Independence, Social Democratic, and Communist parties. It could be expected that the Communists would follow the desires of the Soviet Union in foreign affairs and oppose additional security arrangements with the United States. The Progressive Party, which had championed the Defense Agreement in 1941, was now in the opposition and would take a more critical view of foreign policy commitments. In view of this, when the United States requested base rights in Iceland in 1945, the stage was set for a difficult decision on the part of the Icelandic government.

Despite the clear pledge that the United States would withdraw its forces upon conclusion of the war, Icelanders had doubts that the strategic position would be given up. The Icelandic Government position had been stated in 1944 by Foreign Minister Vilhjalmur Thor: Iceland would not grant any nation military bases, and the Government expected that the United States would abide by its promise to withdraw its forces as soon as peace was declared. "We are a nation of individualists," he added, "and we did not establish our republic to become less independent. We intend to own our own country, all of it, without any foreign interference."[23]

On 1 October 1945, the Icelandic Government received a U.S. request for negotiations on the leasing of military bases under the jurisdiction of the United Nations Security Council as Iceland's contribution to world peace when it was accepted to United Nations membership. The United States assured Iceland that it would assume all costs in connection with the maintenance of the bases and fully respect the sovereignty and independence of Iceland.[24] No official announcement was made to the public, but rumors soon spread that the United States had offered Iceland a huge sum of money for a long-term lease of bases. In the public mind the question of whether the small nation would be forced to bow to U.S. demands assumed the role of a test of Iceland's independent status.

Political reaction in the press was mixed. The papers of the two democratic parties in the coalition were silent, following the example of their leadership. The matter was first brought to public attention by the Communists, who expressed doubt that the rumors were true even though certain Icelanders would be willing to sell Icelandic territory for economic gain.[25]

The Progressive *Timinn* criticized the official silence and berated the Government for leaving an opportunity to the Communists to jeopardize Icelandic-American relations. The silence of the Independents indicated a split within the party over the U.S. request.

The issue came to a head in April 1946, when the matter was eventually discussed in the Althing. The leaders of the Progressive Party attacked the Government for its 6-month silence, charging that the refusal to make the facts known had harmed Iceland's relations with a friendly nation and indicated that the Government was divided on the matter.

The debate resulted in the first official statement on what had actually occurred. Prime Minister Thors outlined in detail the Government's deliberations, the exchanges with the United States, and the eventual decision to refuse the request. The spokesmen of the other coalition partners supported the Prime Minister and indicated that

there was no basic divergence of views within the Cabinet.[26] The crucial point revealed in the Althing's debate was that the Government asserted Iceland's independence, which had been challenged by the most powerful nation in the world. It was clear that the decision had the support of all Icelandic political parties—one of the few times that the nation has been united on a foreign policy issue.

Aside from the substance of the decision, three conclusions concerning domestic influence and the future course of Iceland's policy in security affairs may be drawn from this debate: (1) Although the Government had agreed to refuse the U.S. request, there was a disagreement on how to do it. (2) The Prime Minister was in a difficult position with respect to the general elections scheduled for 1946; being caught between the need to uphold the policy of his country and maintain the friendship of the United States. (3) The Government failed to keep the matter out of the public eye until after the elections, due largely to the efforts of the Communists, who attempted to exploit the silence of the Government to bolster their own election prospects. It is also of interest that the Progressive Party during the debate carefully avoided committing itself to any definite policy in security affairs, which might have lessened its chances to participate in a new government.

Membership in the United Nations and NATO. The general elections of 1946 were eventually decided on domestic issues alone, as the only foreign policy issue had been eliminated by the Government's refusal to allow foreign bases in Iceland. The results of this election were favorable to the Independence and Social Democratic parties, increasing their representation in the Althing.

The major task of the Government after the elections was to work out an arrangement with the United States that would bring about the withdrawal of the remaining military forces and give some assurance that an undefended Iceland would not become a power vacuum that would invite political and economic pressure from the Soviet Union.

The Progressive Party, after suffering serious losses in the election, found it increasingly difficult to keep in check those elements within the party that desired a strong nationalist/neutralist policy in foreign affairs. An important debate on foreign policy now occurred over the details of U.S. withdrawal, which ended in the dissolution of the Government and enabled the Progressive Party to join the new Government. The first round of this debate came in connection with the Althing's discussion, in July 1946, on the possibility of membership in the United Nations. This question had a direct bearing on the problem of defense, as Icelandic leaders believed that United Nations membership would be an acceptable solution to the problem of defense incurred when the request for bases was refused.[27]

At issue in the Althing debate was whether membership in the United Nations would entail an obligation on the part of Iceland to accept foreign troops during peacetime. Most outspoken on this point were the leaders of the Progressive Party, who requested that the application for membership be accompanied by a declaration to the effect that "membership would not require Iceland to station foreign troops on its soil."[28] Although this proposal was defeated, Prime Minister Thors agreed to send an explanatory note to the United Nations which would outline the position of the Icelandic Government with regard to article 43 (3) of the United Nations Charter.

The political significance of this debate was the shift in Progressive Party policy. The neutralist/nationalist faction of the Progressive Party, whose strength had greatly increased, believed that the

maintenance of Progressive influence relative to that of the Independence Party required a more dynamic policy which would attack the Government strongly on domestic and foreign policy matters.

It was the second round of the debate that led to the collapse of the Government. At issue was the "Keflavik Agreement," which arranged for the final withdrawal of all U.S. troops from Iceland.[29] The political discussion that took place during October 1946 over the ratification of this agreement was one of the most intense national debates ever witnessed. The positions adopted by the four political parties indicated how greatly domestic political factors influenced the nation's decision. Unlike the earlier question of granting bases, which had found all parties in agreement with the Government's decision, the "Keflavik Agreement" split the Progressives and Social Democrats whereas the Communists strongly opposed it. Only the Independence Party was united behind Prime Minister Thors and supported the ratification on the provision that the agreement was the best that the Government could hope to achieve and still maintain friendship with the United States.

