

AD A 082219

9

3.5

PROFESSIONAL PAPER 269 / February 1980

6

THE SOVIET INVOLVEMENT IN THE OGADEN WAR.

10

Kenneth G. Weiss

11 Feb 80

12 49

14 CNH-PA-269

SECRET
A



CENTER FOR NAVAL ANALYSES

2000 North Beauregard Street, Alexandria, Virginia 22311

DISSEMINATION
Approved for public release
Distribution Unlimited

80

403542

3 24 02

AB

DDC FILE COPY

PROFESSIONAL PAPER 269 / February 1980

THE SOVIET INVOLVEMENT IN THE OGADEN WAR

Kenneth G. Weiss

RECEIVED	
NTIS	✓
DDC	
Univ.	
Johns	
A	



Institute of Naval Studies

CENTER FOR NAVAL ANALYSES

2000 North Beauregard Street, Alexandria, Virginia 22311

INTRODUCTION

Moscow's involvement in the Somali-Ethiopian conflict in 1977 and 1978 culminated in the most impressive exercise of Soviet politico-military diplomacy since Angola. An analysis of that involvement then can help us approach those questions that have been asked regarding Soviet policy formulation in Third World crises. In regard to motivation in Soviet policy, these questions include: To what extent is Soviet crisis behavior purposive? To what degree is Soviet policy reactive? Concerning the modality of Soviet policy: Is Soviet "crisis policy" activist or cautious? In regard to Soviet performance in these crises: How well have the Soviets done during crises in light of their policy objectives? Before evaluating Soviet foreign policy in the Ogaden War in terms of these questions, it is first useful to summarize the salient events in the Horn in 1977 and 1978. After doing so, we will discuss Soviet involvement in terms of the questions raised above.



THE OGADEN WAR: AN OVERVIEW

The Pre-War Period

The Horn of Africa, consisting of Ethiopia, Djibouti, and Somalia forms with the nearby Arabian peninsula, the mouth



of the Red Sea and Indian Ocean. The countries of the Horn rank among the world's poorest. Yet, as a result of its geographical relationship to black subsaharan Africa and to the Middle East and North Africa, the Horn has assumed an importance in excess of its intrinsic value.

The year 1974 was a significant one on the Horn. U.S. influence still predominated in Ethiopia then while Somalia looked to the Soviet Union for superpower support. In that year, the Soviets and the Somalis signed a Treaty of Friendship and Cooperation. The treaty symbolized the mutually beneficial relationship Moscow and Mogadiscio had established with each other. In return for permission in 1972 to develop valuable naval support facilities,* the Soviets supplied the Somalis with military equipment and training in its use.¹ However, even before Mogadiscio signed the treaty with Moscow in July, Somalia, a Moslem but non-Arab state, joined the Arab League. It was this Arab "option" that complicated Soviet-Somali ties in 1977.²

At the same time the Soviets were increasing their ties with Somalia, American ties with Ethiopia were loosening,

*A port, a communications station, an airfield, and a missile storage and handling facility.

despite close relations since 1952. In 1974, the Emperor Haile Selassie was replaced by a revolutionary military government.* By 1976, the increasingly pro-Soviet, anti-imperialist stance of the Dergue combined with its repressive policies and large arms requirements to fight the Eritrean secessionist movements made it difficult for the U.S. government to justify its support of Ethiopia.³

As Washington's interest faded, Moscow's intensified. At roughly the time the U.S. cancelled its military grant assistance program to Ethiopia,** the Soviet Union signed a 100 million dollar arms agreement in December 1976.⁴ It was a limited agreement by which Ethiopia was to receive second-line equipment like T-34 tanks. In February 1977, Mengistu Haile Mariam's victory over the Dergue's moderates in the "CIA coup" enhanced Soviet prospects for replacing the U.S. as Ethiopia's principal arms supplier. But Soviet involvement in Ethiopia posed problems for Moscow's relations with Somalia.

*Provisional Military Administrative Council (PMAC) or Dergue.

**The Ethiopians were still allowed to continue purchasing U.S. arms.

The goal of uniting all Somalis under one flag represents the primary thrust of Somali foreign policy. As a result, Moqadiscio claims Ethiopia's Oqaden, Kenya's Northern Frontier District, and Djibouti as properly a part of Somalia. 1977 seemed an ideal time to press Somali claims to the Oqaden as the Ethiopian revolution added to the centrifugal forces threatening the integrity of the empire. Not only were the Eritreans seemingly grasping irresistibly for independence, but armed movements representing Ethiopia's various ethnic groups (Tigreans, Gallas, Afars, Somalis, etc.), conservative landowners, and radical city dwellers made Ethiopia seem on the verge of disintegration and anarchy. Thus, Soviet support for Ethiopia threatened to put Moscow on a collision course with Moqadiscio.

To overcome this contradiction in its foreign policy, the Kremlin proposed a federation between Somalia and Ethiopia in February 1977, the same month the pro-Soviet Mengistu emerged as the PMAC's new chairman.⁵ In March, Cuban President Fidel Castro travelled to the Horn and arranged a meeting between Mengistu and Somali President Mohammed Siad Barre in Aden. At the meeting, Castro advocated a Marxist federation of Ethiopia and Eritrea and a confeder-

ation of Ethiopia, Somalia, Djibouti, and North and South Yemen.⁶ Siad Barre found Castro's appeals for a settlement with Mengistu on the basis of socialist brotherhood unconvincing. He rejected the proposal. But the Somalis promised, according to Castro, that "they would never invade Ethiopia, that they would never carry out a military attack against Ethiopia."⁷ (Castro probably did not take into account that the Somalis did not consider the Ogaden to be a rightful part of Ethiopia.) Soviet President Nikolai Podgorny, on an African tour, unexpectedly followed Castro into Mogadiscio and urged "patience" on the Somali leader.⁸

In May, Moscow completed its displacement of Washington in Ethiopia. The Derge announced in April the closure of the Kagnew Communications Station and other U.S. facilities.⁹ Although this action followed close upon an American decision to reduce the U.S. military advisory group and to close the obsolete Kagnew facility, it was unlikely that Mengistu would have made such a decision without the prospect of increased Soviet arms aid.¹⁰ Indeed, the need for Moscow's aid became imperative after the U.S. stopped delivery of nearly 100 million dollars in arms sold to Ethiopia.¹¹ Therefore in May, Mengistu jour-

neyed to Moscow and signed a declaration on the "foundations for friendship and cooperation."¹² No doubt in deference to the Somalis, the Kremlin confined its "contractual" relationship with Ethiopia to a declaration, a level lower than the Soviet-Somali Treaty of Friendship and Cooperation. In addition to technical and economic agreements, the Soviets agreed to a major arms package with the Ethiopians worth 400 million dollars.¹³ Furthermore, some 50 Cuban military advisers arrived in Ethiopia in May.¹⁴

The Somalis were unwilling to pass up the historic opportunity to incorporate the Ogaden into a greater Somalia. Many Somali leaders were no longer impressed by Soviet appeals to be "patient." Expressing their view, Siad Barre asked rhetorically:

But who can guarantee us that once his regime is consolidated and his army strengthened [by the Soviets], Mengistu will consent to negotiate the territorial conflict between us so as to find a solution that complies with the wishes of the Somali people in the Ogaden?"¹⁵

To reduce his army's dependence on the Soviets for arms, spare parts, and POL, Siad Barre exercised his Arab option. So Somalia expanded its search for support beyond the radical Soviet-oriented states like Iraq and Syria to the more conservative Mideast countries and through them,

the United States. Saudi Arabia renewed its long-standing offer to give Moqadiscio 300 million dollars to expel the Soviets.¹⁶ Symbolizing his effort to align himself more closely with moderate Arab states in the region, Siad Barre travelled to Taiz, North Yemen, where he attended a meeting sponsored by the Saudis with representatives of the Sudan and North and South Yemen.¹⁷ The purpose of this March meeting was to discuss Red Sea security or what the Soviets called an "Arab lake" scheme designed to exclude Moscow and Tel Aviv from the Red Sea.

In addition, the Somalis sought weapons from the West. The United States was agreeable because it viewed Somali disenchantment with the Soviets as an opportunity to restore a semblance of a balance of power in the Horn.¹⁸ It would also please moderate Mideast states in the region. In July, the United States along with France and Britain agreed to supply the Somalis with "defensive arms."¹⁹ In that same month, Somali regular forces joined Somali-supported guerrillas* fighting in the Ogaden.

*Western Somali Liberation Front (WSLF).

THE SOMALI-ETHIOPIAN WAR

The Soviets apparently did not anticipate the Somali offensive. The Ethiopians later claimed that the Soviets had assured them that they would prevent the Somalis from attacking in force.²⁰ These assurances led the Ethiopians in April to move an artillery and an armored battalion from Gode, a strategically located town near the Somali border with the only good airport in the Ogaden, to fight rightists in northwestern Ethiopia.²¹

Once the Somalis did invade, Moscow played for time to persuade Siad Barre to withdraw. Havana's published account of Cuban participation in the Ogaden War gave the date of the Somali invasion as July 13, yet the Ethiopians did not publicly denounce the attack until July 24.²² Nor did they sever their relations with Somalia until September 7.²³ This suggests that the Ethiopians delayed these steps in deference to Soviet promises to persuade the Somalis to withdraw. To demonstrate the continuing value of the Soviet connection to the Somalis, Moscow signed an economic agreement with Moqadiscio in August.²⁴ However,

discussions with Siad Barre in Moscow at the end of August failed to yield a Somali agreement to withdraw.²⁵

After Siad Barre's visit, the Soviets tilted further towards Ethiopia. The Soviets cut off fuel shipments to Somalia.²⁶ They signed a 385 million dollar arms agreement with Ethiopia in September.²⁷ Even before the visit, Soviet weapons shipments to Somalia had experienced intermittent delays and by September, it was clear that Soviet arms deliveries to Mogadiscio had been limited to spare parts and light arms.²⁸ Heavy weapons deliveries had reportedly ceased altogether.

Nevertheless, Moscow maintained its connection with Mogadiscio. Addis Ababa complained of continuing weapons deliveries to Somalia. Mengistu pointedly remarked at a press conference on September 18:

If socialist countries are still supplying arms to Somalia, then this is not only violating one's principles, but also tantamount to complicity with the reactionary Mogadiscio regime.²⁹

In mid-October, Moscow's Ambassador to Ethiopia publicly announced that arms deliveries to Somalia had ceased.³⁰ Furthermore, Mengistu's secret visits to Moscow and Havana at the end of October seem to have been received sympathetically.³¹ The number of Cuban military advisers in

Ethiopia increased from 150 to 400 during the following two weeks.³² Even so, Soviet military advisers, who had little to do while Somali forces were rampaging in the Ogaden, remained in Somalia.