The agreement was in the end approved, only because several Progressive Party members voted with the Government. The immediate effect was the withdrawal of the Communists from the Government. Prime Minister Thors submitted his resignation a few days later, and the resultant quest for a new government was one of the longest in Icelandic history. It was not until February of 1947 that Stefan J. Stefansson succeeded in bringing together a coalition of the Social Democrats, Progressives, and Independents—the same parties that had governed Iceland during the years 1939-1942. There was, however, a significant difference in this Government's attitude on foreign and defense policy. Whereas in 1941 the Government had taken a forthright stand, the Cabinet formed in 1947 found it difficult to agree on foreign policy issues. The change in political fortunes during the war and the actions of the Progressive Party when it was in the opposition contributed to this disunity.

By 1949 the international situation had deteriorated considerably. The Communist coup in Czechoslovakia and the blockade of Berlin had made a deep impression on the Icelandic public and again raised the question of whether Iceland could afford to remain defenseless. When it became known that Iceland would receive an invitation to join the proposed North Atlantic Alliance, most Icelanders had little doubt that acceptance would have far-reaching effects on the nation's future relations with its European and North American neighbors. Yet the Progressive proponents of neutralism and nationalism, whose influence had strengthened since 1946, were determined that the nation would not abandon its traditional neutrality to become a partner in the cold war. The clash of the internationalists and the neutralists on the issue of membership in NATO constituted the climax in the postwar debate on Iceland's policy of neutrality.

The debate on NATO was primarily concerned with the question of stationing troops in Iceland in peacetime. The question had become a matter of principle for the Progressive Party and eventually became the adopted policy of the Icelandic Government. A major factor in the decision to explore the possibilities of NATO membership was an announcement carried by *The New York Times* on 9 February 1949, that membership in the North Atlantic Pact would not require the establishment of bases in Scandinavian countries.[30]

In essence, there was no difference in the position of the three Government parties at the end of February: All three, at the insistence of the Progres-

sive Party, had agreed that Iceland could not accept foreign troops in peacetime but were not opposed to joining the alliance. Only the Communists were opposed, stressing a policy of complete neutrality. Consequently, unlike the situation that existed in the 1946 debate on the "Keflavik Agreement," there was little doubt that if NATO accepted the stipulation on troops, entry into the alliance would be approved in the Althing. The essential difference lay in the Progressive Party's support. When the stipulated assurance was received, voting on the treaty took place, and the Government's motion was carried on the afternoon of 30 March despite a Communist-precipitated riot outside the Althing building.[31]

The major internal political development that followed Iceland's decision to join the North Atlantic Pact was another change in the Althing representation of Icelandic political parties as a result of the general elections of 1949. In a campaign dominated again by domestic issues, the Independence Party and the Communists held their strength, while the Social Democrats lost support and the Progressives gained.

At the end of 1949, three important results of the election were evident. Communist strength lay in supporting the cause of the workers. This strength had not been impaired during the period 1946-1949 even though the party stand on foreign policy had not always been appreciated. The Social Democratic Party, due to the loss of the labor vote, was a declining force in Icelandic politics. The Progressive Party was once again a contender for leadership. The Progressive Party's leaders were convinced that they had found the formula for political success—supporting a pro-West foreign policy but opposing the establishment of military bases in the country.[32]

The Defense Agreement of 1951. The outbreak of hostilities in Korea in the summer of 1950 produced a change in Icelandic public opinion on the question of national defense. Following the Chinese intervention in that conflict, Icelanders began to show increasing concern over their exposed and undefended country in the case of an outbreak of general war. The fear that had been expressed in 1949—that membership in NATO would necessitate the stationing of foreign troops on Icelandic soil—was now giving way to the conviction that being without defenses in such critical times was a risk that Iceland could not afford. The domestic political situation facilitated this change of opinion. The Progressive Party had emerged from the elections of 1949 with increased political strength and had joined with the Independence Party to form a strong coalition Government. The influence of the nationalist-neutralist faction within the party had been reduced, and the party's leadership was in a position to assume a more positive attitude in defense matters than had been the case earlier.[33]

During the first 4 months of 1951, there was speculation outside of Government circles that an American defense force would be sent to Iceland. A resolution passed by a group of aviators and air enthusiasts petitioned the Government to ask the West to provide Iceland with defense and declared: "Iceland is a defenseless country and open to aggression. This meeting held by proponents of defense calls upon all loyal Icelanders to launch immediately an energetic campaign for the dispatch to Iceland of a military force from our allies in the Atlantic Alliance."[34] A similar statement made 1 year earlier would have drawn immediate denunciation from most political quarters; in 1951 only the Communists criticized it.

Due to the existing international situation and the expectation by the Icelanders that some kind of NATO Defense Force would be sent to protect the island, the arrival of the first con-

tingent of a military force at Keflavik on 7 May 1951 came as no surprise. On the same day the Icelandic Government made public the text of a defense agreement with the United States, signed in Reykjavik 2 days earlier. In addition, the Government explained its desire for U.S. protection in a news release. This release was an obvious effort to obtain public support for an agreement, the legality of which was somewhat in doubt because the consent of the Althing, required by the Icelandic Constitution, had not been obtained.[35]

The Defense Agreement of 1951 stated in general terms the obligations assumed by the two countries.[36] The United States would carry out the defense of Iceland in accordance with its responsibilities under the North Atlantic Treaty, and the composition of these forces would be under the control of the Icelandic Government. The United States agreed that it would keep "always in mind that Iceland has a sparse population and has been unarmed for centuries."[37] Finally, provision for revision or termination of the agreement was provided:

> Either government may, at any time, on notification to the other government, request the North Atlantic Treaty Organization to review the continued necessity for the facilities and their utilization, and to make recommendations to the two governments concerning the continuation of this agreement. If no understanding between the two governments is reached as a result of such request for review within a period of six months from the date of the original request, either government may at any time thereafter give notice of its intention to terminate the agreement, and the agreement shall then cease to be in force twelve months from the date of such notice.[38]

This section proved to be a key when subsequent actions by the Icelandic Government resulted in a request for termination of the agreement.

The agreement of 1951 was unique among all concluded since 1941, because it found the three non-Communist Parties in complete unanimity on defense matters. As there was, consequently, no reason for a public debate on this agreement between the democratic parties, the reaction of the press is of special interest. It was to give full support to the Government's decision and ignore the arguments of the Communists. In doing so, the non-Communist press prevented the presence of the Defense Force from becoming a public issue. The views of *Timinn* are of significance because they reflected the unity of the Progressive Party. The newspaper emphasized the grave international situation, Iceland's obligations to its Scandinavian neighbors, the unanimity of the democratic parties, and the necessity of accepting foreign forces despite the personal feelings of Icelanders. Seldom had the case for defense of Iceland been stated in clearer terms.

The Defense Agreement was finally submitted to the Althing for ratification in October 1951. Compared to the heated debates on security affairs which took place in 1946 and 1949, the discussion on the agreement failed to attract much public attention—an inevitable situation, as the Althing was ratifying an accomplished fact whereas in the earlier debates it was determining national policy. The vote ended in a legal sanction for the entry of foreign military forces. The action amounted to tacit approval of the same issue which had caused the collapse of the Government in 1946 and disgraceful riots in 1949.

Continued cooperation of the democratic parties in defense policy became difficult as the impact of foreign troops on the culture and people of Iceland increased. This impact resulted in a

growing attitude of resentment and hostility to the U.S. forces. In 1952 the nationalistic elements of the Progressive Party became more opposed to the continued presence of troops on the island, and the Government leaders saw that they would be affected politically if tighter controls were not taken to reduce the effect of the Defense Force on the national culture. The Progressive Party may have had reason by 1953 to regret the political risks assumed in 1951, when a strong position relative to the Independence Party enabled it to deal effectively with its nationalistic element. Due to increasing nationalism, the Progressive Party was forced to reconsider its position on defense.[39]

The Request for Withdrawal. During 1955 it became increasingly apparent to many Icelanders that the threat of war was receding. This new optimism led them to speculate that the United States might be persuaded to withdraw the Defense Force. As a result of nationalist pressure, the Progressive Party changed its attitude toward defense in anticipation of general elections in 1956. Social Democratic leaders, likewise, believed that opposition to the Defense Force would be a good political move.

The erosion of popular support for defense was accompanied by a significant alteration in the balance of political forces within Iceland. The Social Democratic Party had come under a new radical leadership. A newly formed neutralist party, which campaigned exclusively on a platform of opposition to the Defense Force, had received enough electoral support in the 1953 elections to elect two members to the Althing. The Progressive Party, which had suffered a loss of strength in that election, agreed to enter a coalition government with the Independence Party only on the condition that there would be a sharp revision of the Defense Agreement to restrict the freedom of the Defense Force. Thus, by the end of 1955, the ingredients for a change in political alignments were present. Finally, the changing fortunes of domestic politics had forced the Progressive Party to adopt a position opposed to providing for defense in peacetime altogether.

When the Progressive Party decided in March 1956 to withdraw support from the Government and seek new elections, its new stand on defense matters was expressed by the leader of the party, Hermann Jonasson, as follows: "It is important from the national point of view, that we hold to the previous declarations that we have made in connection with our foreign policy."[40] The Progressive leader was referring to his party's opposition to the Defense Agreement. Iceland's future policy was to be based on the declaration of 1949 (that there would be no foreign troops in Iceland in peacetime), and the indefinite continuation of the Defense Agreement would have been in conflict with that policy.

The Progressive Party advised the Prime Minister on 26 March 1956 of its decision to withdraw support from the Government. After the Government had submitted its resignation but prior to the final adjournment of the Althing, a resolution on defense was submitted for adoption in the Parliament. It read, in part: "The Althing resolves to declare that the foreign policy of Iceland should as hitherto be formulated so as to ensure the independence and security of the country . . . [and] that the Defense Force be withdrawn."[41] The reasons for bringing up this explosive matter at the last moment are not clear. Evidence points to the fact that the two parties (Progressive and Social Democratic) believed that it would be politically advantageous during the election campaign, insofar as nationalist votes were concerned, to show some initiative regarding the future withdrawal of the Defense Force.

After heated debate and a great deal of hedging on the part of the Indepen-

dence Party, which wished the subject delayed until after the election, the resolution was passed. Support for the nation came from the Progressive, Social Democratic, and Communist parties, and the passage insured that defense policy would remain an important issue during the election campaign.

The election results of June 1956, with defense the primary issue, were an unmistakable indication that public sentiment in favor of defense was much stronger than anticipated by political leaders. The Progressive and Social Democratic parties received the largest bloc of seats, but the prodefense Independence Party lost only slightly. The slight loss of the Independents indicated that only a few supporters of a pro-Western defense policy were swayed by the Progressives nationalism.

Following the elections, a coalition was formed which included the Progressive, Social Democratic, and Communist parties. The principal problem ahead of the new Government was the implementation of the withdrawal of the Defense Force in the face of the facts that popular support for its retention had continued and that other NATO countries had become alarmed.

When the Government notified the United States that it wished to begin negotiations on the revision of the Defense Agreement to implement the Althing resolution, it also asked the NATO Council to study defense requirements in Iceland. The Council was not expected to take a firm stand in favor of the continuation of the Defense Agreement nor challenge the substance of the resolution. The Council's reply was a concise and carefully worded statement of the strategic importance of Iceland in the defense of the North Atlantic:

> The North Atlantic Council, having carefully reviewed the political and military situation, finds continuing need for the stationing of forces in Iceland. The Council earnestly recommends that the Defense Agreement between Iceland and the United States be continued in such form and with such practical arrangements as will maintain the strength of common defense.[42]

The Council's unanimous conclusion had a profound effect on Icelandic public opinion and the domestic political situation, causing the Government to seek a face-saving formula to reverse the withdrawal resolution.

The solution was offered when the Soviet invasion of Hungary refuted the view that the world situation had become peaceful enough to demand the withdrawal of the Defense Force. The new public mood caused the leadership of the Progressive and Social Democratic parties to undertake to persuade their followers that a change of course was required.[43] The first clear indication of this change came from an article in *Timinn* which admitted that the international situation had changed and that it was essential for all nations to reconsider their policy.[44]

Iceland's Foreign Ministry announced in December 1956 that accord had been reached concerning the problem of the Defense Force. The Government stated that the "recent development of world affairs and the continuing threat to the security of Iceland and the North Atlantic Community call for the presence of defense forces in Iceland under the existing Defense Agreement."[45] Thus, for the time being, the Althing resolution of 28 March was ignored. Each of the Government parties had to retreat on the defense issue to preserve the coalition, but, compared to a collapse of the Government, this strategic retreat was by far the least unpalatable of the alternatives available.