By November, the Somali offensive had bogged down. The initial thrust had yielded large gains, which culminated in the capture of Jijiga in mid-September.³³ But Ethiopian resistance had hardened around Harar and Direedawa, the other major towns in the Ogaden.³⁴ To disassociate themselves from the Somali invasion, the United States, Britain, and France had cancelled plans to sell arms to Mogadiscio. If the Somalis were going to push the Ethiopians out of the Ogaden, they would have to find a secure supply of arms, spare parts, and POL necessary to sustain modern warfare. Mogadiscio's Mideast friends could supply POL and light arms, but not the heavy weapons the Somalis required. Only the Western countries could do that. If they did not find the necessary weapons, Soviet arms shipments to Ethiopia would tip the scales in the fighting in favor of Addis Ababa. In the hopes of securing arms from the West, the Somalis built a case for such support by claiming that a Soviet-inspired Cuban-Ethiopian invasion of Somalia was imminent.³⁵ (Furthermore, in a gesture de-

signed to improve its image in the West, Moqadiscio permitted the West Germans to rescue a Lufthansa jet that had been skyjacked by Palestinians to Somalia.) In a desperate gamble that Western aid would be forthcoming in reward, Siad Barre on November 13 abrogated the 1974 Soviet-Somali Treaty of Friendship and Cooperation, expelled Soviet advisers, revoked Soviet use of military facilities, reduced Soviet diplomatic representation in Moqadiscio, and severed relations with Cuba.³⁶

THE SOVIET INTERVENTION

Following the Somali action, the Soviets decided to play a more active role in the Ogaden War. Only after Siad's decision did Moscow directly accuse Somalia of aggression against Ethiopia.³⁷ Previously, the Soviets had indicated their sympathies for Ethiopia by emphasizing respect for the principle of territorial integrity as the basis for a negotiated settlement of the conflict.³⁸ On November 13, there were still 1,678 Soviet advisers in Somalia, representing implicitly the Kremlin's interest in the country.³⁹ After the expulsion, Vasiley I. Petrov, Deputy Commander-in-Chief of Soviet Ground Forces, arrived to direct the war against the Somalis.⁴⁰ The Soviet airlift to

Ethiopia, signalling a more active role for Moscow in the struggle, did not begin until the end of November.⁴¹ Moreover, although the number of Cuban advisers in Ethiopia rose in November following Mengistu's visit to Havana, Cuban combat troops did not begin arriving until mid-December.^{*42} Since both the Soviet airlift and the arrival of Cuban troops began after Somalia's November 13 offensive against Harar had failed, Moscow's intervention was probably geared more to the expulsion than the offensive.^{**44}

Having decided to intervene, the Soviets not only launched an impressive airlift and an ever larger-scale sealift of armaments to Ethiopia, they augmented their naval forces in the waters adjacent to the war zone, assisted in the deployment of Cuban forces to Ethiopia, and planned and directed the subsequent Cuban-Ethiopian campaign that drove the Somalis from the Ogaden.

^{*}The 50 Cuban advisers sent in May were supposed to represent the advance party of a larger group numbering 400 or 500. The November increase in the number of Cubans in Ethiopia probably represented Castro's fulfillment of his previous commitment.⁴³

^{**}When Ethiopian forces were reeling under Somali attacks in the summer of 1977, Moscow failed to respond commensurate with its reaction after the Somali decision of November 13.

In the United States and elsewhere, considerable alarm was expressed concerning the extent of Soviet and Cuban involvement in the war. Both President Carter and his National Security Adviser Zbigniew Brzezinski made vague references to linkages between SALT and Soviet behavior in Africa.⁴⁵ The U.S. suspended the Naval Arms Limitations Talks (NALT) on the Indian Ocean. Concern was also expressed that the Soviets might support a Cuban or Ethiopian invasion of Somalia.⁴⁶ However, Moscow and Addis Ababa offered assurances that they would respect the OAU's doctrine on territorial integrity.⁴⁷ The Cuban-Ethiopian campaign of February and March 1978 was halted at the Somali border after Moqadiscio's forces withdrew in defeat.

SOVIET INVOLVEMENT: AN ANALYSIS

Having summarized the salient events of Soviet involvement in the Horn, it is time to return to questions raised by this panel regarding Soviet motivation, modality, and performance in Third World Crises.

Motivation

In addressing the question of whether Soviet policy in the Horn was purposive or reactive, it is well to ask what we

mean by these terms. Commentators on Soviet policy in Third World crises often debate whether or not Soviet actions reflect a "grand design" or mere "opportunism." This is often a sterile debate. The Soviet Union is not so powerful or so omniscient that it can order events in such a way as to achieve a pre-conceived "grand design." Yet to attribute Moscow's actions to mere "opportunism" is to argue, in effect, that the Soviets mindlessly respond to events. Rather, it would be better in analyzing Soviet behavior to consider to what extent the Soviets shape events to realize discrete foreign policy goals, and conversely to what extent do events shape Moscow's actions in a crisis. In other words, is Soviet behavior purposive or reactive? By that yardstick, Soviet policy in the Horn was both purposive and reactive.

The Kremlin's decision to become involved in Ethiopia undoubtedly reflected larger Soviet foreign policy goals. The Soviets did not fall into Ethiopia. They chose to become involved. At each point that Washington made a cut in its arms supply relationship with Addis Ababa, the Soviets more than made up the loss to Ethiopia's armory. The Soviets then were willing to become involved in a country many independent observers considered to be on the

brink of disintegration and to risk Moscow's long-standing relationship with Somalia by doing so.

Soviet involvement in Ethiopia may have been motivated by a blend of ideology and realpolitik, by a hope to continue their policy triumphs in Africa and halt, if not reverse, the decline of their influence in the Middle East. The fall of South Vietnam and the emergence of socialist-oriented states of Angola and Mozambique in 1974 probably encouraged the Kremlin to believe that "imperialism" in Africa and elsewhere was on the defensive.⁴⁸ The fall of Haile Selassie and the adoption by the Dergue, in April 1976, of a program to implement socialism presumably convinced the Soviets that Ethiopia was ready to join the growing list of pro-Soviet, pro-Marxist states in Africa.⁴⁹ In addition, Ethiopia itself must have attracted Soviet interest. As has been often noted, Ethiopia is one of Africa's most populous states, rich in natural resources, the oldest independent country in Africa, and the seat of the Organization of African Unity. A Soviet-oriented government in Ethiopia would not only advance the cause of socialism but also expand Moscow's influence in Africa. Thus, after the Dergue issued its program to build socialism, an Ethiopian state delegation was favor-

ably received in Moscow.⁵⁰ The net result of that visit was a military assistance agreement in December 1976.⁵¹

Involvement in Ethiopia also offered the Soviets an opportunity to slow down, if not reverse, the decline of their position in the Red Sea region and the Middle East in general. The further deterioration of relations with Egypt and the Sudan in 1976 not only represented a setback to Soviet policy in the Mideast but also to their position in the Red Sea.* Moscow blamed the U.S. and Saudi Arabia for its problems with Egypt and the Mideast generally.⁵² So it was not surprising that the Kremlin was anxious to preempt any efforts of pro-Western Mideast states to transform the Red Sea into an "Arab lake." In February 1977, the Soviets accused the U.S. of planning

to form a new military bloc that includes certain states of Red Sea, led by Saudi Arabia so that it would be a striking force to check the anti-imperialist national forces in the region particularly the ruling revolutionary regime of Ethiopia.⁵⁴

*In March 1976, Egyptian President Anwar Sadat abrogated the Soviet-Egyptian Treaty of Friendship and Cooperation. In July, Sudan's President Numairyi concluded a defense agreement with Egypt after charging that the Libyans with Soviet support, were trying to overthrow him.⁵³

Conservative Arab support for the once favored Eritrean liberation groups and other Ethiopian opposition forces was seen by the Soviets as part of a conspiracy to establish a string of anti-Soviet states on the Red Sea.*⁵⁵

If successful, Moscow's influence in Somalia and South Yemen might erode, and Soviet shipping in the Red Sea might be hostage to the whims of these Arab states. By supporting the Marxist-oriented government of Ethiopia, the Soviets could demonstrate that they possessed considerable capacity to obstruct this "new military bloc's" efforts to exclude them not only from the Red Sea in particular but also the Middle East in general.

However, involvement in Ethiopia meant that the Soviets would have to cope with Somali nationalism and Ethiopia's internal troubles, the most serious of which were the Eritrean separation movements. The Soviets did not want to "trade" Somalia for Ethiopia. They were undoubtedly anxious to preserve their access to the valuable military facilities that they constructed at Berbera and elsewhere in Somalia. Moreover, the loss of Berbera would mean that Moscow would have little bargaining power vis-a-vis the

*By June 1976, the Soviets had endorsed the PMAC's nine-point policy solution for the "administrative region (sic) of Eritrea."⁵⁶

U.S. base at Diego Garcia making the U.S.-Soviet Naval Arms Limitations Talks superfluous.* In addition, influence in Addis Ababa would be valuable only if the independence of Eritrea (which possesses Ethiopia's entire Red Sea coastline) could be forestalled.

To reconcile these "pulls and pushes" in their policy, the Soviets advocated a federation scheme for the region. Eritrea's desire for self-government and the Ethiopian's demand for sovereignty over the province would be reconciled by a federation between the two. Somali and Ethiopian disputes vis-a-vis the Ogaden and Djibouti would be satisfied by a confederation of Ethiopia, Somalia, Djibouti, and the Yemens. Such a solution would demonstrate the utility of the "socialist way" in resolving Africa's nationalist problems. A "Marxist bloc" would have the added advantage of constituting a counter to the U.S.-led "military bloc" in the region.

However, after Castro's failure to create a Marxist federation in the area, Soviet policy became less shaping than shaped by events in the Horn. The Soviets became less and less on top of events as their policy sustained successive

*The Soviets had an interest in limiting U.S. naval activity in the Indian Ocean because U.S. SSBNs could threaten the Soviet heartland in the unlikely event of their deployment to the Indian Ocean.

blows from the Somalis: Mogadiscio's overtures by the Arabs and the West for aid against Soviet-supported Ethiopia, the Somali invasion of the Ogaden, and finally Siad Barre's expulsion of the Soviets from Somalia. In the periods in which the first two blows were sustained, the Soviets reacted to events in a way that would bring the Somalis to see that the federation scheme or another Moscow-negotiated settlement was the only rational solution to the Horn's problem. But the last blow precipitated the ultimate reaction: active Soviet intervention on the side of Ethiopia. Only in that way could the Soviets again emerge on top of events.