The Situation in 1968. The Progressive government of Hermann Jonasson

collapsed in December 1958 because it could no longer cope with the nation's growing economic problems. After elections in 1959, a new Government was formed consisting of the Independence and Social Democratic parties. Until 1968, defense issues were secondary to economic issues, which remained beneath the surface of Icelandic politics, waiting to be seized upon by political forces at the next opportunity.

The Soviet invasion of Czechoslovakia and the approaching 20th anniversary of NATO caused the question of defense to be raised once more. The majority of Icelanders expressed shock and dismay at the Czech invasion, and this public feeling indicated to the Government the need for membership in NATO and the continuation of the Defense Agreement. The Communist press, however, stated that what had happened in Czechoslovakia was an indication of the dangers inherent in military alliances and urged both the withdrawal of the Defense Force and the termination of NATO membership.[46]

The Progressive Party, hoping to recruit support from that portion of the population that retained misgivings about the need to maintain the alliance, encouraged doubts about the effectiveness of NATO and denounced the Defense Force. It was evident that the Progressive Party was still basing the need for defense on the existing degree of world tension. The Progressives completely disregarded past mistakes by resuming the stance that international tension had diminished and that it was no longer necessary to maintain military defenses.

The Government's conviction that a majority of Icelanders desired retaining the Defense Force was substantiated by a public opinion poll conducted by *Visir*, an Independence Party newspaper, in which 57 percent of those queried favored the continuation of the Defense Agreement.[47] The internal controversy raged, and the Progressives continually insisted that "the development of international affairs has been, and will remain, such that it is urgently necessary to work towards the withdrawal of the Defense Force from Iceland."[48]

The debate reached its peak in 1969 when, on a radio program, one Aron Gudbrandsson proposed that the Icelanders should try to make money out of security affairs by leasing the defense facilities in Iceland to the United States. He proposed an arrangement similar to the treaty between the United States and the Spanish Government. The Progressive Party immediately came out to urge the Government to give consideration to this plan, arguing that its adoption would benefit the nation's economy. There were indications that public support could be generated by stressing the economic aspect. In the Progressive view the proposal would also give Icelanders another wedge to force the Defense Force out of Iceland at the country's pleasure.

The Progressive Party realized its error when the nationalistic sentiments, which the party had so loudly championed, reacted adversely to the proposal. A poll conducted by *Visir* indicated that there was no majority of feeling either way on the matter.[49] But the Social Democrats called the plan a "dismal theory which aims at destroying the ethics and honor of the nation,"[50] and the Communists attacked it as "indicative of the corruptive influence of the long lasting American occupation of Iceland."[51] The Independence Party closed the debate when it stated in *Morgunbladid*, "Icelanders participated in the founding of NATO in order to insure their security and admitted the Defense Force for the purpose of strengthening the mutual defenses of the alliance. We have done this because of our own vital interests and not to make money out of it."[52]

The importance of the defense issue was thus reduced again, and the

attempts of the Progressives to utilize it to consolidate their domestic position backfired. The appeal to the national interest did not take into account the factor that Icelanders would rather renounce the money and the Defense Force than allow the force to remain under conditions suggesting national susceptibility to bribery.

Summary and Analysis. The review of Icelandic policy since 1940 shows a definite pattern of fluctuations in Government and party attitudes toward providing for an effective defense. This pattern is graphically portrayed in figure 1.

Iceland followed a policy of neutrality until 1941 when it signed the first Defense Agreement with the United States to provide protection during World War II. At this time the Progressive Party was the largest party in the Althing, and it strongly supported the agreement. After the war the Government rejected a continuation of the Defense Agreement and refused a U.S. request for bases. The Progressive Party was in the opposition during this debate and strongly objected to the use of bases and the stationing of foreign troops in the country. In 1949 Iceland joined both NATO and the United Nations. The Progressive Party was in a weak parliamentary position, but, as a member of the coalition Government, it opposed membership in NATO by withholding support from the Government until it was assured that foreign troops or bases would not be located in Iceland in peacetime. The Progressive Party, on the basis of this issue, gained support in the election of 1949 and subsequently formed a Government with a Progressive Party member as Prime Minister.

In 1951 the lack of adequate defense was reevaluated, and the Progressive government supported a new Defense Agreement which allowed the United States to station forces in Iceland. The elections of 1953, however, indicated to the Progressive Party that the Icelandic public was becoming increasingly dissatisfied with the presence of the Defense Force, and the Government was forced to reconsider its defense position. In anticipation of the 1956 elections, the Progressive Party joined with the Communists to ask for the withdrawal of the Defense Force, only to reconsider this request a few months later when the world situation made the Icelandic public aware of the need for defense once again. After a period of relative quiet in defense affairs, the Progressive Party was quick to jump on the question of continued membership in NATO in an attempt to win domestic support and make possible their return into government. This attempt, as we have seen, failed when the nationalistic sentiment overruled the Progressive action in a manner the party did not expect. The record thus shows that the Progressive Party has played a key role in the fluctuations which have occurred in Icelandic defense policy. This role has been determined largely by domestic political factors.

Prospects for the Future. Two aspects of Icelandic defense policy will now be considered. First, what is the strategic importance of Iceland? Has the need for bases there been reduced by improved technology? Are there aspects of the defense problem which require a U.S. presence in the North Atlantic area? Second, what is the relationship of present domestic politics to the defense policy of Iceland?