Although the Somalis delivered the blows, Soviet reactions seem to have been geared not only to Somalia, but also to Ethiopia, other African states, conservative Mideast countries, and the West.

Let's discuss Soviet reactions to Siad Barre's overtures to the Arabs and the West for support against Ethiopia. Symbolizing his rejection of a Soviet-sponsored settlement with Ethiopia, Siad Barre journeyed in March to Taiz to discuss an "Arab lake scheme." He also made overtures to the U.S. and other Western states for arms support. The Soviets, nevertheless, persisted in strengthening their

ties with Ethiopia. In May, they signed a larger military agreement with Ethiopia.

In a sense, Taiz justified Soviet involvement in Ethiopia.* It became all the more important to forestall Moscow's exclusion from the Red Sea by an American-led Arab bloc. At the May meeting (from which the military assistance agreement resulted), the Soviets and Mengistu pointedly condemned the "intrigues of imperialists in the Horn" and the "efforts of certain states to improve their control on the Red Sea at the expense of the legitimate rights of other states and peoples of this region."⁵⁸ Yet, the Soviets were not insensitive to Somali feelings. As we have seen, the Soviets and Ethiopians signed only a declaration not a treaty of "friendship and cooperation." The Soviets were apparently hopeful that the Somalis would join the Red Sea "area's progressive forces" in coordinating "their struggle against the intrigues of the common enemy -- imperialism."

*At the time of the meeting, the Soviets even altered their proposals for a Middle East peace settlement to include a provision recognizing the right of all ships, including Israeli ones, to free passage through the region's waterways.⁵⁷ This suggests that Moscow took the meeting very seriously.

The Soviets may have been hopeful because they apparently did not think Somali overtures to the Arabs and the West would succeed. Moscow probably thought that Somali efforts to obtain military support from Mideast countries would founder on the inability of the Arabs to provide the heavy military equipment necessary for a Somali military campaign. Just as Soviet backing of the Somalis would violate Moscow's previous commitment to respect the OAU's strictures regarding territorial integrity, the Kremlin must have felt that similar considerations would prevent the U.S. and other Western countries from underwriting a Somali invasion. Moscow probably reasoned that the Somalis were too dependent on the Soviets for arms, spare parts, and POL to be able to pursue an independent policy against Ethiopia. This was a reasonable view considering that Siad Barre was publicly indicating as late as June 1977 that he would stay with the Soviet Union because he did not want to end up like Egypt without a secure supply of arms.⁵⁹ Therefore, to achieve any satisfaction for their territorial claims from Addis Ababa, the Somalis would have to go through Moscow. As a result, the Soviets assured the Ethiopians in April that the Somalis would not

attack. And in June, Anatoliy Gromyko, a Soviet African expert and the Foreign Minister's son predicted:

In spite of historical contradictions between Somalia and Ethiopia, there are progressive forces in both, able to sort out their social, political, and economic problems. Here we are optimists: We think it is possible to have a federation in the Horn of Africa.⁶⁰

However, after the Somalis invaded the Ogaden, the Soviets were forced to adjust their policy to the new situation in the Horn. As we have seen, the Soviets reacted to the invasion by summoning Siad Barre to Moscow and attempting to persuade him to withdraw his forces from the Ogaden. With their optimism only somewhat dimmed, they again reportedly raised the federation idea as the proper basis for a Somali-Ethiopian settlement. Although Siad Barre refused to withdraw, the Soviets must have thought that they could manipulate arms aid to the Ethiopians and the Somalis in a way that would bring the Somalis to the negotiating table. Although they had miscalculated Somali intentions, they had not miscalculated the general reaction to the Somali invasion. The West was unwilling to supply the arms necessary to sustain a Somali campaign in the Ogaden. Furthermore, Arab petrodollars could not purchase on the open market the heavy equipment Somalia needed for its offensive. The Soviets reasonably hoped that by progressively

restricting arms aid to Moqadiscio the Somalis would see the handwriting on the wall and accede to a negotiated peace. In the meantime, to mollify Addis Ababa, the Soviets responded to Ethiopian appeals for support by increasing the amount and flow of weapons to Ethiopia. Finally, to allay Ethiopian suspicions, the Soviets responded to Mengistu's demands and cut off all arms supplies to Somalia by October. Moscow probably reasoned that the Ethiopians would grow ever stronger on a steady diet of Soviet arms and would eventually pressure the Somalis on the battlefield. At that point, Moqadiscio would be forced to turn to Moscow for a negotiated settlement. If the Soviets again misread Somali determination, it was only because "chauvinist expansionist moods" prevailed over "common sense."⁶¹

The Somali decision to expel the Soviets represented the collapse of Moscow's efforts to negotiate a settlement between Somalia and Ethiopia. In response to the decision, the Soviets decided to intervene actively in the conflict in order to regain control of events in the Horn.

The Soviet decision to intervene was geared not only to Somalia and Ethiopia but also to other African states,

conservative Mideast states, and the U.S. and other Western nations. In the same way Sadat's abrogation of the Soviet-Egyptian Treaty of Friendship and Cooperation in 1976 represented a severe setback to Soviet policy in the Mideast, the Somali decision was a potential blow to Soviet prestige in Africa. The Somali action also represented the Soviet failure to form a Marxist bloc in the Horn. Indeed, the Somali decision must have represented in Soviet eyes another success for those same Mideast states -- Saudi Arabia, Egypt, and the Sudan -- in their efforts to exclude the Soviets from the Red Sea region in particular and in the Middle East in general.* In addition, the Soviets, ever mindful of Kissinger's efforts to expel them from Egypt, undoubtedly resented what they saw as the American role in their expulsion:

No explanation by the U.S. State Department can refute the fact that since the spring of 1977 Washington has been actively striving for a deterioration in relations between Somalia and the Soviet Union.⁶²

Although the U.S. had already publicly rescinded its decision to supply the Somalis with arms, Moqadiscio's action in expelling the Soviets must have appeared to Moscow as a

*Moreover, the Somali action was accompanied by another setback to Soviet Mideast policy. Sadat's decision to go to Jerusalem at that time dashed Moscow's hopes to play a major role in a Middle East peace settlement by making superfluous the October 1 Vance-Gromyko agreement to reconvene a Geneva Conference.

victory for U.S. policy in the Horn. Also having probably threatened Somalia beforehand about the consequences of any action against the Soviet position in Somalia, the Soviets had to take some action.* Frustrated, the Soviets determined to demonstrate that they would not tolerate this latest example of lese majeste on the part of another Third World country. As Georgiy Samsonov, the Ambassador to Somalia, put it:

We will teach [the Somalis] a lesson they will not forget. We will bring them to their knees.⁶³

In doing so, the Soviets could demonstrate their capacity to protect their interests in Africa and the Mideast.

Modality

In regard to the question: Is Soviet "crisis policy" activist or cautious? It can be argued that Soviet policy in the Horn was both activist and cautious.

It was activist in the sense that the Soviets displayed a marked willingness to exploit available opportunities to

*Although the Somalis, by this time, had lost their revolutionary democratic allure, the Soviets had attempted throughout to maintain their position in Somalia to preserve their military facilities in the country and their access to Berbera which was a valuable counter in the NALT negotiations.

advance their interests. As we have seen, Moscow chose to become involved in Ethiopia. The Soviets accepted the risks entailed in preventing that country's disintegration because it suited their goals in the region.

After they failed to reconcile the differences between Somalia and Ethiopia, the Soviets intervened on a large scale in the Horn to ensure as favorable an outcome as possible to their objectives in the region. No longer constrained by their desire to preserve their access to Berbera, the Soviets proved willing to undertake the considerable effort involved in defeating Somali aggression.* Although the battlefield situation at the time of the Soviet intervention was serious, it was not nearly as precarious as it was when the Ethiopians were yielding large tracts of the Ogaden to the Somalis in the early part of the war. On the day they expelled the Soviets, the Somalis launched an offensive that ten days later penetrated the walls of Harar, but by the time the airlift began in late November, the Ethiopians had driven the Somalis out of the city. Cuban troops began arriving in mid-December, well after the Somali offensive had petered out. Since the Somalis proved unwilling to accept a Soviet-negotiated

*The loss of Berbera also made the NALT talks superfluous.

settlement to the Ogaden War, Moscow would impose a "Pax Sovietica" in the Horn.

The activism of Soviet crisis policy was highlighted by the extent of Moscow's involvement in the intervention. A high-ranking Soviet general, Vasiley I. Petrov, directed Cuban and Ethiopian military operations against the Somalis. Soviet ships and Soviet-supplied planes helped deliver the Cubans to Ethiopia.⁶⁴ Soviet pilots were assigned to Cuba releasing their Cuban counterparts for action in Ethiopia.⁶⁵ Even the maps the Cubans proudly published in Granma detailing the Cuban-Ethiopian victory bore Russian transliterations of Ethiopian place names.⁶⁶

In addition, the Soviets proved willing to tackle the problems and difficulties associated with mounting a large-scale air- and sealift to Ethiopia. Problems with the airlift stemmed mainly from political rather than technical reasons. To reach Ethiopia, Soviet transport aircraft had to overfly many countries that either directly supported (with supplies and advisers) or were sympathetic to the Somalis during the conflict. To overcome this handicap, Soviets employed a wide variety of flight paths, abused the Montreaux Convention's provisions re-

garding overflights through Turkish air corridors, engaged in such subterfuges as listing false final destinations (usually Aden) and misrepresenting the nature of the transports' cargoes.⁶⁷ With the railroad to Djibouti cut and with Massawa cut off from land access by the Eritreans, Soviet seaborne shipments went to Assab. To help relieve congestion at Assab and utilize the adaptability of Aden's Khoramaksar airport to amphibious transport, some air and sea deliveries were directed to Aden and then trans-shipped to Assab by tank landing craft.⁶⁸ Amphibious ships probably played an even more important role in supplying Ethiopian forces in the besieged port of Massawa. Partly, to protect this sealift, Moscow augmented the number of its naval units to the highest level ever achieved in the Indian Ocean.*⁶⁹

Despite Soviet activism in the conflict, Moscow's involvement also reflected a certain caution. Somalia violated (defacto) international law and OAU strictures by invading the Ogaden, the internationally recognized territory of

*Ironically, the Soviets accomplished this feat after losing access to Berbera.