The problem of defense in Iceland is related to the fact that it is in the center of an area of great strategic importance. As a result of its position with respect to the North Atlantic sealanes, the importance of Iceland was established prior to World War II. The Soviets, as early as 1920, realized that the island would be important. Lenin stated at a meeting of the Comintern that "Iceland would have a strategic role to play in

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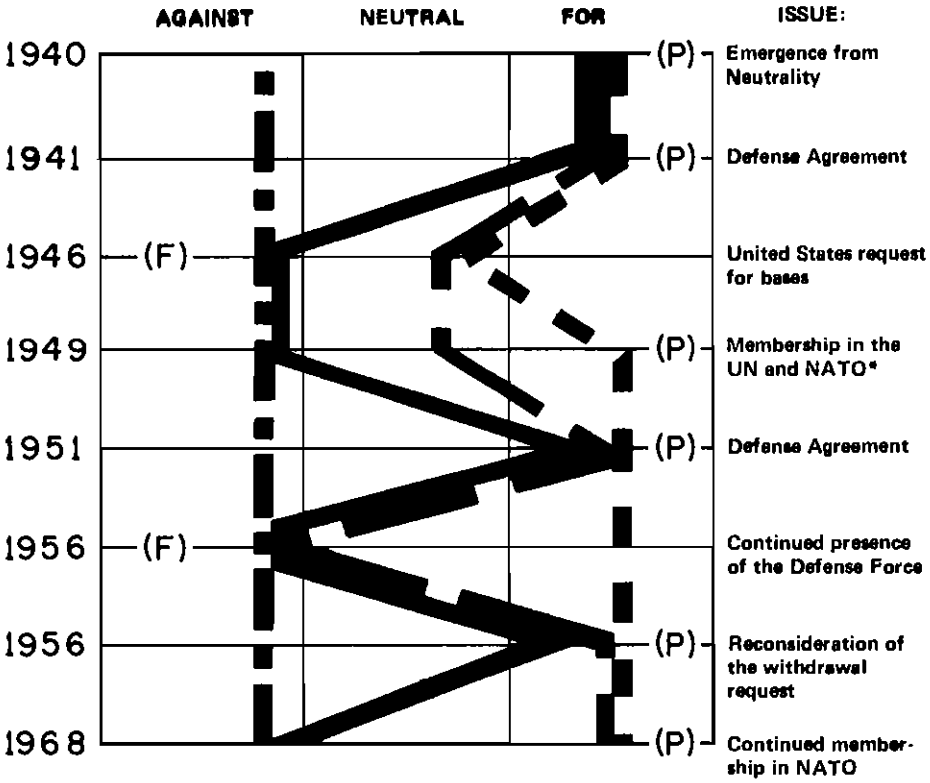

(P) . . . . Althing resolution on this issue passed.

(F) . . . . Althing resolution on this issue failed.

– – – – . . . Independence Party

——— . . . Progressive Party

— — . . . Social Democratic Party

— – — . . . Communist Party

*Subject to stipulation that no foreign troops would be stationed in Iceland in peacetime.

Fig. 1—Comparison of Icelandic Political Party Positions on Defense Matters, 1940-1968

future wars, particularly as regards air and submarine warfare."[53]

The Atlantic Ocean is both a path and a barrier—the connecting link between the NATO nations of Europe and North America or a vast gap between these nations if free passage of the Atlantic should be impaired. In the northern reaches of the Atlantic, Iceland represents the keystone in a defensive arc enabling necessary surveillance to be conducted in the Iceland-Faeroes gap. This surveillance is an essential function for the United States and NATO in view of the expanding operations of the Soviet Navy. The new policy of the Soviet Union, which envisions predominance in such areas as the Iceland-Faeroes gap, was announced by Marshall Zakharov, the Soviet Chief of Staff, at a press conference on 16 February 1968: "The time when Russia can be kept out of the world's seas is gone forever. We shall sail all of the world's oceans; no force on earth can prevent us."[54]

Iceland's strategic importance in the present is due to her geographical position, which makes it possible for forces operating from her territory to detect and, if necessary, attack Soviet submarines and surface forces attempting to gain access to the North Atlantic by passing through the Iceland-Faeroes gap. The Icelanders take small comfort in the knowledge that whatever importance they have in today's world is not due to who they are, but where they are.

The survey of the history of Icelandic defense policy has indicated that the fluctuations in this policy can be attributed to the cyclic attitude towards defense policy of the Progressive Party. This attitude, in turn, can be accounted for by the strategy of exploitation of the changing moods and opinions of the Icelandic people by the Progressive Party in its continuing bid for control of the Government.

To visualize the direction that future Icelandic defense policy will take, it is advantageous to utilize a linkage theory. A model proposed by James N. Rosenau in his paper, *Of Boundaries and Bridges*,[55] can be used to depict the interaction of several political factors and portray their effects on the whole. This model is used here to place the political factions that make up the political entity of Iceland in an interrelated chain. The overall concept of the chain depicts defense policy and links the defense ideologies of the political parties. The theory also allows the determination of the effects of any portion of the model by examining its relationship to the basic issue of defense policy.

From the analysis of past party policies, it is apparent that the central link of the model is the position occupied by the Progressive Party. From this position the party's influence in defense matters may be easily applied to either side of the defense policy spectrum. The other political parties are distributed to either the right or left of the central link, based on their more persistent attitudes and past actions. The fully developed model is depicted in figure 2. From figure 2 it may be determined that any faction or group of factions which places control of the Government to the right of the neutral line will be amenable to a defense policy favorable to the United States and NATO. The position of these policies within the entire spectrum will become evident as the present attitudes toward defense of each are examined.

In the period encompassed by this study, it has been impossible for any single political party to form an Icelandic Government. Thus, the discussion relating to future prospects for defense will consider the possible combinations capable of forming coalition governments. The first combination to be considered exists at the present time. The Independence and Social Democratic parties have maintained control of the Government since 1959 and com-

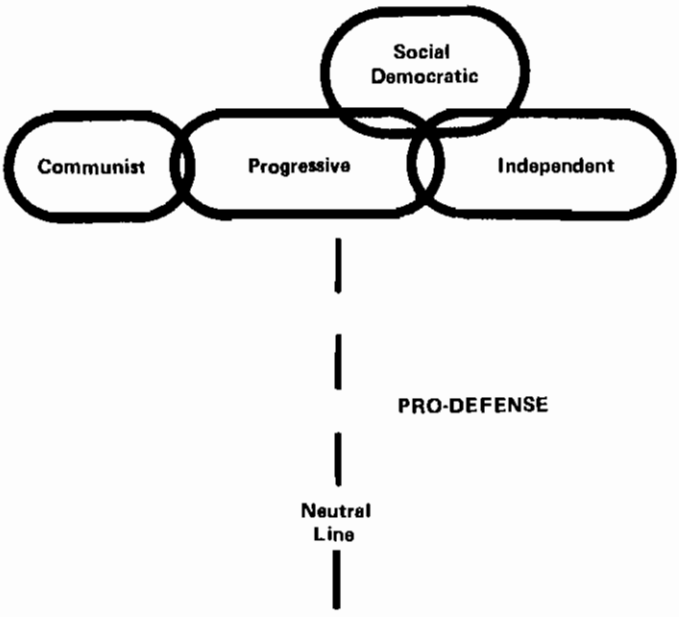

Fig. 2—The Linkage Model of Icelandic Defense Policy

prise the right side of the linkage model.

The Independence Party strongly supports the maintenance of close NATO ties and the continued presence of the Defense Force. The degree of support is indicated by remarks of the Prime Minister of Iceland, Bjarni Benediktsson, in June 1968:

> It is the overwhelming opinion of Icelanders that the country's defenses should be secured through continuing membership in NATO. We hold the view that distances have become practically non-existent and, as a consequence, there would be little or no time to make important decisions. Iceland cannot remain without military forces any more than other countries. There is a constant stream of traffic by all types of craft on the sea, below the sea and in the air surrounding Iceland. There is, in effect, very little difference than if the country were placed somewhere in Central Europe or in some other similar position which no one would dream of leaving open and defenseless.[56]

These views of the Prime Minister reiterated his earlier statement in an address to the Rotary Club of Sjoeland in Copenhagen on 20 February 1968, when he said: "If the United States were to withdraw from Iceland a dangerous vacuum would develop in the North Atlantic in which case the island would become a completely dismantled and isolated advance post."[57]

The prodefense attitudes of the Independence Party are thus rather clear. Due to its long history of Western cooperation and the complete embracing of the aims of NATO, its attitude regarding defense should be assumed to continue. The outlook for the future was expressed during a debate between members of the Young Independence Party and the Young Progressive Party by Hordur Einarsson:

> Peace prospects are, unfortunately, far from great today and least of all do these prospects allow us to leave Iceland undefended, for our own sake and for the sake of our allies and their interests. We Icelanders cannot maintain minimal defenses except by establishing an Icelandic armed force which is a burden we have not been willing to undertake. For this reason we must, for some time to come, trust the American armed forces which are here in behalf of the North Atlantic Treaty Organization to provide defenses for our country.[58]

The attitudes of the Social Democratic Party are more difficult to categorize. This is due mainly to the fact that the party has been able, because of its past vagueness in foreign policy statements, to embrace whatever doctrine was required to enable it to have a voice in the formation of a government. It does not have sufficient support to become a majority party, but its views are generally pro-NATO. The present Foreign Minister, Emil Jonsson, is the leader of the Social Democrats, and he best brought out the party's view in his Report to the Althing on Foreign Affairs on 24 February 1969:

> We Icelanders do not intend to terminate our membership in NATO any more than other neighbors, including our Nordic neighbors whom we, as a rule, consult when we try to judge the international situation and form our foreign policy. We must constantly reevaluate all aspects and consider if changes are desirable in the handling of these matters. It is not only the political situation in the world at large which must be watched carefully and considered, we must also consider the alterations in the strategic importance of Iceland which are due to the country's location. The decision concerning the maintenance of a foreign armed force in Iceland and also our participation in NATO is a political decision. On this, the majority of the nation must rule, if and when the Althing decides upon a change in the policy so far pursued in the security and defense affairs of Iceland.[59]

These then are the attitudes of the governing parties. They indicate that the defense policy established by their coalition, despite the ambivalence projected by the Social Democrats, is likely to coincide with the interests of the United States and NATO. It should be stressed, however, that the ever-present factor of nationalism has not been disregarded by these parties and, should it be required to please the public opinion, the defense arrangements could become a matter of debate again.

What then would be the effect on public opinion should other political parties become leaders of the Government? The Progressive Party is the second largest political party. (See appendix I.) The possibility exists that an increase in nationalist tendency or some important domestic issue could arise which would enable this party to form a coalition government with the Social Democrats or Communists or both.

The 10-year period that the Progressive Party has been in the opposition with the Communist Party has had a serious effect on the outlook of the Progressives. As partners these parties find more areas in which they agree than disagree in their efforts to upset the Government and bring about a new one. The slow drift to the left has had the undesirable effect of strongly cementing the party's views on defense into a position of inflexibility. The major political influence, should this coalition exist, would lie to the left of the political spectrum. Radical changes

in defense policy, similar to what occurred in 1956, would then take place.

Evidence supporting this contention can be seen in various statements made by the Progressive Party on defense matters. Thorarinn Thorarinsson, a member of the Althing for the Progressive Party, delivered a rebuttal to the Report on Foreign Affairs to the Althing mentioned earlier. In this speech he outlined the policy of the Progressive Party on defense:

> The Progressive Party approves of Iceland remaining in NATO as long as conditions do not change. This must not prevent revision of our disposition as regards NATO in light of any improvements in international affairs. The strategic importance of Iceland is diminishing due to new military technology. We have now had armed forces in the country for thirty years and this force will become a habit if it continues. For this reason we ought to start preparing plans for the withdrawal of the Defense Force. The Defense Agreement and Iceland's membership in NATO are two separate issues.[60]

The same attitude toward defense has become firmly entrenched in the minds of the members of the Young Progressive Party which would seem to indicate that the prospects for the future with a Progressive government would be dim. Their resolution passed at the 12th Convention of the Federation of Young Progressives stated: "The 12th Convention of the Federation of Young Progressives is of the opinion that the Defense Agreement with the United States must be terminated as soon as possible and that the Defense Force will leave the country."[61] This strong feeling toward defense has not diminished. On 4 February 1969, a Young Progressive leader said: "The stay of the American armed forces in Iceland endangers the political, economic and cultural independence of Iceland. It must be a matter of principle for each independent nation to have no foreign armed forces in its country in times of peace."[62]

As a result of this attitude on the part of the Young Progressives and the determination of the party to insist on the observance of the NATO stipulation, the following was published as a portion of the platform of the Progressive Party:

> Politically, the Defense Agreement has great influence towards impairment of the self determination right of the Icelanders because the defenses of the country are placed in the hands of a foreign state. With an unchanged international situation we are solemn advocates of membership in NATO, but we are against the stay of the Defense Force.[63]

It is thus apparent that the aims of the Progressive Party collide with both the interests of NATO and the attitudes of the Independence Party insofar as defense policy is concerned.