Ethiopia.* In reaction to Somali aggression, the U.S. and other Western countries had renounced their intention to supply arms to the Somalis. As long as Somali forces were on the wrong side of the border, the Soviets had little reason to fear Western arms supplies to Mogadiscio. The arms aid that Mideast states could provide the Somalis was insignificant. Therefore, the Soviets could hope that they would not become involved in a debilitating struggle on the scale of Vietnam.

However, a Soviet-supported Cuban-Ethiopian invasion of Somalia might precipitate U.S. arms aid for Mogadiscio or U.S. support for those Middle East countries like Egypt, Sudan, Saudi Arabia, and Iran, which were inclined to

*To everyone's disbelief, the Somalis, until late in the war, maintained that only WSLF guerrillas were fighting in the Ogaden.

intervene on the side of Somalia in such an event.* Furthermore, such an invasion would damage the Soviets' image as defenders of the OAU's principle of territorial integrity. Radical Arab states like Iraq and Syria sympathetic to Somalia would be further offended.

The Soviets and the Ethiopians proved willing to give assurances to the U.S. that the Ethiopians would not violate Somali territorial integrity. Therefore, the Soviets confined the Cuban and Ethiopian offensive to driving the Somalis out of their entrenched positions in the Amhara mountains rather than pursuing the easier military option of occupying Northern Somalia and trading it for the Oga-

*U.S. Secretary of State Cyrus Vance warned the Soviets in February 1978:

We believe it is fundamental that there be a recognition and a respect by all parties of internationally recognized borders....We will continue our present course of action with respect to not supplying arms to either side but if there were a crossing of borders, it would present a different situation and we would have to consider it then.⁷⁰

Egyptian President Sadat told two American Congressmen in December 1977 that Egypt and Sudan would each send an armored brigade to Somalia if events warranted such action.⁷¹ In January 1978, both Iran and Saudi Arabia warned they would not stand idle if Somalia were invaded.⁷²

den.* Accordingly, Moscow, at the conclusion of the war, defended its actions in the Horn by maintaining that the USSR had acted in full accordance with

...international law which permits aid to any country that's the victim of aggression. Even in the fighting, the Soviet Union supported the Ethiopian government's statement that it had no intention of crossing its borders, but only aimed to rebuff attacks and liberate its own territory. The USSR and other countries interested in a peaceful settlement managed to keep the war from spreading from all parts of the Horn of Africa, and within a comparatively short time the war was stopped.⁷⁴

Despite Moscow's willingness to be extremely active in the conflict, the Soviets clearly recognized the limits of acceptable involvement in the Ogaden War.

Performance

Certain questions have been raised about Soviet crisis performance: How well have the Soviets done during crises in light of their policy objectives? Do the Soviets "manage" crises deftly or do they just muddle through them? In terms of Soviet policy objectives vis-a-vis Africa and the Mideast, one could argue that the Soviets managed the crisis in the Horn rather well.

⁷³
*A segment of the Ethiopian military had favored the easier alternative.⁷³ Active Soviet involvement in the war probably helped make certain that it was not chosen.

True, the Soviets did not achieve their optimal objectives in the Horn nor did their policy fail to incur major costs. The Soviets failed to achieve their most desired result -- a federation of Ethiopia, Somalia, Djibouti, and the Yemens. Nor were they able to preserve their influence in Somalia. Yet, if, in the unlikely event, the Somalis should be willing to seek a negotiated settlement with Ethiopia concerning the Ogaden, the Soviets could again raise the federation scheme as a potential solution.*

In addition, the Soviets lost access to the valuable naval and air facilities that they had constructed at Berbera and elsewhere in Somalia. Yet, they have offset this loss by obtaining access to Aden and Ethiopia's Dahlac Island. However, this happy outcome could not have been counted on at the time. Previously, the PDRY had been reluctant to grant the Soviets access to Aden comparable to the access they enjoyed at Berbera.** With Eritrea in rebellion in

*Such a possibility is not inconceivable. In January 1979, Siad Barre indicated an interest in improving relations with the USSR.⁷⁵

**Apparently, the coup d'etat in the PDRY in June 1978 made it possible to obtain easier access from Aden's new and more radical government.

1977, the prospect of early use of Ethiopian facilities must have seemed bleak.

Furthermore, continuing guerrilla warfare by the Eritreans and the Somalis may make Soviet and Cuban involvement in Ethiopia costly over the long term. Yet, the Ethiopians, with Soviet and Cuban logistical support, have succeeded in inflicting severe defeats on the Eritrean secessionists in the summer and fall of 1978. As a result, Eritrea is more securely a part of Ethiopia than it has been in years. Furthermore, after their defeat, the Somalis are incapable of providing the WSLF with sufficient support to seriously challenge Ethiopia's sovereignty over the Oga-den. And without significant outside arms aid, neither the Eritreans nor the Somalis are likely to inflict costs on the Soviets and the Cubans in any way comparable to the costs suffered by the U.S. in Vietnam.

The opportunity to satisfy Soviet security concerns in the Indian Ocean was lost with the suspension of NALT. Nor are these talks likely to be revived as long as the U.S. and Soviet Union are pursuing conflicting goals in the Indian Ocean or what has come to be called the "arc of crisis."

Yet, despite the apparent costs, it is difficult, in retrospect, to see how the Soviets could have acted differently knowing what they knew at each stage of the game. Considering the opportunity Ethiopia afforded for aiding a revolutionary regime while advancing its interests in Africa and the Mideast, Moscow's involvement seems inevitable. The Soviets could reasonably hope that appeals to Somalia's Marxist conscience for mutually beneficial relations with the revolutionary government of Ethiopia might be entertained in view of Somali dependence on the Soviets for arms and spare parts. Even if those appeals were rejected, as they were, the unlikelihood of Somalia's being able to obtain these essential items in sufficient quantities from other sources made a Somali attack on Ethiopia seem a foolhardy proposition. Therefore, the Somalis would have to turn to Moscow to obtain any satisfaction for their claims to the Ogaden. If the Soviets miscalculated, then their miscalculation was based on an insufficient appreciation of the irrational nature of Somali nationalism.

Yet, even if the Kremlin had calculated correctly, it could not have supported the Somalis against Ethiopia.

The illicit nature of Moqadiscio's claims to the Ogaden would have brought about African and world condemnation of Moscow. When the Somalis invaded the Ogaden, the Soviets did the only thing possible -- they temporized. They summoned Siad Barre to Moscow and attempted to persuade him to withdraw. When that failed, they manipulated arms aid -- expanding it to Ethiopia and limiting it to Somalia -- in a manner that would assure an Ethiopian victory eventually. In the meantime, the Somalis might come to their senses and seek a negotiated solution through Moscow. Finally, when Siad Barre, in a desperate bid for Western support expelled the Soviets (and Cubans) from Somalia, the Soviets parried the blow to their prestige by intervening decisively on the side of Ethiopia.

Not only did the Soviets manage the crisis in a rational manner, but, despite the costs, the outcome was not all that unfavorable to their interests. Soviet support for Ethiopia frustrated the efforts of those Mideast states who were trying to exclude Moscow from the Red Sea. The Soviet Union also demonstrated that they possessed considerable capacity to defend their interests in the Middle East. The Soviets were also able to win the approval of those African states favorably inclined toward Moscow and avoid criticism of other African countries inclined toward

the West by posing as defenders of the OAU's principle concerning territorial integrity.⁷⁶ (Potential African criticism of the Soviet intervention was further muted by the extensive use of "nonaligned" Cubans in combat roles).

Moreover, the Soviets not only succeeded in rescuing and embellishing their own prestige in the Mideast and Africa, they dealt a blow to U.S. international prestige. The U.S. was seen as indecisive as the Soviets seemed purposeful. The U.S. response to Soviet involvement was viewed by many as weak -- limited to vague enunciations of linkages between SALT and NALT.* This perception was shared by important regional actors like Saudi Arabia. One Saudi leader was quoted as saying:

Why is the United States stepping from one fiasco to another? In Ethiopia, in Somalia, in Afghanistan, the United States left the field to the Russians without as much as an attempt to stop them.⁷⁷

In peacetime, the perception of power is almost as important as the reality of power. In that respect, the So-

*Indeed, the perception of American weakness became so widespread that an "African leader," a character in a London stage play, Night and Day by Tom Stoppard, declares that American and British "cowardice in Africa stretches from Angola to Eritrea."

viets undoubtedly raised their international standing in the crisis -- at the expense of the United States.

Thus, it can be argued that the Soviets managed the crisis in a way that, considering the complexity of the problems involved, reflected favorably upon Moscow.

NOTES

1. Colin Lequm and Bill Lee, Conflict in the Horn of Africa (New York, London, 1978), 12.
2. Colin Lequm (ed.), Africa Contemporary Record: Annual Survey and Documents 1974-1975 (New York, 1975), B272.
3. Lequm and Lee, Conflict in the Horn of Africa, 10.
4. Washington Post, 5 March 1978, A1.
5. Washington Post, 28 February 1977, A20.
6. Washington Post, 18 March 1977, A19; Washington Post, 17 May 1977, A13.
7. Havana Radio, 15 March 1978, Foreign Broadcasting Information Service: Latin America, 16 March 1978, 016. Hereafter FBIS:LA.
8. Afrique-Asie, 13-26 June 1977, 10-14.
9. Washington Post, 5 March 1978, A1.
10. Ibid.
11. New York Times, 28 April 1977, 3.
12. TASS, 8 May 1977, Foreign Broadcasting Information Service: Soviet Union, 9 May 1977, H6. Hereafter FBIS:SU.
13. Washington Post, 5 March 1978, A1.
14. Washington Post, 25 May 1977, A1.
15. Afrique-Asie, 13-25 June 1977, 10-14.
16. Doha ONA, 24 November 1977, Foreign Broadcasting Information Service: Subsaharan Africa, 25 November 1977, B7. Hereafter FBIS:SSA.
17. Arab Report and Record, 16-31 March 1977, 224.