The Communists have consistently supported the Soviet party line, embellished with a large dosage of Icelandic nationalism to encourage popular support. Their attitude has been and is likely to be developed around any anti-NATO, antidefense theme. This may be seen by a quotation from their latest available diatribe:

> In the spring of 1951, members of the Althing were called to Reykjavik and at secret meetings they agreed to make a treaty with the United States on new military stations and a new occupation. These agreements were a violation of the Constitution but regardless of this an American armed force

> stepped ashore here a few days after the secret meetings were held and this armed force remains here today. The same people today prefer that the country be taken with aggression than have its right guaranteed with the negotiation of a treaty.[64]

It may be seen from this examination of the attitudes of the parties that the possibility of insuring an adequate defense policy in Iceland would be greatly reduced should these parties gain control of the Government.

One combination of political parties has not been covered. Speculation exists as to what would happen if the Progressive and Independence parties were to form a grand coalition. Although this is theoretically possible, there are extreme differences of policy that would have to be overcome, as evidenced by the political attitudes discussed above. In addition, a great amount of bitterness exists between Progressive and Independence party leaders over past battles that would make any hope of reconciliation difficult.

From the foregoing discussion of what has occurred in the past in Iceland and the prospects for the future insofar as the political structure is concerned, it is apparent that nowhere does the smallness of the state appear more significantly than in foreign affairs, particularly in the area of defense affairs. Nations such as Iceland must realize their weak points, recognize the facts concerning their weaknesses, and then manage their affairs in such a manner that these weaknesses will not be exploited. Defense affairs are not a matter where the consequences of a mistake can be easily eliminated. In order to maintain an adequate defense posture in Iceland, the domestic political situation plays an important role. The attitudes of the political parties, influenced by the population from which these parties gain their support, determine the degree to which NATO and the Defense Force will be supported.

The Progressive Party has, throughout the postrepublic period, exploited these defense affairs and used declarations on the matter as the sole means of reconciling the diverse views of its members and influencing public opinion to gain support for political aspirations.

Icelanders have generally considered that the continued presence of foreign troops threatens important aspects of their national life, and, like most culturally inbred peoples, they are jealous of that way of life. These nationalistic factors work to sustain a markedly neutralist inclination in spite of the declarations of the internationalists in Iceland. An Icelandic move toward neutralism is likely to grow, rather than decline, unless the international situation continues to accent defense needs in a manner that reduces other concerns to secondary importance. The feeling toward eventual neutrality can be found in the attitudes of all political parties, and even the Independence Party has stated: "It is without a doubt healthiest

BIOGRAPHIC SUMMARY

Lt. Comdr. Craig S. Campbell, U.S. Navy, received his undergraduate degree in liberal arts from the University of Utah in 1958. After serving in two patrol plane squadrons and receiving instruction in engineering from the U.S. Naval Postgraduate School in Monterey, Calif., he was assigned to the Military Assistance Advisory Group in Oslo, Norway. In 1969 he came to the Naval War College as a student in the School of Naval Command and Staff. During the course of the academic year, he participated in a group research project which examined the relationship between the people of Iceland and the U.S. Defense Force stationed there. Lieutenant Commander Campbell is currently assigned to the Bureau of Naval Personnel.

for us to maintain a foreign armed force in our country for as short a time as possible. It is for this reason that we must constantly reevaluate all conditions and study whether changes are desirable in these affairs and their arrangements."[65]

Because Iceland continues to play a key role in North Atlantic strategic planning, defense policy remains an important facet of Icelandic politics. Until a stabilized world political scene or a breakthrough in surveillance technology allows the withdrawal of the Defense Force, the continuation of a prodefense government in power, providing NATO and the United States with base facilities, is necessary. There is little doubt that domestic politics will continue to influence the defense issue if Icelandic political leaders relate control of the Government, gained by influencing or exploiting the traditions of the nation, to the question of security.

The short-term prospects for a defense policy favorable to the interests of the United States and NATO appear favorable. The long-term prospects are difficult to predict.

FOOTNOTES

1. Kurt London, *The Making of Foreign Policy* (New York: Lippincott, 1965), p. 20.
2. *Ibid.*
3. *Ibid.*
4. James Bryce, *Memories of Travel* (London: Macmillan, 1923), p. 23.
5. Herbert McCloskey, "Personality in Attitude Correlates of Foreign Policy Orientation," James N. Rosenau, ed., *Domestic Sources of Foreign Policy* (New York: Free Press, 1967), p. 79.
6. See appendix I for the results of Icelandic General Elections, 1942-1967.
7. See appendix II for a brief description of Icelandic political parties.
8. Donald E. Neuchterlein, *Iceland: Reluctant Ally* (Ithaca: Cornell University Press, 1961), p. 20.
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11. Neuchterlein, p. 24.
12. *Morgunbladid,* 11 May 1940, p. 1:6.
13. *Timinn,* 11 May 1940, p. 1:4.
14. *Althydubladid,* 11 May 1940, p. 1:4.
15. *Thjodviljinn,* 11 May 1940, p. 1:1.
16. "A Note on the Occupation of Iceland by American Forces, *Political Science Digest,* March 1947, p. 103-106.
17. U.S. Dept. of State, *Peace and War: United States Foreign Policy, 1931-1941* (Washington: U.S. Govt. Print. Off., 1943), p. 288.
18. *Ibid.,* p. 289.
19. The Althing's debate on this agreement is found in the *Althingistidini,* 1941 (Special Session), p. 21-28.
20. *Timinn,* 11 July 1940, p. 1:5.
21. *Timinn's* views are indicative of the Progressive Party's strong, internationalistic views in 1941. The party's and *Timinn's* views were to change markedly in 1946 to a more isolationist line.
22. Bjarni Benediktsson, *Lydveldi a Islandi* (Reykjavik: n.p., 1943), p. 15.
23. "Iceland Demands Return of Bases," *The New York Times,* 27 August 1944, p. 5:4.
24. The contents of this note were not made public until 1946 when Prime Minister Thors made a statement on the matter in the Althing. See *Althingistidini,* 1945, sec. D, p. 231-232.
25. *Thjodviljinn,* 10 October 1945, p. 1:6.
26. *Altbingistidini,* 1946, sec. D, p. 232-234.
27. Neuchterlein, p. 55.
28. *Althingistidini,* 1946 (Special Session), sec. A, Doc. A-11.
29. The text of the agreement may be found in *The Department of State Bulletin,* 29 September 1946, p. 583-584.