18. In April, President Carter instructed Vice President Mondale to "tell Cy [Vance] and Zbig [Brzezinski] that I want them to move in every possible way to get Somalia to be our friend." Time, 18 April 1977, A14; in June, Carter said in an interview that U.S. policy was to be one of aggressively challenging, in a peaceful way of course, the Soviet Union and others to influence in the areas of the world that we feel are crucial to us now, or potentially crucial: New York Times, 12 June 1977, 1.
19. New York Times, 27 July, 1977, 3; Manchester Guardian, 28 July 1977, 1; Washington Post, 1 September 1977, A25.
20. Washington Post, 27 September 1977, A14.
21. Ibid.
22. Granma, 14 March 1978, Joint Publications Research Service 70866, 30 March 1978, 30. Addis Ababa Radio, 24 July 1977, FBIS: SSA, 25 July 1977, B1-B2. Hereafter JPRS.
23. Addis Ababa Radio, 7 September 1977, FBIS:SSA, 8 September 1977, B1.
24. Moscow Radio, 18 August 1977, FBIS:SU, 19 August 1977, H1.
25. New York Times, 30 August 1977, 2.
26. October (Cairo), 11 September 1977.
27. New York Times, 25 September 1977, 2.
28. New York Times, 16 September 1977, A3.
29. Washington Post, 27 September 1977, A14.
30. Addis Ababa Radio, 19 October 1977, FBIS:SSA, 20 October 1977, B4.
31. New York Times, 27 November 1977, E3.
32. New York Times, 15 November 1977, 1.
33. Legum and Lee, Conflict in the Horn of Africa, 88.
34. Arab Report and Record, 1-31 October 1977, 859.

35. Moqadiscio Radio, 14 November 1977, FBIS:SSA, 14 November 1977, B3.
36. New York Times, 14 November 1977, 1.
37. In the meantime, the Somali-Ethiopian conflict and the deterioration of Soviet-Somali relations were the result of actions of "reactionary" Arab and "imperialist" states: Moscow Radio, 28 October 1977, FBIS:SU, 31 October 1977, H4.
38. For example, TASS, 11 October 1977, FBIS:SU, 15 November 1977, H1.
39. Newsweek, 13 February 1978, 48.
40. Washington Star, 17 January 1978, 2; New York Times, 25 February 1978, 1.
41. Foreign Report, 21 December 1977, 1.
42. Havana Radio, 15 March 1978, FBIS:LA, 16 March 1978, O7.
43. Washington Post, 25 May 1977, A1.
44. Manchester Guardian, 28 November 1977.
45. New York Times, 2 March 1978, A6; Washington Post, 3 March 1978, A1.
46. New York Times, 10 February 1978, 8.
47. New York Times, 11 February 1978, 1; New York Times, 17 February 1978, 1.
48. For example, Moscow Radio, 24 November 1976, FBIS:SU, 3 December 1976, A1-A2.
49. Legum and Lee, Conflict in the Horn of Africa, 41.
50. TASS, 12 July 1976, FBIS:SU, 13 July 1976, H1.
51. Washington Post, 5 March 1978, 1; TASS, 6 January 1977, FBIS:SU, 6 January 1977, H2.
52. The Soviet bitterly resented what they saw as U.S. efforts, in cooperation with Saudi Arabia, to displace them in Egypt. In reaction to Sadat's cancellation of the Soviet-Egyptian Treaty of Friendship and Cooperation, the Soviets charged that "...As-

Sadat's decision to abrogate the Soviet-Egyptian agreement came immediately following the U.S. pledge to render economic assistance to Egypt...and following Anwar As-Sadat's visit to Saudi Arabia where he secured a pledge for aid...." Moscow Radio, 15 March 1976, FBIS:SU, 16 March 1976, F1.

53. In January 1977, the Egypt-Sudan defense pact was formally signed after Numairyi claimed that Ethiopia was planning an invasion of the Sudan: Arab Report and Record, 1-15 January, 1977, 3; see also Arab Report and Record, 1-15 July 1976, 426; Arab Report and Record, 16-31 July 1976, 443.
54. Moscow Radio, 15 February 1977, FBIS:SU, 16 February 1977, B7-B8.
55. Ibid.
56. Moscow Radio, 14 June 1976, FBIS:SU, 16 June 1976, H5.
57. Pravda (Moscow), 22 March 1977.
58. TASS, 8 May 1977, FBIS:SU, 9 May 1977, H6.
59. Afrique-Asie, 13-26 June 1977, 10-14.
60. Manchester Guardian, 10 July 1977, 10.
61. TASS, 15 November 1977, FBIS:SSA, 15 November 1977, H1.
62. Quoted in Soviet World Outlook, 15 February 1978.
63. Newsweek, 13 February 1978, 45.
64. Washington Star, 24 January 1978, A4; Baltimore Sun, 4 February 1978, 1.
65. New York Times, 14 February 1978, 1.
66. See Granma, 14 March 1978, JPRS 70866, 30 March 1978, 30-38. I am grateful to Charles C. Petersen for this observation.
67. Istanbul Milliyet, 27 January 1978, Foreign Broadcasting Information Service: Western Europe, 30 January 1978, T2-T3; Newsweek, 23 January 1978, 35; Newsweek, 17 July 1978, 54; Foreign Report, 11 January 1978, 5-6.

68. London Times, 12 February 1978, 9.
69. Statement of Rear Admiral S. Shapiro, Director of Naval Intelligence Before the Seapower Committee of the House Armed Services Committee, 12.
70. New York Times, 11 February 1978, 1.
71. Arab Report and Record, 1-15 January 1978, 19.
72. House Committee on International Relations, War in the Horn of Africa: A Firsthand Report on the Challenges for United States Policy, (Washington, DC, 1978), 39-40.
73. Africa, March 1978, 18-19.
74. Moscow Radio, 30 March 1978, FBIS:SU, 3 April 1978, B9.
75. Mogadiscio Radio, 20 January 1979, FBIS:SSA, 23 January 1979, B4.
76. U.S. efforts to get some African nations to condemn the Soviet and Cuban intervention failed because Moscow and Havana were seen as defending Ethiopia's territorial integrity. Elizabeth Drew, "A Reporter at Large: Brzezinski," in New Yorker, 1 May 1978, 114.
77. New York Times, 20 March 1979, A8.

CNA Professional Papers - 1973 to Present*

- PP 103
Friedheim, Robert L., "Political Aspects of Ocean Ecology" 48 pp., Feb 1973, published in *Who Protects the Oceans*, John Lawrence Hargrove (ed.) (St Paul West Publ'g Co., 1974), published by the American Society of International Law AD 757 936
- PP 104
Schick, Jack M., "A Review of James Cable, Gunboat Diplomacy Political Applications of Limited Naval Forces," 5 pp., Feb 1973, (Reviewed in the American Political Science Review, Vol. LXVI, Dec 1972)
- PP 105
Corn, Robert J. and Phillips, Gary R., "On Optimal Correction of Gunfire Errors," 22 pp., Mar 1973, AD 761 674
- PP 106
Stoloff, Peter H., "User's Guide for Generalized Factor Analysis Program (FACTAN)," 35 pp., Feb 1973, (Includes an addendum published Aug 1974) AD 758 824
- PP 107
Stoloff, Peter H., "Relating Factor Analytically Derived Measures to Exogenous Variables," 17 pp., Mar 1973, AD 758 820
- PP 108
McConnell, James M. and Kelly, Anne M., "Superpower Naval Diplomacy in the Indo-Pakistani Crisis," 14 pp., 5 Feb 1973, (Published, with revisions, in *Survival*, Nov/Dec 1973) AD 761 675
- PP 109
Berghofer, Fred G., "Salaries—A Framework for the Study of Trend," 8 pp., Dec 1973, (Published in *Review of Income and Wealth*, Series 18, No. 4, Dec 1972)
- PP 110
Augusta, Joseph, "A Critique of Cost Analysis," 9 pp., Jul 1973, AD 766 376
- PP 111
Henrick, Robert W., "The USSR's 'Blue Belt of Defense' Concept: A Unified Military Plan for Defense Against Seaborne Nuclear Attack by Strike Carriers and Polaris/Poseidon SSBNs," 18 pp., May 1973, AD 766 375
- PP 112
Ginsberg, Lawrence H., "ELF Atmosphere Noise Level Statistics for Project SANGUINE," 29 pp., Apr 1974, AD 786 969
- PP 113
Ginsberg, Lawrence H., "Propagation Anomalies During Project SANGUINE Experiments," 5 pp., Apr 1974, AD 786 968
- PP 114
Maloney, Arthur P., "Job Satisfaction and Job Turnover," 41 pp., Jul 1973, AD 768 410
- PP 115
Silverman, Lester P., "The Determinants of Emergency and Elective Admissions to Hospitals," 145 pp., 18 Jul 1973, AD 766 377
- PP 116
Rehm, Allan S., "An Assessment of Military Operations Research in the USSR," 19 pp., Sep 1973, (Reprinted from *Proceedings, 30th Military Operations Research Symposium (U)*, Secret Dec 1972) AD 770 116
- PP 117
McWhite, Peter B. and Ratliff, H. Donald, "Defending a Logistics System Under Mining Attack," 24 pp., Aug 1976 (to be submitted for publication in *Naval Research Logistics Quarterly*), presented at 44th National Meeting, Operations Research Society of America, November 1973, AD A030 454
*University of Florida
**Research supported in part under Office of Naval Research Contract N00014 68 0271 0017
- PP 118
Barfoot, C. Bernard, "Markov Duels," 18 pp., Apr 1973, (Reprinted from *Operations Research*, Vol 22, No. 2, Mar-Apr 1974)
- PP 119
Stoloff, Peter and Lockman, Robert F., "Development of Navy Human Relations Questionnaire," 2 pp., May 1974, (Published in *American Psychological Association Proceedings, 81st Annual Convention*, 1973) AD 779 240
- PP 120
Smith, Michael W. and Schrimper, Ronald A., "Economic Analysis of the Intracity Dispersion of Criminal Activity," 30 pp., Jun 1974, (Presented at the Econometric Society Meetings, 30 Dec 1973) AD 780 538
*Economics, North Carolina State University
- PP 121
Devine, Eugene J., "Procurement and Retention of Navy Physicians," 21 pp., Jun 1974, (Presented at the 49th Annual Conference, Western Economic Association, Las Vegas, Nev., 10 Jun 1974) AD 780 539
- PP 122
Kelly, Anne M., "The Soviet Naval Presence During the Iraq-Kuwait Border Dispute: March-April 1973," 34 pp., Jun 1974, (Published in *Soviet Naval Policy*, ed. Michael McGwire, New York: Praeger) AD 780 592
- PP 123
Petersen, Charles C., "The Soviet Port-Clearing Operation in Bangladesh, March 1972-December 1973," 35 pp., Jun 1974, (Published in Michael McGwire, et al. (eds) *Soviet Naval Policy: Objectives and Constraints*, (New York: Praeger Publishers, 1974) AD 780 540
- PP 124
Friedheim, Robert L. and Jehn, Mary E., "Anticipating Soviet Behavior at the Third U.N. Law of the Sea Conference: USSR Positions and Dilemmas," 37 pp., 10 Apr 1974, (Published in *Soviet Naval Policy*, ed. Michael McGwire, New York: Praeger) AD 783 701
- PP 125
Weinland, Robert G., "Soviet Naval Operations—Ten Years of Change," 17 pp., Aug 1974, (Published in *Soviet Naval Policy*, ed. Michael McGwire, New York: Praeger) AD 783 962
- PP 126 Classified
- PP 127
Dragnich, George S., "The Soviet Union's Quest for Access to Naval Facilities in Egypt Prior to the June War of 1967," 64 pp., Jul 1974, AD 786 318
- PP 128
Stoloff, Peter and Lockman, Robert F., "Evaluation of Naval Officer Performance," 11 pp., (Presented at the 82nd Annual Convention of the American Psychological Association, 1974) Aug 1974, AD 784 012
- PP 129
Holen, Arlene and Horowitz, Stanley, "Partial Unemployment Insurance Benefits and the Extent of Partial Unemployment," 4 pp., Aug 1974, (Published in the *Journal of Human Resources*, Vol IX, No. 3, Summer 1974) AD 784 010
- PP 130
Dismukes, Bradford, "Roles and Missions of Soviet Naval General Purpose Forces in Wartime Pro-SSBN Operation," 20 pp., Aug 1974, AD 786 320
- PP 131
Weinland, Robert G., "Analysis of Gorshkov's *Navies in War and Peace*," 45 pp., Aug 1974, (Published in *Soviet Naval Policy*, ed. Michael McGwire, New York: Praeger) AD 786 319
- PP 132
Kleinman, Samuel D., "Racial Differences in Hours Worked in the Market: A Preliminary Report," 77 pp., Feb 1975, (Paper read on 26 Oct 1974 at Eastern Economic Association Convention in Albany, N.Y.) AD A 005 517
- PP 133
Squires, Michael L., "A Stochastic Model of Regime Change in Latin America," 42 pp., Feb 1975, AD A 007 912
- PP 134
Root, R. M. and Cuniff, P. F., "A Study of the Shock Spectrum of a Two-Degree-of-Freedom Non-linear Vibratory System," 39 pp., Dec 1975, (Published in the condensed version of *The Journal of the Acoustic Society*, Vol 60, No. 6, Dec 1976, pp. 1314
*Department of Mechanical Engineering, University of Maryland
- PP 135
Goudreau, Kenneth A.; Kuzmack, Richard A.; Wiedemann, Karen, "Analysis of Closure Alternatives for Naval Stations and Naval Air Stations," 47 pp., 3 Jun 1975 (Reprinted from "Hearing before the Subcommittee on Military Construction of the Committee on Armed Service," U.S. Senate, 93rd Congress, 1st Session, Part 2, 22 Jun 1973)
- PP 136
Stallings, William, "Cybernetics and Behavior Therapy," 13 pp., Jun 1975
- PP 137
Petersen, Charles C., "The Soviet Union and the Reopening of the Suez Canal: Minaclearing Operations in the Gulf of Suez," 30 pp., Aug 1975, AD A 015 376