30. *The New York Times*, 9 February 1949, p. 2:1.
31. *Althingistidini*, 1949, sec. D, p. 214.
32. Neuchterlein, p. 94.
33. *Ibid.*, p. 95.
34. *Morgunbladid*, 16 January 1951, p. 12:4.
35. John C. Griffiths, *Modern Iceland* (New York: Praeger, 1969), p. 185.
36. For text of the agreement, see *U.S. Treaties and Other International Agreements, 1951, II, Part I* (Washington: U.S. Dept. of State, 1952), p. 1195-1201.
37. *Ibid.*
38. *Ibid.*
39. Neuchterlein, p. 113.
40. *Timinn*, 31 December 1956, p. 9:4.
41. *Althingistidini*, 1955, Doc. A-623.
42. "Letter from Icelandic Delegation, June 22," *The Department of State Bulletin*, 20 August 1956, p. 309.
43. Neuchterlein, p. 163.
44. *Timinn*, 6 November 1956, p. 2:1.
45. "U.S.-Icelandic Defense Negotiations," *The Department of State Bulletin*, 21 January 1957, p. 100.
46. *Thjodviljinn*, 4 September 1968, p. 1:4.
47. *Visir*, 20 September 1968, p. 4:1.
48. *Timinn*, 5 December 1968, p. 1:4-5.
49. *Visir*, 3 February 1969, p. 8:3-5.
50. *Althyduhladid*, 19 January 1969, p. 2:4.
51. *Thjodviljinn*, 5 February 1969, p. 4:1-2.
52. *Morgunbladid*, 21 January 1969, p. 12:3.
53. Lenin, quoted in Bjarni Benediktsson, "The Defense Policy of Iceland," *NATO Letter*, June 1968, p. 7.
54. Zakharov, quoted in Ephraim P. Holmes, "Functions and Future of Atlantic Command," *NATO's Fifteen Nations*, February-March 1969, p. 36.
55. James N. Rosenau, *Of Boundaries and Bridges* (Princeton: Princeton University Press, 1967), p. 13.
56. Benediktsson, *NATO Letter*, p. 7.
57. *Le Monde*, 21 February 1968, translated on "Iceland," *Deadline Data*, p. 15.
58. *Morgunbladid*, 7 February 1969, p. 21:1-2.
59. *Morgunbladid*, 25 February 1969, p. 10:1-5.
60. *Timinn*, 26 February 1969, p. 16:3-5.
61. *Timinn*, 3 September 1968, p. 7:1.
62. *Timinn*, 4 February 1969, p. 7:1-5.
63. *Timinn*, 13 February 1969, p. 1:1-3.
64. *Thjodviljinn*, 18 February 1969, p. 2:1.
65. *Morgunbladid*, 25 February 1969, p. 21:5.

APPENDIX I—RESULTS OF ICELANDIC GENERAL ELECTIONS, 1942-1967

Althing Seats

	July 1942	Oct 1942	1946	1949	1953	1956	June 1959	Oct 1959	1963	1967
Independence	17	20	20	19	21	19	20	24	24	23
Progressive	20	15	13	17	16	17	19	17	19	18
Social Democrat	6	7	9	7	6	8	6	9	8	9
Communist*	6	10	10	9	7	8	7	10	9	10
Other	—	—	—	—	2	—	—	—	—	—

*Since 1956 the Communists have run under the label of Labor Alliance.

Source: Althingiskosningar, (Election Statistics), pubished by the Statistical Bureau of Iceland for each of the general elections cited.

APPENDIX II—ICELANDIC POLITICAL PARTIES

The parties are arranged in order of their relative size.

Independence Party. Formed by a fusion of the Conservative and Liberal parties. It stands for a liberal economic policy and a program of internal economic stabilization. Represents primarily commercial and fishing interests. In foreign affairs it supports the continued presence in Iceland of NATO military forces and international cooperation. Political views are expressed in the newspapers *Morgunbladid* and *Visir* (circ. 38,000 and 16,000 daily).

Progressive Party. Advocates improvement in agriculture and extension of the cooperative movement. Represents rural and cooperative interests. In foreign affairs it expresses qualified support for NATO and advocates withdrawal of NATO forces from Iceland. Political views are expressed in *Timinn* (circ. 18,000 daily).

Labor Alliance. Founded in 1956 when elements of the Social Democratic Party combined forces with the Communists to run joint slates of candidates, the Labor Alliance in late 1966 converted itself to a more traditional type of party. Its domestic and foreign policies are dominated by the Communists.

Communist Party. Advocates a radical, socialistic program in internal policy. It does not run candidates under its own label but offers joint slates under the banner of the Labor Alliance. In foreign policy it advocates removal of the NATO forces from Iceland and a return to "neutrality." Represents labor interests. Political views are expressed in *Thjodviljinn* (circ. 9,000 daily).

Social Democratic Party. Advocates a program of internal economic stability, national development and increased social welfare. Its ideology is moderate socialism. In foreign policy, it advocates continued support for NATO but eventual replacement of the NATO forces. Political views are expressed in *Althydubladid* (circ. 8,000 daily).

The most sincere neutrality is not a sufficient guard against the depradations of nations at war.

George Washington: To Congress,
7 December 1796