*CNA Professional Papers with an AD number may be obtained from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151. Other papers are available from the author at the Center for Naval Analyses, 2000 North Beauregard Street, Alexandria, Virginia 22311.

- PP 138
Stallings, William, "BRIDGE: An Interactive Dialogue Generation Facility," 5 pp., Aug 1975 (Reprinted from IEEE Transactions on Systems, Man, and Cybernetics, Vol. 5, No. 3, May 1975)
- PP 139
Morgan, William F., Jr., "Beyond Folklore and Fables in Forestry to Positive Economics," 14 pp., (Presented at Southern Economic Association Meetings November, 1974) Aug 1975, AD A 015 293
- PP 140
Mahoney, Robert and Druckman, Daniel, "Simulation, Experimentation, and Context," 36 pp., 1 Sep 1975, (Published in Simulation & Games, Vol. 6, No. 3, Sep 1975)
*Mathematica Inc.
- PP 141
Mizrahi, Maurice M., "Generalized Hermite Polynomials," 5 pp., Feb 1976 (Reprinted from the Journal of Computational and Applied Mathematics, Vol. 1, No. 4 (1975), 273-277).
*Research supported by the National Science Foundation
- PP 142
Lockman, Robert F., Jehn, Christopher, and Shughart, William F. II, "Models for Estimating Premature Losses and Recruiting District Performance," 36 pp., Dec 1975 (Presented at the RAND Conference on Defense Manpower, Feb 1976; to be published in the conference proceedings) AD A 020 443
- PP 143
Horowitz, Stanley and Sherman, Allan (LCdr., USN), "Maintenance Personnel Effectiveness in the Navy," 33 pp., Jan 1976 (Presented at the RAND Conference on Defense Manpower, Feb 1976; to be published in the conference proceedings) AD A021 581
- PP 144
Durch, William J., "The Navy of the Republic of China - History, Problems, and Prospects," 66 pp., Aug 1976 (To be published in "A Guide to Asiatic Fleets," ed. by Barry M. Blechman; Naval Institute Press) AD A030 460
- PP 145
Kelly, Anne M., "Port Visits and the "Internationalist Mission" of the Soviet Navy," 36 pp., Apr 1976 AD A023 436
- PP 146
Palmour, Vernon E., "Alternatives for Increasing Access to Scientific Journals," 6 pp., Apr 1975 (Presented at the 1975 IEEE Conference on Scientific Journals, Cherry Hill, N.C., Apr 28-30; published in IEEE Transactions on Professional Communication, Vol. PC-18, No. 3, Sep 1975) AD A021 798
- PP 147
Kessler, J. Christian, "Legal Issues in Protecting Offshore Structures," 33 pp., Jun 1976 (Prepared under task order N00014-68-A-0091-0023 for ONR) AD A028 389
- PP 148
McConnell, James M., "Military-Political Tasks of the Soviet Navy in War and Peace," 62 pp., Dec 1975 (Published in Soviet Oceans Development Study of Senate Commerce Committee October 1976) AD A022 590
- PP 149
Squires, Michael L., "Counterforce Effectiveness: A Comparison of the Tsipis "K" Measure and a Computer Simulation," 24 pp., Mar 1976 (Presented at the International Study Association Meetings, 27 Feb 1976) AD A022 591
- PP 150
Kelly, Anne M. and Petersen, Charles, "Recent Changes in Soviet Naval Policy: Prospects for Arms Limitations in the Mediterranean and Indian Ocean," 28 pp., Apr 1976, AD A 023 723
- PP 151
Horowitz, Stanley A., "The Economic Consequences of Political Philosophy," 8 pp., Apr 1976 (Reprinted from Economic Inquiry, Vol. XIV, No. 1, Mar 1976)
- PP 152
Mizrahi, Maurice M., "On Path Integral Solutions of the Schrodinger Equation, Without Limiting Procedure," 10 pp., Apr 1976 (Reprinted from Journal of Mathematical Physics, Vol. 17, No. 4 (Apr 1976), 566-575).
*Research supported by the National Science Foundation
- PP 153
Mizrahi, Maurice M., "WKB Expansions by Path Integrals, With Applications to the Anharmonic Oscillator," 137 pp., May 1976, AD A025 440
*Research supported by the National Science Foundation
- PP 154
Mizrahi, Maurice M., "On the Semi-Classical Expansion in Quantum Mechanics for Arbitrary Hamiltonians," 19 pp., May 1976 (Published in Journal of Mathematical Physics, Vol. 18, No. 4, p. 786, Apr 1977), AD A025 441
- PP 155
Squires, Michael L., "Soviet Foreign Policy and Third World Nations," 26 pp., Jun 1976 (Prepared for presentation at the Midwest Political Science Association meetings, Apr 30, 1976) AD A028 388
- PP 156
Stallings, William, "Approaches to Chinese Character Recognition," 12 pp., Jun 1976 (Reprinted from Pattern Recognition (Pergamon Press), Vol. 8, pp. 87-96, 1976) AD A028 692
- PP 157
Morgan, William F., "Unemployment and the Pentagon Budget: Is There Anything in the Empty Pork Barrel?" 20 pp., Aug 1976 AD A030 455
- PP 158
Haskell, LCdr. Richard D. (USN), "Experimental Validation of Probability Predictions," 25 pp., Aug 1976 (Presented at the Military Operations Research Society Meeting, Fall 1976) AD A030 458
- PP 159
McConnell, James M., "The Gorskov Articles, The New Gorskov Book and Their Relation to Policy," 93 pp., Jul 1976 (Published in Soviet Naval Influence: Domestic and Foreign Dimensions, ed. by M. McGwire and J. McDonnell, New York: Praeger, 1977) AD A029 227
- PP 160
Wilson, Desmond P., Jr., "The U.S. Sixth Fleet and the Conventional Defense of Europe," 50 pp., Sep 1976 (Submitted for publication in Adelphi Papers, I.I.S.S., London) AD A030 457
- PP 161
Melich, Michael E. and Peet, Vice Adm. Ray (USN, Retired), "Fleet Commanders Afloat or Ashore?" 9 pp., Aug 1976 (Reprinted from U.S. Naval Institute Proceedings Jun 1976) AD A030 456
- PP 162
Friedheim, Robert L., "Parliamentary Diplomacy," 106 pp., Sep 1976 AD A033 306
- PP 163
Lockman, Robert F., "A Model for Predicting Recruit Losses," 9 pp., Sep 1976 (Presented at the 84th annual convention of the American Psychological Association, Washington, D.C., 4 Sep 1976) AD A030 459
- PP 164
Mahoney, Robert B., Jr., "An Assessment of Public and Elite Perceptions in France, The United Kingdom, and the Federal Republic of Germany," 31 pp., Feb 1977 (Presented at Conference "Perception of the U.S. - Soviet Balance and the Political Uses of Military Power" sponsored by Director, Advanced Research Projects Agency, April 1976) AD A036 599
- PP 165
Jondrow, James M., "Effects of Trade Restrictions on Imports of Steel," 67 pp., November 1976, (Delivered at ILAB Conference in Dec 1976)
- PP 166
Feldman, Paul, "Impediments to the Implementation of Desirable Changes in the Regulation of Urban Public Transportation," 12 pp., Oct 1976, AD A033 322
- PP 166 - Revised
Feldman, Paul, "Why It's Difficult to Change Regulation," Oct 1976
- PP 167
Kleinman, Samuel, "ROTC Service Commitments: A Comment," 4 pp., Nov 1976, (To be published in Public Choice, Vol. XXIV, Fall 1976) AD A033 305
- PP 168
Lockman, Robert F., "Revalidation of CNA Support Personnel Selection Measures," 36 pp., Nov 1976
- PP 169
Jacobson, Louis S., "Earnings Losses of Workers Displaced from Manufacturing Industries," 38 pp., Nov 1976, (Delivered at ILAB Conference in Dec 1976), AD A039 809
- PP 170
Brechtling, Frank P., "A Time Series Analysis of Labor Turnover," Nov 1976, (Delivered at ILAB Conference in Dec 1976)
- PP 171
Ralston, James M., "A Diffusion Model for GaP Red LED Degradation," 10 pp., Nov 1976, (Published in Journal of Applied Physics, Vol. 47, pp. 4518-4527, Oct 1976)

- PP 172
Classen, Kathleen P., "Unemployment Insurance and the Length of Unemployment," Dec 1976, (Presented at the University of Rochester Labor Workshop on 16 Nov 1976)
- PP 173
Kleinman, Samuel D., "A Note on Racial Differences in the Added-Worker/Discouraged-Worker Controversy," 2 pp., Dec 1976, (Published in the *American Economist*, Vol. XX, No. 1, Spring 1976)
- PP 174
Mahoney, Robert B., Jr., "A Comparison of the Brookings and International Incidents Projects," 12 pp., Feb 1977 AD 037 206
- PP 175
Levine, Daniel; Stoloff, Peter and Spruill, Nancy, "Public Drug Treatment and Addict Crime," June 1976, (Published in *Journal of Legal Studies*, Vol. 5, No. 2)
- PP 176
Felix, Wendi, "Correlates of Retention and Promotion for USNA Graduates," 38 pp., Mar 1977, AD A039 040
- PP 177
Lockman, Robert F. and Warner, John T., "Predicting Attrition: A Test of Alternative Approaches," 33 pp., Mar 1977, (Presented at the OSD/ONR Conference on Enlisted Attrition Xerox International Training Center, Leesburg, Virginia, 4-7 April 1977), AD A039 047
- PP 178
Kleinman, Samuel D., "An Evaluation of Navy Unrestricted Line Officer Accession Programs," 23 pp., April 1977, (To be presented at the NATO Conference on Manpower Planning and Organization Design, Stresa, Italy, 20 June 1977), AD A039 048
- PP 179
Stoloff, Peter H. and Belut, Stephen J., "Vacate: A Model for Personnel Inventory Planning Under Changing Management Policy," 14 pp., April 1977, (Presented at the NATO Conference on Manpower Planning and Organization Design, Stresa, Italy, 20 June 1977), AD A039 049
- PP 180
Horowitz, Stanley A. and Sherman, Allan, "The Characteristics of Naval Personnel and Personnel Performance," 16 pp., April 1977, (Presented at the NATO Conference on Manpower Planning and Organization Design, Stresa, Italy, 20 June 1977), AD A039 050
- PP 181
Belut, Stephen J. and Stoloff, Peter, "An Inventory Planning Model for Navy Enlisted Personnel," 35 pp., May 1977, (Prepared for presentation at the Joint National Meeting of the Operations Research Society of America and The Institute for Management Sciences, 9 May 1977, San Francisco, California), AD A042 221
- PP 182
Murray, Russell, 2nd, "The Quest for the Perfect Study or My First 1138 Days at CNA," 57 pp., April 1977
- PP 183
Kassing, David, "Changes in Soviet Naval Forces," 33 pp., November, 1976, (Published as part of Chapter 3, "General Purpose Forces: Navy and Marine Corps," in *Arms, Men, and Military Budgets*, Francis P. Hoebel and William Schneider, Jr. (eds.), (Crane, Russak & Company, Inc.: New York), 1977), AD A040 106
- PP 184
Lockman, Robert F., "An Overview of the OSD/ONR Conference on First Term Enlisted Attrition," 22 pp., June 1977, (Presented to the 39th MORS Working Group on Manpower and Personnel Planning, Annapolis, Md., 28-30 June 1977), AD A043 618
- PP 185
Kassing, David, "New Technology and Naval Forces in the South Atlantic," 22 pp., (This paper was the basis for a presentation made at the Institute for Foreign Policy Analyses, Cambridge, Mass., 28 April 1977), AD A043 619
- PP 186
Mizrahi, Maurice M., "Phase Space Integrals, Without Limiting Procedure," 31 pp., May 1977, (Invited paper presented at the 1977 NATO Institute on Path Integrals and Their Application in Quantum Statistical, and Solid State Physics, Antwerp, Belgium, July 17-30, 1977) (Published in *Journal of Mathematical Physics* 19(1), p. 298, Jan 1978), AD A040 107
- PP 187
Coile, Russell C., "Nomography for Operations Research," 35 pp., April 1977, (Presented at the Joint National Meeting of the Operations Research Society of America and The Institute for Management Sciences, San Francisco, California, 9 May 1977), AD A043 620
- PP 188
Durch, William J., "Information Processing and Outcome Forecasting for Multilateral Negotiations: Testing One Approach," 53 pp., May 1977 (Prepared for presentation to the 18th Annual Convention of the International Studies Association, Chase-Park Plaza Hotel, St. Louis, Missouri, March 16-20, 1977), AD A042 222
- PP 189
Coile, Russell C., "Error Detection in Computerized Information Retrieval Data Bases," July, 1977, 13 pp. Presented at the Sixth Cranfield International Conference on Mechanized Information Storage and Retrieval Systems, Cranfield Institute of Technology, Cranfield, Bedford, England, 26-29 July 1977, AD A043 580
- PP 190
Mahoney, Robert B., Jr., "European Perceptions and East-West Competition," 96 pp., July 1977 (Prepared for presentation at the annual meeting of the International Studies Association, St. Louis, Mo., March, 1977), AD A043 661
- PP 191
Sawyer, Ronald, "The Independent Field Assignment: One Man's View," August 1977, 25 pp.
- PP 192
Holen, Arlene, "Effects of Unemployment Insurance Entitlement on Duration and Job Search Outcome," August 1977, 6 pp., (Reprinted from *Industrial and Labor Relations Review*, Vol. 30, No. 4, Jul 1977)
- PP 193
Horowitz, Stanley A., "A Model of Unemployment Insurance and the Work Test," August 1977, 7 pp. (Reprinted from *Industrial and Labor Relations Review*, Vol. 30, No. 4, Jul 1977)
- PP 194
Classen, Kathleen P., "The Effects of Unemployment Insurance on the Duration of Unemployment and Subsequent Earnings," August 1977, 3 pp. (Reprinted from *Industrial and Labor Relations Review*, Vol. 30, No. 4, Jul 1977)
- PP 195
Brechtling, Frank, "Unemployment Insurance Taxes and Labor Turnover: Summary of Theoretical Findings," 12 pp. (Reprinted from *Industrial and Labor Relations Review*, Vol. 30, No. 4, Jul 1977)
- PP 196
Ralston, J. M. and Lorimer, D. G., "Degradation of Bulk Electroluminescent Efficiency in Zn, O-Doped GaP LEDs," July 1977, 3 pp. (Reprinted from *IEEE Transactions on Electron Devices*, Vol. ED-24, No. 7, July 1977)
- PP 197
Wells, Anthony R., "The Centre for Naval Analyses," 14 pp., Dec 1977, AD A049 107
- PP 198
Classen, Kathleen P., "The Distributional Effects of Unemployment Insurance," 25 pp., Sept. 1977 (Presented at a Hoover Institution Conference on Income Distribution, Oct 7-8, 1977)
- PP 199
Durch, William J., "Revolution From A.F.A.R. - The Cuban Armed Forces in Africa and the Middle East," Sep 1977, 16 pp., AD A046 268
- PP 200
Powers, Bruce F., "The United States Navy," 40 pp., Dec 1977, (To be published as a chapter in *The U.S. War Machine* by Salamander Books in England during 1978), AD A049 108
- PP 201
Durch, William J., "The Cuban Military in Africa and The Middle East: From Algeria to Angola," Sep 1977, 67 pp., AD A045 675
- PP 202
Feldman, Paul, "Why Regulation Doesn't Work," (Reprinted from *Technological Change and Welfare in the Regulated Industries and Review of Social Economy*, Vol. XXI(X, March, 1971, No. 1.) Sep 1977, 8 pp.
- PP 203
Feldman, Paul, "Efficiency, Distribution, and the Role of Government in a Market Economy," (Reprinted from *The Journal of Political Economy*, Vol. 79, No. 3, May/June 1971.) Sep 1977, 19 pp., AD A045 675

- PP 204
Wells, Anthony R., "The 1967 June War: Soviet Naval Diplomacy and The Sixth Fleet - A Reappraisal," Oct 1977, 36 pp., AD A047 236
- PP 205
Coile, Russell C., "A Bibliometric Examination of the Square Root Theory of Scientific Publication Productivity," (Presented at the annual meeting of the American Society for Information Science, Chicago, Illinois, 29 September 1977.) Oct 1977, 6 pp., AD A047 237
- PP 206
McConnell, James M., "Strategy and Missions of the Soviet Navy in the Year 2000," 48 pp., Nov 1977, (Presented at a Conference on Problems of Sea Power as we Approach the 21st Century, sponsored by the American Enterprise Institute for Public Policy Research, 6 October 1977, and subsequently published in a collection of papers by the Institute), AD A047 244
- PP 207
Goldberg, Lawrence, "Cost-Effectiveness of Potential Federal Policies Affecting Research & Development Expenditures in the Auto, Steel and Food Industries," 36 pp., Oct 1977, (Presented at Southern Economic Association Meetings beginning 2 November 1977)
- PP 208
Roberts, Stephen S., "The Decline of the Overseas Station Fleets: The United States Asiatic Fleet and the Shanghai Crisis, 1932," 18 pp., Nov 1977, (Reprinted from The American Neptune, Vol. XXXVII., No. 3, July 1977), AD A047 245
- PP 209 - Classified.
- PP 210
Kessing, David, "Protecting The Fleet," 40 pp., Dec 1977 (Prepared for the American Enterprise Institute Conference on Problems of Sea Power as We Approach the 21st Century, October 6-7, 1977), AD A049 109
- PP 211
Mizrahi, Maurice M., "On Approximating the Circular Coverage Function," 14 pp., Feb 1978
- PP 212
Mangel, Marc, "On Singular Characteristic Initial Value Problems with Unique Solutions," 20 pp., Jun 1978 (To be submitted for publication in Journal of Mathematical Analysis and Its Applications)
- PP 213
Mangel, Marc, "Fluctuations in Systems with Multiple Steady States. Application to Lancheester Equations," 12 pp., Feb 78, (Presented at the First Annual Workshop on the Information Linkage Between Applied Mathematics and Industry, Naval PG School, Feb 23-25, 1978)
- PP 214
Weinland, Robert G., "A Somewhat Different View of The Optimal Naval Posture," 37 pp., Jun 1978 (Presented at the 1978 Convention of the American Political Science Association (APSA/IUS Panel on "Changing Strategic Requirements and Military Posture"), Chicago, Ill., September 2, 1978)
- PP 215
Coile, Russell C., "Comments on: *Principles of Information Retrieval* by Manfred Kochen, 10 pp., Mar 78, (Published as a Letter to the Editor, Journal of Documentation, Vol. 31, No. 4, pages 298-301, December 1975)
- PP 216
Coile, Russell C., "Lotka's Frequency Distribution of Scientific Productivity," 18 pp., Feb 1978, (Published in the Journal of the American Society for Information Science, Vol. 28, No. 6, pp. 366-370, November 1977)
- PP 217
Coile, Russell C., "Bibliometric Studies of Scientific Productivity," 17 pp., Mar 78, (Presented at the Annual meeting of the American Society for Information Science held in San Francisco, California, October 1976.)
- PP 218 - Classified.
- PP 219
Huntzinger, R. LaVar, "Market Analysis with Rational Expectations: Theory and Estimation," 60 pp., Apr 78 (To be submitted for publication in Journal of Econometrics)
- PP 220
Maurer, Donald E., "Diagonalization by Group Matrices," 26 pp., Apr 78
- PP 221
Weinland, Robert G., "Superpower Naval Diplomacy in the October 1973 Arab-Israeli War," 76 pp., Jun 1978
- PP 222
Mizrahi, Maurice M., "Correspondence Rules and Path Integrals," 30 pp., Jun 1978 (Invited paper presented at the CNRS meeting on "Mathematical Problems in Feynman's Path Integrals," Marseille, France, May 22-26, 1978)
- PP 223
Mangel, Marc, "Stochastic Mechanics of Molecule-Molecule Reactions," 21 pp., Jun 1978 (To be submitted for publication in Journal of Mathematical Physics)
- PP 224
Mangel, Marc, "Aggregation, Bifurcation, and Extinction in Exploited Animal Populations," 48 pp., Mar 1978 (To be submitted for publication in American Naturalist)
"Portions of this work were started at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, B.C., Canada"
- PP 225
Mangel, Marc, "Oscillations, Fluctuations, and the Hopf Bifurcation," 43 pp., Jun 1978
"Portions of this work were completed at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, Canada"
- PP 226
Ralston, J. M. and J. W. Mann*, "Temperature and Current Dependence of Degradation in Red-Emitting GaP LEDs," 34 pp., Jun 1978
- PP 227
Mangel, Marc, "Uniform Treatment of Fluctuations at Critical Points," 50 pp., May 1978 (To be submitted for publication in Journal of Statistical Physics)
- PP 228
Mangel, Marc, "Relaxation at Critical Points: Deterministic and Stochastic Theory," 54 pp., Jun 1978 (To be submitted for publication in Journal of Mathematical Physics)
- PP 229
Mangel, Marc, "Diffusion Theory of Reaction Rates. I. Formulation and Einstein-Smoluchowski Approximation," 50 pp., Jan 1978
- PP 230
Mangel, Marc, "Diffusion Theory of Reaction Rates. II. Ornstein-Uhlenbeck Approximation," 34 pp., Feb 1978
- PP 231
Wilson, Desmond P., Jr., "Naval Projection Forces: The Case for a Responsive MAF," Aug 1978
- PP 232
Jacobson, Louis, "Can Policy Changes be Made Acceptable to Labor?" Aug 1978 (To be submitted for publication in Industrial and Labor Relations Review)
- PP 233
Jacobson, Louis, "An Alternative Explanation of the Cyclical Pattern of Quits," 23 pp., Sep 1978
- PP 234
Jondrow, James and Levy, Robert A., "Does Federal Expenditure Displace State and Local Expenditure: The Case of Construction Grants," 18 pp., Oct 1978 (To be submitted for publication in Journal of Public Economics)
- PP 235
Mizrahi, Maurice M., "The Semiclassical Expansion of the Anharmonic-Oscillator Propagator," 41 pp., Oct 1978 (To appear in the Journal of Mathematical Physics)
- PP 237
Maurer, Donald, "A Matrix Criterion for Normal Integral Bases," 10 pp., Jan 1979
- PP 238
Utgoft, Kathleen Classen, "Unemployment Insurance and The Employment Rate," 20 pp., Oct 1978
- PP 239
Trost, R. P. and Warner, J. T., "The Effects of Military Occupational Training on Civilian Earnings: An Income Selectivity Approach," 38 pp., Nov 1978 (To be submitted for publication in Review of Economics and Statistics)
- PP 240
Powers, Bruce, "Goals of the Center for Naval Analyses," 13 pp., Dec 1978
- PP 241
Mangel, Marc, "Fluctuations at Chemical Instabilities," 24 pp., Dec 1978 (Published in Journal of Chemical Physics, Vol. 69, No. 8, Oct 15, 1978)

- PP 242
Simpson, William R. "The Analysis of Dynamically Interactive Systems (Air Combat by the Numbers)." 160 pp. Dec 1978
- PP 243
Simpson, William R. "A Probabilistic Formulation of Murphy Dynamics as Applied to the Analysis of Operational Research Problems." 18 pp. Dec 1978 (Submitted for publication in *The Journal of Irreproducible Results*)
- PP 244
Sherman, Allan and Horowitz, Stanley A. "Maintenance Costs of Complex Equipment." 20 pp. Dec 1978
- PP 245
Simpson, William R. "The Accelerometer Methods of Obtaining Aircraft Performance from Flight Test Data (Dynamic Performance Testing)." 403 pp. Jun 1979
- PP 246
Brechling, Frank. "Layoffs and Unemployment Insurance." 35 pp. Feb 1979
- PP 248
Thomas, James A., Jr. "The Transport Properties of Dilute Gases in Applied Fields." 183 pp. Mar 1979
- PP 249
Glasser, Kenneth S. "A Secretary Problem with a Random Number of Choices." 23 pp. Mar 1979 (Submitted for publication in *Journal of the American Statistical Association*)
- PP 250
Mangel, Marc. "Modeling Fluctuations in Macroscopic Systems." 26 pp. Jun 1979
- PP 251
Trost, Robert P. "The Estimation and Interpretation of Several Selectivity Models." 37 pp. Jun 1979
- PP 252
Nunn, Walter R. "Position Finding with Prior Knowledge of Covariance Parameters." 5 pp. Jun 1979
- PP 253
Glasser, Kenneth S. "The d Choice Secretary Problem." 32 pp. Jun 1979
- PP 254
Mangel, Marc and Quanbeck, David B. "Integration of a Bivariate Normal Over an Offset Circle." 14
- PP 255 - Classified
- PP 256
Maurer, Donald E. "Using Personnel Distribution Models." 27 pp. Feb 1980
- PP 257
Thaler, R. "Discounting and Fiscal Constraints: Why Discounting is Always Right." 10 pp. Aug 1979
- PP 258
Mangel, Marc S. and Thomas, James A., Jr. "Analytical Methods in Search Theory." 86 pp. Nov 1979
- PP 259
Glass, David V., Hsu, Th Ching, Nunn, Walter H. and Perry, David A. "A Class of Commutative Markov Matrices." 17 pp. Nov 1979 (To be submitted for publication in *Operations Research*)
- PP 260
Mangel, Marc S. and Cope, David K. "Detection Rate and Sweep Width in Visual Search." 14 pp. Nov 1979
- PP 261
Vila, Carlos L., Zvjac, David J. and Row, John. "Franck-Condon Theory of Chemical Dynamics. VI. Angular Distributions of Reaction Products." 14 pp. Nov 1979 (Reprinted from *Journal Chem Phys* 70(12), 15 Jun 1979)
- PP 262
Petersen, Charles C. "Third World Military Elites in Soviet Perspective." 50 pp. Nov 1979 (To be submitted for publication in *International Security*)
- PP 263
Robinson, Kathy L. "Using Commercial Tankers and Containerships for Navy Underway Replenishment." 25 pp. Nov 1979 (To be submitted for publication in the *Naval Engineering Journal*)
- PP 264
Weinland, Robert G. "The U.S. Navy in the Pacific: Past, Present, and Glimpses of the Future." 31 pp. Nov 1979
- PP 265
Weinland, Robert G. "War and Peace in the North: Some Political Implications of the Changing Military Situation in Northern Europe." 18 pp. Nov 1979
- PP 266
Utgoff, Kathy, Classen, and Brechling, Frank. "Taxes and Inflation." 25 pp. Nov 1979
- PP 267
Trost, Robert P. and Vogel, Robert C. "The Response of State Government Receipts to Economic Fluctuations and the Allocation of Counter-Cyclical Revenue Sharing Grants." 12 pp. Dec 1979 (Reprinted from the *Review of Economics and Statistics*, Vol. LXI, No. 3, August 1979)
- PP 268
Thomason, James S. "Seaport Dependence and Inter-State Cooperation: The Case of Sub-Saharan Africa." 141 pp. Jan 1980
- PP 269
Weiss, Kenneth G. "The Soviet Involvement in the Ogaden War." 42 pp. Jan 1980
- PP 270
Remnek, Richard. "Soviet Policy in the Horn of Africa: The Decision to Intervene." 52 pp. Jan 1980 (To be published in "Soviet Policy in the Third World: Success and Failure")
- PP 271
McConnell, James. "Soviet and American Strategic Doctrines: One More Time." 43 pp. Jan 1980